OECD
Tax Policy Studies

Corporate Tax Incentives for Foreign Direct Investment

TAXATION



OECD

No. 4

© OECD, 2001.

© Software: 1987-1996, Acrobat is a trademark of ADOBE.

All rights reserved. OECD grants you the right to use one copy of this Program for your personal use only. Unauthorised reproduction, lending, hiring, transmission or distribution of any data or software is prohibited. You must treat the Program and associated materials and any elements thereof like any other copyrighted material.

All requests should be made to:

Head of Publications Service,
OECD Publications Service,
2, rue André-Pascal,
75775 Paris Cedex 16, France.

OECD Tax Policy Studies

Corporate Tax Incentives for Foreign Direct Investment

No. 4

OECD

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- To achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy.
- To contribute to sound economic expansion in Member as well as non-member countries in the process of economic development. And
- To contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became Members subsequently through accession at the dates indicated hereafter: Japan (28th April 1964), Finland (28th January 1969), Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995), Hungary (7th May 1996), Poland (22nd November 1996), Korea (12th December 1996) and the Slovak Republic (14th December 2000). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

Publié en français sous le titre :
IMPÔTS SUR LES SOCIÉTÉS ET INVESTISSEMENT DIRECT ÉTRANGER
L'utilisation d'incitations fiscales – N° 4

© OECD 2001
Permission to reproduce a portion of this work for non-commercial purposes or classroom use should be obtained through the Centre français d'exploitation du droit de copie (CFC), 20, rue des Grands-Augustins, 75006 Paris, France, tel. (33-1) 44 07 47 70, fax (33-1) 46 34 67 19, for every country except the United States. In the United States permission should be obtained through the Copyright Clearance Center, Customer Service, (508)750-8400, 222 Rosewood Drive, Danvers, MA 01923 USA, or CCC Online: *www.copyright.com*. All other applications for permission to reproduce or translate all or part of this book should be made to OECD Publications, 2, rue André-Pascal, 75775 Paris Cedex 16, France.

FOREWORD

This report, the fourth issue in the new *Tax Policy Studies* series launched by the OECD, examines the currently highly topical issue of corporate tax incentives for foreign direct investment, or FDI. The work follows a 1995 OECD study on the use of tax incentives, entitled *Taxation and Foreign Direct Investment – The Experience of the Economies in Transition*. The present report extends that study which focused on the experience of the previously socialist economies, by drawing additional information and lessons from the theoretical and empirical economic literature and the practical experience of OECD countries in the area of tax policy. While the report is intended primarily as a guide for policy makers in emerging market economies, it may also serve as a reference document to tax policy analysts more generally.

Today, in virtually all countries, providing an environment that is attractive to foreign direct investment is seen as critical to a national strategy to secure productivity gains and economic growth. This reflects the important contribution that foreign investment and expertise is expected to bring to domestic economies. The ability to offer an internationally competitive tax system is increasingly seen as a determinative factor shaping the investment climate, with corporate income tax identified as that part of the tax system that impacts most directly on multinational companies. Therefore, much of the pressure for accommodating changes to lower host country tax burdens in order to attract capital is focused upon this tax.

At the same time, corporate-level taxation plays an important withholding function, raising revenues on domestic-source income that might otherwise escape the tax net. The desire to tax this income while not discouraging investors raises critical questions concerning the sensitivity of direct investment to tax levels and the appropriate setting of various tax provisions that collectively determine the host country tax burden and influence investment and financing behaviour. An important concern is the scope, under alternative tax treatment and rules, for unwarranted tax base erosion linked to unforeseen tax planning opportunities.

This report first considers the role of corporate-level taxation, various types of corporate tax incentives to promote FDI, and a general framework for assessing their effectiveness, including a review of the non-tax factors that often dominate FDI location decisions. Where tax incentives are being considered, a central question is how much "incremental" or additional investment can be expected to result and at what cost, including not only foregone tax revenues but also costs tied to increased complexity in the tax system and vulnerability to tax avoidance. Recent empirical findings are reviewed which show increasing sensitivity of FDI to host country tax burdens, consistent with trends towards increasing globalisation of production. In analysing the effect of tax relief on investment returns and FDI incentives, the report looks beyond host country tax treatment to consider the possible taxation of host country (foreign source) income in the home country of foreign investors. This recognises that host and home country tax interactions can secure or cancel out host country tax relief. Finally, the report reviews a number of factors bearing on the relevant attractiveness of alternative mechanisms to lower host country tax burdens, with reference to the aim of encouraging investment while minimising unintended revenue leakage and tax avoidance.

While the report is written intentionally in a non-prescriptive way, and without policy recommendations, the review of issues may be seen on balance as discouraging of the use of special tax incentives, consistent with earlier studies, and in favour of a reduced statutory corporate income tax rate on a broad tax base. While lowering a relatively high statutory tax rate benefits both existing and

© OECD 2001

newly acquired capital, this simpler approach avoids many pitfalls associated with other forms of relief, while taking tax-planning pressures off the domestic base. At the same time, it is recognised that pressures can mount to introduce special incentives in response to "tax competition" amongst competing states, and that policy makers can benefit from a review of design considerations to target assistance and minimise unintended revenue loss.

The report is organised into six chapters, preceded by an executive summary. The first chapter begins with a review of arguments often heard in favour of the introduction of tax incentives for FDI, addressed within the broader context of the policy rationale for levying corporate income tax. Chapter 2 considers the main types of corporate tax incentives, possible channels of influence, and issues surrounding the basic efficiency question of whether a given tax incentive can be expected to generate benefits exceeding tax revenue foregone. Chapter 3 addresses possible tax consequences in the home country that can modify the impact of host country tax incentives. It examines the issue of deferral of home country tax on foreign source active business income, the possible application of anti-deferral (controlled-foreign company) rules, and the benefits of tax sparing agreements. Chapter 4 summarises recent empirical findings on the sensitivity of FDI to host country tax burdens, which generally show increased responsiveness over time, consistent with the increased mobility of capital accompanying globalisation. Chapter 5 emphasises the importance of investment determinants unrelated to tax, which in many cases involving real FDI decisions can be expected to overshadow the relevance of special tax relief. It also covers a number of design issues bearing on the cost-efficiency of alternative tax incentive mechanisms. The final Chapter 6 closes with an overview of the main issues and observations drawn out in the report.

This study has been prepared by W. Steven Clark, Head of the Tax Policy and Statistics Unit OECD Centre for Tax Policy and Administration. It is based largely on material prepared for the Tax Programme for Non-Member Countries. Comments were received from Delegates of the Working Party No. 2 of the Committee on Fiscal Affairs, and the Economics Department of the OECD. The study is published under the responsibility of the Secretary-General.

© OECD 2001

TABLE OF CONTENTS

Executive Summary 7

Chapter 1. The Role of Corporate Income Tax and the Rationale for Tax Incentives for FDI 13

Chapter 2. Corporate Tax Incentives for FDI Main Types and Channels of Influence 25

Chapter 3. Assessing Host and Home Country Tax-Interaction Effects 37

Chapter 4. Empirical Findings on the Sensitivity of FDI to Host Country Tax Burdens 49

Chapter 5. Perspectives on the Pros and Cons of Alternative Tax Relief Instruments 63

Chapter 6. An Overview of the Main Issues 79

Annex 1. Profit Repatriation Tax Rates under Alternative Home Country Tax Systems 93

Annex 2. Host Country Tax Incentive Relief under Home Country Tax Deferral 97

Annex 3. Possible Irrelevance of Home Country Taxation Distinguishing FDI Financed by Retentions Versus New Equity Capital 103

Annex 4. Investment equation of Altshuler, Grubert and Newlon (1998) 106

Annex 5. Illustration of unintended tax avoidance facilitated by tax holiday incentive 107

Annex 6. Econometric Findings on the Implications of High Statutory Corporate Tax Rates. 113

Annex 7. Analysing the Influence of Financing Incentives (Imputation Relief, and Dividend Withholding Tax Rate Reduction) 116

List of Figures

2.1. Illustration of surplus and tax revenue implications accompanying a reduction in the statutory corporate tax rate 32

VII.I. Illustration of non-resident withholding tax rate reduction 121

List of Tables

3.1. Main categories of foreign (host country) source Income and possible home Country tax treatment 39

3.2. Foreign tax credit effects with income mixing 41

3.3. Interaction of host country and possible home country tax systems, with and without tax sparing 44

5.1. Illustration of two-year tax holiday under alternative commencement rules 66

5.2. Illustration of alternative loss-carryforward rules 66

5.3. Summary of tax planning opportunities and illustrative host country tax effects 67

5.4. Accelerated depreciation – Non-discretionary ***vs***. discretionary, and inter-action with loss carryforward rules 70

5.5. Comparison of results under alternative tax incentive structures 70

5.6. Assessing the impact of financing tax incentives 74

AII.1. Illustrative results under deferral of home country taxation 100

AII.2. Illustrative results under home country accrual taxation 101

AV.1. Initial direct financing structure with no tax holiday 107

AV.2. Expanded capital stock under tax holiday (illustration of policy goal) 109

AV.3. Intermediated financing under tax holiday (unintended policy outcome) 110

AV.4. Transfer pricing incentives under tax holiday (unintended policy outcome) 111

© OECD 2001

EXECUTIVE SUMMARY

Attracting foreign direct investment is an important policy goal for all countries, enhancing productivity and economic growth. Thus policy makers strive to ensure that their tax systems are internationally competitive and that impediments to foreign direct investment (FDI) are removed. Corporate income tax is at the centre of this debate, with much attention given to ensure that the burden it imposes is not excessive.

It is also recognised that the corporate tax system plays an important withholding function, collecting tax revenues on income derived in the host country. The desire to tax this income, while not discouraging foreign investors, raises difficult questions concerning the appropriate design of various tax rules including tax incentive provisions that together determine the host country tax burden.

This report reviews various types of corporate tax incentives for FDI and arguments often advanced for their use. The discussion takes a largely non-prescriptive approach that reviews basic considerations and conveys some of the lessons learned from a mix of theoretical, empirical and case study analysis. After first considering the role of corporate taxation in a country's tax mix, the analysis turns to consider the possible channels of influence of main tax incentive types, empirical evidence on the sensitivity of cross-border direct investment to host country tax burdens, possible host and home country tax interaction effects and various design, implementation and tax base protection issues. The report stresses the need for efforts by policy makers to assess the likely benefits and costs of incentives, while recognising that policy officials may be confronted with demands for the adoption of investment incentives with insufficient data to assess overall effects, and possibly little leverage to discourage their use even where roughly estimated costs exceed the likely benefits.

Generally the considerations raised in the report can be seen on balance as cautionary over the introduction of special tax incentives, with simplification and base protection advantages identified with reducing the statutory corporate income tax rate as a means to lower the host country tax burden. However, the report stops short of policy recommendations, recognising that decisions over the use of incentives will depend on the specific country situation, and moreover rest in the sovereign domain of national governments.

Tax systems may be used to achieve a variety of policy objectives, with the most important role being the revenue raising function. Tax systems also have an important redistribution function, particularly in the case of income taxation. And while in general tax systems should be designed to be neutral, they may be called upon to influence resource allocation. Several arguments can be made in support of this function in the cross-border investment context, including concerns over international competitiveness, and perceived instances of market failure. For example, from a "textbook" public finance perspective, an inefficiently low level of FDI may result in a given host country where there are positive externalities or beneficial effects from FDI that are not taken into account by foreign companies when making their outbound investment decisions. For example, where a multinational firm is determining the amount of investment, R&D and production to undertake in a given foreign host country, the benefits that "spill-over" to the host country economy generally would not be taken into account. The spillover benefits could include the application of new knowledge and production and process technologies by other host country firms. Similarly, FDI may confer general training and skills that could be employed elsewhere in the economy or generate demand for various factors of production in the host country that might not otherwise exist. Where foreign direct investors do not take

© OECD 2001

these social benefits into account, a private market result may yield FDI levels below what would be observed if these benefits were instead factored in. In these instances, it can be argued that intervention is necessary to correct for instances of "market failure" to yield a more globally optimal allocation of capital.

However, while market failure, international competitiveness and perhaps other arguments may point towards intervention in the market, possibly through the tax system, it is critical that host country investment conditions and characteristics be assessed in order to gauge whether possible impediments to investment could be overcome by subsidies, including the use of tax incentives. As stressed in the report, when tasked with addressing calls for the introduction of incentives for FDI, it is critical that host country policy makers ask:

W*hat are the impediments inhibiting investment, and can they be addressed in a cost-efficient way through the use of tax incentives*?

This difficult question runs to the heart of the decision of whether or not to introduce special tax relief mechanisms. In cases where FDI activity is low, policy analysts need to address the impediments and question whether these should be tackled through the tax system, or through structural policy changes in other areas, or both. The report reviews a number of market and policy related considerations that bear on private FDI decisions and condition the influence of tax incentives. The review highlights the need for policy makers to identify and assess the implications of possible impediments, at least on an approximate basis and for broad industry classifications.

Often, where taxation is identified as a significant factor influencing FDI, transparency, simplicity, stability and certainty in the application of the tax law and in tax administration are often ranked by investors ahead of special tax incentives. Tax relief may enhance the attractiveness of a potential host country, but experience shows that in many cases the relief provided will be insufficient to offset additional business costs incurred when investing there. Where incentives cannot be expected to compensate for additional business costs and losses incurred when investing in a potential host country, then their use and the net burden imposed on the host country from running the program should be avoided. In particular, in such cases it would be best to avoid the administration and compliance costs and tax revenue losses from the inevitable "leakage" of tax incentive relief to non-targeted business activities.

Where a firm is able to generate profits from undertaking certain business activities in a given host jurisdiction, tax incentives may be successful in attracting additional FDI, and may be viewed as necessary where similar relief is being offered by another (*e.g.*, neighbouring) jurisdiction also competing for foreign capital. This raises questions concerning the appropriate form and scale of tax incentive relief, as well as a range of other design issues. It also raises the question of whether foreign direct investors could earn competitive "hurdle" rates of return in a given host country and in competing jurisdictions in the region in the absence of special tax incentives. In such cases, policy makers may wish to discuss the possibility of policy co-ordination in the area of tax incentives to avoid revenue losses and providing foreign investors with "windfall gains" – that is, tax relief above that necessary to realise competitive after-corporate tax rates of return – and also to address possible equity and efficiency concerns linked with the use of special tax incentives.

Where additional FDI resulting from tax relief can be expected, it remains prudent to assess whether the stream of benefits from increased FDI, including host country taxes collected on profits from an increased capital stock and possibly other spill-over effects, can offset the stream of costs associated with the tax incentive provisions. In other words, policy makers should be encouraged to undertake an analysis of the social benefits and costs of tax incentive use with the same rigour that foreign investors assess the relative private benefits and costs of investing in the host country.

Host countries may provide relief from tax on income generated at the corporate level in a number of ways. A "tax holiday" exempts newly-established firms from corporate income tax, and possibly other taxes, for a specified number of years. A targeted (or broad based) reduction in the statutory or "headline" corporate income tax rate reduces the amount of host country tax levied on targeted (or broadly defined) taxable profits. Enriched capital cost allowances, including accelerated and enhanced

© OECD 2001

write-offs for qualifying capital costs, lower the calculation of taxable profits. General or targeted investment tax credits earned at a given rate on qualifying investment provide a straight reduction to corporate tax otherwise payable where, unlike tax deductions, the value of the incentive is independent of the setting of the statutory corporate tax rate. Dividend withholding tax rate reductions and imputation relief providing an offset to corporate tax on distributed profit may operate in certain cases to lower the discount rate applied by foreign investors to after-tax cash flows from FDI.

Investment expenditures may respond positively to each of these tax incentives. A reduction in the statutory tax rate applied to corporate profits, or a temporary waiving of this tax as under a tax holiday, generally would be expected to boost investment by increasing the amount of after-tax profit earned on new investment and on the existing capital stock. Theory predicts that "up-front" incentives, including investment tax credits and immediate expensing of capital costs, would yield a larger investment response for each currency unit of tax revenue foregone. Unlike a corporate tax rate reduction, investment tax credits and other up-front subsidies to the cost of purchasing capital benefit only new investment. Therefore, they provide a larger reduction in the effective tax rate on investment at a lower cost, taking into account the impact of taxation on both marginal revenues and costs. A reduction in the statutory corporate tax rate, in contrast, benefits both "new" as well as "old" (previously installed) capital. Financing incentives may also operate to encourage new equity investment in a host country, provided the relief is offered to the "marginal investor" establishing required hurdle rates of return, and is not offset by home country taxation.

The potential impact of tax incentives in influencing investment behaviour would also be expected to vary across business activities/sectors, host jurisdictions and over time, and to be greater the more competitive is an investment location on a pre-tax basis. In general, the FDI response to a given amount of tax relief would be greater where provided to business activities where non-tax business costs (factoring in labour, material, energy, and capital costs) and expected risk-adjusted pre-tax profit rates are similar in competing jurisdictions. In other words, a narrowing of differences in non-tax business costs and pre-tax profit rates across competing locations would tend to make tax differentials a more important factor in locational choice. Where for example, a number of countries are short-listed as potential locations on the basis of similar expected pre-tax profit rates, incentives may be influential at least in the short run in influencing location decisions. The ability to realise similar pre-tax pr ofits out of alternative sites would depend on not only the countries examined, but also the nature and geographic mobility of the business activity, with certain activities more mobile than others. To take an example, tax incentives could be expected today to have a significant effect on the locational choice for group financing and related activities, where recent advances in data management and telecommunications have significantly reduced non-tax cost differentials across competing alternative sites through which to conduct such activities.

Finally, the trend towards increased trade and investment liberalisation and increased competitive pressures accompanying globalisation could also be expected to increase the potential role of taxation in influencing investment behaviour. Most obviously, the process of trade and investment liberalisation, by expanding investment opportunities and the overall level of cross-border investment, expands the number of possible investment flows that incentives seek to attract. Another important factor is that tax incentives are more likely to "bite" (*i.e.*, operate at the margin to swing investment choice) where profit margins are thin, making tax relief a more important factor. In general, the creation of economic rents (profits in excess of minimum shareholder required rates of return) made possible by protected markets and output restrictions tends to dominate (cancel out) tax incentive considerations. Tax relief may alter realised rates of return, but where these rates are in excess of required rates of return, the importance of such relief is diminished. In contrast, tax incentive relief may be expected to be more of a factor with increasing competition and a narrowing of profit margins over time in a number of sectors, accompanying economic liberalisation.

These considerations offer a first round summary of the potential effects of host country tax incentives. However, they are subject to a number of important qualifications concerning the amount of tax relief that ultimately gets realised by investors, and the "incremental" (*i.e.*, additional) amount of

© OECD 2001

investment that can be expected. The first issue involves addressing tax-interaction effects, where often the tax rules of several countries will factor into the relevant investment structure (for example where financing is through an offshore affiliate). After reviewing the basic approaches used by OECD countries in taxing profits on foreign direct investment, the report considers a number of factors that tend to either offset or reinforce host country tax relief. Factors considered include the sources of funds used to finance FDI at the margin, the possible "mixing" of foreign source investment income for foreign tax credit purposes, and possibilities for deferral of home country taxation. Also factored into the analysis is the use of tax havens to shelter foreign source income, challenged in some cases by the application of "controlled foreign company" rules which can fully offset host country tax relief (so that incentives merely cause a transfer in tax revenues from the host to the home country treasury). Advantages and constraints associated with "tax sparing" agreements, which have the explicit goal of protecting host country tax incentives, are also reviewed.

Assessing the net benefit to a host country of introducing a given tax incentive depends critically on the *additional* amount of FDI undertaken as a result of the tax relief. Where an incentive is introduced and investors take advantage of the tax relief, a certain amount of FDI activity will be observed and associated with the tax incentive program. But that activity may have occurred in any event, in which case the tax relief provides a "windfall gain" to investors. Much thought and empirical analysis has addressed the question of the relationship between the level of investment flows and the effective rate of corporate taxation in attempting to identify the link between tax relief provided and resulting incremental activity.

While answers to these questions have by no means been fully resolved, important developments in the understanding of the main factors and their inter-dependencies have been achieved, and some real progress has been made over the last decade in empirical testing of investment models. Recent applied work using improved data on FDI and sophisticated estimation techniques would appear to offer convincing evidence that host country taxation does indeed influence investment flows, and that this influence is increasing over time. An important implication of the recent work is that host country taxation is an increasingly important factor in locational decisions, which is not surprising given the gradual pervasive reductions over time in non-tax barriers to FDI flows, including the abolition of investment and currency controls, and the ongoing process of globalisation with increased mobility of an expanding set of business activities. However, due to a number of persistent limitations ranging from data measurement problems to restrictive modelling assumptions, the estimates provided of the responsiveness of FDI to changes in the after-tax rate of return on FDI (and through this channel, to changes in the level of tax incentives for FDI) must be used with caution when applied to measure the cost-effectiveness of a given tax incentive measure.

While indicating that the sensitivity of FDI to host country tax burdens appears to be increasing over time, the empirical applications of investment models unfortunately offer few clues to the question of how host country tax burdens might best be lowered to attract additional FDI. The reason is that the explanatory variables used (summary marginal and average effective corporate tax rates) are measured as an amalgam of relevant tax and non-tax parameters. By aggregating relevant factors, the individual influence played by each is masked. Thus policy makers must look to other areas to guide their choice over alternative tax instruments and policies to encourage FDI. The report therefore reviews a number of policy considerations and design issues relevant to the choice of alternative tax incentive measures. The report emphasises that the exercise should begin with policy makers assessing their own country situation and the strength of arguments calling for tax incentives for FDI to correct for market failure or other market or policy-related impediments to FDI. Often a preferable route will be to address non-tax policy-related impediments to FDI prior to, or at a minimum, parallel with, the introduction of tax incentives.

The analysis in the report, which touches on a number of considerations tied to the use of tax incentives, indicates perhaps above all that there are a variety of difficult issues for policy makers to contend with. Identifying impediments to FDI and assessing whether these can be offset by tax incentives raises difficult data availability and analytical problems. Assessing the likely investment

© OECD 2001

response is made difficult by the paucity of information on the elasticity or responsiveness of FDI with respect to host country effective corporate tax rates. It would be prudent for analysts to use lower bound estimates in cases where host country impediments to FDI are more pronounced than in host countries from which reported sample estimates are derived. These lower bound estimates translate into conservative estimates of additional tax base and other spillover benefits to the host country economy. At the same time, policy makers should not underestimate tax-planning initiatives of investors and should assess the strength of domestic base protection provisions, particularly if a tax holiday or similar measures are being considered.

Importantly, the choice over alternative tax incentives will depend on the specific country circumstances. For example, the findings in the report call for caution in the use of up-front tax incentives, particularly if the basic statutory corporate income tax rate is relatively high and if refund provisions are offered. Some would judge the evidence on balance as favouring a lowering of the statutory corporate tax rate, which not only spurs investment (despite dampening effects working through the cost of debt finance and the valuation of depreciation allowances), largely by rewarding the productive use of inputs in generating profit rather than subsidising the purchase of inputs, but also can alleviate tax-planning pressure on the domestic tax base. However, where tax revenues are derived largely from an existing capital stock that would enjoy a windfall benefit from a rate reduction, the revenue loss on existing capital may be viewed as too large. In other words, the policy decision may depend critically on the amount of existing *versus* new tax base that benefits from the rate reduction.

In the end, the choice over the appropriate tax incentive or mix of tax incentives and the basic decision of whether or not tax incentives should be used to bolster FDI will depend on individual country circumstances and perspectives. The report offers a range of information and analysis that may be useful to policy makers in shaping policy decisions in the area of tax incentives for FDI.

© OECD 2001

Chapter 1

THE ROLE OF CORPORATE INCOME TAX AND THE RATIONALE FOR TAX INCENTIVES FOR FDI

This first chapter begins, by way of introduction, with an overview of the role of tax systems with special attention given to the policy rationales for levying corporate income tax. Certain basic features of corporate income tax systems are also briefly considered. The final section of this chapter lists the main arguments advanced in support of the use of tax incentives for foreign direct investment (FDI).[1] This background information is given to help place the use of tax incentives in context, to facilitate the discussion of design considerations, and to help identify certain policy implications and tradeoffs involved.

A. The Role of Tax Systems and the Overall Tax Mix

Tax systems are used by governments to achieve a variety of political and policy objectives. A review of tax systems across countries and over time shows a remarkable degree of diversity in approaches that have been taken in pursuit of these goals. Despite this diversity, one can identify at a fundamental level three main roles or functions of tax systems.

The most important role of a tax system is its *revenue-raising function*. In addition to relying on the issuance of debt and the creation of money, governments impose taxes to finance the cost of expenditures they undertake. In a democratic market economy, a country's reliance on the tax system to raise revenues will depend on the level of publicly-provided goods and services desired by the electorate, public spending obligations inherited from previous commitments, and constraints on the reliance on other revenue sources (*e.g.*, interest payments on accumulated debt, inflationary pressures). Corporate income tax generates a relatively small percentage of total tax revenue in most OECD countries, with an average figure in 1998 of 8.9 per cent.[2]

Second, tax systems have an important *income distribution function*. Indeed, tax systems are often judged according to a normative equity criterion concerned with the distribution of income among individuals. Under the vertical equity principle, individuals that are better-off than others in terms of their ability to pay taxes, measured by overall or comprehensive income, should pay proportionately more tax. For this reason, most countries provide an exemption (or "zero band") for some initial threshold income amount and/or apply a progressive personal income tax rate schedule which taxes successively higher bands (or increments) of income at higher marginal personal tax rates.[3] The levying of corporate level income tax at significant rates may also be demanded by the public to ensure that corporations "pay their fair share". This recognises that a general perception that the tax system imposes a fair tax burden across taxpayers is essential to the effective operation of a voluntary compliance system of taxation.

Third, tax systems play an important *resource allocation function*. According to the efficiency criterion, tax systems in general should be designed so as to raise revenues while minimising the distortions and thus the "dead-weight" loss or excess-burden that they impose on the economy.[4] In the context of the taxation of income from capital, this generally calls for a neutral tax system that equalises the effective tax rate levied on a taxpayer across different investments. However, the possibility of market failure (including the existence of positive "externalities" or spill-over effects, imperfect capital markets, and asymmetric information) suggests that uniform taxation of all income streams and assets may lead to an inefficient allocation of resources.[5] In such instances, differential

© OECD 2001

tax treatment, introduced for example by the use of tax incentives, may be called for to improve resource allocation.

When designing tax systems with these goals in mind, policy makers must factor in various costs imposed on taxpayers, as well as the tax administration. Complexity in the tax law and regulations can frustrate the tax administration in its role as a revenue collector and impose serious compliance costs on taxpayers. Additional costs on the public include the direct costs of hiring technical personnel to comply with the rules, the introduction and maintenance of data collection systems, the need to take tax into consideration when making business plans, and costs tied to uncertainty over its evolving application. Excessive costs arising from complexity pose a dead-weight loss on the economy. These burdens may be more important for countries without well-developed tax administrations and private sector accounting and legal bodies.

Governments have introduced a variety of taxes to meet policy objectives. These include personal income taxes, corporate income taxes, employee and employer social security contributions, payroll taxes, capital taxes, property taxes, consumption taxes including sales taxes, value-added taxes (VAT) and direct corporate-level cash-flow taxes, excise taxes, as well as import (customs) and export taxes. The tax mix of a given country reflects its particular economic, social and institutional circumstances, including its historical reliance on the various tax bases. Today, the most important taxes in most OECD countries and many developing countries, as measured by the contribution to total tax revenues, are income taxes (personal and corporate) and consumption taxes.

A notable trend in recent years has been the increased reliance of developed and developing countries on consumption taxes, and in particular value-added taxes (VAT.)[6] In part, interest in consumption taxes has been motivated out of a concern that high income taxes act as a drag on saving and investment, and thus on economic efficiency and growth. Critics also charge that income tax systems are unfair, taxing what is produced in the economy (income) rather than what one takes away (consumption); imposing higher taxes on households that choose to save rather than consume, and imposing relatively low tax rates on various forms of income from capital accruing to wealthier households.

Despite these issues, personal and corporate income taxes continue to be among the most important source of tax revenue in OECD countries. Besides being major revenue raisers, income tax systems are also important instruments to shape income distribution and have important resource allocation effects. Tax incentives for foreign direct investment (FDI), the focus of this study, are often structured through income tax systems, providing relief from corporate-level taxes on income from capital (*e.g.*, tax holidays, reduced corporate tax rates, special corporate tax deductions, allowances and credits), and in some cases providing relief from personal income tax (*e.g.*, imputation relief, preferential tax treatment for expatriates).

The following section takes a closer look at the policy rationale for imposing corporate income tax, some main features of corporate tax systems, and arguments in support of tax incentives for FDI. This information is useful when considering the desirability, setting, measurement and design of different types of corporate tax incentives for FDI.

B. The Role of Corporate Income Tax

Corporate income taxation contributes to the general functioning of tax systems by extending income taxation to the corporate sector, buttressing the personal income tax and contributing to a sense of fairness in the tax system. In its revenue raising function, corporate income generates a significant amount of tax revenue in many countries, and from a relatively small number of taxpayers (compared to individual taxpayers). Administrative costs (and taxpayer compliance costs) per dollar of revenue raised are kept low where corporations are required for non-tax reasons to keep books on financial flows and balance sheet items, as they are required to do in most countries for financial accounting reporting purposes.

© OECD 2001

Arguably the main policy reason for imposing corporate income tax is that this tax plays an important withholding function, acting as a "backstop" to the personal income tax system. In particular, corporate-level taxation effectively taxes individual shareholders (resident and non-resident) on income from capital that is retained at the corporate level and thereby escapes shareholder-level income or withholding tax.[7] Income generated at the corporate level that is paid out in the form of dividend income (or interest) is subject to tax as it is earned (*i.e.*, on a current basis) at the shareholder level. However, retained earnings pose a problem given that shareholder capital gains, if subject to tax, are taxed generally on a realisation basis – that is, only when equity shares are sold and capital gains/losses are realised. This treatment stems from compliance and administrative problems associated with taxing capital gains on an accrual basis (as capital gains/losses are earned).[8] In systems that do not tax capital gains, then retained earnings may be earned free of tax altogether.

Therefore, in the absence of corporate-level income tax, individuals would be able to shelter equity income from taxation by retaining and investing corporate-level earnings, as opposed to distributing the income and subjecting it to shareholder-level dividend taxation. Taxing capital gains (arising from the retention of earnings) at the personal level on a realisation as opposed to an accrual basis, allows for a deferral of personal tax on this income. Imposing corporate level tax ensures that the earnings underlying the gains are subject to current taxation.

The corporate income tax also provides a withholding function in the case of inbound foreign investment, taxing non-resident shareholders on their earnings retained in the domestic (host) country. These earnings could otherwise escape domestic income tax altogether (in the absence of a withholding tax at source), given that foreign shareholders (non-residents) are not subject to domestic personal income tax imposed only on resident persons. This function is particularly important in countries that are significant capital importers, and thus a key consideration in the context of FDI.

Corporate-level taxes, including corporate income taxes, may be justified on a user fee basis as well, collecting payment for public goods and services enjoyed by corporations (*e.g.*, infrastructure, legal and regulatory system) and other benefits (*e.g.*, limited liability) from residing in the host (taxing) country. It is both efficient and equitable to tax corporations for the public benefits that they derive.[9] As distinct entities or "persons", corporations enjoy benefits and earn income (*i.e.*, have a separate taxable capacity) that arguably is properly taxed to the corporation as opposed to the owners of the corporation or its employees. In this regard, it can be noted that in addition to the limited liability of corporations, the fact that there exists a separation of ownership (shareholders) from control (managers) further isolates corporations as separate entities.

Where corporations enjoy location-specific advantages from fixed (non-reproducible) factors of production (*e.g.*, access to natural resources) or own intangible assets giving market power, economic efficiency may be promoted by taxing the economic rents (*i.e.*, profits in excess of required (normal) shareholder returns) generated by this market power.[10] Imposing corporate income tax allows the government to share in the rents, and revenues are generated without efficiency costs (dead-weight losses are not created when taxing pure economic profit). This source of tax revenue allows reductions in other distortionary taxes, leading to an improvement in overall economic efficiency.

Imposing corporate income tax can also promote progressivity where the burden of the tax falls mostly on high-income shareholders. The degree of progressivity is limited where scope exists to shift part of the corporate tax liability onto consumers through higher prices on goods and services, and/or onto workers through reduced wages, with the empirical evidence not entirely clear on this tax incidence question.

Finally, the corporate tax system may be used as a policy instrument to influence economic behaviour in a number of socially or politically desirable ways. For example, tax incentives may be provided to influence capital spending and allocation decisions, including foreign direct investment (FDI). Arguments for the introduction of tax incentives are considered separately below in sub-Section D.

© OECD 2001

C. Select Corporate Income Tax System Design Considerations

Given the central withholding function of the corporate income tax system, a candidate corporate income tax base, which we can denote by Y^{c*}, could be the following expression measuring retained earnings:

$$Y^{c*} = REV–CST–INT–DEP–DIV \quad (1.1a)$$

where REV measures gross revenues, CST measures wages, salaries, materials and other current input costs, INT measures interest expense, DEP measures economic depreciation, and DIV measures dividends. Current costs captured by CST, interest costs and depreciation are deductible as expenditures incurred in earning income. Wages, salaries, interest and dividends, all deductible in (1*a*) against the corporate tax base, would be taxable in the hands of recipients (labour, creditors and shareholders.)

In practice, dividends are typically not deductible from the corporate income tax base, given that they have been traditionally viewed as a share of profits rather than a cost, and that providing this deduction would eliminate domestic income tax on distributions to non-resident shareholders. Under international tax norms, the source country has the (primary) right to tax domestic source income. While dividends paid abroad may be subject to non-resident withholding tax, the tax base (gross dividends) is generally inflexible and the treaty-negotiated withholding tax rate may be judged to be too low as a final domestic rate on such income. Moreover, waiving domestic tax on dividends paid abroad (by allowing a dividend deduction) in many cases would result in a transfer of tax revenues from the domestic treasury to foreign treasuries, with little or no impact on the overall (host and home country) tax liability of foreign shareholders (for a discussion of this, see Chapter 3).

Thus, in the typical case where a dividend deduction is denied, the corporate income tax base is generally measured according to the following expression:

$$Y^{c} = REV–CST–INT–DEP \quad (1.1b)$$

This simple expression masks a number of difficult measurement issues, in particular those related to the measurement of economic depreciation, the treatment of losses, and possible adjustments for inflationary effects. Before turning to these issues, it is first useful to consider the linkage between the determination of the corporate income tax base, as discussed above, and the determination of corporate tax payable.

1. *The relationship between tax base and tax payable*

Final corporate tax payable will be determined by applying the basic (statutory) corporate income tax rate, denoted below by u, to the corporate tax base. The relationship between tax base and tax payable must also account for investment tax credit claims (if any), measured below by TC. It must also account for loss transfers, meaning the transfer (if any) of negative taxable income from other years into the current year under loss carryback or loss carryforward provisions, measured below by $LOSS^{cf/b}$. The relationship between these variables in determining corporate tax payable, denoted by T, can be written as follows:

$$T = u(REV–CST–INT–DEP*–LOSS^{cf/b})–TC \quad (1.2)$$

where DEP* measures capital depreciation for tax purposes, which may differ from economic depreciation DEP in equation set (1.1). The values of DEP* and TC in turn are given by:

$$DEP* = \alpha(KT) \quad (1.3a)$$

$$TC = \beta(INV) \quad (1.3b)$$

where α is the depreciation rate for tax purposes, KT is the stock of undepreciated capital (assumed here to be written off on a declining-balance basis), β is the investment tax credit rate, and INV denotes qualifying investment expenditures. The three main tax incentive parameters are u, α and β. The amount of tax relief from the depreciation deduction for tax purposes DEP* depends not only on the depreciation rate for tax purposes α, but also on the setting of the corporate tax rate u. On the other hand, tax relief from the investment tax credit depends on the setting of β alone, and not on

© OECD 2001

the corporate tax rate u. The difference stems directly from the fact that DEP* is deducted from the tax base, while TC is deducted dollar-for-dollar from the corporate tax payable calculation.

2. *The measurement of capital depreciation*

Under a corporate income tax designed to tax net income including returns from capital, corporations should be provided with deductions for the economic depreciation of capital inputs. In the absence of inflation, the amount of depreciation for tax purposes (*i.e.*, capital cost allowances) over the lifetime of a capital asset used in production should equal the original investment expenditure. This tax treatment allows the taxpayer to recover tax-free the original investment, leaving tax applicable only to the return on the investment. The timing of depreciation claims is equally important for the proper measurement of the return to capital in each period. If the portion of the capital cost that a taxpayer is allowed to write-off in one year is greater (less) than the true cost, income will be understated (overstated).

In theory, depreciation claims should match economic depreciation, which, for a given asset, will follow a specific pattern over time. This pattern will depend on the length of time the asset is used in production and the pattern of income arising from the use of the asset in each of the years in which it is employed. The pattern will also depend on relative output and capital input price changes arising, for example as a result of technological change or obsolescence, and on the asset's residual value at the end of its useful life.

In principle, these considerations will be captured by movements in the inflation-adjusted value of the asset in each year, and depreciation could be measured by observing the value of second-hand capital assets. In practice, the lack of an active market for used assets means that economic depreciation is generally unknown and must be inferred. For some assets, the contribution of an asset to output and thus income may remain roughly constant over time. In such cases, a reasonable (annual) depreciable amount may be a constant percentage of its original cost as under the straight-line depreciation method. Other assets may contribute to income mainly in the early years of production, or may become obsolete relatively quickly, suggesting that relatively high depreciation charges should be taken in early years with successively lower charges in subsequent years as under the declining-balance method. In either case, a representative depreciation rate must be chosen. Typically these are based on rough and often-dated estimates of the useful-life of assets, with additional precision being lost where a single depreciation rate is assigned to a basket of different assets, as is generally the case. In certain cases, taxpayers may be allowed to use for tax purposes deprecation rates that are in excess of what are estimated to be economic depreciation rates in order to encourage investment in the targeted capital asset.

Another consideration is whether to make (maximum) depreciation claims mandatory or discretionary. Where depreciation claims are mandatory, the tax treatment of corporate tax losses is critically important (see the discussion below). Where the claims are discretionary, taxpayers may claim in each period the maximum depreciable amount allowed under the system, and carry forward unused depreciable costs to be deducted against future tax liabilities. Firm-specific tax-minimising strategies would then be used to determine the amount of capital cost allowance to claim in the current period, and the amount to be carried forward (including the availability of other tax write-offs which may be about to expire).

The main argument for allowing firms the carry-forward option is that the setting of a 12-month period for tax assessment is essentially an artificial construct. A firm that is in a tax-loss position (*i.e.*, has negative taxable income) in a given year and cannot claim a capital cost allowance may have sufficient income in the following year against which to claim the deduction – implying for example that a 14-month tax year would not have given rise to an unused depreciation. Allowing for an indefinite carry-forward relieves the constraint imposed by the arbitrarily chosen length of the tax year.

© OECD 2001

3. *The treatment of corporate tax losses*

Most income tax systems permit businesses that earn a tax loss in one year (where taxable revenues are less than tax deductions in the same year) to carry the tax loss (*i.e.*, the negative amount of taxable income) forward to future years, or (in a more limited number of cases) back to previous years, to be used to offset income in those years. The carry-back and carry-forward provisions are typically limited (*e.g.*, a 3 year carryback and a seven year carryforward). These provisions are provided in recognition of the arbitrary choice of a fixed period (*e.g.*, 12 months) for which to assess tax. The practice recognises that many firms encounter negative cash flows during their initial phases, despite being profitable over the longer term or on a present value basis. Moreover, in certain high-risk industries, even very efficient and profitable firms may experience wide fluctuations in their earnings over both negative and positive ranges.[11] Disallowing loss transfers over time would be inconsistent with a proper matching of revenues and expenses, would impose a higher tax burden on firms with unstable profit profiles, and would discourage risk-taking.

Unless a tax loss in one year can be carried back to offset tax paid in a prior year, less than full loss-offsetting occurs, as when losses are carried forward, they typically may not be carried forward with an interest adjustment (to reflect the opportunity cost of funds). Therefore, the present value of losses deducted in the future will be less than the value of those losses if they could be currently used. Countries do not typically offer a cash refund for tax losses, for primarily two reasons. First there is a fear that refundability would encourage unprofitable or inefficient businesses. Second, providing for refundability would impose significant up-front revenue costs, and difficult transitional issues would be met in a move to such a system (*i.e.*, how to treat accumulated pools of losses).

Finally, it is important to recognise that (conceptually) tax losses can be subdivided into three categories: *i*) operating business losses, *ii*) capital losses,[12] and *iii*) tax incentive losses. Tax incentive losses are generated by deductible tax incentives, including accelerated depreciation and immediate expensing. Non-refundability of tax incentive losses will result in a variable reduction in effective tax rates for businesses, depending upon their tax position. The latter, in turn, will vary across businesses undertaking the same (subsidised) start-up investment, for example, to the extent that certain businesses have other income streams from other (possibly unrelated) business activities, against which the special deductions can be claimed, while other businesses do not. In practice, it is not feasible to separate tax incentive losses from ordinary operating losses due to complexities involved. Thus generally it is not feasible to provide refunds for deductible tax incentives (unless refundability is extended to ordinary business losses at the same time).

4. *Inflation effects*

Most income tax systems do not measure income accurately in the presence of inflation. As a result, even if inflation were perfectly anticipated and incorporated into all prices, interest rates and decision rules, inflation could operate to reduce (or in some cases, increase) investment incentives. Inflation distorts the taxation of income from capital in at least two important ways.[13] First, most tax systems only allow taxpayers to depreciate capital on a historic cost basis. That is, cost recovery is limited to the original purchase price of capital. This practice tends to under-estimate economic depreciation in the presence of inflation, given that the true cost of capital consumption is based on the current as opposed to the historic value of capital. This treatment would be expected to discourage investment.

On the other hand, firms are allowed to write-off their nominal interest payments against taxable income. In the presence of inflation, nominal interest rates consist of two parts: one is the real rate of return; the other is the inflation premium to compensate lenders for the erosion of nominal principal due to inflation. A proper measure of income would not allow for the deduction of the inflation premium (nor would it include this premium in the taxable income of the lender) since the premium is simply an adjustment of the principal to reflect changes in purchasing power. In effect, the firm is allowed to write off part of the real principal against its taxable income. This treatment would be expected to encourage investment.[14]

© OECD 2001

Given that these two effects work on investment incentives in opposite directions, the net impact in general is unclear. Where there is a presumption that the first effect dominates, policy makers often feel inclined to set the depreciation rate for tax purposes above their estimates of the economic depreciation rate, in order to compensate for the effects of inflation.

D. Policy Arguments for Tax Incentives for FDI

As noted in Section B., the corporate income tax system may be used as a policy instrument to influence economic behaviour, including foreign direct investment. A variety of arguments have been advanced for using tax incentives to attract FDI. This final section of Chapter 1 briefly reviews the main arguments, which can be organised under the following headings: 1) international competitiveness, 2) "market failure" considerations, 3) regional development and income distribution, and 4) macro-economic considerations. As noted at the close of this chapter, these arguments calling for incentives must be weighed against other fiscal objectives, and host country needs and circumstances, an issue returned to in subsequent chapters.

1. *International competitiveness*

Tax incentives designed to encourage FDI, including general host country tax relief measures and those targeted at investment in R&D, and those tied to exports, are often recommended as a means to enhance the "international competitiveness" of a country, by improving its ability to attract internationally mobile capital. This view assumes that multinational companies take tax incentives into account when making locational decisions, and that tax incentives operate at the margin to swing investment decisions in favour of the host country.

Success in attracting foreign capital is believed to improve a country's economic performance by generating increased employment, increased incomes and ultimately higher tax revenues, creating a stronger industrial and economic base, improved infra-structure, and increased living standards. At the same time, inflows of foreign capital are often believed to improve a host country's productivity or its cost competitiveness, for example through indigenous R&D leading to lower unit production costs, enabling a higher share of world production in one or more industry sectors, or access to production or process technologies used elsewhere by parent companies. These developments themselves would be expected, in turn, to attract additional investment. On the other hand, sceptics are quick to point out that tax incentives which distort the allocation of capital can reduce the overall level of productivity in a country, and thereby impede rather than enhance its ability to compete in international markets.

Tax incentives may be viewed as necessary where similar relief is being offered by a neighbouring jurisdiction also competing for foreign capital. This raises questions of the appropriate form and scale of tax incentive relief, as well as a range of other design issues. It also raises the question of whether foreign direct investors could earn competitive "hurdle" rates of return in a given host country and in competing jurisdictions in the region in the absence of special tax incentives. In such cases, policy makers may wish to discuss the possibility of policy co-ordination in the area of tax incentives to avoid revenue losses and providing foreign investors with "windfall gains" – that is, tax relief above that necessary to realise competitive after-corporate tax rates of return – and also to address possible equity and efficiency concerns linked with the use of special tax incentives.

2. *Correcting for "market failure"*

Tax incentives targeted at FDI may be argued for in instances of "market failure" – that is, in instances where the operation of private markets is believed to fail in yielding a socially optimal level of investment. In theory, an inefficiently low level of FDI may arise where there are positive "externalities" or spillover effects that are not incorporated into private investment decisions. A classic example of positive spillovers is R&D.[15] Firms undertaking R&D generally ignore the positive spillover benefits that accrue to others (*e.g.*, transfer of knowledge) when they decide upon the amount of R&D to undertake, which may result in an inefficiently low level of investment from society's perspective.

© OECD 2001

Tax incentives targeted at research activities, or at the development and implementation of new production processes and products, may be introduced to encourage firms (domestic and foreign) to increase their investments in these areas.

Theory posits that market failure can arise on account of other factors as well, including asymmetric information. Potential foreign direct investors may have incomplete information on investment opportunities in a given host country, for a variety of reasons. This may result in less investment in the host country than would be observed if full information were available. In such cases, incentives might be called for to promote FDI beyond the level that would otherwise occur.

Similarly, foreign investors generally would not be expected to take into account the beneficial effects on host countries generated by FDI. Such benefits could include providing skills and training to employees that could be applied elsewhere in the economy, or generating market demand for labour and other factors of production (*e.g.*, intermediate inputs) that might not otherwise exist. While tax incentives hold out the possibility of stimulating FDI and thereby generating spill-over benefits including knowledge transfer, new employment opportunities and demand for local products, a key issue is whether tax incentives can do so in an efficient manner, taking into account possible market or policy-related impediments to FDI. Where tax incentives are introduced for this reason, or more generally to correct for general market failure, there is in general no reason to target the incentive solely towards FDI. Instead, many would argue that the tax incentives should be made available to both domestic and foreign investors.[16]

3. *Regional development (income distribution)*

Tax incentives may be targeted at investment in regions where unemployment is a serious problem, for example on account of remoteness from major urban centres, tending to drive up factor costs, or labour immobility or wage rigidities that prevent the labour market from clearing. Operating from a remote area may mean significantly higher transportation costs in accessing production materials, and in delivering end-products to markets, placing that location at a competitive disadvantage relative to other possible sites. Certain areas may also suffer from a lack of natural resources, tending to put them at a further cost disadvantage. Moreover, firms may find it difficult to encourage skilled labour to relocate and work in remote areas that do not offer the services and conveniences available in other centres. Workers may demand higher wages to compensate for this, which again implies higher costs for prospective investors.

Tax incentives may be provided in such cases to compensate investors for these additional business costs. Where the incentives are successful in attracting new investment, and/or in forestalling the out-migration of foreign capital, they may contribute to an improved income distribution in the country. There may also exist a policy desire to address regional income distribution concerns through subsidising employment through investment initiatives, rather than through direct income supplement programs.

4. *Macro-economic considerations*

Tax incentives (typically broad-based incentives) have also been advocated as tools to address, at least in part, a range of macro-economic problems, including concerns over cyclical (or structural) unemployment, balance of payments deficits, and the effects of high inflation on tax liabilities. Such incentives would not be specifically targeted at FDI, but to investment generally regardless of the residency of the investor.

Where tax incentives are used to provide counter-cyclical stimulation (by encouraging investment and thus aggregate demand in the economy), they are often introduced as temporary measures (for example, introduced with a three-year expiry "sunset" clause.) Temporary incentives offer the prospect of generating increased investment in the short-term relative to permanent incentives to the extent that investors shift investment plans forward in order to benefit from the tax relief. Where such measures are used, they are typically announced and then immediately introduced so as to not stall current investment plans. The use of temporary measures raises a number of difficult timing issues.

© OECD 2001

Tax incentives have also been proposed as instruments to stimulate production and exports in order to reduce current account deficits. At the same time, inbound investment spurred by tax incentive may provide a needed source of foreign currency. Tax incentives have also been advocated as an *ad hoc* means of offsetting the discouraging effects of price inflation on tax liabilities. This call recognises that in the presence of inflation, taxable income based on book profits can overstate the real (*i.e.*, inflation-adjusted) amount of income derived from capital, the theoretically correct measure of income to tax.[17] In the absence of comprehensive accounting systems for adjusting for inflation, the use of accelerated write-offs is often promoted to offset the tendency for capital to be overtaxed in the presence of inflation.

5. A *balancing of considerations*

Of course, the use of tax incentives must be judged within a broad policy framework, including at a very basic level, the desired amount of public expenditures, matched against the level of aggregate tax revenues. Revenue requirements, equity and efficiency considerations, and possibly other factors must be balanced, taking into account a given host country's preferences and circumstances, including opportunities and possible impediments it may present to investors, in establishing a "benchmark" tax burden on income from capital in the overall tax mix. Given the important withholding function of the corporate income tax, this in turn has implications for the benchmark corporate tax system and effective tax rate.

At the same time, recognition of the increasing mobility of capital and the corporate tax incentives on offer in other countries competing to attract mobile investment capital, can create pressures for departures from a country's benchmark corporate tax system. Such departures, as noted, are typically constrained by revenue, equity, efficiency, and perhaps other external factors and considerations. Thus a balancing of needs, objectives and policy considerations will influence the ultimate choice of whether to adjust the host country corporate tax burden, and how much tax relief to offer. Where policy makers are attracted to the prospect of the potential benefits that FDI may offer, and where one or more arguments for tax incentives for FDI are found compelling, the question turns to the appropriate choice over alternative tax incentive instruments and an assessment of their cost-effectiveness. These and related issues are addressed in the following chapter.

© OECD 2001

NOTES

1. While definitions of FDI vary from one source to the next, the term generally refers to a non-portfolio investment in foreign securities, with 10 per cent or greater share ownership (measured in votes or value).

2. Income generated at the corporate level is also subject to tax at the individual shareholder level in most countries, including withholding tax and/or personal income tax on earnings distributions (dividends) and capital gains. Separate figures are not available for all OECD countries showing the amount of shareholder level tax imposed on after-corporate tax income (note that typically the bulk of personal income tax revenues consists of personal income tax collected on wage and transfer income). As noted later in the main text, the corporate income tax system plays an important withholding function, preventing individuals from deferring tax (at the personal level) by having income accrue at the corporate level.

3. The degree of redistribution that is achieved under a tax system is difficult to measure, as the ultimate incidence of a given tax is uncertain. The incidence issue focuses on who bears the burden of the tax (which can differ from the formal incidence of who pays the tax). While different taxes are levied on different legal entities (*e.g.*, individuals, corporations, partnerships, trusts) and different bases (income, assets, transactions) all taxes are ultimately borne by individuals. But how a given tax (and the overall tax system) impacts on different individuals as measured by different income strata is generally unknown. Corporate income tax, for example, is passed-on to individuals in some (generally unknown) combination of higher prices for goods/services, lower wages, and lower returns to capital providers. Also, tax incidence would be expected to vary across transactions, firms, countries and time.

4. In diverting resources to the public sector, different taxes distort market decisions to varying degrees (*e.g.*, the decision of how much to work *versus* enjoy leisure-time, the decision of how much to save *versus* consume, the decision over which savings vehicle or investment project to place funds in). These distortions impose so-called "dead-weight" losses on the economy by encouraging an inefficient allocation of resources (meaning that overall welfare (or utility) of individuals in the economy could be improved through a relocation of resources and lump-sum transfers of income). For example, capital may be diverted towards an activity that earns a lower pre-tax rate of return than an alternative investment.

5. Traditional economic analysis offers two other grounds for non-neutral tax treatment – optimal tax theory results, and administrative/compliance cost considerations. Optimal tax theory calls for the imposition of relatively high excise taxes on goods and services in inelastic demand (*e.g.*, food) to minimise economic distortion. In tax systems where (significant) direct excise taxation is not possible, an argument can be made for differential capital income taxes, given that capital taxes also affect the price of goods and services (to an unknown degree) and thus have "excise tax effects". A main difficulty is that differential capital income taxes will distort production decisions over competing factor inputs. One legitimate rationale for non-neutral taxation is that neutral taxation would demand certain provisions that could be incorporated only at significant administrative and compliance cost. Neutral taxation requires, for example, taxation of gains on the value of assets on an accrual basis. The taxation of gains on an accrual basis (as the gains arise), as opposed to a realisation basis (when assets are sold), would require that taxpayers determine market values even where no observable market transactions had occurred. Similarly, waiving tax on many types of imputed income (*e.g.*, the rental value of owner-occupied housing, which should taxed for neutrality reasons) is reasonable given the difficult measurement problems that arise in the absence of market transactions.

6. A consumption tax can take the form of an indirect tax on consumer goods (*e.g.*, VAT), a manufacturers sales tax or a retail sales tax, or a direct tax on individual's income net of saving (as consumption equals income less saving). In the mid-1960s, the VAT existed only in France. Since then, VAT systems have been widely adopted in developed countries (*e.g.*, adoption of the VAT has been made a prerequisite for membership in the European Community) and in developing countries.

7. This rationale takes as given that the domestic personal tax base is meant to capture income from capital (*i.e.*, the personal tax base is an income base, and not a consumption base.)

8. Under an accrual-based system, individuals would be taxed on annual changes in the market value of their assets. The difficulty with this approach is that the market value of many shares (*e.g.*, shares in private corporations) will not identifiable on a periodic basis for assessment purposes. Also, the taxation of accrued gains can create cash-flow problems for individuals, forcing them to borrow or sell off assets to cover tax liabilities.

© OECD 2001

9. The "benefit" argument for imposing corporate income tax is arguably weak (compared to its application to certain other direct and indirect taxes), given the rough correspondence between a given company's corporate income tax liability and the public benefits it derives. Other user charges (*e.g.*, tolls, gasoline taxes, licence fees, development fees, property taxes, payroll taxes) may be more justifiable.

10. Economic rents are returns to factors of production in excess of the "normal" return required to compensate suppliers of those factors for their use. The corporate income tax base is typically broader than the base that would tax economic rents alone, as a corporate tax on economic rent would include a deduction for equity financing costs. In particular, the tax base for a corporate tax on economic rent would be
Yc = REV–CST–INT–EQR–DEP
where EQR measures the return on equity (*i.e.*, the opportunity cost of equity, or the return required by shareholders, which in general would be equal to that available on an alternative investment of equivalent risk), and the other variables are as defined in the text [see equation (1.1*a*)]. Taxing economic rent is generally an efficient means of raising revenues. Theory suggests that the investment and financing decisions of businesses should not be affected by taxes in the presence of economic rent. Moreover, taxing economic rents may be viewed as equitable on the grounds that all residents of a given (host) country should derive benefits from the exploitation of non-reproducible factors, and not just shareholders.

11. In addition to allowing for the (limited) transfer of tax losses over time, tax systems often allow losses from one business activity of a taxpayer to offset revenues from another business activity of the same taxpayer (unless the activity is "ring-fenced"). For example, losses of one branch may be used to offset net revenues earned in another. Even with a single business establishment, revenues and deductions linked to different business activities may be mixed. Furthermore, most countries permit some form of loss transfer between different corporations (separate legal entities) within a related group of corporations.

12. Capital losses refer to losses on the disposition of financial assets. In many systems, capital losses are "ring-fenced" – that is, they can only be deducted against capital gains (often without a loss carryback provision), rather than against non-capital gains or income. This policy avoids tax planning incentives that would otherwise exist (in the presence of accrual taxation of capital gains) to realise capital losses immediately as they accrue, and to defer the realisation of capital gains.

13. Other inflation effects may be noted. First-in/first-out inventory accounting will understate the true cost of holding inventories in the presence of inflation. Similarly, the failure to index nominal capital gains for inflation may raise the effective tax rate on capital. Finally, where taxable income brackets in a personal tax rate schedule are not indexed to inflation, so-called "bracket-creep" will be observed, imposing higher marginal statutory tax rates over time on a fixed level of real income.

14. This stimulating effect may be offset to some extent where taxable lenders are required to include nominal interest income in their taxable income (as is generally the case), and therefore may demand higher nominal interest rates to compensate for this charge. However, many lenders are non-taxable (*e.g.*, tax-exempt pension funds, offshore parents with tax minimising strategies), which would tend to mitigate this effect.

15. As with other incentives, tax incentives for R&D typically would not be targeted at foreign investors alone. For a discussion of spillover arguments for R&D tax incentives, see "Canada's R&D Tax Incentives: Recent Developments", in *Report of Proceedings of the 44th Tax Conference*, 1992 Conference Report (Toronto, Canadian Tax Foundation.

16. Limiting tax incentive relief to foreign investors alone – while *potentially* curbing direct revenue losses – may be problematic on a number of counts. For example, such targeting can contribute to a sense that the tax system is unfair to domestic taxpayers, straining voluntary compliance. Also, incentives would be created for domestic investors to structure from offshore their domestic investments, so as to qualify for the incentive, creating the need for rules to address such avoidance behaviour (typically at significant administrative and compliance cost).

17. For example, part of the nominal return to debt capital simply preserves the real value of the underlying obligation and does not represent real economic income. Therefore, this portion of the return should not be taxed in the hands of the lender (while this portion should not be deductible in the hands of the debtor). Similarly, capital cost allowances for physical capital based on original purchase prices tend to understate the true costs of depreciation, and thus overstate taxable income; inventory valuations are also affected by inflation.

© OECD 2001

Chapter 2

CORPORATE TAX INCENTIVES FOR FDI MAIN TYPES AND CHANNELS OF INFLUENCE

This chapter reviews the main types of corporate-level tax incentives that may be used by host countries to encourage domestic investment. The tax incentives generally are either linked to the purchase of new productive capital, the financing of the capital acquisition, or the taxation at the corporate level of returns from the investment. While certain tax incentives to encourage direct investment in the domestic (host) country may be designed to benefit both domestic and foreign direct investors (FDI), others may be "ring-fenced" to target FDI alone.[1]

After presenting the main tax incentive types, consideration is given to their channels of influence. These are shown to affect either the after-tax benefits from incremental investment, or the after-tax cost (flow cost per period) of the last unit of capital installed. A simplified investment equilibrium condition is presented that offers a useful paradigm for addressing relevant linkages and plausible tax incentive effects.

The final section addresses the basic efficiency question of whether a given tax incentive generates benefits in excess of revenue costs. Attempts to answer this question involve a number of very difficult (and often intractable) issues surrounding the likely investment response and the direct and unintended "spillover" revenue cost of a given tax incentive measure, addressed in the following chapters.

A. Main Corporate Tax Incentives for FDI

Host countries may provide tax relief from income generated at the corporate level in a number of ways. Alternative corporate tax incentive measures include 1) tax holidays; 2) reductions in the statutory corporate income tax rate; 3) enhanced or accelerated write-offs for capital expenditures; 4) general or targeted investment tax credits; and 5) reductions in dividend withholding tax rates, and/or the provision or extension of imputation relief.[2]

Corporate tax incentives may also be provided through other basic technical rules for calculating taxable income, such as allowing reserves to be taken against future costs; and providing tax deferrals for certain types of corporate transactions. While these rules can have a significant impact on the total tax burden of a firm, they are not usually seen as stand alone incentives and so are not considered in this section. Many of the basic issues of effectiveness which arise with the more central or traditional forms of corporate tax incentives would arise with such "technical" tax relieving provisions.

1. *Tax holidays*

A tax incentive used primarily by developing countries to attract FDI is a *tax holiday*. Under a tax holiday, qualifying "newly-established firms" are not required to pay corporate income tax for a specified time period (*e.g.*, 5 years), with the goal of encouraging investment. A variant is to provide that a firm does not pay tax until it has recovered its up-front capital costs (payout). Targeting rules are required to define "newly-established firm", qualifying activities/sectors, and the starting period of the tax holiday. The provisions may exempt firms from other tax liabilities as well. At the same time, tax holidays deny firms certain tax deductions over the holiday period or indefinitely (*e.g.*, depreciation costs and interest expense), tending to offset at least in part investment incentive effects.

© OECD 2001

Tax holidays are sometimes viewed erroneously as a simple incentive with a relatively low compliance burden (*e.g.*, no need to calculate income tax over the holiday period). This perception tends to make this form of incentive attractive, particularly to countries that are just establishing a corporate tax system. However, the simplification benefits can be greatly overstated, and may not exist at all. Provisions will be required to impose certain tax-related obligations (*e.g.*, withholding personal tax from wages, filing income tax returns.) For long-term investment projects, investors will typically be required to keep records of capital expenditures and other items before and during the holiday period to be able to comply with the tax system following the holiday. Moreover, the rules needed to target the incentive and ensure that income that should be taxable is not artificially transferred to qualifying firms (granted a tax holiday) can be complex to administer and to comply with, and may impose burdens on firms that do not qualify for the holiday itself (*e.g.*, complying with transfer pricing rules between related domestic firms).

A tax holiday may be targeted at new firms in a specific region and/or industry sector. Sectoral targeting of tax holidays (as with other incentives) may address a perceived knowledge-gap in the host country, and draw in skills and knowledge transfer to domestic workers in key areas (*e.g.*, telecommunications sector). Targeting by sector or activity raises problems of how to treat firms already engaged in a targeted sector/activity, and in other sectors/activities that do not qualify. One option is to deny the holiday in such cases (strict targeting). Another option is to grant the holiday provided that a high percentage (*e.g.*, 75% or more) of the assets of the company are employed in the targeted area, and to restrict holiday benefits to income from the targeted sector/activity.[3] Regional targeting may support regional development and income distribution policy goals. However, it should be noted here that in practice, tax incentives that seek to combine regional development goals with attracting FDI often yield poor results, as the tax relief is insufficient to counteract negative regional factors (*e.g.*, remote location with high transportation costs, limited infrastructure, limited labour pools). Investor groups may also be targeted, as in the case of incentives targeted exclusively at foreign investors. In the context of FDI, it is often held out that targeting foreign investors can provide access to external capital, skills, contacts (see however note 1).

Tax holidays are most attractive to firms in sectors where profits are generated in early years of operation (*e.g.*, firms in trade, short-term construction, service sectors). However, these tend to be activities that would likely have occurred in any event, and so the incentive provides a windfall gain to investors and a pure revenue loss with little or no additional investment and employment to the host country. Moreover, where a tax holiday is necessary to attract mobile activities, there exists the threat that business will exit following the holiday. Tax holidays are generally least attractive to firms in sectors requiring long-term capital commitments, where loss-carryover provisions may be more beneficial. From the host country perspective, tax holidays tend to be particularly problematic in terms of revenue loss where significant business already exists in targeted activities, given the incentive to create "new" businesses from existing ones, or to transfer inflated profits into qualifying firms, using a variety of tax-planning techniques.

2. *Statutory corporate tax rate reduction*

A common form of tax incentive to encourage FDI, used by developing and developed countries alike, is a *reduced* (*statutory*) *corporate income tax rate* on qualifying income. The rate reduction may be broad-based, applicable to all domestic and foreign source income, or it may be targeted at income from specific activities, or from specific sources (*e.g.*, foreign source income), or at income earned by non-resident investors alone (forms of "ring-fencing"), or some combination of these.

As with a tax holiday, difficult definitional, administrative and compliance issues arise where the low rate is targeted at income from a subset of activities or investors. If the reduced rate applies only to profits from a targeted activity, then careful legislative drafting, regulations and administration are generally required to clarify eligibility and limit tax avoidance and revenue leakage. The rate reduction may be introduced as either a temporary or permanent measure, and generally is more attractive to foreign investors the longer the period that they can expect to benefit from it. From the point of view of effectiveness, the major problem with a rate reduction is that it generally also applies to income

© OECD 2001

generated by investments made before the introduction of the incentive. Such revenue loss has no direct investment incentive effect.

As emphasised in Chapter 5 (section B.1) of this paper, tax incentives for FDI delivered by way of a reduced statutory tax rate tend to not only encourage real investment, but also discourage financial structures and repatriation behaviour aimed at eroding the host country tax revenue base.

3. *Special investment allowances*

Another channel through which FDI incentives may be altered is via special tax provisions that lower the effective price of acquiring capital. Two main sorts of incentives can be distinguished in this category: *i*) investment allowances, which are special/enhanced deductions against (*i.e.*, reducing) taxable income; and *ii*) investment tax credits, which are special deductions against corporate income tax otherwise payable. Both investment allowances and investment tax credits are earned as a fixed percentage of qualifying investment expenditures. However, because the first is deducted against the tax base, its value to the investing firm depends, among other things, on the value of the corporate income tax rate applicable to the tax base – the higher (lower) is the tax rate, the higher (lower) is the amount of tax relief on a given amount of investment allowance claimed. In contrast, variations in the corporate tax rate do not affect the value of investment tax credits.[4]

Under an investment allowance, firms are provided with faster or more generous write-offs for qualifying capital costs. Two types of investment allowance can be distinguished. With *accelerated depreciation*, firms are allowed to write-off capital costs over a shorter time period than dictated by the capital's useful economic life, which generally corresponds to the accounting basis for depreciating capital costs. While this treatment does not alter the total amount of capital cost to be depreciated, it increases the present value of the claims by shifting them forward, closer to the time of the investment. The present value of claims is obviously the greatest where the full cost of the capital asset can be deducted in the year the expenditure is made. With an *enhanced deduction*, firms are allowed to claim total deductions for the cost of qualifying capital that exceed the (market) price at which it is acquired. Depending on the rate at which these (enhanced) costs can be depreciated, this carries the risk that it may generate a stream of tax deductions that exceed, in present value, the corresponding acquisition costs.[5]

4. *Investment tax credits*

Another main tax incentive instrument is the investment tax credit earned as some percentage of qualifying expenditures. As noted in Chapter 1 (see Section C), tax credits provide an offset against taxes otherwise payable, rather than a deduction against the tax base (thereby removing the dependency of the value of a tax credit claim on the income tax rate).

Investment tax credits may be flat or incremental. A *flat investment tax credit* is earned as a fixed percentage of investment expenditures incurred in a year on qualifying (targeted) capital. In contrast, an *incremental investment tax credit* is earned as a fixed percentage of qualifying investment expenditures in a year in excess of some base which is typically a moving-average base (*e.g.*, the average investment expenditure by the taxpayer over the previous three years). The intent behind the incremental tax credit is to improve the targeting of the relief to incremental expenditures that would not have occurred in the absence of the tax relief. This targeting is not ensured, however, as investors may have planned to increase their investment expenditures beyond levels in prior years in any event, and it has a reduced or no beneficial effect for firms whose pre-incentive level of investment is falling (perhaps because they have just completed a major capital expansion, or are faced with a market in recession) which may be just the time that policy makers would want investment incentives to be triggered.

Theory predicts that up-front tax incentives earned on investment expenditures, including investment tax credits (and accelerated depreciation if limited to new capital expenditures) should give the biggest "bang-for-the-buck". Indeed, the main argument for using these investment subsidies, as opposed to a reduced corporate income tax rate, is that subsidies to the cost of purchasing capital benefit only new investment – therefore, a larger reduction in the effective tax

© OECD 2001

rate on investment can be achieved at a lower revenue cost.[6] Rate cuts benefit existing or "old" capital, not just "new" capital, and therefore provide existing capital holders a windfall gain, as the reduction in the rate increases the present value of the future stream of earnings from existing capital, causing share values to rise.[7] Moreover, up-front tax incentives can help address cash-flow problems (liquidity constraints) that may inhibit investment. (This latter consideration tends to apply mainly to small businesses, and therefore may not be an overriding issue in the context of FDI by medium- to large-scale multinationals that would have access to global capital markets).

Furthermore, investment tax credits should have the most stimulative impact when targeted at short-lived assets, rather than long-lived assets of the same productivity. This follows from the fact that the present value of the stream of tax payments on revenues from a short-lived asset is smaller than in the case of a longer-lived asset. Therefore, an investment tax credit at a flat, fixed rate offsets a larger percentage of the tax revenues imposed on the stream of earnings from a short-lived asset. Viewed differently, short-lived assets are replaced more frequently than long-lived assets, so the credit is earned more frequently.

5. *Financing incentives*

Financing incentives, which operate to lower the required rate of return that a firm must offer on its shares, may also be used to encourage investment. There are generally three broad classes of financing incentives delivered through the tax system, with each intended to lower a firm's cost of capital (*i.e.*, discount rate): *i*) up-front tax incentives (tax deductions or credits) which provide shareholders with income tax relief on the cost of their equity investments in (or loans to) targeted activities; *ii*) down-stream tax incentives (tax deductions or credits) which provide shareholders with income tax relief in respect of the return (dividends or capital gains) from their investments in targeted activities; and *iii*) flow-through tax incentives which allow businesses to transfer unused tax deductions or tax credits earned on qualifying expenditures to investors, to be used to offset shareholder-level rather than business-level taxation. This latter form of incentive is generally applied to situations where businesses are expected to be non-taxable for a number of years and thus have no immediate use for tax preferences.

In the context of foreign direct investors, financing incentives generally fall under category *ii*). Possible relief measures include a reduction or the elimination of non-resident withholding tax on dividend income, and the extension in full or in part of integration relief (*i.e.*, in respect of corporate-level tax on distributed income) in systems that provide imputation or dividend tax credit relief to domestic shareholders. Whether or not measures relieving dividend taxation affect investment generally will depend on the source of financing. In particular, under one view of dividend taxation, such relief will only operate to lower the cost of funds to the firm if new share issues are the marginal source of finance. The foreign tax credit position of foreign direct investors subject to "worldwide" taxation, the existence or not of a tax sparing agreement with investor countries, and the tax treatment of the "marginal shareholder" may also be important factors.

Tax incentives for FDI sometimes require 100 per cent foreign ownership. In other cases, incentives are provided to foreign investors if their aggregate equity interest in a domestic investment is something less (*e.g.*, 50 per cent). In these cases, a question that arises is whether to provide domestic shareholders with the same special tax relief. Where tax incentives are structured at the corporate-level (such as tax holidays, a preferential corporate tax rate, accelerated/enhanced depreciation allowances, investment tax credits), the benefits generally accrue to domestic and foreign investors, unless narrowly targeted. In order to provide domestic shareholders with an added incentive to form a joint venture with foreign investors, financing tax incentives targeted at the domestic investor group might be considered.[8] However, great care must be exercised in the design of such incentives which have the possibility of rewarding churning – that is recycling funds from the company to shareholders and back to generate additional tax credits.

© OECD 2001

B. A Framework for Considering the Channels of Influence of Corporate Tax Incentives

The incentives noted under Sections 1 to 5 can be usefully categorized according to the mechanism or channel through which they influence the benefits and costs of additional investment at the margin:

- Incentives that reduce the statutory (or nominal or "headline") corporate income tax rate on profits derived from investment.
- Incentives that reduce the after-tax cost to business of purchasing new capital (through accelerated or enhanced tax deductions, and tax credits). And
- Incentives that reduce the after-tax cost of raising funds to finance the purchase of new capital.

The following summarises a useful paradigm, with roots traced to the seminal work by Jorgenson (1963) on the *user cost of capital* concept, for considering the influence of tax incentives on marginal investment decisions over the level or rate of investment for a given project site. In addressing investment location decisions (*e.g.*, the choice of one candidate host country over another), average tax rate analysis would also factor in, with the taxation of infra-marginal and marginal returns determining the overall after-tax rate of return on a discrete investment project.

In theory, under certain stylised assumptions, market-value maximising managers of firms in competitive markets would be expected to undertake investment in capital just up to the point where the marginal benefit from the last unit of capital installed just equals its marginal cost. This equilibrium condition can be expressed as follows:

$$(\Delta Y/\Delta K)(1-u) = (r+d)(1-A) \qquad (2.1a)$$

or equivalently,

$$Fk = (r+d)(1-A)/(1-u) \qquad (2.1b)$$

In expression (2.1*b*), the term $Fk = (\Delta Y/\Delta K)$ represents the increase in gross revenues (Y) accompanying a (one currency) unit increase in the representative firm's (or industry's) capital stock, denoted by (K). With diminishing returns to installed capital at the margin, the value of Fk falls as the capital stock increases. Revenues from investment at the margin are subject to the statutory or "headline" corporate income tax rate, denoted by (u). The left-hand-side of (2.1*a*) measures the after-tax marginal benefit from an additional unit of investment.

The after-tax marginal cost is measured on the right-hand-side of (2.1*a*). This cost is the product of two terms. The term (1–A) gives the after-tax purchase price of one additional unit of capital, where the term A measures the present value of tax incentives tied to the purchase of a unit of capital. Such assistance would include for example investment tax credits and tax depreciation allowances. The higher is the investment tax credit rate, or the rate of tax depreciation allowance, the larger is (A). The term (r+d) is the sum of the real rate of return required by investors on their capital investment, denoted by (r), and the rate of economic depreciation of the capital due to wear-and-term and technological obsolescence, denoted by (d). On the last currency unit of capital installed, acquired at an after-tax price of (1–A) currency units, the firm faces financing charges of r(1–A), and in each period must replace worn-out capital at an after-tax cost measured by d(1–A).

This framework is useful for considering the channels through which various tax incentives may operate to encourage investment behaviour. First, reducing the statutory corporate income tax rate (or eliminating taxation, as under a tax holiday) will increase the after-tax revenues from investment at the margin, which tends to lead to a higher equilibrium capital stock. A reduction in the corporate tax rate, however, also lowers the present value of deductible depreciation allowances, which lowers A. A reduction in the corporate tax rate also increases the after-tax cost of debt finance by reducing the value of interest deductions, which also acts to lower A. Therefore, *a priori*, the impact on investment incentives of a reduction in the corporate income tax rate is ambiguous. However, the first-noted effect will generally dominate under typical parameter settings, implying that investment incentives will be increased by a reduction in the corporate tax rate.

Second, introducing or enriching a system of investment tax credits increases the value of A, which tends to encourage investment at the margin. Similarly, increasing the rate at which capital can be

© OECD 2001

depreciated for tax purposes (*e.g.*, accelerated depreciation, or immediate and full expensing of capital costs) increases A and thereby investment incentives. Depending on the rate and design of the investment tax credit and capital cost allowance (*i.e.*, tax depreciation) regime, the term (1–A) may be negative and the tax system may on balance act to encourage rather than discourage investment relative to the no-tax case.

Third, government policy can potentially influence the firm's pre-corporate tax cost of finance (r). As already noted, the cost of finance, which generally is some weighted average of equity and debt finance, will tend to increase if the statutory corporate income tax rate is reduced. In some cases, the cost of equity finance may be a function of personal tax parameters including the degree of double taxation (corporate and personal tax integration) relief. In particular, under certain financing and arbitrage situations, reductions in shareholder-level dividend tax rates and capital gains tax rates may lower the cost of funds to the firm, and through this channel encourage investment [see OECD (1999) for a discussion of this point].

The framework can cover the cross-border investment case where non-resident withholding tax and home country tax on payments of dividends and/or interest to foreign (parent) investors might apply (which can be modelled through the impact on the cost of finance r), a consideration we return to in Chapter 3.[9] Also, as noted above, location decisions over alternative investment sites would involve an assessment of overall after-tax rates of return (*i.e.*, on infra-marginal as well as marginal outlays). The taxation of infra-marginal returns becomes increasingly important with the existence of economic rents (returns in excess of required or normal rates of return) on infra-marginal units. For example, when comparing two alternative locations expected to generate the same pre-tax rate of return, the site that offers the highest after-tax rate of return on a present-discounted basis (the lowest average effective tax rate) would generally be preferred [see OECD (2000) for a more detailed discussion of the relevance of marginal effective tax rate (METR) analysis, and average effective tax rate analysis on investment location and expansion decisions].

C. Assessing the Effectiveness of Tax Incentives for FDI

While market failure and regional or international competitiveness arguments may apply that point towards intervention in the market through the tax system, it is critical that the host country investment conditions and characteristics be assessed in order to gauge whether possible impediments to investment could be overcome by the use of tax incentives. When tasked with addressing calls for the introduction of incentives for FDI, it is critical that policy makers ask:

What are the impediments inhibiting investment, and can they be addressed in a cost-efficient way through the use of tax incentives?

This is obviously a difficult question in many if not most instances, but it runs to the heart of the decision of whether or not to introduce special tax relief mechanisms. In cases where FDI activity is low, policy analysts need to address the impediments and question whether these should be tackled through the tax system, or through structural policy changes in other areas, or both.

In a given host country, there may exist one or more market or policy-related impediments to FDI. For example, FDI may be discouraged from a given country or region if required factors of production (*e.g.*, sufficient pools of skilled labour, natural resources, energy supplies) cannot be accessed or brought in at a competitive cost. Project costs tied to taking outputs to market may be another important factor. Indeed, case studies show that *access to basic inputs and output markets and to infra-structure* are key to FDI in a number of sectors. A related factor is the *size of the market*. FDI will be encouraged by the existence of a large potential market in the host country region if consumer demand for output has been largely unfilled to date. Conversely, if demand for a particular product in the region is low and export costs are relatively high, FDI may be expected to locate itself in an alternative production site. Again, where impediments are found, it is important to question whether tax incentives can offset, in a cost-efficient way, investment decisions based on underlying economics that point to an alternative investment site (taking into account not only revenue losses tied to targeted activities but also and unintended revenue leakage).

© OECD 2001

Case studies also stress the critical importance of *political stability* and *stability in the macro-economic environment* as key components of a successful framework to encourage FDI importance – particularly in the case of developing countries (see OECD, 1995).[10] Clearly, political instability or the threat of political instability can be the single largest deterrent to FDI, as it renders all areas of public policy uncertain. Macro-instability in exchange rates and price levels also increases uncertainty and the perceived risk of FDI, tending to discourage investment flows. This emphasises the importance of sound short-term and long-term fiscal policies. FDI can also be expected to be inhibited if the *legal and regulatory framework* is incompatible with the operation of foreign-owned companies. Important areas include the protection of property rights, the ability to repatriate profits, and a free market for currency exchange.

Where tax policy is identified as a major issue, *transparency of the tax law* and *administrative certainty* are often ranked ahead of special tax relief by investors. Uncertainty over tax consequences of FDI increases the perception of risk and thus discourages capital flows. This is particularly important for long-term, capital-intensive investments that most governments are eager to attract. Therefore, tax law should be expressed as precisely as possible. The law should strive to provide clear guidance over the treatment of basic transactions, including relatively more complicated ones (*e.g.*, corporate reorganisations). The administration of the law should be as consistent and non-arbitrary as possible and interpretations and advance rulings should be readily available.

Furthermore, frequent, *major changes to tax laws and regulations should be minimised*. While some fine-tuning is inevitable during a transition process and as policy evolves, it is important to bear in mind that frequent changes to the tax laws can contribute more than the provisions themselves to a perception that the tax system is complex and difficult to comply with. Frequent changes can make tax administration more difficult and may have other undesirable, unintended effects. Using tax incentives for counter-cyclical purposes can create problems on account of long lags in the impact of tax incentives on investment, implying that their stimulative effect may be felt only after the economy is already cycling out of recession.[11] "Temporary" measures may also be difficult to purge from the system, with pressures for the provisions to be extended, or made permanent features of the tax system.

A*dministrative discretion* is also an important issue. One the one hand, the granting of incentives by discretion (with pre-approval of authorities) may be attractive, in that it may improve targeting to desired activities, reduce the scope for tax avoidance, limit up-take and more generally limit the revenue cost. However, the approval process may be time-consuming and cumbersome. Administration discretion can also undermine transparency of the tax system, leading to a sense of unfairness, and tend to increase uncertainty with negative investment incentive effects.

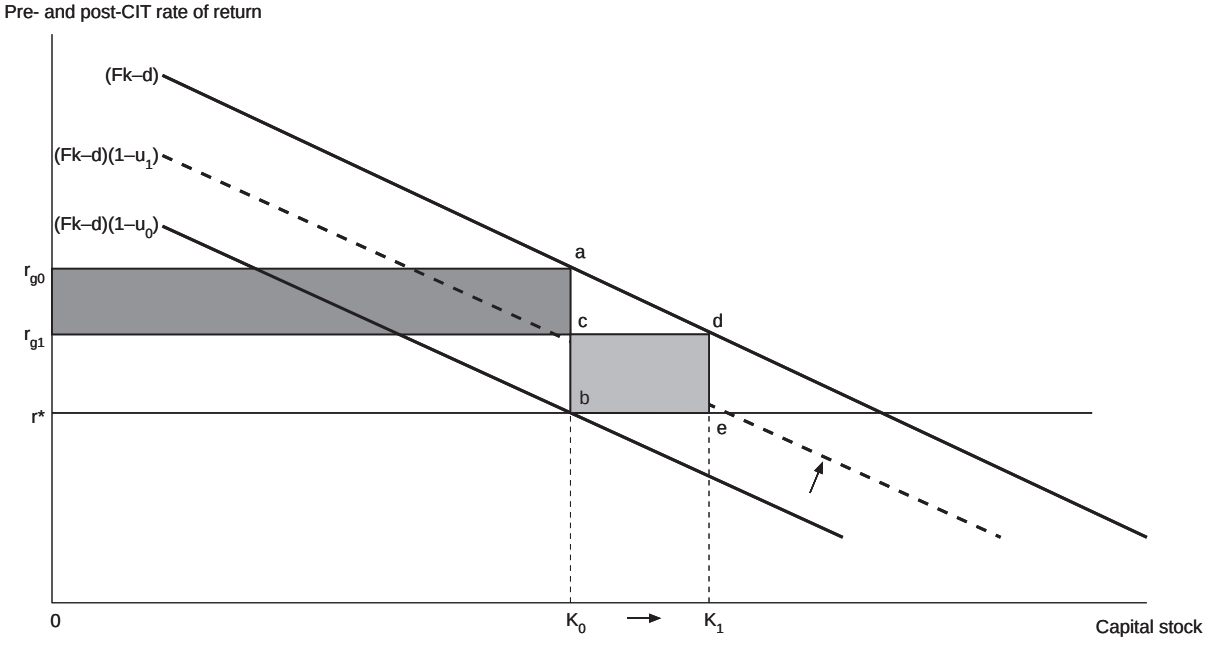
Business costs imposed by these and other impediments to FDI generally are taken into account by foreign direct investors when assessing the relative costs of choosing to invest in one potential host country *versus* other competing jurisdictions. While tax incentives may enhance the attractiveness of a given country, in many cases the relief provided will be insufficient to offset additional costs incurred when investing there. In particular, if a multinational firm is unable to generate profits from certain business activities conducted in a given jurisdiction, it is unlikely that tax incentives would have a notable impact on FDI levels. This would tend to be the case for goods and services produced under competitive conditions with output prices set in international markets, where product demand can be met by locating production in an alternative site offering access to factor supplies and markets at lower cost. Clearly, a reduced effective tax rate on profits is attractive only where pre-tax profits can be realised.

Providing non-profitable (loss) companies that are non-taxable (and therefore unable to use special tax deductions, allowances and tax credits) with up-front cash refunds on earned but unused tax incentives tends only to attract aggressive tax-planning to access the subsidies from government, rather than *bona fide* investment in the targeted sectors. Moreover, project self-sufficiency rarely materialises where investment projects are not profitable on a pre-tax basis. Where incentives cannot be expected to compensate for additional costs and business losses incurred when investing in a potential host country, then their use and the net burden imposed on the host country should be avoided. In particular, in general it would be best to avoid the administration and compliance costs and tax revenue losses from the inevitable "leakage" of tax incentive relief to one or more non-targeted business activities.

© OECD 2001

Where a firm is able to generate profits from operating in a given host jurisdiction, tax incentives may be successful in attracting additional FDI. Chart 2.1 considers the case where a reduction in the statutory corporate tax rate (from u_0 to u_1) has the desired effect of encouraging foreign parents to expand their capital stock employed in the host country. The illustration shows the stock increasing from a pre-reform steady-state equilibrium value of K_0 units of capital to a post-reform value of K_1. While silent on the dynamics and speed of adjustment to the new steady state and on possible economic rents realised on infra-marginal units, the analysis serves to illustrate partial comparative static results and direct tax implications. The example can be used to help identify considerations that could factor into a cost-benefit analysis by the host country of whether to proceed with the tax rate reduction.

Chart 2.1. **Illustration of surplus and tax revenue implications accompanying a reduction in the statutory corporate tax rate**



Source: Author's illustration.

In general, it will be in a host country's interest to introduce a tax incentive program if and only if the present value of the social benefits to its residents, which we can denote by $PV(B^S)$, exceeds the present value of the social costs $PV(C^S)$. We can write this net present value efficiency condition as follows:

$$NPV = [PV(B^S) - PV(C^S)] > 0 \qquad (1.4)$$

In Chart 2.1, the initial equilibrium is at point b where the after-tax demand schedule for capital, shown by $(Fk–d)(1–u_0)$, intersects the horizontal supply of funds schedule at the required after-corporate tax rate of return of r* set on world capital markets.[12] The reduction in the tax rate results in a new equilibrium at point e, with the demand curve shifting out to $(Fk–d)(1–u_1)$. Returns to capital are split between the host and home countries. In the pre-reform situation, the total return to capital (net of depreciation) in the amount (r_{g0} x K_0), shown by the rectangle with corners ($0.K_0.a.r_{g0}$), is allocated as follows. The host country treasury collects corporate income tax in the amount (u_0 x r_{go} x K_0), shown by the rectangle with corners ($r^*.b.a.r_{g0}$), while the return to non-residents in the amount (r^* x K_0) flows to foreign direct shareholder(s) and foreign treasuries where foreign tax is collected on host country profits. The allocation of the total return to capital in the post-reform situation (r_{g1} x K_1) is similarly

© OECD 2001

depicted in Chart 2.1. (Note that the illustration ignores, for simplicity, possible non-resident withholding tax on profit distributions – where withholding tax is levied, revenues from this tax should also be taken into account).

The calculation of the net social benefits would incorporate the net change in corporate income tax resulting from the increased investment. Additional after-tax profit from the increased FDI (shown by the rectangle b.e.K_0.K_1) would not be factored in, as the returns accrue to non-residents. Additional corporate tax revenues on the expanded capital stock ($\Delta K=K_1-K_0$) are identified by the dotted rectangle with corners (b.c.d.e.), measured by (u_1 x r_{g1} x ΔK) where r_{g1} is the new (post-reform) pre-tax rate of return. At the same time, the tax reform results in foregone corporate income tax revenues on income derived from infra-marginal investment (that is, income generated by the initial capital stock K_0). In the illustration, host country tax revenues on the initial capital stock K_0 are shown to be lower on account of the reduced tax rate, in the amount of the shaded rectangle, with corners (r_{g0}.a.c.r_{g1}).[13] Where the rate reduction is targeted at "new" companies, or to a subset of business activities (*e.g.*, manufacturing), the costs should include an estimate of the leakage of tax relief to non-targeted sectors (not illustrated in the diagram).

In general, the net present value calculation could also factor in possible net social benefits from increased employment accompanying increased investment. Where labour market rigidities or distortions do not exist pre-reform, however, it is important to recognise that increased employment in the targeted/affected sector(s) may represent a net welfare loss. For example, where labour is drawn away from employment in non-subsidised sectors, or where increased labour demand accompanying FDI incentives distorts an efficient labour/leisure choice, increased employment cannot be assumed to increase net social welfare.

However, net social benefits from increased employment may result where existing labour market distortions give rise to an inefficiently low level of employment. For example, where a minimum wage policy results in labour supply in excess of labour demand, stimulating labour demand through FDI incentives may reduce the unemployment rate and bring efficiency gains. Also, where labour's reservation wage is artificially high on account of out-of-work benefits, increased wages accompanying increased labour demand may improve net social welfare by drawing more workers into the labour market and off social assistance. Net social benefits may also result where FDI leads to a transfer of labour skills and results in increased labour income and household welfare. Such training may be efficiently provided when "bundled" with foreign investment capital and provided in the form of on-site training. A possible increase in mid- to high-skilled labour supply and employment could form a potentially important component of net social gain from increased FDI. Where additional labour income is generated, the societal benefit to the host country would generally be measured by the gross wage amount, with personal income tax, employee social security contributions and possibly other taxes on that income benefiting the society as a whole through government expenditures and transfers.

The net present value calculation might also factor in increased demand for plant, buildings, equipment and materials, to the extent that these factors of production are derived from domestic sources (*i.e.*, reflect domestic value added), rather than being imported from abroad, and to the extent that host country factor input markets are demand constrained. In order to aggregate these benefits with additional net corporate income tax revenues and possibly additional wage income, the purchases should be converted to equivalent rental values. While a summary of cost-benefit analysis is beyond the scope of this report, measurement of net benefits from increased factor use should correctly reflect opportunity costs and "shadow" prices.

In measuring societal costs, administration costs tied to the tax change should obviously be included. These costs would tend to be higher where the rate reduction is targeted, and would include the cost of staff and materials required to administer requests for information and auditing of tax accounts to determine if targeting definitions where being adhered to. The costs should include an estimate of the compliance costs of taxpayers (both those that qualify and those that do not) in understanding and complying with the tax rules and regulations. In addition, to the extent that targeted tax incentives feed a perception that the tax system is unfair, benefiting some groups to the exclusion of

© OECD 2001

others, and thereby weaken taxpayer compliance, some estimate of tax revenue losses tied to this reaction should be included.

When assessing the possible benefits and costs and role of tax incentives for FDI, another consideration may be that the incentives are necessary where similar relief is being offered by a neighbouring jurisdiction also competing for foreign capital. This raises questions concerning the appropriate form and scale of tax incentive relief, and whether pressures to enrich tax relief will persist if unfettered tax competition unfolds, as well as a range of other design issues. It also raises the question of whether foreign direct investors could earn competitive "hurdle" rates of return in a given host country and in competing jurisdictions in the region in the absence of special tax incentives. In such cases, policy makers may wish to discuss the possibility of policy co-ordination in the area of tax incentives to avoid revenue losses and providing foreign investors with "windfall gains" – that is, tax relief above that necessary to realise competitive after-corporate tax rates of return – and also to address possible equity and efficiency concerns linked with the use of special tax incentives.

Lastly, where officials are confident that tax incentives can offset impediments to FDI, and yield benefits tied to increased FDI that exceed tax revenue losses and program costs, it remains prudent to consider whether government policies should be adjusted in other areas to reduce non-tax impediments to FDI. As noted above, certain impediments to FDI are largely outside the control of government and may present FDI obstacles that cannot be overcome by tax incentives or other support. For example, where a region is far removed from required energy or output markets and transportation and other structural project costs are significantly higher compared to an alternative site, tax incentives generally will be unable to redress the situation. However, in other areas, government expenditures may play a key role. Examples might include increased spending on education to expand the domestic pool of skilled labour, public works spending to improve roads, airports and other infrastructure, and efforts to develop and strengthen patent legislation and other safeguards to intellectual property. Programs to educate potential investors on the benefits of operating in the host country might also be considered. Where impediments are addressed in these ways, this may in turn reduce pressure for incentives and allow a phase out of this support over time.

© OECD 2001

NOTES

1. For many instruments, targeting (or "ring-fencing") incentives to capital provided by foreign (non-resident) investors is difficult, given that domestic investors would attempt to obtain the same tax relief by recharacterising business operations to meet a given "foreign investor" test.
2. Other possibilities include reductions in source country withholding tax rates on interest and royalty income.
3. A simple formula approach should be used to determine the proportion of profits to qualify for the holiday – the proportion could be on the basis of some overall figure such as wages and salaries of employed, total revenues, or assets.
4. The setting of the corporate income tax rate can indirectly influence the value of investment tax credits to the extent that the claiming of investment tax credits earned is constrained by the amount of corporate tax (which is itself a function of the corporate tax rate.)
5. Note that the second investment allowance scheme can be combined with the first giving accelerated deductions on an enhanced (inflated) cost base.
6. This reasoning does not apply as strongly where a corporate rate cut is targeted at new investment alone. In practice, this targeting is very difficult to sustain, as existing firms attempt to recharacterise their business activities to qualify for the tax relief.
7. It is also important to recognise that an investment tax credit, which denies relief to existing capital, will impose a windfall loss to (*i.e.*, a reduction in share values for) existing capital holders (for the same reason that the value or price of any other asset declines, ceteris paribus, if the purchase price of a new unit falls).
8. Financing incentives may also be targeted at non-resident *portfolio* investors. See the OECD report *Taxation of Cross-Border Portfolio Investment – Mutual Funds and Possible Tax Distortions*, 1999, for a discussion of relevant portfolio shareholder tax considerations and the impact of tax relief in international direct (non-intermediated) and intermediated (collective investment fund) investment structures.
9. See Bovenberg, Anderson, Aramak and Chand (1990) for a simple illustration.
10. In addition to econometric (empirical) reviews, case study analysis forms a second branch of inquiry into the sensitivity of FDI to host country taxation and the efficiency of host country incentives. As with empirical results, care must be exercised when interpreting case study responses. Questions posed to investors must be carefully worded in an attempt to extract true opinions on the incremental investment effects of tax incentives, given that investors are often eager to obtain assistance from government. This tendency to supply less than honest answers may vary across investor groups and over time. More truthful responses might be forthcoming, for example, in instances where the treasury has been subject to extensive revenue drain from the use of tax incentives if widely viewed as having been ineffective in promoting investment – at some point, one might expect investors to more accurately describe their view on the efficiency of tax incentives in the interest of all taxpayers collectively, the public purse and the health of the domestic economy (these same sentiments may not run as high in the case of FDI.)
11. A lagged impact can occur for a number of reasons. First, it generally takes time to recognise the presence of a recession. It then takes time to develop a tax incentive, draft tax legislation, and enact it. Uncertainty over the rules and the coverage can translate into further delays. And there are often lags between when an investment decision is made, and when dollars are spent.
12. The schedule (Fk–d) in Figure 2.1 shows the pre-tax rate of return (net of depreciation, at rate d) corresponding to the domestic capital stock K measured along the bottom axis. The schedule slopes downward under the assumption that the value of the marginal product of capital Fk falls as the capital stock increases (see also the discussion in Section B.). The schedule $(Fk–d)(1–u_0)$ shows the net after-tax rate of return at various capital stock levels, where u_0 denotes the initial statutory corporate income tax rate. With a reduction in the tax rate from u_0 u_1, the demand schedule shifts out to $(Fk–d)(1–u_1)$, showing a new equilibrium at point e with capital stock K1.
13. Note that a notional measure of reduced income tax (corresponding to the rate reduction) on profit earned on new capital acquired solely on account of the tax relief should not be factored into measured costs (as the new capital in the amountΔK would not be observed at the higher tax rate).

© OECD 2001

Chapter 3

ASSESSING HOST AND HOME COUNTRY TAX-INTERACTION EFFECTS

In order to assess the likely effects of host country tax incentives, it is necessary to look beyond the host country tax rules and consider the treatment of foreign source (host country) income in the home country of foreign direct investors. Addressing tax-interaction effects is important as tax consequences in the home country can reduce the impact of a given host country incentive. Indeed, tax rules of several countries can factor into the analysis, for example where financing comes via an offshore affiliate or holding company.

The first section of this chapter reviews the basic approaches used by countries in taxing profits on foreign direct investment, and examines rules under which host country tax incentives may be partially or fully offset by home country taxation. The second section considers a number of important qualifications to these findings, some of which tend to reinforce offsetting home country taxation, and others working in the opposite direction. The analysis begins with the observation that offsetting home country tax effects may depend on the sources of funds used to finance FDI at the margin. We then consider the possible "mixing" of foreign source investment income (for foreign tax credit purposes), and how this can be used to reduce home country taxation. Another important consideration is the ability under many systems to defer home country taxation until foreign profits are repatriated. Increased use can also be observed in the use of tax havens to shelter foreign source income from further taxation. These avenues may however be challenged by the possible application of controlled foreign company (CFC) rules which operate to reinforce home country taxation (with negative implications for the flow-through to investors of host country tax incentives). Finally, we consider the host country benefits resulting from a negotiated inclusion of "tax sparing" agreements in tax treaties, with the explicit goal of protecting host country tax incentives by avoiding home country tax on foreign profits that would otherwise be due.

A. Approaches to Taxing Foreign Source Income

Countries generally follow one of two approaches in their treatment of distributed profit earned on foreign direct investment.[1] Under the "territorial" approach (***source-based system***), foreign dividend income is generally tax-exempt in the home country, with full taxing rights given to the source (host) country. Therefore, in determining overall corporate-level taxation imposed on income derived from FDI, one need not consider home country taxation. In other words, for investors resident in exemption countries, only host country taxation matters.

In contrast, the "worldwide" approach adopts the residence principle of taxation. Countries with residence-based tax systems (*e.g.*, U.S., U.K., Japan) tax resident investors on their worldwide income, which includes foreign source income. Under gross-up and foreign tax credit provisions, the home country taxes foreign income (measured before (*i.e.*, gross of) foreign tax) when it is repatriated, but provides a tax credit for creditable foreign income tax paid to avoid double taxation of that income. Withholding taxes are considered as income taxes, despite being levied on a gross basis and are therefore creditable taxes.[2]

The maximum foreign tax credit claim, which is a dollar-for-dollar offset against the home country tax liability, is typically limited to not exceed the amount of home country tax levied on the gross income.[3] A residence-based (worldwide) approach with gross-up and foreign tax credit provisions

© OECD 2001

effectively provides the host (source) country the first opportunity to tax subsidiary profits, but then taxes distributed income at home country tax rates, while providing a foreign tax credit up to the amount of the home country tax.

Table 3.1 considers various forms of foreign source income and foreign operating entities, possible types of host (source) country taxation, foreign taxes that are generally creditable, and possible home country tax treatment. The focus in the subsequent analysis is on the treatment of repatriated profits of a foreign subsidiary (foreign direct dividends). Tax results relevant to foreign direct investors in countries with ***residence-based tax systems*** are reviewed below, examining separately the insufficient foreign tax credit case and the excess foreign tax credit case. The inter-action of host and home country tax systems is examined in detail in Annex I which derives expressions measuring the effective home country tax rate, the combined host and home country tax rate, and the repatriation tax rate corresponding to the distribution of a unit of pre-tax profits earned at the subsidiary level.

1. The "*insufficient foreign tax credit*" *case*

Consider a residence-based tax system which taxes resident direct investors, often domestic parent corporations, on their worldwide income, while providing a tax credit for foreign tax paid on that income to avoid double taxation. If the home country corporate tax rate exceeds the host country effective corporate income tax plus withholding tax rate – the so-called "insufficient foreign tax credit" or "excess limitation" case – then home country direct investors face a similar tax burden on repatriated foreign source income as on domestic source income. In particular, as shown in Annex I, the combined host and home country tax on the distribution of a fraction (λ) of subsidiary pre-tax profits (Π) can be expressed as:

$$T^C = \lambda\Pi(u-\chi) \qquad (3.1)$$

where $\lambda\Pi$ measures pre-tax profit distributed to the parent, u is the home country corporate tax rate, and χ measures the amount of unused (excess) foreign tax credits (per currency unit of distributed profit) earned on other income in the current year [under "mixing" possibilities (discussed below)] or other years (under foreign tax credit carryover provisions) that can be used to shelter domestic tax on the distribution. Where no unused tax credits earned on other streams of foreign source income are available to shelter the foreign dividends from domestic tax (*i.e.*, $\chi = 0$), equation (3.1) shows that the home country tax rate u that would apply to domestic source income also applies to foreign source income. In this case, host country tax incentives that lower the host country effective corporate tax rate are shown not to affect the combined amount of host and home country tax on pre-tax profits distributed to the parent.

2. The "*excess foreign tax credit*" *case*

If instead the parent is in an "excess foreign tax credit" position with foreign tax credits offsetting domestic tax on foreign source income, the combined host and home country tax on the distribution of foreign profits is given by the following expression:

$$T^C = \lambda\Pi[u^*+w^f(1-u^*)] \qquad (3.2)$$

where u^* denotes the host country average effective corporate income tax rate and w^f is the host country non-resident withholding tax rate on distributions of direct dividends by the subsidiary.[4] The equation shows the absence of home country tax parameters, with home country tax eliminated through foreign tax credit claims. With no home country taxation of foreign profits, host country tax incentives that lower the effective host country tax rate on foreign profits are not offset by the home country tax system. This result continues to hold with the introduction of successively richer host country tax incentives until the effective host country tax rate is lowered to the point where home country tax is collected on distributions (that is, up to the point where foreign tax credits are insufficient to offset home country tax).

© OECD 2001

Table 3.1. **Main categories of foreign (host country) source Income and possible home Country tax treatment**

Foreign source income	Possible source country taxes	Creditable source country taxes	Possible home country tax treatment
Income from foreign subsidiary			
Direct dividend (≥ 10% equity interest)	CIT, WT	CIT, WT	• Exemption (unconditional) • Exemption (conditional on taxation of income in host country) • Credit system (deferral or possibly accrual)
Portfolio dividend (< 10% equity interest)	CIT, WT	WT	• Credit system
Interest	WT	WT	• Credit system
Rents and royalties	WT	WT	• Credit system
Income from foreign branch			
Branch profit	CIT, BPT	CIT, BPT	• Exemption (unconditional) • Exemption (conditional on taxation of income in host country) • Credit system (accrual)

Note: CIT = corporate income tax.
WT = withholding tax.
BPT = branch profits tax (branch equivalent of WT).

The above result observed in the excess foreign tax credit case, with no home country tax imposed, is akin to that observed under a ***source-based system***. The difference is that in the former case, foreign tax credit provisions eliminate home country tax liability, while in the latter case, home country tax liability does not arise in the first place (*i.e.*, domestic tax is waived on foreign source active business income).

Therefore, as illustrated above, where a foreign direct investor is subject to tax under a worldwide system, the introduction of a tax incentive for FDI that lowers host country income tax may – depending on the investor's foreign tax credit position – simply lower the investor's foreign tax credit dollar for dollar, and increase tax revenues in the home country dollar for dollar, without reducing the combined amount of host and home country income tax imposed on income generated in the host country. In other words, the tax incentive may have no impact on the final tax burden on the investor (and thus no impact on investment incentives), and may simply result in a transfer of tax revenues from the host country to the home country treasury.

Where foreign direct investors (*e.g.*, parent companies) taxed under a residence-based system find that host country tax incentives are clawed-back by the home country, one might expect that the incentive program would have no effect on the host-country investment incentives (neither encouraging nor discouraging these investors from investing in the host country). However, as pointed by Scholes and Wolfson (1992), if host country tax relief is introduced and made available to domestic (host country) investors (or to other foreign investors resident in countries that apply an exemption system), foreign investors taxed on their worldwide income might actually be *discouraged* from investing in the host country, relative to their foreign investment position prior to the introduction of the tax incentive program. This follows from a general equilibrium effect – the pre-tax rate of return generally would fall as the host country capital stock expands with increased domestic investment. This effect appears to be confirmed by empirical work by Swenson (1994), at least in the context of FDI into the US in the 1980s (see Chapter 4, Section B).

B. Qualifications to Offsetting Home Country Tax Effects

This section considers a number of important qualifications relevant to assessing the possibility of home country taxation offsetting host country tax incentives. Under the tax capitalisation view of dividend taxation, possible offsets to host country tax incentives (stemming from additional home country taxation in the insufficient foreign tax credit case) are conditional on the marginal source of finance. In particular, any additional home country tax (and host country withholding tax) upon the

© OECD 2001

repatriation of profits may not affect FDI incentives where the FDI is financed by retained earnings. Multinationals may also be in a position to avoid additional home country tax on low-tax foreign source income using various tax-planning techniques (even where subsidiary profits are distributed as earned). One technique is the mixing foreign source income for foreign tax credit purposes, using excess foreign tax credits on high-tax foreign source income to offset home country tax on low-tax foreign source income. Another important consideration is that parent companies are often able to defer home country tax by deferring the distribution of subsidiary earnings. The ability to postpone dividends and delay home country tax suggests that the latter may not be an important consideration in present value terms.

Yet another factor, one of increasing importance over time, is the widespread use of financing affiliates in tax haven countries. This avenue for protecting against further taxation of low-tax foreign source income may, however, be curtailed by the application of controlled foreign company rules, and possibly other defensive measures adopted to counter harmful tax practices. A final point we consider is the possibility of negotiated "tax sparing" agreements between host and home countries, with the explicit intent of preserving host country tax incentives.

1. *Financing by retained earnings* versus *new share issues*

As first pointed out by Hartman (1985) in the cross-border investment context, the possibility of additional taxation on repatriated profits (host country withholding tax, plus home country corporate income tax) may have no impact on FDI levels, depending on the source of finance. The insight is an extension of the tax-capitalisation hypothesis, addressed first in the context of domestic investment by Hartman (1981) and others, that dividend taxes, while capitalised in (reducing) share prices, do not alter investment decisions where the marginal source of finance is after-corporate tax profit.

Hartman's framework considers a "mature" subsidiary with investment financed at the margin by retained earnings, and dividends determined as a residual (after-corporate tax profits, less FDI). The finding that FDI (and dividend repatriation) decisions are invariant to repatriation tax rates essentially rests on the assumption that repatriation tax on dividends is unavoidable. In this sense, after-corporate tax earnings are "trapped" in the firm. Where dividend repatriation tax cannot be avoided, the tax reduces by the same fraction the opportunity cost of reinvesting after-corporate tax earnings (determined by the after-tax return on an alternative (next-ranked) investment of equivalent risk, financed by distributed subsidiary earnings immediately subject to repatriation tax) and the return on reinvestment. In other words, the present value of the repatriation tax imposed on the eventual distribution of earnings on reinvestment is the same as the current period repatriation tax on an immediate distribution to finance the alternative investment. As a result, the tax does not influence the subsidiary's decision to reinvest the funds or repatriate them to its parent. The Hartman result is derived in the multi-year case in Annex III.

The Hartman (1985) result is subject to a number of qualifications. First, it applies to investment financed at the margin by retained earnings. Higher repatriation tax rates would be expected to reduce FDI financed at the margin by new share issues, as new equity capital can avoid repatriation tax (*e.g.*, by investing in domestic bonds). Second, as pointed out by Altshuler, Newlon and Randolph (1995), the result assumes that the repatriation tax rate is constant. If the tax rate varies over time, this generates incentives for the repatriation of relatively more subsidiary profits when the tax cost is low (relative to the expected future cost). Third, the result is sensitive to the assumption that the host and home countries have similar tax bases. Leechor and Mintz (1993) show that if a host country offers accelerated depreciation, for example, attracting FDI, home country tax effects are introduced as the additional investment may lower the foreign tax credit that can be claimed to shelter income from previous investment. Fourth, as emphasised by Grubert (1998), dividends are not the only repatriation channel. Operating surplus may be paid out in other forms, including interest, royalties, management fees and other deductible charges. As we review in Annex VI (section B.2), his empirical work finds that while retained earnings are invariant to repatriation tax rates (confirming Hartman's model), dividend

© OECD 2001

distributions are not, and depend not only on their own repatriation tax rate, but also on the tax price of interest and royalty payments.

2. *Mixing high- and low-tax foreign income*

Another possibility in some systems for preserving host country tax incentives is to use "excess" foreign tax credits earned on high-tax sources of foreign income to offset home country tax that would otherwise be collected on low-tax foreign source income (*i.e.*, income benefiting from host country tax incentives).

As reviewed in Annex I, under a residence based tax system and in the absence of income mixing for foreign tax credit purposes, home country tax is imposed on distributed low-tax foreign source income to bring the combined effective host and home tax rate up to the home country corporate tax rate (applicable also to domestic income). This generally has the effect of offsetting host country tax relief. In contrast, foreign tax credits earned on high-tax foreign source (*i.e.*, foreign income subject to an effective tax rate at source that exceeds the domestic rate) exceed the amount necessary to eliminate gross home country tax on that income. When firms are allowed to mix high- and low-tax income, excess foreign tax credits earned on high-tax foreign income (*i.e.*, credits in excess of the amount needed to eliminate home country tax on that income) may be used to eliminate home country tax on low-tax foreign income. This sheltering of low-tax income has the effect of preserving host country tax incentives.

The advantages of income mixing are illustrated in Table 3.2, which considers a parent company with two subsidiaries: subsidiary A which is subject to a low 10% effective corporate income tax rate at source, and subsidiary B which is subject to a relatively high 40% rate, compared to the 30% home country tax rate.

Table 3.2. **Foreign tax credit effects with income mixing**

	Subsidiary A income	Subsidiary B income	**Total**	Pooled income	**Difference**
Source (host) country taxation					
Subsidiary profit (Π)	100	100		200	
Income tax (CIT*)	10 (u* @10%)	40 (u* @40%)		50	
Profit [Π (1–u*)]	90	60		150	
Dividend D = Π (1–u*)	90	60		150	
Withholding tax (w^f D)	4.5 (w* @5%)	6 (w* @10%)		10.5	
Source (home) country taxation					
Dividend receipt [D(1–w^f)]	85.5	54		139.5	
Grossed-up dividend (D/(1 – u*))	100	100		200	
Corporate income tax (CIT) (a)	30 (u@30%)	30 (u@30%)		60 (u@30%)	
Creditable tax (b)	14.5	46		60.5	
Foreign tax credit (min (a, b))	14.5	30		60	
Net corporate income tax (T)	15.5	0		0	
Excess foreign tax credit	0	16		0.5	
Source (host) country tax	14.5	46	60.5	60.5	0
Residence (home) country tax	15.5	0	15.5	0	15.5
Combined tax	30	46	76	60.5	15.5
After-tax profit	70	54	124	139.5	15.5

Notes: Example assumes current period profits of subsidiary are distributed in full.
Example assumes that there are no unused foreign tax credits from other years available to offset current year tax.

The non-resident withholding tax rate applied to distributions by subsidiary A is 5%, while that applicable to distributions by subsidiary B is 10%. The example considers the situation where the subsidiaries each distribute $100 in current period pre-tax profit to the parent. In the absence of income mixing, the combined host and home country tax levied on the distribution by subsidiary A is $30. Distributions by subsidiary B escape home country tax with pre-tax profits sheltered by foreign tax credits, implying that the combined host and home country tax take is at source in the amount of $46.

© OECD 2001

Considering both dividend receipts, the total tax liability on the $200 of pre-tax profit is therefore $76. When the parent is allowed to pool the two items of income for foreign tax credit purposes, the $16 in excess foreign tax credits earned on the dividend receipt from subsidiary B are used to shelter home country tax on dividends from subsidiary A. In the pooled income result, shown in the second last column, the combined tax is $60.5, implying a tax savings of $15.5 relative to the separate income streaming case.

Therefore, where foreign direct investors are allowed under their home country tax rules to mix high- and low- tax foreign source income for foreign tax credit purposes, the benefits of foreign host country tax incentives may flow through.

3. *Deferral of earnings distribution*

Because foreign subsidiaries are treated as separate (corporate) taxpayers, the profit they generate generally is not subject to tax by the shareholders' home country until such income is remitted. The postponement of home country tax until profits are distributed (or shares are disposed of) is referred to as "deferral". The ability to defer home country tax on foreign source income can operate to encourage multinationals to invest in low-tax jurisdictions including those providing generous tax incentives to foreign direct investors. The reason seems intuitive. Consider a foreign direct investor in an insufficient foreign tax credit position (that is, with insufficient foreign tax credits to avoid additional home country tax on repatriated profits). If the investor is able to defer home country tax by postponing the payment of dividends – as opposed to the alternative of accruals-based taxation where foreign profits are taxed in the home country on a current basis (*i.e.*, as earned, regardless of whether the profits are distributed or not) – then host country tax incentives would be partly (or fully) protected.

The advantages to the firm of deferral over accrual taxation may be illustrated as follows, as detailed in Annex II. Consider a parent company in an insufficient foreign tax credit position that invests a dollar of new equity capital into a subsidiary and reinvests the after-tax profits (which will defer payment of home country tax on those profits). Let R denote the pre-tax rate of return at source on the investment, and u* denote the host country average effective corporate income tax rate which is lower than the host country basic (statutory) corporate income tax rate on account of some combination of a targeted tax rate reduction, accelerated and/or enhanced depreciation allowances, tax credits, or a corporate tax holiday. Accumulated profit at the end of, say n years, measured net of host and home country taxation, plus the original $1 invested (returned to the parent company on a tax-free basis), is measured by the following (K_n):

$$K_n = 1+(1-\tau)\Sigma^n_{j=1}R(1-u^*)[1+R(1-u^*)]^{j-1} = 1+\Sigma^n_{j=1}R(1-u)[1+R(1-u^*)]^{j-1} \quad (3.3)$$

where u denotes the home country corporate income tax rate and τ denotes the dividend repatration tax rate $\tau = (u-u^*)/(1-u^*)$.

In contrast, in the accrual case where foreign earnings are taxed by the home country as earned, the original $1 investment plus the accumulated profit measured net of host and home country corporate income tax (applied on an accrual basis), at the end of year n is given by $K(acc)_n$:

$$K(acc)_n = 1+\Sigma^n_{j=1}R(1-u)[1+R(1-u)]^{j-1} \quad (3.4)$$

The advantages of deferral over accrual are evident when comparing equations (3.3) and (3.4). The key difference is the fact that the build-up of capital is greater in the first case under deferral, accumulating at rate $R(1-u^*)$, which exceeds $R(1-u) = R(1-u^*)(1-\tau)$. The result is intuitive. For a given pre-tax rate of return, deferred payment of home country tax permits increased reinvestment in each period (owing to a reduced tax take on profits for reinvestment), and thus greater cumulative after-tax profits over the reinvestment period, prior to earnings distribution, so that $K_n > K(acc)_n$.

4. *Offshore holding companies and possible application of* CFC *rules*

Another strategy used to avoid home country tax on earnings of operating subsidiaries is to use holding companies in offshore tax havens. By capitalising a foreign holding company with equity, which is then invested in some combination of equity and debt issued by a foreign operating subsidiary, dividends (and interest) on the investment can be paid to the holding company, rather than directly to

© OECD 2001

the parent.[5] Where the holding company is situated in a tax haven that does not tax the holding company's income (or imposes tax at a nominal rate), then provided that the home country does not tax the parent on its foreign source income accruing offshore, the potential claw-back of host country tax incentives (offered by the source country where the operating subsidiary is resident) may be avoided.

The increasing use of offshore financial intermediaries has prompted a number of OECD countries to enact controlled foreign company (CFC) legislation aimed at preventing domestic taxpayers in certain cases from deferring (or avoiding indefinitely) domestic tax on income earned through foreign entities over which the taxpayers have control (substantial influence).[6] While the characteristics of CFC regimes vary from one country to another, a defining feature of all regimes is the current taxation by the home country of a portion (or all, as in the case of New Zealand) of the undistributed profits of a controlled foreign company.

In determining the "tainted" foreign source income to be caught under CFC rules, countries generally use either a transaction approach or a jurisdiction approach. Under the latter, current taxation applies only where the CFC is resident in a jurisdiction that does not impose a comparable tax burden to the one that would apply in the home country.[7] While generally only tainted income would be subject to attribution (accrual taxation) under a jurisdiction approach, all of the CFC's income may be attributed if a CFC meets an entity test that finds that the CFC is used primarily to earn tainted income. In contrast, under the transaction approach, CFC legislation applies to the tainted income regardless of the country of source [for greater detail on CFC rules in practice, see OECD (1996)].

Tainted income caught under CFC rules generally includes passive income and base company income.[8] Passive income generally includes investment income derived from portfolio holdings and, under certain country CFC rules, includes interest on inter-affiliate financing and dividends from related corporations. Where CFC rules cover dividends received from related corporations – and therefore cover dividends paid by a foreign operating subsidiary to an offshore holding company – the current taxation of those profits can mean a full claw-back (offset) of host country tax incentives. Therefore, the offsetting home country effects noted under Section A. result, with tax incentive relief provided to operating subsidiaries benefiting only the home country treasury (under a transfer of tax revenues from the host to the home country).

5. *Tax sparing agreements*

Perhaps the most direct way to protect host country tax incentives for FDI is through negotiating "tax-sparing" provisions with tax treaty partners. Under tax sparing, the home country treats offshore income that has benefited from reduced host country taxation under a tax incentive program as if it has been fully taxed in the host country. In other words, a notional foreign tax credit is provided by the home country that exceeds the amount of host country tax that has in fact been paid under the tax incentive program, in order to reduce the amount of home country tax imposed on the (host) foreign source income.[9]

The benefits of tax sparing in relation to a tax holiday program are illustrated in Table 3.3, which assumes a basic corporate income tax rate in the host country of 33(⅓)%, and a non-resident withholding tax rate of 10%. The first column considers the situation where the tax holiday does *not* apply, and computes after-tax profits to the investor under an exemption system, and alternatively under a gross-up and foreign tax credit system. Under the assumed tax rate structures, and in the absence of the tax holiday, the foreign tax credit exactly matches the gross (pre-credit) home country tax, so that no net home country is collected. With the introduction of the tax holiday, and without tax sparing, the *investor's* net position is shown to be unchanged. However, home country revenues are shown to increase by the amount of host country tax relief provided (40 units). In this case, the result is a windfall gain to the home country treasury. In contrast, with tax sparing, the home country provides a foreign tax credit equal to a notional amount of host country tax that would have been paid had the tax holiday not been in effect. With tax sparing, offsetting home country tax is avoided. Therefore the effect of tax sparing is to preserve host country tax relief in order to allow the incentive to have the intended effect of encouraging inbound direct investment on account of the tax relief.

© OECD 2001

Table 3.3. **Interaction of host country and possible home country tax systems, with and without tax sparing**

	Without tax holiday (source country)		With tax holiday (source country)		
Source country taxation					
Profit of subsidiary	100		100		
Corporate income tax @ 33.33%	33.33		0		
After-tax profit	66.67		100		
Dividend	66.67		100		
Withholding tax @ 10%	6.67		0		
	Exemption system	Tax credit system	Exemption system	Tax credit system without tax sparing	Tax credit system with tax sparing
Residence country taxation					
Dividend received	60	60	100	100	100
Grossed-up dividend	n.a.	100	n.a.	100	100
Corporate income tax @ 40% (a)	n.a.	40	n.a.	40	40
Creditable foreign tax (b)	n.a.	40	n.a.	0	40
Foreign tax credit (min(a, b))	n.a.	40	n.a.	0	**40**
Net corporate income tax (CIT)	0	0	0	40	0
Source country tax	40	40	0	0	0
Residence country tax	0	0	0	40	0
Total	40	40	0	40	0
After-tax profit	60	60	100	60	100

Note: CIT = corporate income tax.

There are two broad types of tax sparing provisions. The more common type provides home country tax sparing only in respect of foreign source income that has actually benefited from host country tax relief. Under this approach, it is necessary to identify the incentive program and the amount of host country tax relief that has been provided. Administratively, this can be done most readily for tax holidays, low corporate income tax rates, and withholding tax relief. Given the difficulties in establishing the amount of tax relief linked to accelerated or enhanced depreciation and investment tax credits, this first type of tax sparing provision typically is not extended to these types of tax incentives.

The other form of tax sparing, which is less common and usually confined to withholding taxes on passive income (portfolio dividends, interest, rents, royalties) provides tax sparing at a fixed rate (the deemed-paid tax rate) on such income. This approach avoids the problem of identification of incentives and the amount of host country tax revenues foregone. This feature, however, means that home country tax relief is not limited to tax forgone under a specific tax incentive regime. Under this method, an upper limit for source-country taxation is chosen (*e.g.*, a maximum withholding tax rate equal to, and in some cases exceeding, the generally applicable withholding tax rate), which fixes the rate of home country relief.

Most OECD countries, with a few exceptions (*e.g.*, US), have in the past granted tax sparing provisions in their negotiations of tax treaties with developing countries. A number of reasons can explain this interest. Most OECD countries have traditionally viewed tax sparing as part of their *foreign aid policy*, and granted it with a view to promote industrial, commercial, scientific or other development in certain countries. Some countries have granted tax sparing as a *matter of tax policy*. This policy has partly been prompted by a fear that a consistent application of the credit method would put their resident investors at a competitive disadvantage compared to local or other foreign investors able to fully benefit from tax incentives in the host country. Tax sparing is also frequently used as a *bargaining chip in tax treaty negotiations* (*i.e.*, a treaty negotiating tool). Some countries are prepared to agree to tax sparing but only in exchange for certain benefits, including for example, lower withholding tax rates on dividends, interest and royalties.

© OECD 2001

Many countries are rethinking the merit in negotiating tax sparing articles in tax treaties. A number of possible reasons can be advanced to explain this trend. Many analysts *question the effectiveness of tax incentives* in influencing FDI, and generally see FDI decisions as being determined primarily by non-tax factors. Where this is the case, tax relief confers merely a windfall gain to investors with no impact on net additional investment. As a corollary, FDI decisions by international investors resident in credit countries would appear to be rarely influenced by the presence or not tax sparing provisions in tax treaties. This is supported by the lobbying of the international business community which often encourages countries to conclude tax treaties regardless of whether tax sparing can be negotiated.

Furthermore, many analysts hold that tax incentives should only be employed to correct for instances of market failure (*e.g.*, R&D, the environment). To the extent that tax incentives do influence investment, and there exists no market failure, the general result would be a misallocation of resources (from their most productive uses) and a corresponding decline in capital efficiency. Thus, many would argue that the use of tax incentives in such cases should be discouraged, and not encouraged as is the case with tax sparing. Aside from the question of capital efficiency, there is also the concern that tax relief gained by domestic firms with operations in an offshore host jurisdiction, and supported by tax sparing, may negatively impact on the competitiveness of other domestic firms (in the home country) who musts bear a higher tax burden.

Tax sparing is also judged by some to be unnecessary on the grounds that home country taxation of foreign source earnings may be deferred, often for extended periods (thus reducing the present value of any home county repatriation tax), and indeed may be eliminated by various tax-planning techniques (*e.g.*, the mixing of high- and low-tax income). To the extent that multinationals are able to defer indefinitely or avoid domestic tax, tax sparing may be unnecessary. Moreover, tax sparing provisions may have the counter-productive effect of *encouraging foreign direct investors to repatriate profits*, rather than reinvesting them in the host country where they would further promote the host country's economic development. If the investor were to be subject to home country tax on these earnings (*i.e.*, as in the absence of tax sparing), the investor may be encouraged to defer repatriation in order to avoid domestic tax. Tax sparing credits that eliminate or significantly reduce home country taxation may remove this disincentive, and encourage earnings repatriation. The incentive to repatriate would be expected to be even greater where there is investor uncertainty over the continued application of tax sparing provisions.

Tax sparing was devised during a time when the level of global trade and investment was relatively modest, and there were extensive capital and regulatory controls on cross-border investments. As globalisation has radically increased the amount of cross-border trade and investment, and the scope for sophisticated tax-planning, the potentially adverse effects on countries of granting tax sparing have become more evident. Some countries complain that tax sparing provisions offer considerable *opportunities for tax planning and tax avoidance*. First, tax sparing provisions encourage the use of *transfer pricing techniques* to artificially inflate the amount of profit booked in the host country, and deflate the amount of profit booked in the home country, by using non-arm's-length inter-affiliate payment structures. Counteracting measures are expensive and require exchange of information (between tax authorities in the host and home countries) which may not always be available.

Second, the residence country may be used as a conduit by third country residents (treaty shopping). In a typical *conduit situation*, a third country investor in the source country providing tax incentives attempts to exploit the existence of a tax sparing provision between the residence country and the source country by channelling the investment through a conduit company in the residence country. Such treaty shopping can significantly erode the residence country (and third country) tax base.

Third, foreign investors will be encouraged to route certain payments (*e.g.*, interest) through corporations in host countries that waive income and/or withholding tax on such income and that have negotiated tax sparing provisions with the residence country. Such *routing* has the advantage of reducing home country tax that might otherwise apply.

© OECD 2001

Fourth, tax sparing provisions may encourage host countries to artificially inflate the statutory value of the income or withholding tax rate that they are providing relief from, in order to secure for foreign direct investors a greater tax sparing credit in their home country.

Also, a number of OECD countries have encountered administrative difficulties in applying tax sparing provisions. For example, where the tax sparing provision refers to particular sections of the law of the host country, it is often difficult to establish whether the taxpayer has in fact benefited from the incentives identified in those sections. Often the taxpayer is unable to verify it, and the competent authority of the host country is unwilling or unable to provide assistance. In other words, many of the control mechanisms associated with direct foreign aid are missing from tax sparing. With direct foreign aid, the recipient(s), the amount and the anticipated use of the foreign aid can generally be established in relatively precise terms, making the instrument a relatively transparent means of providing assistance to developing countries. In the case of tax sparing, it is difficult for the home country to assess the overall revenue implications of its tax sparing arrangements and to place a cap on the associated costs.

Finally, host countries desiring inbound FDI may also feel that the tax treaty concessions that they must make in order to secure tax sparing provisions with treaty partners are too great. These concessions may come in the form of reduced withholding tax rates on dividends, interest, rents and royalties.

© OECD 2001

NOTES

1. As elsewhere in the report, "direct" (as opposed to portfolio) investment refers to a significant investment in securities. While the threshold for "significant" can vary depending on the context of the usage of the term, it typically refers to an equity interest of at least 10 per cent of the shares (measured by votes or value) of a company.
2. Dividend withholding tax (like other withholding taxes) is imposed on a gross as opposed to net basis – that is, without any deductions against the tax base [distributed profit (net of corporate tax)].
3. Unlike tax deductions, the value of a tax credit claim is independent of the statutory corporate income tax rate.
4. In the case where the host and home countries do not have a tax treaty in effect, the withholding tax rate would be the host country's statutory withholding tax rate (typically in the range of 20-30%.). If a tax treaty is in effect, then the applicable rate would be the treaty negotiated rate (typically in the range of 5-10% in the case of direct dividends).
5. Where the parent borrows funds to finance all or part of a foreign direct investment, this gives rise to interest payments that under certain country rules are deductible against domestic source income, thereby reducing the domestic tax base, while income on the FDI that it finances accrues tax-free offshore (and under certain country rules can be repatriated to the home country as exempt surplus). Where capital that is on-loaned to the operating subsidiary gives rise to interest deductions in the source country, two interest deductions are possible on the sinlge investment (in the host and home country). This is referred to as a "double-dip".
6. A number of countries have also introduced anti-avoidance regimes to counter deferral of domestic tax on investment income earned through offshore portfolio investment funds (often regardless of whether these vehicles are controlled domestically). In the context of this report focusing on direct (as opposed to portfolio) investment in host countries, the relevant financial intermediary generally would be foreign controlled company.
7. Targeted countries are identified either *i*) by tax authorities (under either a "black list" of targeted countries, or a "white list" of countries excluded from the CFC legislation), or *ii*) by taxpayers who must establish whether the amount of tax paid by the CFC is less than a specified rate.
8. Base company income generally refers to income derived from selling property or providing services which is considered attributable to domestic taxpayers (*e.g.*, where the foreign corporation is established offshore primarily for to avoid domestic tax, rather than for real economic or business reasons).
9. For a full discussion of tax sparing issues, see OECD 1998, *Tax Sparing – A Reconsideration*.

© OECD 2001

Chapter 4

EMPIRICAL FINDINGS ON THE SENSITIVITY OF FDI TO HOST COUNTRY TAX BURDENS

An obviously critical question when attempting to gauge the cost-effectiveness of tax incentives to promote FDI is the impact of those incentives on incremental FDI. Much thought has gone into the general question of the impact of corporate taxation on direct investment whether by domestic or foreign investors. Moreover, the ever-increasing globalisation of trade and investment patterns has encouraged analysts to consider the complex interaction of host and home country tax systems and tax treaty networks to better understand the overall influence of taxation on inbound and outbound investment flows. It is within this broader framework that the question of how tax incentives ultimately impact on FDI should be addressed.

While answers to these questions have by no means been fully sorted out, important developments in the understanding of the main factors and their inter-dependencies have been achieved, and some real progress has been made over the last decade in empirical testing of investment models. However, due to a number of persistent limitations to the analysis, ranging from data problems to simplistic modelling assumptions, estimates of the responsiveness (elasticity) of FDI to changes in the after-tax rate of return on FDI – and through this channel, to changes in the level of tax incentives for FDI – must be used with caution.

This chapter, which is divided into five sections, reviews empirical findings on the impact of taxation on cross-border direct investment in real (physical) and intangible capital. The first section reviews findings in the literature up to 1990, drawn from primarily time series data on US FDI, while the second considers work using revised FDI data and addresses general equilibrium effects, recognized as important yet typically ignored in most analytical works. The third section reviews more recent results derived using data on (outbound) direct investment abroad (DIA). We then consider empirical analyses of host and home country tax considerations thought to influence R&D location decisions of US multinationals. The final section concludes with some observations on on-going limitations posed by empirical modeling and implications for gauging tax incentive effects.

Most of the empirical work in this area is based on US data. Therefore, findings on the sensitivity of US FDI (inbound investment) to tax considerations may not be taken to apply equally to other host countries. Similarly, findings on the importance of host country tax considerations to US parent companies investing abroad cannot be taken to apply equally to outbound investment decisions of corporate (direct) investors resident in other home countries. Nor can they be taken immediately as a measure of the likely (average) responsiveness of cross-border direct investment flows to variations in tax burdens in host countries outside the samples used in the empirical studies, with inferences requiring an assessment of relative host country investment impediments.

However, despite this caveat, the findings of increased sensitivity of foreign direct investment to host country tax burdens, linked to increased globalization, may be taken generally to apply to host countries with investment conditions similar to those in the sample groups, perhaps not in the same scale but in the same direction and trend over time. In particular, multinational corporations based in other home countries, also operating on a global basis with fewer investment and trade restrictions, could be expected to be more sensitive over time to home country tax burdens if home country taxation is not a pressing factor. This would include investors resident in countries that exempt foreign

© OECD 2001

active business income from tax (as under a territorial system, or a system that exempts dividends paid out of active business income), or allow deferral of home country tax on host country profit for an extended period (*e.g.*, using offshore holding companies).

A. Early Results Focusing on Inbound Foreign Direct Investment (FDI)

Empirical studies of the effect of taxation on FDI were pioneered by Hartman (1984), using data compiled by the US Bureau of Economic Analysis (BEA). Virtually all of the subsequent studies over the remaining decade focused on application of his approach with modifications, using improvements and updates to the BEA data. Indeed, given the difficulty in obtaining required data to permit work in this area, most of the evidence to date continues to be based on the US experience.

1. *Hartman's seminal work*

Hartman (1984) estimates the following equation for FDI (denoted by I*) over the period 1965-1979:

$$\ln(I^*) = a_0 + a_1\ln[r(1-t)] + a_2\ln[r^o(1-t)] + a_3\ln[(1-t^o)/(1-t)] \qquad (4.1)$$

where $[r(1-t)]$ measures the after-corporate tax rate of return on inbound FDI (determined as retentions plus distributions, interest and branch profits, with the surplus measured net of US corporate and property tax), divided by the end of prior year FDI stock; $[r^o(1-t)]$ measures the overall after-corporate tax rate of return on US capital stock (domestic plus foreign-owned); t denotes the average US corporate tax rate (assumed to be equal for foreign and domestic firms), and t^o denotes the average US corporate and personal tax rate on income from capital. Variables enter the equation in natural logs (ln) to facilitate elasticity computations.

The equation is estimated separately for FDI financed by retained earnings and FDI financed by new transfers of funds (new share issues plus loans from parents). The equation simply relates FDI flows to two after-tax rate of return variables plus a relative tax term. The after-tax rate of return variables (using backward-looking, average tax rates) are meant to proxy prospective rates of return on new FDI, with the second term introduced to help explain FDI in the form of acquisitions of existing assets, as opposed to expansions to existing foreign-owned operations or the establishment of a new US subsidiary or branch. The relative tax term is introduced to allow for the possibility that tax changes that apply to US investors alone may affect FDI through their impact on asset prices (*e.g.*, an increase in the effective tax rate on US investors alone (t^o) that reduces equity shares, with the tax rate on foreign investors unchanged, would be expected to increase FDI).

Hartman's results find that the coefficients in the estimating equation have the expected signs ($a_1>0$, $a_2>0$, $a_3<0$) and are statistically significant, though the fit (explanatory power) is much better when the equation is used to explain investment financed by retained earnings, as opposed to new capital. This result is consistent with the "tax capitalisation" view that home country taxation influences (and thus should be taken into account when estimating) FDI financed by new equity, but not FDI financed by retentions.

2. *Replication and extension by* Boskin *and* Gale (1987), Newlon (1987) *and* Slemrod (1990)

Hartman's (1984) paper sparked the interest of a number of other researchers. Boskin & Gale (1987) re-estimate Hartman's model over a longer time-frame (1956-84) using revised average tax rate and after-tax rate of return estimates provided by Feldstein & Jun (1987). They also test alternative functional forms to the investment equation and find that estimated elasticities (sensitivity) of FDI to the after-tax rate of return variables are roughly similar, albeit slightly lower than what Hartman found.

Newlon's work (1987) discovers that the variable measuring the after-tax rate of return on FDI used in the preceding works by Hartman (1984) and Boskin & Gale (1987) had been miscalculated from the original US Bureau of Economic Analysis data. Using a corrected after-tax rate of return series, Newlon finds that the estimated coefficients are unstable and sensitive to the time period considered. When considering years 1965-73, he finds that the investment equation explaining transfers of funds fits better than the one explaining retained earnings, reversing the earlier findings. When the interval is changed

© OECD 2001

to 1956-1984, the equation explaining transfers of funds performs poorly, and no estimated coefficient if found to be significant [see the discussion in Slemrod (1990)].

Neither Hartman's (1984) work, nor the refinements to it by Boskin and Gale (1987), Newlon (1987) and later Young (1988) incorporate US withholding tax rates or foreign home country taxes. The exclusion of repatriation tax considerations from the analysis is potentially problematic, particularly in the case of FDI financed by new transfers from foreign parents. Slemrod (1990) addresses this concern by disaggregating FDI data over the sample period 1960-87 and calculating two separate US inbound investment series – one for investors from Canada, France, the Netherlands and (the former) West Germany, all treated as exemption countries, and another for Italy, Japan, and the UK which tax foreign (US) source income under a foreign tax credit system. His primary goal is to go beyond earlier investigations to address the question of home country tax influences.

First, however, Slemrod like his predecessors tests US *host country tax effects*. Unlike earlier studies, rather than using US average rate of return variables, Slemrod uses a measure of the marginal corporate income tax rate on fixed investment in the United States calculated by Auerbach and Hines (1988), introducing into the investment equation both current period and lagged values (under a "time to build" argument). In a break from earlier studies, Slemrod introduces as explanatory variables *i*) the unemployment rate in the US to capture business cycle effects on FDI; *ii*) the ratio of the aggregate GDP of the seven investing (home) countries to US (host) country GDP to capture the effects of changes in the relative size of the US economy; and *iii*) the real exchange rate of the US dollar against a GDP-weighted average of the seven investing countries currencies to capture the effect of changes in relative production costs in the US period Slemrod adds a dummy variable equal to the number of years elapsed between data observation years and the benchmark survey year to account for the possible drift in the extrapolated data from true FDI values (note that the BEA follows the procedure of extrapolating benchmark data [collected periodically (1959, 1974, 1980)] forward to non-benchmark years, using sample data from quarterly surveys. Benchmark data, however, generally are not extrapolated backwards as a check of forward extrapolations of earlier years).

Slemrod takes the "tax capitalisation" view that the repatriations tax rate on distributed earnings, if stable, should not influence FDI financed by retained earnings. Where however a subsidiary's desired investment exceeds it retained earnings and new share issues (parent company transfers of funds) are the marginal source of funds, the tax due on repatriation of earnings would be expected to matter. (As illustrated in Annex III, the neutrality result for a "mature" firm facing a use of funds trade-off between retaining *versus* distributing earnings arises because the repatriation tax reduces the present value of the returns on internal investment by the same percentage that it reduces the opportunity cost of distributing the funds and investing them in an alternative investment.)

Slemrod's empirical tests of host country taxation of FDI into the US offer mixed results. The regression coefficients show, as expected, a negative relationship between FDI financed by new fund transfers and the US marginal effective tax rate (METR). The relevant (summed) tax coefficients are negative for all seven countries and significantly different from zero in four cases (not however for the FDI equation explaining investment from Canada). However, the regressions for inbound FDI financed by retained earnings show no clear host tax effect emerging. Furthermore, the regressions generally do not find more significant host country tax effects for investors from exemption countries, which is somewhat surprising given that host country tax effects can be fully offset under certain conditions by home countries that operate foreign tax credit systems.

As noted above, Slemrod's main objective is to test for *home country tax effects*. In his regressions he introduces four new explanatory variables in each of the six FDI equations (for all capital exporting countries, except the Netherlands where the requisite data was not available) – a current period and two lagged values of a home country marginal effective tax rate (METR) incorporating corporate and personal taxation, and a tax difference term measuring the gap between the host US and home country statutory corporate income tax rates. Several propositions are tested. Slemrod argues that, in theory, FDI from exemption countries should be positively related to home country taxation under the assumption that home country investment possibilities represent the opportunity cost of investing in

© OECD 2001

the US. He finds no empirical support for this proposition, as in no exemption country is the home country's tax rate found to positively related to FDI. However, as pointed out by Hartman [in his commentary to Slemrod's (1990) article], there is no clear reason to expect this positive relationship. If parent company internal cash flow is an important source of finance for US subsidiary investment, then high home country taxation, by reducing after-tax cash flow, may reduce US investment. Moreover, it is not clear in the context of US investment by a parent resident in a given (exemption or foreign tax credit) foreign country that the relevant comparison will be between the US tax rate and the foreign (home country) marginal tax rate. For example, the relevant comparison for a Canadian parent considering expanding capacity in its US or UK affiliate might be between the US *versus* UK tax rate.

Second, Slemrod tests whether FDI financed by new fund transfers from parents in foreign tax credit countries has a less positive or negative relation to home country taxation. Under the Hartman model, new fund transfers should be discouraged by higher repatriation tax rates. Thus, while higher home country taxation on domestic investment would tend to encourage FDI, higher home country tax on foreign source income of parents in an insufficient foreign tax credit position should operate to reduce and perhaps reverse this effect. The results do not show that the effect of home country taxation is less positive (more negative) for foreign tax credit countries compared to exemption countries.

However, the results do tend to confirm the proposition that FDI financed by retentions should be invariant or positively related to home country taxation. Also, the transfer of funds FDI equation for West Germany and Italy shows a significant negative coefficient on the statutory tax rate difference term, supporting the proposition that a relatively higher US tax rate should encourage higher borrowing in, and thus reduced transfers to, the host country.

Slemrod suggests that the failure of the empirical work to support expected differences in FDI responses between exemption and foreign tax credit countries may be explained by data problems, noting difficulties in the measurement of METR statistics. Data problems as well as a mis-specified investment model may also explain the finding of a negative, statistically significant coefficient on the home country tax rate, and the absence of a statistically significant coefficient when the home country tax rate is introduced in the case of West Germany and Japan. Slemrod notes the possibility that tax-planning to avoid home country taxation may go far in explaining the lack of importance of home country tax effects, suggesting that host country tax effects dominate FDI decisions.

3. *Problems with early empirical studies*

The early results are somewhat discouraging to researchers eager to understand the relationship between taxation and FDI. However, the lack of clear answers from these and other early studies to the basic question of how taxation and therefore how tax relief affects FDI may be explained by a number of factors. Two factors considered below are the use of simple, reduced-form estimating equations that may not adequately capture the appropriate investment model, and problems with the data. Section E. considers these and other factors to bear in mind when interpreting both the earlier and more recent empirical results.

The research relies on arguably overly simple investment equations. Most of the research has centred on reduced-form relationships between capital flows and measures of after-tax rates of return or effective tax rates on capital income. In these models, potentially important non-tax determinants of FDI are not explicitly modelled. However, it is not obvious how to incorporate, for example, elements that industrial organisation research emphasises are important to explaining FDI flows – including the choice of FDI over exporting in order to exploit ownership-specific assets (*e.g.*, intangibles) or capture location specific advantages (related to sourcing or marketing). Also, as noted above, with the exception of Slemrod (1990), the earlier studies do not incorporate US withholding tax rates, foreign home country taxes, and rates of return on non-US investments, which may be problematic.

Data problems have also plagued empirical work in this area. All of the early studies of the effects of taxation on FDI rely on BEA (Bureau of Economic Analysis) data on investment flows. Reliance on this data is problematic on a number of counts. First, the FDI data excludes debt capital raised locally or in third countries other than the home country [FDI includes retained earnings and transfers of funds

© OECD 2001

(new equity transfers plus debt capital loaned by the foreign direct investor)]. Thus the investment figures exclude important and possibly fluctuating components of FDI, potentially biasing empirical findings.

Second, as noted above, the surplus measure in the numerator of the after-corporate tax rate of return variable in Hartman's investment equation includes undistributed (retained) and distributed earnings. This can introduce a spurious correlation in the equation between the explanatory variable and the flow of FDI financed by retentions. Indeed, Newlon (1987) shows that in instances where a firm retains its income in full for investment purposes (as for example would be expected if its desired investment exceed its after-tax earnings), or where a fixed positive dividend payout rule is followed, a direct association would be observed between the after-corporate tax rate of return variable and retentions financed FDI, thus rendering problematic any observed empirical relationship between the left-hand-side retentions-based FDI variable and the right-hand-side after-tax rate of return explanatory variable.

Third, the early BEA data do not distinguish between acquisitions of existing business capital, on the one hand, and investment in new productive capital, on the other, where the latter includes not only expansions to existing capacity but also the creation of new investment projects. This has a number of implications. As emphasised by Auerbach and Hassett (1993), a distinct set of tax considerations are raised in the case of acquisitions FDI which are ignored by FDI models such as Slemrod's that rely on corporate marginal effective tax rates which incorporate tax treatment applicable to the acquisition of new as opposed to existing productive capital.[1]

Moreover, the theory underlying the construction of METR statistics assumes a smooth, continuous capital demand function and the absence of economic rents. However, new FDI projects will often involve large discrete, discontinuous adjustments to the aggregate capital stock and generate economic rents from the exploitation of some firm-specific advantages, suggesting that the assumptions underlying the marginal effective tax rates used to explain FDI flows may not be appropriate.

Fourth, the FDI figures are not true measures of real capital investment in the host country, in that they include purchases of financial claims which could include securities giving ownership to foreign capital – that is, capital situated outside the given host jurisdiction.

Fifth, there are breaks in the time series on US inbound FDI regarding the identity of the home country providing the investment funds. The 1974 benchmark data shifted from a definition that in some cases used the "ultimate beneficial owner" approach which looked through an ownership chain, to one that consistently looked to the "first foreign entity in the ownership chain". This problem flags the difficulty in determining the relevant set of tax rates applicable to investment returns.

B. Results Focusing on General Equilibrium Effects

Most studies of the tax effects on FDI involve a partial equilibrium analysis. The approaches are thus incomplete, missing potentially important impacts of taxation on interest rates, exchange rates, and various other market prices and returns. Swenson (1994) emphasizes the importance of general equilibrium effects and in her work, using newly generated BEA data, focuses on the effects of tax changes on pre-corporate tax rates of return. Her analysis draws on the work of Scholes and Wolfson (1990) which is critical of partial equilibrium approaches that assume fixed pre-tax returns. In practice, pre-tax rates of return and asset prices adjust to tax shocks that alter the relative attractiveness of various assets.

For example, if the tax rate is increased on a particular class of capital asset (*e.g.*, capital employed in a given sector or capital held by a given investor group), the relative price of the asset would fall. The decline would reflect reduced after-tax returns on the stream of future pre-tax earnings at the existing level of the capital stock and along an adjustment path to a revised steady-state value. At the same time, demand for more lightly taxed assets would increase, causing their relative price to jump. A declining stock of highly-taxed capital would cause pre-tax rates of return on that capital to rise (assuming declining marginal productivity of capital), pushing its asset price up. And similarly, the

© OECD 2001

relative price of the more lightly taxed assets would fall from their higher post-tax reform value as the stock of this class of capital expands. These adjustments operate towards restoring the equality of post-corporate tax returns across assets. However, the equalized after-corporate tax rates of return do not translate into equalized after-shareholder tax rates of return given the heterogeneity of shareholder-level tax rates across investors.

This point is seized by Swenson (1994) who recognizes that the provisions of the US Tax Reform Act of 1986 would have been differentially felt not only across industries, but also between domestic and foreign investors. The 1986 US tax reform increased the domestic corporate average tax rate, largely as a result of the introduction of more restrictive depreciation provisions. The increase in domestic corporate ATRs, which varied across industries, impacted directly on US investors. However, for foreign investors resident in countries with worldwide tax systems and relatively high corporate income tax rates (*i.e.*, rates in excess of the US rate), the increase in the US average corporate tax rate would be largely absorbed, offset by a higher foreign tax credit in the home country. In other words, increased US taxation of US source income earned by these foreign investors would result in a transfer of revenues from the foreign (home country) treasury to the US (host country) treasury, with the applicable tax rate for these investors being the home country tax rate both pre- and post-US tax reform.

Increased taxation for US domestic investors, *versus* largely unchanged taxation for a set of foreign investors, suggest possibly important general equilibrium effects. Scholes and Wolfson (1990) predict that one would observe increased inward FDI following the 1986 US tax reform. The increased foreign investor interest would follow lower asset prices (and thus higher rates of return) accompanying the switch by US investors out of assets subject post-reform to higher taxation.[2]

Swenson (1994) tests these predictions by observing the effects of US tax reform in 1981, 1982, 1984 and 1986, with the latter causing a reversal in reductions to corporate tax burdens, and with the effects applying differentially across a sample of 18 industries. FDI is measured using flow acquisitions and establishment data compiled by the BEA (Bureau of Economic Analysis) in response to criticism of its earlier FDI series that did not separate physical from financial asset purchases. Two sets of regression equations are estimated. The first pools together foreign investors subject to worldwide taxation and investors taxed under a territorial system, with a focus on exploiting cross-industry differences in US corporate ATRs over the period 1979-1991. Investor pooling is required to test for cross-industry effects given that the industry data does not distinguish foreign investor classes. The following equation is estimated to test the proposition that FDI by industry (indexed by j) is positively related to the domestic average corporate income tax rate in that industry, denoted by ATR_j.

$$\ln FDI_{jt} = \alpha + \beta \ln(ATR_{jt}) + \gamma \ln EX_t + \Sigma \delta t + \lambda_t T + \varepsilon_{jt} \qquad (4.2)$$

The ATR is measured as US corporate income tax paid divided by US corporate (book) income.[3] Given that the proposed tax effects apply only to foreign investors resident in countries with worldwide tax systems, while the data pools foreign direct investors in both worldwide and exemption groups, the after-tax rate of return elasticity variable β would tend to underestimate the response of the worldwide tax system investor group. Also included as explanatory variables are the (trade weighted) US exchange rate (EX), industry dummies (δ) and a time trend (T).[4] The industry-level results tend to confirm the prediction, with the after-tax rate of return elasticity variable β found to be positive (a value of 1.13) and statistically significant.[5]

A second set of regressions provides a direct test of the effects of cross-country variation in tax methods. The Scholes and Wolfson (1990) theory predicts that US FDI would remain unchanged or fall in response to an increase in the US ATR for investors resident in countries with territorial systems including Canada, Germany, France and the Netherlands. In contrast, FDI would be expected to increase for investors resident in Britain or Japan, both countries with worldwide tax systems. The results tend to support the theory. The elasticity parameter measuring the response to increased US ATRs of investors subject to worldwide taxation is positive and significant, while that for investors taxed on a territorial basis, while found to be positive, is much smaller and insignificant in most investment equation specifications.[6] As in the industry-level tests, the parameter on the exchange rate variable is found to be negative and significant, indicating that US dollar depreciation encourages FDI.

© OECD 2001

C. Recent Results Focusing on Outbound Direct Investment Abroad (DIA)

A second branch of empirical work focuses on US direct investment abroad (DIA). Most of the recent empirical literature on the effects of taxation on cross-border direct investment has in fact focused on DIA, rather than FDI. Before turning to this recent work, consider first a brief review of the early DIA results.

Early time series assessments of the effects of host county taxation on US outbound investment include Hartman (1981), Boskin and Gale (1987) and Newlon (1987) who, as noted in section (A), undertook much of the early empirical work focusing on tax impacts on (inbound) FDI. The outbound DIA literature begins with Hartman (1981) who examines the relationship between aggregate US DIA and after-tax rates of return in foreign host countries and in the US over the sample period 1965-1979. As in his work on US inbound FDI, Hartman runs separate regressions for DIA financed out of retained foreign affiliate earnings and DIA financed out of new fund transfers from US parents. The retained earnings equation performs relatively well, with the coefficient on the foreign after-tax rate of return variable (measured as net income from DIA divided by the end-of-prior-year DIA position) positive and statistically significant, and the domestic US after-tax rate of return variable (measured as the overall US economy-wide pre-tax rate of return times one minus the total corporate plus personal US effective tax rate) showing an expected negative coefficient.[7] In contrast, the new fund transfers equation performs poorly.

Boskin and Gale (1987) and Newlon (1987) extend Hartman's findings using a longer sample period, revised BEA data and alternative functional forms for the investment equation (DIA expressed in rates (as a percentage of GDP) and in level form). Their results are similar to and tend to confirm Hartman's (1981) findings that foreign taxation affects DIA and that domestic tax policy can have a significant impact on DIA as well. The elasticity estimates of Boskin and Gale are somewhat smaller for the response of DIA to a change in US after-tax rates of return on domestic investment. In particular, the coefficient on the US after-tax rate of return variable shows an elasticity of roughly –0.2 (implying that a 10 per cent increase in the US after-tax rate of return would result in a 2 per cent decline in DIA), while the foreign after-tax rate of return has an elasticity of roughly 1.2.

These early investigations, which find significant positive effects of foreign (host country) after-tax rates of return and negative effects of domestic (home country) after-tax rates of return [using investment equations analogous to the one noted above in Hartman's (1984) work)], generally suffer from the modelling and data measurement problems identified with the early FDI studies.

1. *Recent results using updated* BEA *data*

More recent studies of the effects of taxation on direct investment flows focusing on US direct investment abroad (DIA) have exploited both time series and cross-sectional data. Given that DIA is subject to multiple host country tax regimes, allowing for variation in host country data both across countries and over time, empirical analyses of DIA are generally better suited to identify host country tax effects.[8]

Grubert and Mutti (1991) and Hines and Rice (1994) take advantage of cross-sectional data prepared by the US BEA in its 1982 benchmark study on US DIA. The disaggregation of US DIA into various host country recipients improves prospects for the identification of host country tax effects, as noted above. In addition, the data provide balance sheet information of US-owned property, plant and equipment (PP&E) in 1982. In contrast to empirical work relying on financial flows investment data, studies focusing on PP&E enable a more targeted approach to the assessment of tax effects on real investment capital.[9]

Grubert and Mutti (1991) analyse the distribution of the PP&E capital of manufacturing affiliates across 33 host countries by regressing the log of the end of previous year net PPE stock on two average tax rate measures. The first regression using a natural log of one minus the ATR gives a constant after-tax rate of return elasticity of 1.5 based on data on all manufacturing affiliates of US parents, and a value of 2 for majority-owned manufacturing foreign affiliates. However the coefficients are not found to be

© OECD 2001

statistically significant. The second specification using the inverse of the tax rate produces a highly significant tax coefficient (–0.11) giving the estimated elasticity of PP&E with respect to host country tax rates. This estimate suggests that halving the host country ATR from 20 to 10 per cent would increase the stock of US DIA in the host country by 5.5 per cent.

Hines and Rice (1994) use a larger data set than Grubert and Mutti (1991), considering all majority-owned non-bank affiliates of non-bank US parents, which draws into the sample a total of 73 host countries. The inclusion of affiliates in all industries (not just manufacturing) and more host countries than in the study by Grubert and Mutti (1991), including 41 tax havens with little physical capital, may explain their finding of a greater tax response. They report a statistically significant coefficient on their ATR variable of –3.3. This estimate suggests that at the mean ATR of 31 per cent, a one percent increase in after-tax returns generates a 2.3 per cent increase in the PP&E stock of US affiliates.

2. *Recent findings using* US T*reasury data*

One of the most recent analyses of the effects of host country taxation on the investment location decision of US multinationals is Altshuler, Grubert and Newlon (1998.) They use information from the US Treasury corporate files giving balance sheet and income statement data for 2 years (1984 and 1992), for 58 host countries. The use of two years of data permits a test of whether US DIA has become more responsive to host country taxation over time, and also allows for a control over unmeasured host country fixed effects. As with the studies by Grubert and Mutti (1991) and Hines and Rice (1994), the focus is on the effect of host country taxation on locational choice, not on the choice of investing at home or abroad.

The main host country tax explanatory variable used in the investment equation is the natural log of one minus an averaged ATR variable. The ATR variable, based on subsidiary-level (controlled foreign company) data aggregated up to the country level, is derived by dividing total host country income taxes paid by a total earnings and profits measure meant to capture net economic income (as opposed to taxable income as defined by host country or US tax rules).[10] To smooth out business cycle effects, current period ATRs are averaged with ATRs of the previous two even years. To control for non-tax factors that may impact on locational decisions, the authors also include as explanatory variables the natural log of host country GDP, the natural log of host country population, regional dummies, and a trade regime variable to control for the degree of openness of the host country economy.[11]

The basic investment equation used by Altshuler, Grubert and Newlon (1998) is as follows (see Annex IV for a derivation):

$$(\ln K_{j92} - \ln K_{j84}) = c + \beta_{92}[\ln(1-ATR_{j92}) - \ln(1-ATR_{j84})] + \beta_{diff} \ln(1-ATR_{j84}) + \gamma (Z_{j92} - Z_{j84}) + \lambda TRADE_j[\ln(1-ATR_{j92}) - \ln(1-ATR_{j84})] + \nu_j \quad (4.3)$$

(where $\beta_{diff} = \beta_{92} - \beta_{84}$).

The main empirical results can be summarised as follows. The estimate for β_{92} measuring the after-tax rate of return elasticity for 1992 is positive at 2.8 and statistically significant. Note that this elasticity figure gives the percentage change in the end of prior year DIA stock (depreciable assets plus inventories) resulting from a one percent increase in the after-tax rate of return (measured by one minus the ATR for 1992). The implied estimate for β_{84} (given by the difference between β_{92} estimated at 2.77 and bdiff at 1.24) is 1.5, which is also found to be statistically significant.

The authors experiment with alternative investment equation specifications [*e.g.*, lagged ATRs are tested, and the ATR variables are tested in linear form as in Hines and Rice (1994)], and find that the after-tax rate of return coefficients remain positive and statistically different from zero at the five percent confidence level or higher. At the mean average tax rates for 1992 and 1984, the coefficients under the linear investment equation specification imply that a one percent increase in the after-tax rate of return in a country would on average increase the real capital stock by 1.7 per cent in 1984 and 3.2 per cent in 1992.

The results of this recent work indicate that the location of real capital by manufacturing firms is sensitive to taxation and has become more so over time.[12] The authors point out that this finding is

© OECD 2001

consistent with the increasing international mobility of manufacturing capital and globalisation of production, and with earlier empirical work finding significant tax effects.[13]

D. Empirical Analyses of Tax Effects on R&D Location Decisions

Policy makers are typically eager to attract FDI in order to enhance domestic productivity, particularly R&D-intensive FDI. Recent empirical work indicates that high host country taxation can frustrate this goal in a number of ways. Most obviously, a high statutory corporate income tax rate can discourage host country R&D by taxing away economic profit (rents) earned on R&D. However other international tax implications may be identified.

First, by contributing to excess foreign tax credit problems, high host country taxation can potentially discourage FDI by increasing the after-tax cost of a parent company's home country R&D program. In the context of US MNEs, it can do so by constraining the tax deductibility of home country R&D expenses, thus increasing the cost of home country R&D programs. Second, and again by contributing to excess foreign tax credits, high host country taxation can discourage host country R&D by reducing the amount of US tax on royalties charged on the alternative of technology exports to the affiliate by its US parent. These issues are addressed below. We also consider recent empirical work that suggests that by setting a high withholding tax rate on cross-border royalty payments, a host country can encourage host country R&D by reducing the after-tax return on technology exports to the host country by a foreign parent (or other foreign affiliate). However, this finding would appear questionable, for reasons noted below.

Consider first the impediment to accessing foreign technology that turns on the US expense allocation rules for R&D, which recognise the fungible (non-rivalrous) nature of R&D. These rules, which are akin to the US interest allocation rules, require that US R&D expenses be allocated against foreign source income in relation to the proportion of a US MNE's total sales and assets that are located abroad. This portion cannot be expensed when high host country tax eliminates US tax on foreign source profit. Thus high host country taxation can operate to constrain a US parent's R&D program by increasing its after-tax cost. Empirical work by Hines (1993) finds that, following the introduction of the US R&D expense allocation rules, US MNEs with large pools of excess foreign tax credits and significant foreign sales exhibited slower R&D expenditure growth than other firms.[14] The finding that US firms with affiliates in high-tax countries tend to be less R&D intensive than firms with affiliates in low-tax countries carries a number of implications. One is reduced access to and reduced spillover benefits from foreign R&D.

At the same time, excess foreign tax credits generated by high host country taxation can reduce host country R&D activities. In deciding where to undertake R&D, a US multinational can choose between undertaking the R&D at home or abroad through a foreign affiliate. If the R&D is done at home and the R&D results are licensed out to a foreign affiliate, the royalties earned on the R&D may be earned tax free by mixing income in the general foreign tax credit limitation basket, sheltering royalties with excess foreign tax credits earned on foreign dividend income. Thus high host country taxation can operate to encourage R&D undertaken at home by the parent rather than abroad. Empirical work by Hines (1994) finds evidence of the incentive of US MNEs to undertake R&D at home rather than abroad, tied to the non-taxation of royalty income mixed with highly-taxed dividend income.

Given these considerations as regards the impact of a high statutory corporate income tax rate, consider next the effects of host country withholding taxes on royalty income. Hines (1995) tests the sensitivity of host country R&D to host country withholding tax using 1989 BEA benchmark survey data on foreign affiliates of US parents in forty-three foreign host countries. Royalty payments measured as a percentage of total sales are regressed on a measure of the host country tax rate on royalties. Hines finds that a higher host country royalty withholding tax rate is associated with reduced royalty payments to parents, leading him to conclude that generally the foreign affiliate R&D is a substitute for, rather than a complement to, parent company R&D. The policy implication is the level of R&D undertaken by host country affiliates of US multinationals can be increased by increasing the host country royalty

© OECD 2001

withholding tax rate. However, other evidence suggests that this inference is weak, as royalty payments are a noisy (imprecise) weak indicator of R&D activity.

First, as Hines himself points out, royalty payments may be manipulated to strip taxable profit out of high-tax jurisdictions. Second, as confirmed by empirical work by Grubert (1998), interest and other payments substitute for royalties as alternative means to repatriate earnings in response to high royalty withholding tax rates, further weakening the link between royalty payments and R&D activity. Third, host country R&D incentives may depend not only on the royalty withholding tax rate, but also the statutory corporate income tax rate and R&D deductions and tax credits in the host and home and other competing jurisdictions, which are ignored in the model. Thus it is difficult to draw policy inferences from simple empirical findings of a negative relationship between royalty payments and royalty withholding tax rates.

E. The Implications of Recent Empirical Findings

Undoubtedly, significant progress has been made over the years in applied investigations of the response of cross-border direct investment flows to taxation, with empirical results tending to find an own-elasticity of FDI with respect to its after-tax rate of return of unity or higher. Moreover, recent empirical work using improved data and modelling would appear to offer convincing evidence that host country taxation does influence investment and that this influence is more pronounced over time. An important implication of the recent work is that host country taxation influenced by host country tax incentives is an increasingly important factor in FDI decisions, which is not surprising given pervasive reductions over time in non-tax barriers to FDI including the abolition of investment and currency controls and globalisation of production.

However, these estimates must be used with caution when applied to measure the cost-effectiveness of a given tax incentive measure. Despite progress in empirical investigations, summarised above, it arguably is the case that a precise estimate of the FDI response to a given amount of tax relief cannot be made with a high degree of certainty – even in the context of the US, the country on which most of the analytical work has focused – given that a number of theoretical and empirical issues remain unresolved. In other words, the empirical results to date are suggestive, but more work needs to be done to improve and verify the accuracy of elasticity estimates. In this last part, we review two of the main "problem areas" requiring further investigation to determine their importance in our understanding of the impact of taxation on FDI.

1. *Limitations of* ATR *models*

Most empirical models on FDI and DIA have tended to rely on corporate average tax rates (ATRs) as the main explanatory variable. However, backward-looking ATRs may be imprecise indicators of the tax burden on prospective FDI for a number of reasons. First, investment behaviour is prospective and therefore inherently forward-looking. While last year's corporate tax as a percentage of last year's corporate profit may provide a useful indicator of the tax burden on FDI by way of mergers and acquisitions, it may not provide an accurate measure of the tax burden on expansions to existing capacity and to new "greenfield" investment projects. Differential tax burdens on "old" *versus* "new" capital arise as the existing capital stock in the corporate sector consists of a mix of financial and non-financial assets of varying types, vintages and tax-attributes acquired in the past. Corporate tax owing in the current period on income derived from the existing capital stock depends on the particular mix of assets held. Similarly, the average amount of corporate income tax payable per unit of profit generated on new investment depends on the types and amounts of capital acquired. Thus historic ATRs measured by expressing corporate tax liabilities as a percentage of economic profit will differ from the average effective tax rate on FDI at the margin to the extent that current investment (or more precisely, an aggregate basket of current period investment expenditures) consists of a different asset mix subject to varying tax treatment, including particular tax subsidies. Tax depreciation and investment tax credit rates typically vary by asset classes, certain types of income may factor into the base at different

© OECD 2001

inclusion rates, different rules typically apply to income earned on domestic *versus* foreign-source income, and so on.

Another important factor concerns the tax treatment of losses. Most tax systems allow businesses to carry non-capital (business) losses forward to offset tax payable in future years, in recognition of the fact that the tax year (*e.g.*, a 12-month assessment period) is an artificial construct.[15] In any given year, the existing stock of losses carried forward from prior years and available to offset current period taxable income, will depend on, among other factors, the timing of that year over the economic (business) cycle. Loss carryforward pools would be relatively large following a downturn in the economy. Therefore, the tax burden on existing capital in a year when relatively large loss carryforwards are claimed (*i.e.*, when corporate tax payments are relatively low) may underestimate the tax burden on newly acquired capital.

A similar consideration is that systems that provide investment tax credits often allow unused credits to be carried forward to offset tax in future years. Research and development tax credits, for example, are often earned by firms that have not yet taken a product to market, and so have no current tax liabilities on profits against which to claim a tax credit. Tax credit carryforwards may be introduced to ensure a stimulative effect. Patterns of tax credit carryover claims, like loss claims, will depend on business cycle effects, which tend to expand and contract profits and tax base. Therefore, in the presence of carryforward provisions, a tax burden measure based on current period corporate tax payable may be a misleading indicator of the tax burden on new investment capital.[16]

The above noted factors giving rise to possible differences in *ex post* and *ex ante* tax rates hold when tax policy is held constant over time. Differences in tax burdens on old *versus* new capital may be even more pronounced where tax policy changes over time, as it often does. Consider for example the implications of a reform that replaces accelerated depreciation schedules with rates that more closely reflect economic depreciation. The tax reducing effects of the old regime would tend to understate the tax burden on new investment. The tax burden measurement for income derived from depreciable capital purchased in prior years, written-off for tax purposes at rates that differ markedly from depreciation rates applied to capital purchased in the current period, would not be representative of the tax burden on new investment.[17]

Another consideration is that parameter estimates from investment equations that use after-corporate tax return measures (derived as pre-tax profits multiplied by one minus the estimated average effective corporate tax rate) as the independent variable to explain the variation in FDI [see Hartman (1984), Feldstein and Jun (1986), Boskin and Gale (1987), Newlon (1987)] might be misleading indicators of the sensitivity of FDI to corporate tax policy changes, including changes in tax incentives.[18] Accelerator models and other models using some measure of cash-flow or corporate profit to explain investment have consistently performed well. Thus, it may be that variations in the pre-tax profit component of the after-tax return variable (rather than variations in the effective corporate tax rate itself) are responsible for most of the explanatory power of the reported equations.

In short, ATRs have both attractive and problematic properties. They are attractive in that they incorporate the net effect of a multitude of tax provisions as well as the effects of tax planning, and thus stand in contrast to q-type investment models which use oversimplifying assumptions as regards both taxation and firm financial policy. However, the fact that the income tax liability of a corporation, or a group of corporations, in a given year is an amalgam of tax considerations relevant to income generated on existing capital stock – which may differ for a variety of reasons from tax considerations relevant to a prospective investment – means that corporate tax liabilities measured in a prior year (or even in the current year) relative to (adjusted) financial profit may be a highly misleading indicator of the tax burden on prospective FDI.[19] The importance of this consideration must be weighed into an assessment of the empirical results.

2. O*ther considerations*

A number of studies use financial flows data which treats all net reinvested earnings of subsidiaries and new capital infusions from offshore affiliates (*e.g.*, parent companies) as new FDI. Yet not all of this

© OECD 2001

capital is used to purchase real capital assets. Part of the funds may be on-loaned to other affiliates in third countries, or otherwise invested abroad, so that the data reflect not only real FDI flows but also changes in the location of multinational finance.[20] Thus the data may overstate real net investment by foreign direct investors. At the same time, borrowing in the domestic market by a domestic subsidiary of a foreign parent is not part of the calculation, tending to understate actual FDI. More recent studies using new BEA data measuring FDI by industry and source country, recording all new investments in excess of $1 million or investments involving 200 or more acres of land, help address this data problem.

Certain model specification issues might also be noted. For example, industrial organisation issues known to be important to FDI are typically ignored.[21] In fact, as a general observation, existing empirical studies of the determinants of FDI generally reflect a focus on industrial organisation interests or tax incentives, but not both. Industrial organisation approaches, while acknowledging the possible influence of taxation, emphasise the role of other factors in explaining FDI behavior – for example, tariffs and non-tariff barriers and their removal, location-specific advantages (*e.g.*, related to marketing and distribution), the internalization of transactions with suppliers and purchasers, the importance of the exploitation of ownership-specific assets (*e.g.*, intangibles) and difficulties in appropriating rents through (arm's length) licensing of products and processes to third parties.[22] For a discussion of these factors, see Caves (1971), Dunning (1981), Lipsey (1987), Froot & Stein (1991), Wilson (1993).

For the most part, the frameworks that have been used to date to explain tax effects on FDI behavior have largely ignored industrial organization considerations known to be important – indeed in many cases to be overriding – determinants of FDI. In part, the focus away from industrial organization issues is forced on the exercise when aggregate data are used as the importance of various business considerations tends to differ across business activities, as emphasized by Porter (1990). However, while some attempts have been made to incorporate macro-variables thought important to explaining FDI flows, arguably too much is left unexplained in virtually all of the public finance empirical work in this area. To the extent that omitted variables are correlated with the income or tax variables appearing as explanatory variables, reliance on the parameter/elasticity estimates is problematic.

Finally, it would appear that, rather than attempting to explain aggregate direct investment flows, a focus on investment data broken down by business activity or sector (generally unavailable) would be preferable. Additional insights potentially obtained from a disaggregate approach are suggested when simply eyeballing data on financial services-related FDI flows and its attraction to low-tax (*e.g.*, tax-haven) jurisdictions. Clearly, different business activities differ in their geographic mobility (*i.e.*, in their ability to relocate at little differential business (non-tax) cost), with tax incentives having the greatest impact the more geographically mobile the activity. On a related point, clearly more work is required using data other than that compiled for the US (in its role as both a capital recipient and provider). The extent to which the results can be carried over to other FDI situations, in particular those involving developing countries, is unclear. Additional research is required to address this issue, in addition to the other difficulties encountered in this area. Given these ongoing empirical questions, one would obviously want to pursue other lines of inquiry including detailed case study analysis.

© OECD 2001

NOTES

1. See Auerbach and Hassett (1993) for a discussion of different capital gains tax and tax depreciation (basis step-up) implications of acquisitions FDI, which depend on whether corporate stock is acquired or instead corporate assets are acquired.
2. As a corollary, these linkages predict that tax shocks spurring domestic investment by domestic investors may reduce inbound FDI by certain investors. The relevant shareholder group would be foreign investors resident in countries with worldwide systems and relatively high tax rates that determine the combined host and home country tax rate on the foreign source income. Where the host country tax rate is higher than the home country tax rate, or where the FDI is structured through a holding company in a low-tax jurisdiction (which renders the host country tax rate final), the prediction of reduced foreign investor interest would not apply.
3. The ATRs, provided by the private sector research group Tax Analysts, are derived using individual firm data that is aggregated to the industry level.
4. Froot and Stein (1991) argue that FDI should increase when the US dollar depreciates (*i.e.*, a negative correlation between FDI and the exchange rate EX) as this reduces the foreign currency cost of US assets. While a depreciating dollar also reduces the foreign currency value of expected profits, asymmetric information (*e.g.*, investor uncertainty over managerial behaviour) may explain why these two effects do not cancel. Another explanation is that investors may anticipate US dollar appreciation following a (perceived to be temporary) decline in the dollar's value.
5. Swenson tests the investment equation for lagged tax effects, including both current and prior year ATR variables. The lagged ATR variable has a small positive but statistically insignificant coefficient, which she explains by noting the importance of mergers and acquisitions activity in the FDI data and the likely immediate capitalisation (in asset prices) of tax effects impacting on existing (as opposed to newly acquired) capital assets.
6. The US domestic corporate ATR variable used in the investment equations is constructed by weighting the industry ATRs according to the industry contribution to aggregate US FDI in 1979.
7. Domestic tax policy can potentially affect DIA through the following two channels: by determining the home country tax rate (and thus the after-tax rate of return on a given pre-tax return) on domestic source income; and by determining the home country tax rate on foreign source income. The modelling approaches of Hartman (1981), Boskin and Gale (1987) and Newlon (1987) all adopt or assume (without testing) the tax capitalisation view that DIA financed by retained earnings is not influenced by home country taxation of repatriated earnings. Instead, the DIA decision in this case depends on a comparison of the after-corporate tax rate of return in the host country vs. the home country, or some other investment alternative. Hartman refers to this condition, where the same (source country) tax rate influences the investment decisions of both US firms in the foreign (source) country and other firms in the foreign country, as "capital import neutrality". The tax capitalisation theory and its implications have been qualified by a number of researchers, as noted in Chapter 3. Also, the implications of the tax capitalisation theory do not apply to DIA financed at the margin by new share issues. In this case, the home country tax on foreign source income does matter because the repatriation tax on foreign source income is avoidable (the equity is not yet trapped in the firm.) Moreover, the theory applies to investment financed at the margin by retained earnings, whereas the BEA retained earnings figures do not make this distinction (*i.e.*, they include retained earnings that provide infra-marginal financing with possibly other source of funds (*e.g.*, new share issues) used at the margin). These considerations may partly explain the poor fit of the new fund transfers investment equation.
8. Empirical analyses of (inbound) FDI are generally better suited to identify home county tax effects. However, gathering consistent data on relevant home county taxation, taking in to account financing structures, is a relatively more difficult task.
9. The PP&E data are not, however, without difficulties. First, the asset measures are based on historical book values, rather than current price or market values. Second, the end-of-year depreciable assets reported by foreign affiliates resident in a given host jurisdiction may not be located in that jurisdiction. This problem is particularly important in the case of holding company and financial foreign affiliates located in tax havens.

© OECD 2001

10. The definition of reported earnings and profits set by the US Internal Revenue Code closely matches book income.
11. The trade regime variable, which ranges from 0 (most open) to 3 (most restrictive) developed by the World Bank (1987), is based on observations of *i*) the host country's effective rate of protection, *ii*) its use of direct controls (*e.g.*, quotas); *iii*) its use of exports and *iv*) the degree of overvaluation of its exchange rate.
12. The authors also run separate single year cross-sectional equations. The estimated coefficient on the log of one minus the ATR for 1992 (measured as the average of ATRs for 1992, 1990 and 1988) is positive and statistically significant at 2.7. This estimate is referred to as the "open regime" elasticity estimate (where the TRADE variable takes on a value of zero.). On the other hand, the estimated tax coefficient in the 1984 tax equation is found to be positive, but not statistically significant. The trade regime variable is found to be highly significant and negative, indicating reductions in DIA accompanying increased trade restrictions.
13. As the authors note, the finding of increased tax sensitivity is also consistent with an increase in the number of US parents in an excess foreign tax credit position following the 1986 Tax Reform Act (in which case host country taxes are not fully offset by home country foreign tax credits).
14. Hines (1993*a*) analyses two samples of firms (those engaged in mergers, those that are not) and their R&D behaviour after the introduction in 1986 of the rules requiring an allocation of R&D against foreign income. Firms are differentiated on the basis of those constrained by the R&D expense allocation rules, and those that are not, allowing Hines to estimate the sensitivity of R&D to its after-tax cost.
15. Certain countries also allow businesses to carry losses back to offset tax in previous years. Carryback relief is in general more advantageous than carryforward relief unless losses may be carried forward with interest (due to the time value of money).
16. Another consideration is that corporate tax assessed on realised net capital gains, while possibly relevant to the tax burden on existing corporate assets, may not be relevant to assessing the tax burden on new capital at the margin. Fluctuations in market interest (discount) rates or expectations over future earnings on existing capital, causing an adjustment in asset prices with capital gain or loss effects, will affect current period tax liabilities on dispositions of capital where such gains/losses are drawn into tax. The potential impact of capital gains taxation on current FDI may differ significantly from that captured by average corporate tax rates influenced by capital gains/losses on current dispositions of previously acquired capital.
17. In most tax systems, tax depreciation (or depletion) rates applicable to capital acquired in prior years continue to apply to undepreciated capital stocks even when new depreciation rates are introduced. This avoids unanticipated capital gains/losses on existing capital following the introduction of new tax treatment.
18. For example, Boskin and Gale (1987) regress ln (Ire/Y) on a constant, ln(gross return on FDI), ln(net return on FDI), ln(relative tax term) and a dummy variable, where ln denotes a natural log function, Ire denotes FDI financed by retained earnings, Y is US GDP, the gross return on FDI is measured as income from FDI divided by the end-of-previous-year direct investment position, the net return on FDI is measured as the gross return on FDI multiplied by (1-ATR), where the ATR is a "backward-looking" average effective rate measured using actual taxes paid, and the relative tax term compares host and home country average tax rates.
19. A small number of FDI studies have relied on so-called q-models of investment, based on the user cost of capital approach [see for example, Swenson (1994), Cummins and Hubbard (1995)]. These frameworks, while intuitively appealing, suffer from a number of theoretical shortcomings, and have not been very successful in estimating investment behaviour in the domestic (let alone the international) context, with estimated coefficients implying unreasonably slow adjustment costs [see Chirinko (1993) and Clark (1987) for an application of the q-model to Canadian industry data].
20. See Quijano (1990) for a discussion of this point.
21. This is cause for concern to the extent that the influence of such unidentified factors, in effect captured in the error term, are not correlated with the explanatory variable(s).
22. In contrast, public finance inquiries have focuses on the role of taxes in influencing FDI patterns, holding non-tax determinants fixed.

© OECD 2001

Chapter 5

PERSPECTIVES ON THE PROS AND CONS OF ALTERNATIVE TAX RELIEF INSTRUMENTS

While indicating that the sensitivity of FDI to host country tax burdens appears to be increasing over time, the empirical results reviewed in Chapter 4 offer few clues over the relative attractiveness of alternative approaches to lower host country tax burdens to encourage inbound investment flows. The reason is that the explanatory variables used (summary marginal and average effective corporate tax rates) are measured as an amalgam of relevant tax and non-tax parameters. By aggregating relevant factors, the individual influence played by each is masked. Thus policy makers must look to other areas to guide their choice. As reviewed below, recent empirical work examining the sensitivity of corporate financial policy, repatriation policy and transfer pricing policy to taxation, and experience with the use of tax incentives, offer important insights to help guide the choice over alternative tax instruments and design features.

The following material first reviews general guidance offered by basic economic theory over instrument choice. We then consider practical design considerations related to specific tax incentives, starting with tax holidays. Examples are provided which illustrate how alternative commencement dates can impact significantly on the amount of assistance delivered, with results depending critically on the treatment of tax losses. The report then turns to unintended tax-planning incentives that can arise with the introduction of a tax holiday, in particular, tax motivated shifting of highly-taxed non-qualifying income to the targeted regime. This emphasises the need to anticipate, design and implement base protection measures, such as transfer pricing rules, to stem aggressive tax planning. This is a central issue for policy makers, given that instruments often fail to promote FDI in a cost efficient manner largely on account of unintended leakage of tax relief to non-targeted activities. The discussion also serves to highlight tax base protection advantages of adopting a low general corporate tax rate as a means to attract FDI, despite the tax relief that this approach offers to existing (installed) capital. Other design issues addressed include the tax treatment of depreciation claims, the use of incremental *versus* flat tax credits, and the targeting of financing incentives and implied FDI effects.

As stressed in Chapter 2, prior to introducing tax incentives, it is strongly recommended that policy makers assess their own country situation and the strength of arguments calling for tax incentives for FDI. It may be that there are a number of market and/or policy-related impediments to FDI, and success in attracting foreign capital may require modification to government policies and programs in these areas.[1] The ability of tax incentives to stimulate FDI on a cost-efficient basis should be questioned if impediments impacting negatively and significantly on project risk and return continue to confront investors. Where impediments are identified, these should be addressed prior to, or at a minimum parallel with, the introduction of special tax incentives. At the same time, it is recognised that policy makers may be confronted with demands for the introduction of tax incentives for FDI, even where other avenues might be more usefully explored. In such cases, the ability of tax incentives to address perceived instances of market failure in the most cost-efficient way possible will depend on specific design features, and the existence of supporting provisions.

© OECD 2001

A. What Simple Economic Theory Suggests

Neo-classical investment theory, the paradigm underlying most economic analyses of the influence of corporate taxation on investment behaviour, offers helpful insights into the channels through which tax incentives would be expected to encourage investment, as reviewed in Chapter 2 (Section B). Standard investment theory predicts, as one would expect, that investment expenditures will respond positively to tax holidays, or more generally, to lower corporate income tax rates and to enhanced or accelerated depreciation and investment tax credits. Financing incentives may also operate to encourage host country investment, provided that they are offered to the "marginal investor" – meaning the investor whose tax treatment is relevant to the setting of corporate discount rates applied to investment returns. However, different tax incentives would generally be expected to have different real and financial effects.

A reduction in the statutory corporate income tax rate, for example, would be expected to boost investment by reducing the rate of tax on profits – provided that the relief is not offset by reduced home country foreign tax credits (as reviewed in Chapter 3). At the same time, a lowering of the statutory corporate tax rate also reduces the present value of capital cost allowances and increases the after-tax cost of debt finance. The present value of depreciation allowances declines because the tax savings in each period of a given capital cost allowance depends (as with other deductions) on the corporate income tax rate at which the cost is expensed. The after-tax cost of debt finance increases for the same reason – the value of deductions for interest expense increases with the level of the statutory corporate income tax rate. However, in general, the overall response would be expected to positive.

Theory also predicts that "up-front" tax incentives generated or earned as a fixed fraction of investment expenditures, including investment tax credits and immediate expensing of capital costs, should provide the largest investment response for each dollar of tax revenue foregone. Unlike a corporate tax rate reduction, investment tax credits and other subsidies to the cost of purchasing capital benefit only new investment – therefore, they provide a larger reduction in the effective tax rate on investment (which takes into account the impact of taxation on both marginal revenues and costs) at a lower revenue cost. A reduction in the statutory corporate tax rate, in contrast, benefits both "new" as well as "old" (previously installed) capital. Indeed, investors enjoy a windfall gain with a corporate tax rate reduction that increases the present value of the future stream of earnings from existing capital. Also, investment tax credits and accelerated depreciation can help address possible liquidity constraints that may inhibit capital investment by providing funds up-front (*i.e.*, by reducing current taxes payable and therefore increasing after-tax earnings in the year of the capital outlay, or by providing cash where unused tax relief is refundable). Finally, as noted earlier, investment tax credits should have the greatest impact when targeted at short-lived (as opposed to long-lived assets with the same productivity), as they offset a larger percentage of the tax revenues imposed on a given stream of earnings.

Theory would also predict that the potential impact of tax incentives would vary across sectors and time. The potential impact of preferential tax relief on FDI should be greater for those business activities for which there is little differential in non-tax business costs among competing jurisdictions, as this would tend to make tax differentials a more important consideration in locational choice.[2] Non-tax business costs would include input and output transportation costs, material, labour and capital costs, financing costs, as well as costs imposed by political instability and legal, regulatory, and fiscal instability. This suggests that tax incentives may have more of an impact today than in the past in those industry sectors where project cost differentials have fallen over time. For example, over the 1990's, advances in data management and telecommunications have largely eliminated cost differentials across alternative business locations in the financial services area requiring only rented office space, computer and telecommunication equipment and staff, all of which can be either readily accessed in a given host country or transported at minimal cost. In these areas, tax incentives can be expected to have a significant effect on the choice of the location of the business activity.[3]

© OECD 2001

As reviewed later in this chapter, tax incentives that subsidise the cost of acquiring new capital – which basic economic theory would suggest generally to be the most efficient incentive instruments – may not be the best choice in practice. In particular, where revenue losses from the provision of generous investment tax credits or other up-front incentives are "financed" by a relatively high statutory corporate income tax rate, as for example under an overall tax revenue raising constraint, corporate tax planning by investors to shift deductible expenses to (shift taxable profits away from) high tax rate jurisdictions may largely undermine the efficiency of the up-front incentive type. Case study analysis and recent empirical findings on the sensitivity of financing decisions, repatriation policies and transfer pricing behaviour offer some important insights in this regard.

B. Tax Holiday Commencement Dates and the Treatment of Losses

Despite basic tax-planning problems encouraged by the use of tax holidays (see below), they remain a popular form of tax incentive, particularly in developing countries. Given this, it is important that design issues be addressed. As noted in Chapter 2, several options are possible for the commencement of a tax holiday, including the first year of production, the first year of positive profit, or the first year of positive net cumulative profit. The choice can have a significant bearing on the amount of direct tax relief provided and the attractiveness to investors of this measure. The amount of direct tax relief ultimately provided depends on the starting period of the holiday and the treatment of losses incurred over the holiday.

Annual depreciation costs and other current deductible business expenses should in principle be matched (set-off) against gross revenues in the same year as the costs are incurred (under the assumption that the factor inputs that the charges represent generate the same-period gross revenues). With a tax holiday, pressures mount on government to allow business costs incurred over the holiday period (that generally would otherwise be tax deductible as incurred) to be carried forward. Deferral of these charges tends to over-estimate costs in the post-holiday period. In effect, loss carry-forward provisions allowing firms to carry holiday expenses forward in effect shift post-holiday taxable income into tax-exempt holiday period. If business losses incurred during a holiday are not recognised (deductible) in the post-holiday period, a tax holiday may actually *increase* a firm's tax burden. This factor is particularly relevant for projects with significant costs in initial production years (work-force training costs, advertising costs to establish local market).

Indeed, generous loss carry-forward provisions may provide a greater investment stimulus than a tax holiday with restrictive loss carry-forward rules, as illustrated when comparing Table 5.1 which considers a tax holiday with no loss carry-forward provisions, with Table 5.2 which considers alternative loss carry-forward rules. The illustrative results show that the present value (PV) of corporate income tax paid is lower with a two-year loss carry-forward and no tax holiday (Case 2B) compared with a two year tax holiday starting with the fist year of production, but without loss carry-forward provisions (Case 1A). Five-year loss carry-forward rules are also shown to be more attractive than an enriched two-year tax holiday that does not begin until the first year of profit.

1. *Tax-planning opportunities under tax holiday regimes*

Of the range of corporate tax incentives, perhaps the most often tried and yet the most open to taxpayer abuse is the tax holiday. By exempting certain companies or activities from income tax, tax holidays encourage corporate groups to shift taxable income (either within or outside the letter of the law) to qualifying companies so as to minimise their overall host country tax liability. A number of avenues may be open for such abuse.

First, where a tax holiday is targeted at "newly established" companies, taxpayers are encouraged to transfer capital from already existing businesses to qualifying firms in order to benefit from the tax relief. This "churning" of business capital for tax purposes can lead to the false impression that new investment has taken place, when in fact the introduction of "new" productive capacity merely reflects a reduction in operating capital elsewhere in the economy.

© OECD 2001

Table 5.1. **Illustration of two-year tax holiday under alternative commencement rules**

Investment: 100	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total	**PV *tax***
Revenue	15	25	30	40	50	50	50	50	50	50	410	
Start-up costs	50	30	10	0	0	0	0	0	0	0	90	
Net revenue	–35	–5	20	40	50	50	50	50	50	50	320	
Depreciation	10	10	10	10	10	10	10	10	10	10	100	
Profit	–45	–15	10	30	40	40	40	40	40	40	220	
Net cumulative profit	–45	–60	–50	–20	20	60	100	140	180	220	–	
Case 1A – *Holiday begins 1st year of production*												
Taxable income	0	0	10	30	40	40	40	40	40	40	280	73
Case 1B – *Holiday begins 1st year of profit*												
Taxable income	0	0	0	0	40	40	40	40	40	40	240	59
Case 1C – *Holiday begins 1st year of net cumulative profit*												
Taxable income	0	0	0	0	0	0	40	40	40	40	160	36

Examples assume 10 year straight-line depreciation for tax purpose, no loss-carry-forward provisions.
Present value calculations use a discount rate of 10%, and assume a corporate income tax rate of 50%.

Table 5.2. **Illustration of alternative loss-carryforward rules**

Investment: 100	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total	**PV *tax***
Net revenue	–35	–5	20	40	50	50	50	50	50	50	320	
Depreciation	10	10	10	10	10	10	10	10	10	10	100	
Profit	–45	–15	10	30	40	40	40	40	40	40	220	
Case 2A – *No loss-carryforward*												
Taxable income	0	0	10	30	40	40	40	40	40	40	280	73
Case 2B – *Two-year loss-carryforward*												
Unused 2nd prior year loss	0	0	45	15	0	0	0	0	0	0	–	
Unused 1st prior year loss	0	45	15	0	0	0	0	0	0	0	–	
Prior year losses used	0	0	10	15	0	0	0	0	0	0	25	
Taxable income	0	0	0	15	40	40	40	40	40	40	255	65
Case 2C – *Five-year loss-carryforward*												
Unused 5th prior year loss	0	0	0	0	0	0	0	0	0	0	–	
Unused 4th prior year loss	0	0	0	0	5	0	0	0	0	0	–	
Unused 3rd prior year loss	0	0	0	35	15	0	0	0	0	0	–	
Unused 2nd prior year loss	0	0	45	15	0	0	0	0	0	0	–	
Unused 1st prior year loss	0	45	15	0	0	0	0	0	0	0	–	
Prior year losses used	0	0	10	30	20	0	0	0	0	0	60	
Taxable income	0	0	0	0	20	40	40	40	40	40	220	53

Examples assume same project specifics as Table 5.1, and 10 year straight-line depreciation.
Present value calculations use a discount rate of 10%, and assume a corporate income tax rate of 50%.

Another common technique for profit shifting for tax purposes facilitated by tax holidays is routing interest and other deductible payments within a corporate group through tax-free entities. For example, in the absence of a tax holiday, interest on loans by a parent company to its subsidiary, while deductible against the income tax base of the subsidiary, is taxable in the hands of the parent (*i.e.*, is included in its taxable income). However, where an existing or newly created subsidiary qualifies for a tax holiday, incentives exist to route deductible interest payments from other non-qualifying subsidiaries through the qualifying subsidiary (via tax-motivated financial restructuring). In this case, the interest receipt becomes non-taxable in the hands of the qualifying subsidiary in its role as a financial intermediary (in the absence of special base protection rules). The interest income can then be converted to dividend income and paid out to and received tax-free in the hands of the parent.

© OECD 2001

A third technique is to use artificial transfer prices in transactions amongst firms in a corporate group that includes a subsidiary qualifying for tax holiday treatment. Again the incentive exists to shift otherwise taxable income to the tax holiday firm, and to shift expense to non-qualifying firms to reduce the global amount of income subject to tax. The fact that the transactions are amongst members of a corporate group means that, while the profits of certain firms in the group are reduced, the aggregate pre-tax income of the group is unchanged but its total tax bill falls. Artificial or "non-arm's length" pricing may be applied in the context of inter-affiliate loans (*e.g.*, charging interest on loans above the market rate) and in the case of inter-affiliate trade in intermediate or final goods and services.

These basic forms of tax planning that can arise in the context of a tax holiday are illustrated in Annex V. Table AV.2 in the Annex illustrates the desired outcome of a tax holiday with reference to a base case (pre-holiday) scenario shown in Table AV.1. In particular, following the introduction of a tax holiday, a parent company (PCo) is shown to invest $500 in a new subsidiary (OpCoB) that undertakes activities that qualify for tax holiday treatment. The last two tables show unintended yet common responses to a holiday regime. The illustrative effects are summarised in Table 5.3 (see Annex V).

Table 5.3. **Summary of tax planning opportunities and illustrative host country tax effects**

(*With reference to Table* AV.1 *to* AV.4 *in Annex* V)

	Recharacterise "old" capital as "new" capital	Debt financing for OpCoA (non-targeted activities)		Transfer pricing between corporate groups		Host CIT revenues
		Direct	Intermediated (via tax holiday firm OpCoB)	Arm's length	Non-arm's length	
Base case (TAB1)	n.a.	Yes	n.a.	Yes	No	100
Tax holiday:						
Intended impact (TAB2)	No	Yes	No	Yes	No	100
Tax planning I (TAB3)	Yes	No	Yes	Yes	No	65
Tax planning II (TAB4)	Yes	No	Yes	No	Yes	55

First, the parent is shown in Table AV.3 to reduce its own operations by $500 and divert this capital to OpCoB in order to avoid tax on income generated by the pre-holiday capital stock. Table AV.3 also shows the incentive to structure loans to the pre-holiday operating company (OpCoA) through the new subsidiary (OpCoB). This enables interest to be received tax-free by OpCoB and paid to the parent in the form of a tax-free inter-corporate dividend. Together, these distortions lower host country tax revenues to $65, as compared to the $100 collected from the corporate group under the base case scenario and under the "pure" tax holiday regime (before taking into account tax avoidance incentives). The fourth Table AV.4 shows the additional incentive to charge OpCoA a non-arm's length interest rate on loans to reduce host country tax revenues further (to $55). An reviewed in Annex V, these tax effects imply increased post-tax rates of return and thus increased incentives to increase investment in the *non-targeted* sector.

C. Profit-stripping Incentives Linked to a High Statutory Corporate Tax Rate

As noted in sub-section (A), a reduction in the tax rate on corporate income (that is not offset by increased home country tax) generally would be expected to encourage investment despite dampening effects working through the cost of debt finance and the valuation of depreciation allowances. The tax rate on corporate taxable income can be lowered directly by lowering the statutory ("headline") corporate tax rate. An alternative is to apply an unchanged statutory corporate tax rate to some fraction (less than one) of corporate taxable income, or to provide a special tax credit equal to a fixed percentage of the tax base.[4]

© OECD 2001

A corporate tax rate reduction (either by statutory rate reduction, fractional inclusion, or tax credit method) may be introduced as either a temporary or permanent measure, and generally would be more attractive to investors the longer is the period that they can expect to benefit from it. A number of factors can influence these expectations, including the fiscal position of the government and its past track record on tax reform. If its accumulated debt is excessive or its fiscal position (including tax revenue base) is weak or if the tax system has been subject to numerous changes, tax incentive relief may be highly discounted, with such discounting tending to be more pronounced for longer-term, capital-intensive investment projects.

So as to maximise overall efficiency (*i.e.*, to avoid providing tax relief to investment projects that would have occurred in any event), one might consider targeting the rate reduction to "newly established firms", but this introduces churning problems (as with tax holidays). Where a reduced rate is to apply temporarily, the amount of tax relief under the incentive program will depend on tax depreciation and loss carry-forward provisions. Relief will be higher where firms are able to carry depreciation expenses and losses forward to the post-incentive period when the higher corporate tax rate is restored.

While a reduction in the corporate tax rate benefits existing (installed) capital, and may be viewed by some as inferior to tax credits or other "up front" assistance earned as a percentage of new capital expenditure, others would disagree. The latter position rests on the observation that lowering the statutory corporate tax rate brings with it the advantage of taking tax-planning pressure off the domestic tax base. As noted above, in their pursuit to minimise their global tax bill, multinationals typically attempt to book as much income as possible in corporations subject to a relatively low statutory corporate income tax rate, and to book as much expense as possible in corporations subject to a relatively high statutory tax rates (as discussed above in the context of tax holidays). Therefore, where a country has a relatively high statutory corporate tax rate compared to countries with which it competes directly for FDI, serious consideration should be given to lowering the basic corporate income tax rate in order to encourage FDI and shore up corporate tax revenues by discouraging tax-motivated inter-group financing and transfer pricing policies.

1. E*mpirical evidence*

As reviewed in Annex VI, there now exists a considerable body of empirical work that addresses the implications of alternative tax reform measures on financial policies of multinational corporations. This work demonstrates that a firm's financial structure is typically influenced, in some cases significantly, by the tax regime of the host country, corroborating well-know results to tax-planning advisers. Empirical results at the aggregate level confirm the central role played by the host country statutory corporate income tax rate in influencing chosen debt/equity ratios. In particular, a high statutory rate encourages borrowing in the host country, tending to erode the corporate tax base. Thus generous tax credits or deductions that are "financed" by a high statutory tax rate put pressure on the tax base, heightening the need for effective design and (typically expensive) administration of thin capitalization and other tax base protection rules.

The empirical work reviewed in Annex VI also examines the implications of alternative tax parameter settings on earnings repatriation policy decisions. As theory suggests, repatriation methods are found to be influenced by statutory corporate and non-resident withholding tax rates, with alternative forms of earnings repatriation having differential impacts on the host country tax base. High withholding tax rates on dividends, for example, tend to discourage earnings distribution. However, a high dividend withholding tax policy cannot ensure that (true economic) profit will be reinvested in the host country as firms have other means at their disposal to remit earnings to parent companies including the use of deductible charges such as interest, royalties and management fees. As expected, high corporate income tax rates are again found to encourage the use of deductible payments including interest as a means to remit income to foreign parents, with negative implications for the host country tax base.

Interestingly, one noteworthy study finds that (deductible) royalty payments are *not* found to increase with the host country statutory corporate income tax rate. Instead, increased dividend and

© OECD 2001

royalty payments are associated with low statutory tax rate regimes, suggesting that multinationals tend to shift profits including income from intangible capital to low tax rate jurisdictions.[5] The effects for high corporate tax rate countries are the opposite, with multinationals tending to shift profit out rather than in using highly leveraged financial structures in the host country and non-arm's length transfer pricing.

D. Discretionary V*ersus* Non-discretionary Deprecation Allowances

In addition to the basic choice of providing enriched capital cost allowance treatment for a targeted class of capital on a straight-line or declining-balance basis is the question of whether to allow the depreciation claims to be discretionary or not (see Chapter 1, Section C). In particular, if policy makers hope to encourage FDI by providing accelerated depreciation, should the depreciation claims be mandatory (allowed only in the year when the claim first becomes available), or should one allow taxpayer discretion to carry the claim forward? Many countries allow unclaimed depreciation expenses to be carried forward indefinitely, which improves the ability of investors to manage tax claims and minimise their overall host country tax liability. Where taxpayers are given fewer degrees of freedom, the linkage with loss carry-over provisions becomes more important.

For firms in an extended loss position (*e.g.*, R&D intensive firms), it may be possible to extend depreciation claims beyond the prescribed carryover term by claiming the expense in the last year possible under the depreciation carryover rules, and then carrying the amount forward under loss carryover provisions. Such inter-actions bear on the assistance offered and should be taken into account when designing the overall incentive package.

Where a firm has negative taxable income or is in a "loss position" in the year depreciable capital costs are incurred – as is often the case during the early years of an investment project – depreciation allowances only provide value to the investor if the additional tax loss (the increment to negative taxable income) generated by the tax deduction can be carried forward (or, under some systems, carried back) or otherwise transferred to offset future (or previous) tax liabilities. Case 3A in Table 5.4 illustrates the pitfalls of introducing accelerated depreciation with mandatory (non-discretionary) claims and no loss carry-forward. Accelerated depreciation is shown in this case to yield a *higher* overall tax burden than that observed with non-accelerated depreciation (compare Case 3A with 2A in Table 5.3). Providing discretionary accelerated depreciation (Case 3B) significantly improves the investor's situation. Providing discretionary accelerated depreciation plus loss carry-forward provisions, thereby allowing both tax losses and business losses to be carried forward, improves the situation further (for a comparison of the various examples, see Table 5.5).

A final important issue to address is the fact that generous depreciation provisions and loss carryover rules can lead to a significant build-up of unutilised tax-losses in the system. Tax losses, or more generally outstanding balances of unused tax deductions and credits created by generous investment incentive programs, can protect from tax targeted firms that eventually become profitable, having been supported by incentives. Moreover, the existence of large balances of unused tax losses creates incentives for firms in a loss position to "sell" tax losses to firms that are profitable and able to use transferred losses to reduce their current host country tax liability. This puts pressure on host governments to ensure that rules and administrative practices are in place to limit unwanted loss trading, typically with new tax loopholes created as old ones get shut down. The revenue costs resulting from loss transfers can be huge and dwarf foregone revenues from the targeted investment activities.

E. Up-front Tax Incentives – Necessarily the Most Efficient Mechanism?

Up-front tax incentives, including investment tax credits and immediate and full expensing of capital costs, are often advocated as the most efficient form of investment incentive in that they reward only new capital purchases, as noted above. This reasoning recognises that tax incentives can yield the greatest efficiencies if they subsidise only investment that would not have occurred in the absence of the support. On this basis, it is argued that up-front incentives tied to new capital purchases should be preferred to statutory corporate tax rate reductions that benefit existing as well as newly installed capital.

© OECD 2001

Table 5.4. **Accelerated depreciation – Non-discretionary *vs*. discretionary, and inter-action with loss carryforward rules**

Investment: 100	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total	**PV *tax***
Net revenue	–35	–5	20	40	50	50	50	50	50	50	320	
Depreciation (book)	10	10	10	10	10	10	10	10	10	10	100	
Profit (book)	–45	–15	10	30	40	40	40	40	40	40	220	
Case 3A – *Accelerated depreciation (non-discretionary), no loss-carry-forward*												
Depreciation (tax)	50	25	25	0	0	0	0	0	0	0	100	
Income or loss	–85	–30	–5	40	50	50	50	50	50	50	–	
Taxable income	0	0	0	40	50	50	50	50	50	50	340	88
Case 3B – *Accelerated depreciation (discretionary), no loss-carr-forward*												
Depreciation (max)	50	25	25	0	0	0	0	0	0	0	100	
Unused depreciation	50	75	100	80	40	0	0	0	0	0	–	
Depreciation claimed	0	0	20	40	40	0	0	0	0	0	100	
Taxable income	0	0	0	0	10	50	50	50	50	50	260	62
Case 3C – *Accelerated depreciation (non-discretionary), five-year loss-carry-forward*												
Depreciation (tax)	50	25	25	0	0	0	0	0	0	0	100	
Income or loss (before carryover)	–85	–30	–5	40	50	50	50	50	50	50	–	
Unused 5th prior year loss	0	0	0	0	0	0	0	0	0	0	–	
Unused 4th prior year loss	0	0	0	0	45	25	0	0	0	0	–	
Unused 3rd prior year loss	0	0	0	85	30	5	0	0	0	0	–	
Unused 2nd prior year loss	0	0	85	30	5	0	0	0	0	0	–	
Unused 1st prior year loss	0	85	30	5	0	0	0	0	0	0	–	
Prior years loss used	0	0	0	40	50	30	0	0	0	0	–	
Taxable income	0	0	0	0	0	20	50	50	50	50	220	50

Examples assume same project specifics as Table 5.1 and 10 year straight-line depreciation.
Present value calculations use a discount rate of 10%, and assume a corporate income tax rate of 50%.

Table 5.5. **Comparison of results under alternative tax incentive structures**

Case	Regime	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total	**PV *tax***
1A	Tax holiday (1st yr production)	0	0	10	30	40	40	40	40	40	40	280	73
1B	Tax holiday (1st yr profit)	0	0	0	0	40	40	40	40	40	40	240	59
1C	Tax holiday (1st yr net cum. Profit)	0	0	0	0	0	0	40	40	40	40	160	36
2A	No loss carryforward	0	0	10	30	40	40	40	40	40	40	280	73
2B	Two-year loss carryforward	0	0	0	15	40	40	40	40	40	40	255	65
2C	Five-year loss carryforward	0	0	0	0	20	40	40	40	40	40	220	53
3A	Accel. Depr'n (non-discr., no loss cf)	0	0	0	40	50	50	50	50	50	50	340	88
3B	Accel. Depr'n (discr., no loss cf)	0	0	0	0	10	50	50	50	50	50	260	62
3C	Accel. Depr'n (non-discr., 5-yr loss cf)	0	0	0	0	0	20	50	50	50	50	220	50

All examples assume same project specifics as in Table 5.1.
Present value calculations use a discount rate of 10%, and assume a corporate income tax rate of 50%.

Others argue that up-front incentives are inefficiently targeted in that they reward inputs rather than outputs – that is, they subsidise the purchase of capital rather than the productive use of those inputs in generating output and profit. If incentives are required, the focus should be on reducing the tax rate on profits.

Those that are discouraging of the granting of up-front tax incentives also point out that their introduction can put enormous strain on the host country tax system. Governments are pressured to allow firms in a temporary loss position (*e.g.*, start-up firms) to carry forward balances of earned but unused tax relief including earned but unused investment tax credits and capital costs. To deny this would place them at a competitive disadvantage relative to profitable firms able to take advantage of special tax expenditures. As noted above, the existence of unused pools of special credits and deductions creates incentives for loss firms to obtain immediate (but typically less than full) value for

© OECD 2001

those amounts by selling them to taxable firms (through a variety of tax-planning techniques), often resulting in inefficient and/or unintended revenue reductions and instability.

1. *Problems with refundable credits*

An alternative to tax credit carryover provisions is to allow for tax credit "refundability". Where a credit is refundable, taxpayers are provided with immediate relief for that portion of the credit that cannot be used to offset income tax liability in the year the credit is earned. For example, if a taxpayer earns a $1 million tax credit (*e.g.*, with a flat 5 per cent investment tax credit rate applied to $20 million in qualifying capital costs) and has a pre-credit income tax liability of, say, $250 000, then the government would provide the investor with $750 000 in cash.[6]

In most cases an investor would prefer a refundable investment tax credit to its non-refundable counterpart. The reason is that tax credit carryovers are typically not provided with interest (compensating for the time value of money). And even if they were, taxpayers generally could find it difficult to obtain a bank loan on the basis of a future investment tax credit claim enabling future repayment (*i.e.*, where the firm's future profitability and taxable status is uncertain). Thus refundability can offer an immediate boost to a firm's cash-flow and address possible liquidity constraints inhibiting investment plans.

However, from the government's perspective, great care should be exercised when pressures mount for the introduction of refundable tax credit provisions. Refundability can increase the cost of an investment tax credit program first by shifting forward tax expenditures that would be delayed under tax credit carryover provisions. In addition, refundability extends support to a subset of non-taxpaying firms (*e.g.*, start-ups), that will eventually fail and never be profitable and taxable. Tax credit carryover provisions, in contrast, limit program costs by extending assistance only to profitable firms. By virtue of the fact that a firm must be profitable for it to be subject to income tax (and only then able to claim a tax credit), the carryover design feature has an inherent selection device. However, in practice, relief may extend beyond the target group, for example where unused credits are "sold" to non-qualifying firms as noted above. Also, with relief from excess credits limited to a carryover, immediate financing relief may be denied in certain cases to firms that are potentially profitable, but are currently in a loss position and could use immediate assistance to address capital market impediments to investment financing.

While not perfect, the overall results with excess credit relief limited to a carryover may however be more efficient than those that might occur with a loosely targeted refundable tax credit. A key risk with the latter is that the prospect of generous refundable tax credits will encourage the creation of "sham" business activities set up primarily or solely for the purpose of receiving a refund cheque from the government. Refundability tends to increase the incentive to recharacterise non-targeted activities as qualifying ones, putting additional pressure on tax administration and testing further the limits of the qualification criteria. For example, tax-planners might explore "holes" in the tax legislation and regulations to determine whether capital assets could be purchased, with the pretence of undertaking a *bona fide* qualifying activity, and then resold to the capital supplier or to a third party, with a tax credit refund in hand then split amongst the interested parties.

Moreover, where revenues decline much further than anticipated, pressures may build on the host country to increase the statutory corporate tax rate in an effort to shore up the fiscal position. This could be to meet overall deficit targets for example, or to ensure that the corporate sector is paying its fair share of the tax burden. This in turn can be counter-productive, as a high statutory corporate tax rate will encourage planning against the corporate tax base.

As reviewed in sub-sections (B.1) and (C), multinational firms operating in more than one country typically attempt to reduce their global tax bill by adopting financial structures and transfer pricing strategies to book (and inflate) interest and other business deductions to corporations subject to a high statutory tax rate. Thus attempts to cover tax revenue losses tied to up-front tax incentives through enforcement of a high statutory tax rate policy may be difficult to carry through. At a minimum, it requires the introduction of typically complex thin-capitalisation rules and arm's length transfer pricing

© OECD 2001

rules to protect the domestic tax base, with such efforts themselves typically being vulnerable to tax planning to curtail their effect.

2. *Incremental tax credit design*

When assessing the relative strengths and weaknesses of alternative tax incentive designs, it is important to recognise that targeting relief to newly acquired capital (as investment tax credits, immediate expensing and other up-front tax incentives do), does not itself ensure that windfall gains to investors are avoided. This is because some (unknown) fraction of new investment that qualifies under a given tax incentive program would have occurred in any event. Recognising this, efficiency gains could be achieved in principle by sharpening the definition of qualifying investment to more narrowly target the incentive to "marginal" investments (that is, investment expenditures that are actually dependent on the tax incentive).

One example of an instrument tailored along these lines is the so-called *incremental investment tax credit*. Unlike a flat credit earned as a fixed fraction of current period investment in qualifying capital property, an incremental investment tax credit is earned as a fraction of only that part of current period investment that is in excess of some moving average of past period investment. For example, the following incremental tax credit generates tax credits at the rate γ on current investment expenditures (I_t) in excess of the average investment expenditures (in qualifying property) over the previous three years:

$$ITC_t = \gamma(I_t - (I_{t-1} + I_{t-2} + I_{t-3})/3) \qquad (5.1)$$

Designing a tax incentive in this way may result in better targeting and improved efficiency compared with alternatives. However, certain unintended distortions can arise with an incremental credit that establishes a link between investment expenditures in one year and the tax credit base in subsequent years. Such is the case with the formulation given by equation (5.1) where increased current expenditures in a given year reduce the tax credit base in the following three years. This design feature may operate in certain cases to discourage investments by firms whose desired level of investment expenditure (in the absence of a tax credit) in a given year is less than its average expenditure over the previous base years.

For example, in the case where a firm has spent an average of $10 million per year over the previous three years, but in the current period intends to spend only $5 million, the current year moving average base and current year credit would be $10 million and $0 respectively. Any additional investment expenditures above $5 million but below $10 million would not earn any current year credit, as intended, given the objective of rewarding increased investment over prior years. However, any additional investment within the $5-$10 million range would disadvantage the taxpayer by increasing the moving-average base in each of the following three years. This negative investment incentive effect results from the fact that additional (marginal) investment beyond the $5 million amount (but below the prior three-year average) would not generate tax credits, and at the same time would reduce the base for credits in future years.

Restricting the provision of tax credits to investment expenditures in excess of a moving-average base can also create an incentive for businesses to make investments in a staggered, lumpy manner rather than over a smooth expenditure pattern. This can be illustrated by the following simple example, again assuming a three-year moving-average base. Consider an investor that has spent $10 million per year on qualifying investment over the past three years, implying a three-year average of $10 million. Compare two investment plans: one where the investor continues to spend $10 million in each year over the following two-year period, and another where the taxpayer delays investment in the current year for a $20 million investment in the following year. While the taxpayer spends $20 million in total over the two-year period in each case, no expenditures qualify for the investment credit in the first case, while $13.3 million qualifies in the second.

As a final point, where investment tax credits are introduced, consideration should be given to adjusting the value of depreciable capital costs to reflect the special tax relief. In particular, in many countries, the depreciable capital base for a given investment must be reduced in respect of

© OECD 2001

investment tax credits (and other forms of government assistance) claimed in respect that investment.[7] This practice recognises that the cost to the firm of acquiring the capital is reduced by such relief, and is adopted to avoid unintended overlap (possible doubling or tripling-up) of investment subsidy.

F. Financing Incentives

This final section considers the conditions under which financing incentives (intended to lower the cost of equity funds) could operate to encourage FDI. Two possible financing incentives are addressed – reduced non-resident withholding tax on direct dividends, and the extension of host county imputation relief to non-resident shareholders.[8] Under the tax capitalisation view, the effect of these incentives on investment activity depends on the form of equity financing at the margin (new share issues *vs.* retained earnings). This reflects the fact that these incentives are triggered by dividend repatriation (*i.e.*, operate by lowering dividend repatriation tax rates (see Annex III)). Another important consideration is whether the tax relief from financing incentives can pass through to foreign investors, which turns on the question of the taxation of foreign dividends in the investor's home country. A further critical issue concerns the fact that foreign investors may benefit from financing incentives where they are not the "marginal shareholder" group that determine share prices and required rates of return. Where tax-exempt or taxable domestic investors provide the marginal source of funds to a host country investment project (as for example could be the case where foreign direct investors take a non-controlling interest in a host country firm), financing incentives offered to foreign direct investors may provide pure windfall gains. Finally, we explore the implications of providing imputation relief to domestic shareholders, while denying such relief to foreign shareholders, and how infra-marginal participation could be affected in this case.

When analysing different arbitrage margins, one possibility is that direct investors compare, and through investment choice tend to equalise, after-corporate tax rates of return at source. However, this implies that significant differences in non-resident withholding tax rates at source across countries would not affect investment decisions even where such additional tax burdens cannot be offset by foreign tax credits. It would also mean that refunds for corporate income tax provided by a host country are not factored in, which seems unlikely if such relief is significant and not clawed back by the home country tax system.

Alternatively, foreign direct investors may factor in host and home-country corporate-level tax treatment, including taxes on profit repatriations, when making investment decisions.[9] This would seem more likely where taxes on profit remittances bear significantly on net project returns and profit margins. In this case, financing tax incentives offered to foreign direct investors may encourage FDI and expand the domestic capital stock, depending upon the marginal source of funds and the tax treatment of foreign income in the home country. As reviewed in the Chapter 3, Section (B), where dividend repatriation taxes are taken into account and capitalised into share prices, relief from dividend taxes can be expected to lower the cost of funds and encourage investment financed at the margin by new share issues by the parent.

As elaborated in Annex VII, when considering an investment in a given host country corporation financed at the margin by new equity, the required rate of return on shares measured net of host country corporate income tax, denoted by ρ^m established by the marginal shareholder can be modelled as follows:

$$\rho^m = i[1-t^{i(m)}]/[1-t^{d(m)}] \qquad (5.2)$$

where the required rate of return (or "discount rate") ρ^m is measured before imputation relief provisions, if applicable, $t^{d(m)}$ is the effective rate of tax paid by the *marginal shareholder* on distributed profit (factoring in host country non-resident withholding tax and imputation tax credits if available, as well as possible further (*e.g.*, home) country taxation of that income), and $t^{i(m)}$ is the marginal investor's tax rate on interest income. Financing incentives that lower the dividend tax rate $t^{d(m)}$ would be expected to encourage FDI by lowering the discount rate (ρ^m) applied to expected after-host country corporate tax profits generated by additional equity investment in the host country. The discount rate ρ^m is an equilibrium "break-even" rate of return in the sense that it gives an after-tax rate of return (*i.e.*, after-host country corporate income tax rate of return) that a firm must earn in order that marginal

© OECD 2001

shareholders earn their opportunity cost of funds, and no more (all economic rents if any, are exhausted).

The rate of return captured by ρ^m, measured net of host country corporate income tax rate, is relevant to all shareholders of the representative host country firm. In contrast, the after-tax rate of return realised by different shareholders (net of host and home country tax) will vary across shareholders to the extent that the effective dividend tax rate differs across shareholders. The "all-in" after tax rate of return earned by a given foreign direct investor on shares paying ρ^m is measured by:

$$\rho^m[1-t^{d(fdi)}] \qquad (5.3)$$

with ρ^m established by the marginal shareholder group, according to (5.2). The effective dividend tax rate facing the foreign direct investor, measured by $t^{d(fdi)}$, factors in non-resident withholding tax, imputation tax credits if available to that investor, and home country taxation. A key consideration is that the marginal investor group determining ρ^m may or may not be the foreign direct investor group considered in (5.3). A number of possible cases are examined in Annex VII, with results summarised below in Table 5.6.

Table 5.6. **Assessing the impact of financing tax incentives**
(*Extension of Imputation Relief* ($\theta^f \uparrow$) *or Reduction of Non-resident Dividend Withholding Tax* ($w^f \downarrow$))

Marginal investor	Tax position of FDI investor	Flow cost of new equity (ρ^m)	Impact on host capital stock	After-tax rate of return on FDI	Impact on FDI participation
Foreign-direct	Excess FTC, Tax-shelter, or Territorial tax system	$i(1-u)/(\theta^f(1-w^f))$	Increased	$i(1-u)$	Increased
Foreign-direct	Insufficient FTC (taxable under residence-based tax system)	$i(1-u^*)$	No impact	$i(1-u)$	No impact (offset by reduced foreign tax credit)
Tax-exempt	Excess FTC, Tax-shelter, or Territorial tax system	i	No impact	$i\theta^f(1-w^f)$	Increased (windfall gain on infra-marginal equity supply)
Tax-exempt	Insufficient FTC (taxable under residence-based tax system)	i	No impact	$i(1-u)/(1-u^*)$	No impact (offset by reduced foreign tax credit)
Domestic-taxable	Excess FTC, Tax-shelter, or Territorial tax system	i/θ^d	No impact	$i(\theta^f/\theta^d)(1-w^f)$	Increased (windfall gain on infra-marginal equity supply)
Domestic-taxable	Insufficient FTC (taxable under residence-based tax system)	i/θ^d	No impact	$i(1-u)/[\theta^d(1-u^*)]$	No impact (offset by reduced foreign tax credit)

Parameter definitions: market interest rate (i), host country effective corporate income tax rate (u), home country effective corporate income tax rate (u^*), imputation parameter for dividends paid to host country direct investors (θ^d), imputation parameter for dividends paid to foreign direct investors (θ^f), host country non-resident withholding tax rate on direct dividends (w^f).

1. *Impact of financing incentives with foreign parent as marginal shareholder*

In the "typical" FDI situation where a foreign parent provides (marginal and infra-marginal) financing to a subsidiary in a host country, financing incentives may operate to stimulate FDI flows if the incentives are not offset by current home country taxation. This may arise in a number of contexts. The parent may escape additional (*e.g.*, home country) tax where the home country strictly follows the territorial principle of giving full taxing rights to the source country. Or it may be that a tax treaty exists

© OECD 2001

between the host and home country which provides that the dividend is to be received tax-free (*i.e.*, received as exempt surplus). A number of countries in fact follow this practice, provided the dividends are paid out of active business income of a subsidiary operating in a treaty country (*i.e.*, in a country with which the home country has negotiated a tax treaty). A third situation in which no home country tax is collected can arise where the home country operates a residence-based tax system and taxes resident direct investors (*e.g.*, parent companies) on their worldwide income, but the home country tax is eliminated using foreign tax credits (as reviewed in Annex I).

Where home country tax is avoided on foreign source income, an increase in the rate of imputation relief extended to foreign shareholders and/or a reduction in the rate of non-resident dividend withholding tax can have the effect of lowering the required rate of return on new equity shares. This in turn implies increased FDI, with foreign direct investors earning their (lowered) required rate of return on an expanded host country capital stock.

In contrast, where the parent faces additional home country tax on the foreign dividend (the insufficient foreign tax credit case), a reduction in the dividend withholding generally would not spur additional FDI, as the foreign tax credit provided by the home country would fall dollar-for-dollar with the reduction in host country tax. The effect of imputation relief depends on the tax treatment provided in the host country. If the home country does not factor in the imputation relief for foreign tax credit purposes (*i.e.*, the indirect foreign credit is not reduced in respect of this amount) so that part of the financing incentive passes through to the investor, such relief could be expected to have some stimulative effect on FDI financed at the margin by new share issues, although with less impact that where the relief can pass through in full (where no additional tax is incurred upon repatriation).

2. I*mpact of financing incentives on* FDI *behaviour under alternative "marginal shareholder" cases*

A given foreign direct investor need not be the marginal shareholder of host country shares in all FDI cases. A foreign direct investor may consider a non-controlling interest in a host country investment project – for example, ownership of less 50 per cent of the equity interest (votes or value) – and other investor groups may set host country share prices and required rates of return. For example, the marginal shareholder of a given host country firm may be a tax-exempt entity, or a group of domestic taxable investors (or more generally another investor subject to different tax treatment). Neither imputation tax credits nor non-resident withholding tax applicable to distributions to a foreign direct investor would factor into the host country firm's required rate of return in either case (as neither apply to distributions to the marginal shareholders). Thus, financing incentives offered to foreign direct investors would not be expected to influence the level of the host country capital stock in these cases.

As explored in Annex VII, financing incentives may provide largely windfall gains in a number of cases. For example, where domestic shareholders or a tax-exempt subject to classical tax treatment establish host country share prices, with the result that the shares pay an equilibrium rate of return equal to the market interest rate (where all economic rents are exhausted), a foreign investor able to avoid home country tax on this return (using excess credits, income mixing, or income sheltering) would be encouraged to provide infra-marginal financing (as opposed to investing in bonds), even where host country imputation relief is unavailable.[10] Similarly, reductions in non-resident withholding tax generally would be unnecessary.

Granting integration relief to *resident* marginal shareholders but denying imputation relief to non-resident direct shareholders may operate to *discourage* FDI participation. This can occur where the reduction in the pre-tax rate of return (accompanying integration relief provided to domestic shareholders) more than offsets the advantage of earning foreign tax credits on foreign dividend income. One possibility to rectify this is to extend imputation relief to foreign shareholders.[11] However this option may impose significant costs, and be viewed as inefficient, particularly if such relief is largely provided in respect of dividends generated by investments financed out of retained earnings, rather than new equity capital. As noted above, in the former case, financing incentives would not be expected to impact on FDI levels. Another option is to adopt a classical tax system and deny integration relief to domestic (and foreign) shareholders.

© OECD 2001

The examples sketched out above and reviewed in more detail in Annex VII serve to illustrate that financing incentives provided to foreign investors may operate to encourage FDI, but only in certain cases, with key factors including the marginal source of funds (new equity capital vs. retained earnings), the tax treatment of returns to the marginal shareholder (which may or may not coincide with the taxation of foreign investors), and possible offsetting home country taxation. These factors are in addition to non-tax considerations that weigh in to FDI decisions and may render tax incentives ineffective. The examples also serve to highlight the possible distorting effects of combined host (and possibly home country) taxation where returns (on shares issued to finance a given investment) to different investors are subject to different tax treatment.

The preceding review of financing incentives (like the review of other tax incentives for FDI considered in this report) does not cover the full range of approaches through the cost of funds channel to encourage host country investment using the tax system. The framework used to analyse possible effects can however be applied more generally and, as in general, policy makers are encouraged to look beyond intended incentive effects to uncover limitations and complications, such as those identified with the measures reviewed here.

© OECD 2001

NOTES

1. See Chapter 2 (Section C) for a partial listing of possible market and policy-related impediments. Note that the two groups of impediments are not unrelated. Positive policy changes in certain areas can improve market conditions, although perhaps with a lag. For example, increased spending on education can be expected to increase over time the domestic pool of qualified labour.

2. This view rests on the general proposition that *preferential* tax relief from locating in country (i) rather than country (j) would be expected to attract investment to (i) if the preferential tax relief (TRi) – that is, the difference in the effective tax burden between the two, per dollar of income – exceeds the total additional non-tax-related cost (C) incurred by locating in (i) rather than (j) – that is, if TRi^3 (Ci–Cj), with a larger incentive effect the greater is the degree of differential tax relief relative to the cost differential.

3. The list of mobile business activities falling under this description would include head-office/co-ordination activities, holding company, financing and risk management activities, leasing and distribution activities, as well as a growing range of activities in the service sector (*e.g.*, wholesale/retail banking, financing, insurance, certain telecommunications and entertainment industries.)

4. Both approaches have the effect of reducing the rate of tax applied to the corporate tax base. To illustrate, let corporate tax be measured by $CIT_0 = u_0(Y–X)–TC_0$ where Y measures aggregate gross revenues, X measures aggregate tax deductions, TC measures investment tax credit claims, and $u_0 = (0.50)$ is the initial statutory corporate income tax rate. The same (level) reduction in the corporate income tax burden can be achieved by *i*) scaling the statutory corporate tax rate by $(1–\lambda)$, with (with $0 < \lambda < 1$); *ii*) granting a tax deduction equal to a fraction λ of the tax base; or *iii*) granting a tax credit equal to a fraction λu_0 of the tax base. To see this, consider $CIT_1 = [(1–\lambda)u_0](Y–X)–TC_0$ which is equivalent to $CIT_1 = u_0[(Y–X)–\lambda(Y–X)]–TC_0$ or alternatively, this should read: $CIT_1 = u_0(Y–X)–[u_0\lambda(Y–X)+TC_0]$. While the effects are the same for a taxable firm, they will differ for a non-taxable firm and depend on whether the special tax base reduction (or credit) can be carried forward (or backward) or not to other tax years. This follows from the fact that the first option (scaling the statutory tax rate) has no direct impact on tax loss (or credit) calculations.

5. See Grubert, H., 1998. Taxes and the division of foreign operating income among royalties, interest, dividends and retained earnings, *Journal of Public Economics*, 68, 269-290.

6. The government could write the taxpayer a cheque in the amount of $750 000 or allow this amount as a credit (offset) against the taxpayer's other current tax liabilities (*e.g.*, VAT, payroll tax liabilities).

7. In practice, some systems allow investment tax credits claimed in one year to offset depreciable expenses in the following year (to avoid a circularity in optimal tax planning decisions).

8. A reduction in non-resident withholding tax (like the extension to non-residents of imputation relief) can be viewed as a form of host and home country tax integration.

9. A further possibility is that parent companies take into account personal-level taxation on dividends remitted to their individual shareholders (*e.g.*, where a parent issues new shares to finance a new equity investment in a foreign subsidiary). Given the focus in this paper on the influence of host country tax incentives, we analyse the case where a parent uses retained earnings as its marginal source of finance. Where dividend taxes are factored into share prices, shareholder-level (personal) taxation of profits distributed by the parent would not affect the parent's FDI decisions. The analysis in the main text considers shareholder-level (corporate) taxation of dividends paid by a host county subsidiary to its parent.

10. As shown in Annex VII, this presumes that the non-resident withholding tax rate falls below the foreign investor's home country corporate income tax rate (as would often be the case).

11. Some scope exists to target such relief to investors that could benefit (*e.g.*, through tax treaty arrangements with countries that operate a territorial (source-based) tax system, or countries that exempt distributions paid out of active business income.

© OECD 2001

Chapter 6

AN OVERVIEW OF THE MAIN ISSUES

This report reviews arguments in favour of corporate tax incentives for FDI, the various types of incentives that may be used, and their main channels of influence. The analysis looks beyond host country treatment and examines possible taxation of host country income by the home countries of foreign direct investors, recognising that interactions between host and home country tax systems can significantly alter FDI incentives. Central of course to the use of tax incentives is the basic question of how much incremental investment can be expected and at what aggregate cost to the host country, including not only administrative and direct revenue losses, but also costs tied to increased complexity in the tax system and vulnerability to excessive tax avoidance. Recent empirical findings are reviewed that find increasing sensitivity of FDI and financing behaviour to host country tax burdens, consistent with trends towards increasing globalisation of production and financing strategies. Also reviewed are various techniques and empirical results confirming tax-planning efforts geared at shifting profits away from high-tax rate countries.

While summarising the basic approach to cost-benefit analysis of tax incentives, and stressing the need for careful consideration of likely effects, cost-benefit assessments of alternative tax incentive mechanisms are not given, as effects would be expected to vary from one host country case to the next. Rather the report reflects on arguments for the use of corporate tax incentives and considerations relevant to their possible success, including results observed from recent empirical work and various design, implementation and tax base protection issues. This approach recognises that policy officials are often confronted with demands for the adoption of tax incentives for FDI without sufficient data to assess overall effects, and possibly little leverage to discourage their use even where roughly estimated costs exceed the likely benefits.

A. The Role of the Corporate Tax System and Tax Incentives

Tax systems may be used to achieve a variety of policy objectives. A review of tax systems across countries and over time shows a remarkable degree of diversity in approaches. Despite this, one can identify at a fundamental level three main roles or functions of tax systems. The most important role of a tax system is obviously its revenue-raising function to finance government expenditures in various areas. Second, tax systems have an important income redistribution function, particularly in the case of personal and also corporate-level income tax. Third, tax systems can play an important resource allocation function. According to the efficiency criterion, tax systems in general should be designed to be neutral, raising revenues while minimising distortions imposed on the economy. In the context of the taxation of income from capital, this generally requires that a taxpayer be subject to the same effective tax rate on different income streams. However, uniform taxation may lead to an inefficient allocation of resources, and in such cases differential treatment (*e.g.*, using tax incentives) may be called upon to improve resource allocation.

An inefficiently low level of FDI may arise where there are positive externalities or beneficial effects from FDI that are not taken into account by foreign parent companies when making their outbound investment decisions. For example, where a parent company is determining the amount of R&D to conduct through a foreign subsidiary, the parent generally would not factor in the benefits from its R&D that "spill-over" to the host country economy. In other words, the parent takes into account only

© OECD 2001

the benefit to its profitability (the returns that it can appropriate) and not the social benefits that eventually freely disseminate, including the application of new knowledge, and production and process technologies by other host country firms. Similarly, FDI may confer general training and skills that could be employed elsewhere in the economy, or generate demand for various factors of production in the host country that might not otherwise exist. Where foreign direct investors do not take these social benefits into account, a private market result may yield FDI levels below what would be observed if the benefits were instead factored in. In these instances, it can be argued that tax incentives are necessary to correct for instances of "market failure", and yield a more socially optimal allocation of capital.

However, while market failure and regional or international competitiveness arguments may apply that point towards intervention in the market through the tax system, it is critical that the host country investment conditions and characteristics be assessed in order to gauge whether possible impediments to investment could be overcome by the use of tax incentives. As stressed in the report, when tasked with addressing calls for the introduction of incentives for FDI, it is critical that policy makers ask:

What are the impediments inhibiting investment, and can they be addressed in a cost-efficient way through the use of tax incentives?

This is obviously a difficult question in many if not most instances, but it runs to the heart of the decision of whether or not to introduce special tax relief mechanisms. In cases where FDI activity is low, policy analysts need to address the impediments and question whether these should be tackled through the tax system, or through structural policy changes in other areas, or both.

B. The Need to Assess Possible Impediments to FDI

A number of possible market and policy related impediments to FDI are reviewed in the report. A key question in virtually all FDI cases is whether the required factors of production, including for example sufficient pools of adequately skilled labour, natural resources and energy supplies, can be acquired in the host country at a competitive cost. Project costs tied to taking output to market are another consideration. A related issue is the size of the market, and whether consumer demand in the region has been largely unfilled to date. The dimension and importance of these market characteristics would generally vary from one industry to another, implying the need for a range of data to help identify the relative advantages and disadvantages of investing in the host country. However, analysts should nevertheless attempt to assess the importance of these considerations, at least on an approximate basis and for broad industry classifications.

Government policies as they affect business costs and risks should also be assessed. Macro-instability in exchange rates and price levels tend to increase uncertainty and the perceived risks of FDI, tending to increase required pre-tax rates of return and discourage FDI flows. Investment will be inhibited if the host country legal and regulatory framework is incompatible with the operation of foreign-owned companies. Important areas include the protection of property rights, the ability to distribute profits, and an open market for currency exchange. Case studies also stress the critical importance of political stability, particularly in the case of developing countries. Clearly, the risk of political instability can be the single largest deterrent to FDI, as it renders all areas of public policy uncertain.

Where tax policy is identified as a major issue, transparency in the tax law and administration will often be ranked by investors ahead of special tax relief. Uncertainty over tax consequences of FDI increases the perception of risk and discourages capital flows, a fact particularly important for long-term, capital-intensive FDI that most host countries are eager to attract. Furthermore, frequent changes to tax laws should be avoided. While some fine-tuning is inevitable during a transition process and as policy evolves, frequent changes to the tax laws can contribute more than the provisions themselves to a perception that the tax system is complex and difficult to comply with. Administrative discretion is also an important issue. On the one hand, granting tax incentives by discretion with pre-approval of authorities may improve targeting, reduce the scope for tax avoidance and limit up-take and revenue costs. However, the approval process may be time-consuming and uneven, tending to undermine

© OECD 2001

transparency and certainty in the application of the tax laws, and thus ultimately weakening the investment incentive effect. Discretionary provision of tax incentives also invites corruption.

Market and policy related impediments are factored in by foreign direct investors when determining the relative cost of investing in a given host country *versus* an alternative jurisdiction. Tax incentives may enhance the attractiveness of a potential host country, but in many cases the relief provided will be insufficient to offset additional costs incurred when investing there. In particular, where multinational firms are unable to generate profits from certain business activities conducted in a given jurisdiction, it is unlikely that tax incentives would have a notable impact on FDI levels. This would tend to be the case for goods and services produced under competitive conditions, with output prices set in international markets, where product demand (both in and outside the host country) can be met by locating production in an alternative site with access to factor supplies and markets at lower cost. Clearly, a reduced effective tax rate on profits is attractive only where pre-tax profits can be realised. As argued in the report, providing non-profitable (loss) companies that are non-taxable (and therefore unable to use special tax deductions, allowances and tax credits) with up-front cash refunds on earned but unused tax incentives tends only to attract aggressive tax-planning to access the subsidies from government, rather than *bona fide* investment in the targeted sectors. Moreover, project self-sufficiency rarely materialises where investment projects are not profitable on a pre-tax basis. Where incentives cannot be expected to compensate for additional costs and business losses incurred when investing in a potential host country, then their use and the net burden imposed on the host country from running the program should be avoided. In particular, in such cases it would be best to avoid the administration and compliance costs and tax revenue losses from the inevitable "leakage" of tax incentive relief to one or more non-targeted business activities.

Where a firm is able to generate profits from operating in a given host jurisdiction, tax incentives may be successful in attracting additional FDI, and may be viewed as necessary where similar relief is being offered by a neighbouring jurisdiction also competing for foreign capital. This raises questions concerning the appropriate form and scale of tax incentive relief, as well as a range of other design issues. It also raises the question of whether foreign direct investors could earn competitive "hurdle" rates of return in a given host country and in competing jurisdictions in the region in the absence of special tax incentives. In such cases, policy makers may wish to discuss the possibility of policy co-ordination in the area of tax incentives to avoid revenue losses and providing foreign investors with "windfall gains" – that is, tax relief above that necessary to realise competitive after-corporate tax rates of return – and also to address possible equity and efficiency concerns linked with the use of special tax incentives.

Where additional FDI resulting from tax relief can be expected, it remains prudent to assess whether the stream of benefits from increased FDI, including host country taxes collected on profits from an increased capital stock and possible spill-over effects, can offset the stream of costs associated with the tax incentive provisions. In other words, policy makers should be encouraged to undertake an analysis of the social benefits and costs of tax incentive use, with the same rigour that foreign investors assess the relative private benefits and costs of investing in host countries.

C. Possible Corporate Tax Incentives to Encourage FDI

If a host country decides to lower its tax burden to attract FDI, it may provide relief from tax on income generated at the corporate level in a number of ways. Alternative corporate tax incentive measures include tax holidays, statutory corporate income tax rate reductions, enriched capital cost allowances, investment tax credits, reductions in dividend withholding tax rates, and the extension of imputation relief to non-resident shareholders. The report presents a simple framework to address the means by which each may lower the effective hurdle rate of return on FDI, while subsequent chapters review differences in their impacts on the real and financial behavior of firms and on the host country fiscal position, as indicated by a mix of theoretical, empirical and case study analysis.

In brief, a tax holiday exempts "newly-established" firms from corporate income tax, and possibly other taxes, for a specified number of years. A reduction in the statutory or "headline" corporate income tax rate reduces the amount of host country tax levied on taxable profits. Enriched capital cost

© OECD 2001

allowances, including accelerated and enhanced write-offs for qualifying capital costs, lower the calculation of taxable profits. General or targeted investment tax credits earned at a given rate on qualifying investment provide a direct reduction in corporate tax otherwise payable, where the value of the incentive is independent of the setting of the statutory corporate tax rate. Dividend withholding tax rate reductions and imputation relief provide an offset to corporate tax on distributed profit, which may operate to lower the discount rate applied by investors to after-tax cash flows from FDI.

Standard investment theory predicts that investment expenditures would generally respond positively to each of these tax incentives. A reduction in the statutory tax rate applied to corporate profits, or a temporary waiving of this tax as under a tax holiday, generally would be expected to boost investment by increasing the amount of after-tax profit earned on new investment as well that earned on the existing capital stock. Theory predicts that "up-front" incentives, including investment tax credits and immediate expensing of capital costs earned as a percentage of new investment expenditures would yield a larger investment response for each currency unit of tax revenue foregone. Unlike a corporate tax rate reduction, investment tax credits and other subsidies to the cost of purchasing capital benefit only new investment. Therefore, they provide a larger reduction in the effective tax rate on investment at a lower cost, taking into account the impact of taxation on both marginal revenues and costs. A reduction in the statutory corporate tax rate, in contrast, benefits both "new" as well as "old" (previously installed) capital. Financing incentives may also operate to encourage host country investment, provided that they are offered to the "marginal investor" establishing required hurdle rates of return.

Theory also predicts that the potential impact of tax incentives would vary across business activities, sectors, countries and time. The potential impact on FDI would be expected to be greater for business activities for which there is little differential in non-tax business costs (including labour, material, energy and other factor input costs and transportation costs) amongst competing jurisdictions. This follows from an observation that a narrowing of non-tax business cost differentials tends to make tax differentials a more important consideration in locational choice. As an example, tax incentives could be expected to have a significant effect on the location choice for group financing and related services activities, given that advances in data management and telecommunications have largely eliminated non-tax cost differentials across alternative locations chosen to conduct such activities.

These considerations offer a first round summary of the potential effects of host country tax incentives. However, they are subject to a number of important qualifications explored in the report. An important caveat to note is that a full assessment of the likely effects of host country tax incentives requires consideration of the treatment of foreign source income in the home country of foreign direct investors. Addressing tax-interaction effects is important as tax consequences in the home country can reinforce or reduce the effectiveness of a given host country incentive. Indeed, often the tax rules of several countries will factor into the relevant investment structure, for example where funds come via an offshore financing or holding company.

D. Assessing Host and Home Country Tax Interactions and Incremental Investment

Countries generally follow one of two approaches in their treatment of active business income earned on foreign direct investment. Under the "territorial" approach, foreign source income is generally tax-exempt. Therefore, in determining the overall level of corporate tax imposed on income derived from FDI, one need not consider home country taxation. In other words, for investors resident in exemption countries, only host country taxation matters. The same is true where home countries instead follow the residence-based approach, but generally only in situations where residents are able to defer or eliminate home country tax on foreign source income through the use of tax sparing, foreign tax credits, tax havens or other tax-sheltering means. However, where investors are subject to current domestic taxation on foreign source income, as for example under the application of controlled foreign company rules, a tax incentive for FDI that lowers host country tax may be completely offset by a reduction in the home country foreign tax credit. This implies that tax incentives may have no impact on the total (combined host and home country tax) tax imposed on income generated in a host country,

© OECD 2001

and thus may have no impact on FDI activity. The only effect is a transfer of tax revenues from the host country treasury to the home country treasury.

Assessing the net benefit to a host country of introducing a given tax incentive clearly depends critically on the additional amount of FDI undertaken as a result of the tax relief. Where an incentive is introduced and investors take advantage of the tax relief, a certain amount of FDI activity will be observed and associated with the tax incentive program. But that activity may have occurred in any event, in which case the tax relief provides an unnecessary "windfall gain" to investors. Much thought and empirical analysis has addressed the question of the relationship between the level of investment flows and the effective rate of corporate taxation. However, isolating the impact of host country taxation on investment flows at the margin has proven to be a difficult exercise, even in the pure domestic context. Moreover, the ever-increasing globalisation of trade and investment patterns has encouraged analysts to consider the complex interaction of host and home country tax systems and tax treaty networks to better understand the overall influence of taxation on inbound and outbound investment flows. It is within this broader framework that the question of how tax incentives ultimately impact on FDI should be addressed.

While answers to these questions have by no means been fully sorted out, important developments in the understanding of the main factors and their inter-dependencies have been achieved, and some real progress has been made over the last decade in empirical testing of investment models. The report reviews empirical findings on the impact of taxation on cross-border direct investment in real physical and intangible capital. After reviewing findings in the literature up to 1990, the paper considers more recent work including results derived using data on direct investment abroad and empirical analyses of host and home country tax considerations thought to influence the decisions of multinationals concerning the location of productive capital and R&D activities.

Recent empirical work using improved data on FDI and sophisticated estimation techniques would appear to offer convincing evidence that host country taxation does indeed influence investment flows. An important implication of the recent work is that host country taxation is an increasingly important factor in locational decisions, which is not surprising given the gradual pervasive reductions over time in non-tax barriers to FDI flows, including the abolition of investment and currency controls and the globalisation of production. However, due to a number of persistent limitations ranging from data measurement problems to restrictive modelling assumptions, the estimates presented in the report of the responsiveness of FDI to changes in the after-tax rate of return on FDI (and through this channel, to changes in the level of tax incentives for FDI) must be used with caution when applied to measure the cost-effectiveness of a given tax incentive measure.

Some observations are offered on on-going limitations posed by empirical modeling and implications for gauging tax incentive effects. One of the most notable issues is the fact that most of the empirical work in this area is based on US data. Therefore, findings on the sensitivity of direct investment into the US (inbound FDI) to tax considerations may not be taken to apply equally to other host countries. Similarly, findings on the importance of host country tax considerations to US parent companies investing abroad (outbound direct investment) cannot be taken to apply equally to outbound investment decisions of corporate direct investors resident in other home countries. However, the findings of increased sensitivity of foreign direct investors to host country tax burdens, linked to increased globalization, are likely to apply in other cases, perhaps not to the same degree but in the same direction. In particular, multinational corporations based in other home countries, also operating on a global basis with fewer investment and trade restrictions, could be expected to be more sensitive over time to host country tax burdens if home country taxation is not a pressing factor. This would include multinationals resident in countries that exempt foreign active business income from tax, as well as those in countries which tax foreign source income but allow deferral of home country tax on host country profit for an extended period, for example through the use of offshore holding companies. However, as noted above, the elasticity estimates reported in the literature must be used with care. Despite progress in empirical investigations, estimates of the FDI response to a given amount of tax relief arguably cannot be made with a high degree of certainty, given that a number of theoretical and

© OECD 2001

empirical issues remain unresolved. In other words, the empirical results to date are suggestive, but more work needs to be done to improve and verify the accuracy of elasticity estimates in alternative host and home country cases.

While indicating that the sensitivity of FDI to host country tax burdens appears to be increasing over time, the empirical applications of investment models unfortunately offer few clues over how host country tax burdens might be lowered to attract additional FDI. The reason is that the explanatory variables used (summary marginal and average effective corporate tax rates) are measured as an amalgam of relevant tax and non-tax parameters. By aggregating relevant factors, the individual influence played by each is masked. Thus policy makers must look to other areas to guide their choice over alternative tax instruments and policies to encourage FDI (including an assessment of whether non-tax policy-related impediments to FDI should be addressed prior to, or at a minimum, parallel with, the introduction of tax incentives). The report therefore reviews a number of policy considerations and design issues relevant to the choice of alternative tax incentive measures.

E. A Summary of Relative Strengths and Weaknesses of Alternative Tax Relief Instruments

When considering the use of special incentives, the exercise should begin with policy makers assessing their own country situation and the strength of arguments calling for tax incentives for FDI to correct for market failure or other market or policy-related impediments to FDI. This recognises the basic efficiency question of whether incentives can be expected to increase (or instead reduce) economic performance. In relation to this central issue, the report addresses design considerations linked to unintended tax planning incentives created by certain tax relief measures, most notably tax holidays. The need to anticipate, design and implement protective measures to stem aggressive tax-planning is a central issue for policy makers to address, given that instruments often fail to promote FDI in a cost-efficient manner largely on account of unintended leakage of tax relief to non-targeted activities. The discussion highlights tax base protection advantages of adopting a low basic statutory corporate tax rate as a means to attract FDI, despite the tax relief that this approach offers to existing (installed) capital. Other design issues addressed include commencement dates for tax holidays, the tax treatment of losses and depreciation claims, the use of incremental *versus* flat tax credits, and the targeting of financing incentives to marginal *versus* infra-marginal investors and implied FDI effects.

Tax holidays remain a popular form of tax incentive, primarily in developing countries, and therefore the report reviews a number of design considerations. The report illustrates for example that the choice over several options for the commencement of a tax holiday – including the first year of production, the first year of (positive) profit, or the first year of (positive) net cumulative profit – can have a significant bearing on the amount of direct tax relief provided and the attractiveness of this measure to investors. The amount of direct tax relief provided is shown to depend not only on the starting period of the tax holiday, but also on the scale and tax treatment of losses incurred over the holiday period. The report provides a number of examples that illustrate the differing amounts of tax relief offered under alternative tax rules.

While tax holiday incentives have been used extensively, they are arguably the most open to taxpayer abuse. By exempting certain companies or activities from income tax, tax holidays encourage corporate groups to shift taxable income (either within or outside the letter of the law) to qualifying companies so as to minimise their overall host country tax liability. A number of avenues may be open for such abuse. First, where a tax holiday is targeted at "newly established" companies, taxpayers are encouraged to transfer capital from already existing businesses to qualifying firms in order to benefit from the tax relief. This "churning" of business capital for tax purposes can lead to the false impression that new investment has taken place, when in fact the introduction of "new" productive capacity merely reflects a reduction in operating capital elsewhere in the economy. Another common technique for profit shifting facilitated by tax holidays is routing interest and other deductible payments within a corporate group through tax-free entities, enabling the conversion of deductible interest expense into dividends received tax-free in the hands of the parent. A third technique is to use artificial transfer prices in transactions amongst firms in a corporate group to shift otherwise taxable income to the tax holiday firm, and to shift expense to non-qualifying firms to reduce the global amount of income subject to tax.

© OECD 2001

When considering enriched deprecation claims as a tax incentive option, a key consideration, in addition to the choice between a straight-line *versus* declining-balance depreciation method, is whether to allow the claims to be discretionary or not. For example, if policy makers hope to encourage FDI by providing accelerated depreciation, should the depreciation claims be mandatory (allowed only in the year when the claim first becomes available), or should one allow taxpayer discretion to carry the claim forward? Many countries allow unclaimed depreciation expenses to be carried forward indefinitely, which improves the ability of investors to manage tax claims and minimise their overall host country tax liability. Where taxpayers are given fewer degrees of freedom, the linkage with loss carry-over provisions becomes more important. Examples are provided which show the possible pitfalls of introducing accelerated depreciation with mandatory (non-discretionary) claims and no loss carry-forward. Accelerated depreciation is shown in this case to possibly worsen the taxpayer's situation, yielding a higher overall tax burden than that observed with non-accelerated depreciation. Providing discretionary accelerated depreciation is shown to enhance the investor's position, while offering discretionary accelerated depreciation plus loss carry-forward provisions (allowing the investor to carry forward tax losses as well as business losses) lowers the tax burden further.

An important general issue addressed in the report considers the fact that enhanced depreciation allowances combined with flexible loss carryover rules can lead to a significant build-up of unutilised "tax-losses", that is earned but unused tax offsets that can be carried forward by the taxpayer to offset tax in future years. This can lead to instability and uncertainty in revenue raising. Similarly, those that are discouraging of the granting of up-front tax incentives point out that their introduction can put enormous strain on the host country tax system given that governments are typically pressured to allow firms in a temporary loss position (*e.g.*, start-up firms) to carry forward balances of earned but unused investment tax credits. Moreover, the existence of large balances of unused tax-losses creates incentives for firms in a loss position to "sell" tax losses to firms outside the target tax incentive group that are profitable and able to use transferred losses to reduce their host country tax liability. This in turn puts pressure on host governments to ensure that rules and administrative practices are in place to limit unwanted loss trading, typically with new tax loopholes created as old ones get shut down. The revenue costs resulting from loss transfers can be huge and dwarf foregone revenues from the targeted investment activities.

An alternative to tax credit carryover provisions is to allow for tax credit "refundability". Where a credit is refundable, taxpayers are provided with cash relief for that portion of the credit that cannot be used to offset income tax liability in the year the credit is earned. Refundability can boost cash-flow and address possible liquidity constraints inhibiting investment plans. However, from the government's perspective, great care should be exercised when pressures mount for the introduction of refundable tax credit provisions. Refundability can increase the cost of an investment tax credit program by shifting forward tax expenditures that would be delayed under tax credit carryover provisions. Also, while providing more neutral tax treatment of risk, refundability extends support to some subset of non-taxpaying firms (*e.g.*, start-ups), that will eventually fail and never be profitable and taxable. Tax credit carryover provisions, in contrast, limit program costs by extending assistance only to profitable firms. By virtue of the fact that a firm must be profitable for it to be subject to income tax (and only then able to claim a tax credit), the carryover design feature has an inherent selection device. In practice, carryover relief may extend beyond the target group, for example where unused credits are "sold" to non-qualifying firms as noted above. At the same time, in the absence of refundability, immediate financing relief may be denied in certain cases (*i.e.* to firms that are currently in a loss position but potentially profitable) when it would be appropriate.

While not perfect, the overall results with assistance limited to a carryover of tax relief may however be more efficient than those that might occur with a loosely targeted refundable tax credit. A key risk with the latter is that the prospect of generous refundable tax credits will encourage the creation of "sham" business activities set up primarily or solely for the purpose of receiving a refund cheque from the government. Refundability tends to increase the incentive to recharacterise non-targeted activities as qualifying ones, putting additional pressure on tax administration and testing further the limits of the qualification criteria.

The findings suggest that up-front incentives that subsidise the cost of acquiring new capital, which basic economic theory would suggest generally to be the most efficient incentive instruments, may not be

© OECD 2001

the best choice in practice, given the inter-dependency of tax parameter settings (*e.g.*, as under an overall tax revenue raising constraint). In particular, to the extent that revenue losses from the provision of generous investment tax credits and other "up-front" incentives are accompanied or "financed" by a high statutory corporate income tax rate, corporate tax planning by investors to shift tax deductions to (and taxable profits away from) high statutory tax rate jurisdictions may largely undermine the efficiency of the up-front incentive type. Case study analysis and recent empirical findings on the sensitivity of financing decisions, repatriation policies and transfer pricing behaviour offer important lessons in this regard.

Up-front tax incentives, including investment tax credits and immediate and full expensing of capital costs, are often advocated as the most efficient form of investment incentive in that they reward only new capital purchases. The reasoning is that tax incentives can yield the greatest efficiencies if they subsidise only investment that would not have occurred in the absence of the support. On this basis, it is often argued that up-front incentives tied to new capital purchases should be chosen as the mechanism to encourage new investment, over statutory corporate income tax rate reductions that benefit existing as well as newly installed capital. Despite this claim, it is important to recognise that targeting relief to newly acquired capital (as investment tax credits, immediate expensing and other up-front tax incentives do), does not ensure that windfall gains to investors are avoided. This is because some (unknown) fraction of new investment that qualifies under a given tax incentive program would have occurred in any event.

Recognising this, efficiency gains could be achieved in principle by sharpening the definition of qualifying investment to more narrowly target incremental investment. One example of an instrument tailored along these lines is the so-called *incremental investment tax credit*. Unlike a flat credit earned as a fixed fraction of current period investment in qualifying capital property, an incremental investment tax credit is earned as a fraction of only that part of current period investment that is in excess of some moving average of past investment. Designing a tax incentive in this way may result in better targeting and improved efficiency compared with alternatives. However, as illustrated by examples in the report, the design feature may operate in certain cases to discourage investments by firms whose desired level of investment expenditure (in the absence of a tax credit) in a given year is less than its average expenditure over the previous base years. Restricting the provision of tax credits to investment expenditures in excess of a moving-average base can also create an incentive for businesses to make investments in a staggered, lumpy manner rather than over a smooth expenditure pattern.

The report finds considerable support for choosing to lower the basic statutory corporate income tax rate as a means of lowering the effective host country tax rate. In particular, there now exists a considerable body of empirical work summarized in the report that addresses the implications of alternative tax reform measures on financial policies of multinational corporations. This work demonstrates that a firm's financial structure is typically influenced, in some cases significantly, by the tax regime of the host country, corroborating well-know results to tax-planning advisers. More specifically, empirical results at the aggregate level tend to confirm the central role played by the host country statutory corporate income tax rate in influencing chosen debt/equity ratios. In particular, a high statutory corporate income tax rate encourages borrowing in the host country, tending to erode the corporate tax base.

The review also examines the implications of alternative tax parameter settings on earnings repatriation policy decisions. As theory suggests, repatriation methods are found to be influenced by statutory corporate and non-resident withholding tax rates, with alternative forms of earnings repatriation having differential impacts on the host country tax base. High withholding tax rates on dividends, for example, tend to discourage dividend distributions. However, a high dividend withholding tax policy cannot ensure that (true economic) profit will be reinvested in the host country as firms have other means at their disposal to remit earnings to parent companies including the use of deductible charges such as interest, royalties and management fees. As expected, high corporate income tax rates are found to encourage the use of deductible payments including interest as a means to remit income to foreign parents, with negative implications for the host country tax base. Interestingly, one study finds that (deductible) royalty payments are not found to increase with the host country statutory corporate income tax rate. Instead, low statutory tax rate regimes tend to be associated with higher royalty and dividend payments, suggesting that multinationals tend to shift profits, including income from intangible capital, to low tax rate jurisdictions. The

© OECD 2001

effects for high corporate tax rate countries are the opposite, with multinationals tending to shift profit out, rather than in, using highly leveraged financial structures in the host country and non-arm's length transfer pricing.

The remaining design issues considered in the report focus on financing incentives. Assessing the impact of financing incentives including withholding tax rate reductions and the extension of imputation relief to non-residents involves considering alternative sources of finance (debt, retained earnings, new share issues) and various margins across which foreign direct investors would be expected to compare after-tax rates of return when ranking their investment opportunities. Where taxes on profit remittances bear significantly on net project returns and profit margins, foreign direct investors might be expected to factor in host and home-country corporate-level tax treatment, including taxes on profit repatriations, when making investment decisions. If dividend repatriation taxes are taken into account and capitalised into share prices, relief from dividend taxes can be expected to lower the cost of raising new equity funds and thereby encourage FDI.

Where a foreign parent is able to avoid home country tax on foreign dividends (using excess foreign tax credits, income mixing, or offshore holding companies) an increase in the rate of imputation relief provided to foreign direct shareholders can have the effect of lowering the cost of new equity capital supplied to the subsidiary. Similarly, a reduction in the rate of non-resident dividend withholding tax would be expected to lower the firm's discount rate. Both financing incentives would tend to encourage FDI, as a lower profit discount rate implies the ability to cover the shareholder's required rate of return at an increased capital stock.

However, where instead the foreign parent is subject to additional home country tax on foreign income, generally neither imputation relief nor withholding tax relief would be expected to influence the host country firm's required rate of return on investment. This occurs because the "all-in" tax rate on the subsidiary's profit is the *home* country tax rate, with host country tax incentives fully offset by reduced home country foreign tax credits. Moreover, since the financing incentive is conditional upon and occurs simultaneously with dividend repatriation, the possibility of deferring home country tax does not alter the result. Thus, the financing incentive in this case shifts revenues between host and home countries, with no influence on overall final after-tax returns, and thus no expected impact on the host country capital stock.

Another case addressed is where a foreign direct investor considers a non-controlling interest in a host country investment project – for example, ownership of less 50 per cent of the equity interest. One possibility is that the marginal shareholder supplying the last units of capital to a host country investment project is a tax-exempt entity. Alternatively, domestic taxable investors may be the marginal shareholders of a host country firm. Neither imputation tax credits nor non-resident withholding tax relevant to distributions to a foreign direct investor would factor into the calculation of the firm's required rate of return in either case, as neither apply to distributions to the marginal shareholder. Thus, financing incentives offered to foreign direct investors would not be expected to influence the level of the host country capital stock in these cases. A final issue explored in the report is the potential of these incentives to influence *infra-marginal* financing by foreign direct investors, potentially of interest where direct but non-controlling participation by foreign investors is expected to bring benefits to the host country including for example access to goods or factor markets.

F. The Need for Careful Use and Design of Tax Incentives

The analysis in the report, which touches on a number of considerations tied to the use of tax incentives, indicates perhaps above all that policy makers must be cautious in the use of tax incentives and what to expect from them. Identifying impediments to FDI and assessing whether these can be offset by tax incentives raise difficult data availability and analytical problems. However, policy analysts need to tackle these questions, at least on an approximate basis to assess whether the likely benefits exceed the costs.

Assessing the likely investment response is made difficult by the paucity of information on the elasticity or responsiveness of FDI with respect to host country effective corporate tax rates. It would be prudent to use lower bound estimates in cases where host country impediments to FDI are more

© OECD 2001

pronounced than in host countries from which sample estimates are derived. These lower bound estimates translate to conservative estimates of additional tax base and other spillover benefits to the host country economy. At the same time, policy makers should not underestimate tax-planning initiatives of multinationals and should assess the strength of domestic base protection provisions, particularly if a tax holiday or similar measure is being considered.

Additionally, the choice over alternative tax incentives will depend on the specific country circumstances. For example, the findings in the report call for caution in the use of up-front tax incentives, particularly if the basic statutory tax rate is relatively high and if refund provisions are offered. Some would judge the balance of evidence as being in favour of lowering the basic tax rate, which not only spurs investment (despite dampening effects working through the cost of debt finance and the valuation of depreciation allowances), but also alleviates tax-planning pressure on the domestic tax base.

However, as with other tax incentives, the best approach will depend on the country situation. Where current corporate tax revenues are derived largely from capital that would benefit from a rate reduction, the revenue loss on existing capital may be viewed as too large. In other words, the policy decision may depend on the amount of existing *versus* new tax base that benefits from the rate reduction. A weighing of the host country resident's views on a "fair" sharing of the tax burden between households and firms may also factor in.

As the example illustrates, the choice over the appropriate tax incentive or mix of tax incentives, and the basic decision over whether tax incentives should be used to bolster FDI, will depend on individual country circumstances and perspectives. The report offers a range of information that may be useful to policy makers in shaping policy decisions in this area.

© OECD 2001

REFERENCES

ALTSHULER, R., and H. GRUBERT, 1996,
Balance sheets, multinational financial policy, and the cost of capital at home and abroad, mimeo.

ALTSHULER, R., GRUBERT. H., and T.S. NEWLON, 1998,
Has US investment abroad become more sensitive to tax rates?, NBER Working Paper, No. 6383, NBER, Cambridge, MA.

ALTSHULER, R., and J. MINTZ, 1995,
US interest-allocation rules: effects and policy, *International Tax and Public Finance*, 2, 7-35.

ALTSHULER, R., and T.S. NEWLON, 1993,
The effects of US tax policy on the income repatriation patterns of US multinational corporations, in A. Giovannini, R.G. Hubbard, and J. Slemrod (eds.), *Studies in international taxation* (Chicago: University of Chicago Press).

ALTSHULER, R., T.S. NEWLON, and W. RANDOLPH, 1995,
Do repatriation tax rates matter? Evidence from the tax returns of US multinationals, in M. Feldstein, J. Hines, and R.G. Hubbard (eds.), *The effects of taxation on multinational corporations* (Chicago: University of Chicago Press).

AUERBACH, A., and K. HASSETT, 1993,
Taxation and foreign direct investment in the United States: A reconsideration of the evidence, in A. Giovannini, R.G. Hubbard, and J. Slemrod (eds.), *Studies in international taxation* (Chicago: University of Chicago Press).

AUERBACH, A. and J. HINES, 1988,
Investment Tax Incentives and Frequent Tax Reforms", *American Economic Review*, 78(2), pp. 211-216.

BOSKIN, M., and W. GALE, 1987,
New results on the effects of tax policy on the international location of investment, in M. Feldstein ed., *The effects of taxation on capital accumulation* (Chicago: University of Chicago Press).

BOVENBERG, A.L., K. ANDERSSON, K. ARAMAKI and S. CHAND, 1990,
Tax incentives and international capital flows: the case of the United States and Japan, in A. Razin and J. Slemrod (eds.), *Taxation in the global economy* (Chicago: University of Chicago Press).

CAVES, R.E., 1971,
International corporations: The industrial economics of foreign investment, *Economica*, 38, 1-27.

CHIRINKO, R.S., 1993,
Business fixed investment spending: A critical survey of modelling strategies, empirical results, and policy implications, *Journal of Economic Literature*, 31 No. 4, 1875-1911.

CLARK, W.S., 1987,
A theoretical and empirical analysis of the tax-adjusted q-dynamics of investment, with applications to future phased-in tax policy reform, Ph.D. dissertation, Queen's University, Kingston.

COLLINS, J. and D. SHACKELFORD, 1992,
Foreign tax credit limitations and preferred stock issuances, *Journal of Accounting Research Supplement*, 30, 103-124.

CUMMINS, J., K. HASSETT and G. HUBBARD, 1996,
Tax Reforms and Investment: A Cross-Country Comparison, *Journal of Public Economics* (62), pp. 237-273.

DUNNING, J.H., 1981,
International production and the multinational enterprise (George Allen and Unwin, London).

FELDSTEIN, M., and J. JUN, 1987,
The effect of tax rules on non-residential fixed investment: Some preliminary evidence from the 1980s, in M. Feldstein (ed.), *The effects of taxation on capital accumulation* (Chicago: University of Chicago Press).

FROOT, K. and J. HINES, 1995,
"Interest Allocation Rules, Financing Patterns, and the Operations of US Multinationals" in M. Feldstein, J. Hines and G. Hubbard, (eds.), *The Effects of Taxation on Multinational Corporations* (Chicago: University of Chicago Press).

© OECD 2001

FROOT, K. and J. STEIN, 1991,
Exchange rates and foreign direct investment: An imperfect capital market approach, *Quarterly Journal of Economics* 106, 11191-1217.

GRUBERT, H., 1994,
Royalties, dividends and R&D, mimeo.

GRUBERT, H., 1998,
Taxes and the division of foreign operating income among royalties, interest, dividends and retained earnings, *Journal of Public Economics*, 68, 269-290.

GRUBERT, H., and J. MUTTI, 1991,
"Taxes, tariffs and transfer pricing in multinational corporation decision making", *Review of Economics and Statistics*, 33, 285-293.

HARTMAN, D.G., 1981,
Domestic tax policy and foreign investment: some evidence, NBER Working Paper, No. 784, NBER, Cambridge, MA.

HARTMAN, D.G., 1984,
Tax policy and foreign direct investment in the United States. *National Tax Journal* 37 (4):475-88.

HARTMAN, D.G., 1985,
Tax policy and foreign direct investment. *Journal of Public Economics* 26:107-21.

HINES, J., 1993,
On the sensitivity of R&D to delicate tax changes: The behavior of US multinationals in the 1980s, in A. Giovannini, R.G. Hubbard, and J. Slemrod (eds.), *Studies in international taxation* (Chicago: University of Chicago Press).

HINES, J., 1994,
No place like home: Tax incentives and the location of R&D by American multinationals, in J. Poterba (ed.), *Tax policy and the Economy*, Vol. 8 (Cambridge: MIT Press).

HINES, J., 1995,
Taxes, technology transfer, and the R&D activities of multinational firms, in M. Feldstein, J. Hines, and R.G. Hubbard (eds.), *The effects of taxation on multinational corporations* (Chicago: University of Chicago Press).

HINES, J., 1998,
Lessons from behavioral responses to international taxation, *National Tax Journal*, 51, 305-322.

HINES, J., and R. HUBBARD, 1990,
Coming home to America: Dividend repatriations by US multinationals, in A. Razin and J. Slemrod (eds.), *Taxation in the global economy* (Chicago: University of Chicago Press).

HINES, J., and E. RICE, 1994,
Fiscal paradise: Foreign tax havens and America business, *Quarterly Journal of Economics*, 109, 149-182.

JORGENSON, D., 1963,
Capital Theory and Investment Behaviour, American Economic Review, 53, 247-259.

LEECHOR, C., and J. MINTZ, 1993,
On the taxation of multinational corporate investment when the deferral method is used by the capital exporting country, *Journal of Public Economics* 51, 75-96.

LIPSEY, R.E., 1987,
Changing patterns of international investment in and by the United States, NBER Working Paper, No. 2240, NBER, Cambridge, MA.

NEWLON, T.S., 1987,
Tax policy and the multinational firm's financial policy and investment decisions, Ph.D. dissertation, Princeton University.

OECD, 1995,
Taxation and Foreign Direct Investment – the Experience of the Economies in Transition, Paris.

OECD, 1996,
Controlled Foreign Company Legislation, Paris.

OECD, 1998*a*,
Harmful Tax Competition – an Emerging Global Issue, Paris.

OECD, 1998*b*,
Tax Sparing – A *Reconsideration*, Paris.

OECD, 1999,
Taxation of Cross-border Portfolio Investment – Mutual Funds and Possible Tax Distortions, Paris.

OECD, 2000,
Tax Burdens – Alternative Measures, OECD *Tax Policy Studies* No. 2, Paris.

© OECD 2001

PORTER, M.E., 1990,
The Competitive Advantage of Nations. New York: Free Press.

SCHOLES, M. and M. WOLFSON, 1990,
The effects of changes in tax law on corporate re organisation activity, *Journal of Business* 63, S141-S164.

SLEMROD, J., 1990,
Tax effects on foreign direct investment in the United States: Evidence from a cross-country comparison, in A. Razin and J. Slemrod (eds.), *Taxation in the global economy* (Chicago: University of Chicago Press).

SWENSEN, D. L., 1994,
The impact of US tax reform on foreign direct investment in the United States, *Journal of Public Economics*, 54, 243-266.

WILSON, G. P., 1993,
The role of taxes in location and sourcing decisions, in A. Giovannini, R.G. Hubbard, and J. Slemrod (eds.), *Studies in international taxation* (Chicago: University of Chicago Press).

YOUNG, K., 1988,
The Effects of Taxes and Rates of Return on Foreign Direct Investment into the United States, *National Tax Journal*, 41, pp. 109-121.

© OECD 2001

Annex I

PROFIT REPATRIATION TAX RATES UNDER ALTERNATIVE HOME COUNTRY TAX SYSTEMS

This annex presents equations deriving effective (combined host and home country) dividend repatriation tax rates under alternative home country tax system characteristics. The analysis focuses on residence-based tax systems, where resident direct investors (*e.g.*, parent corporations) are taxed on their foreign source income with a credit for foreign income tax. Effective repatriation tax rates under exemption-based system are shown as a special case of the residence-based results where only host country taxation applies.

General Provisions Under Residence-based Systems

In countries that tax resident direct investors on dividend receipts of foreign source active business income on efficiency (*e.g.*, capital export neutrality (CEN)) or equity grounds, the typical approach is to tax the underlying profit (measured gross of foreign tax) at the home country tax rate, while providing a tax credit in respect of foreign tax imposed on the distribution. In particular, tax credits are provided in respect of foreign dividend withholding tax (the direct foreign tax credit) and additionally, in the case of direct investors, in respect of underlying foreign corporate income tax on the profit out of which the dividend is paid (the indirect or deemed-paid foreign tax credit).

The foreign tax credit rules in a given residence-based system may require that dividend receipts in a given year be pooled together for foreign tax credit purposes, regardless of the source country. Pooling income by income type, with different pools for different categories of income, allows high-taxed dividend income (*i.e.*, dividend income subject to relatively high host country income plus withholding tax) to be mixed with low-taxed dividend income (from a relatively low-tax host jurisdiction) for foreign tax credit purposes. As shown below, this mixing of income from different countries with different effective host country corporate tax rates allows "excess credits" on relatively highly-taxed dividend income to offset home country tax on relatively lightly-taxed dividend income.

Alternatively, other systems require that income of various categories from a given country, including foreign dividend, interest, royalty and other income, be mixed (pooled) for foreign tax credit purposes. Under per country foreign tax credit rules, the mixing of high- and low-tax income occurs on account of different rates of host country tax on different types of income from a given source. This stands in contrast to the first example of requiring the mixing of different streams of dividend income from different jurisdictions with different rates of host country dividend withholding and corporate income tax.

Under a third possible approach, home countries may require that foreign active business income be pooled on an entity basis, with dividend income received from a given foreign operating subsidiary mixed together with other streams of income from the same entity, for foreign tax credit purposes.

With income pooling either by income category, source country, or by entity, the foreign tax credit that can be claimed to offset domestic (home country) tax on a given pool of foreign source income – segregated and separately treated for foreign tax credit purposes – is typically limited or capped to not exceed the gross amount of home country tax on that income. Where foreign tax credits earned in respect of a given segregated pool of foreign source income exceed the gross amount of domestic tax on that income, most systems would allow the excess (unused) foreign tax credits to be carried over to offset gross domestic tax on the same pool of income levied in other years.

While a discussion of the range of foreign tax credit rules in place in various countries is beyond the scope of this annex, the point to note is that many systems allow some degree of mixing or pooling of different streams of income for foreign tax credit purposes. This implies scope for using "excess" foreign tax credits earned on relatively highly-taxed foreign source income (*i.e.*, credits over and above the amount required to eliminate home country tax on that stream of income) to offset home country tax that would otherwise be owing on relatively lightly-taxed foreign source income. Another common feature is the limiting of foreign tax credit claims in respect of income in a given pool or basket to the amount of gross domestic tax on that basket. Assuming these common features, the following general characterisation of profit repatriation tax rates can be made.

© OECD 2001

Host Country Taxation

Consider a profit distribution of D currency units from a subsidiary resident in a given jurisdiction. Let u* denote the average effective host country corporate income tax rate imposed in that jurisdiction on profit out of which the dividend is paid (using asterisks to denote host country parameters). In other words:

$$u^* = T^*/\Pi \quad \text{(AI.1)}$$

where T* measures host country corporate income tax on pre-tax corporate profit in the amount of Π. The average rate u* could be lower than the host country statutory corporate tax rate on account of special host country incentives. Let λ be the fraction of profits distributed to the (home country) parent, implying:

$$D = \lambda\Pi(1-u^*) \quad \text{(AI.2)}$$

Host country corporate income tax underlying the distribution is given by the product of the host country average effective corporate tax rate u* and distributed profits $\lambda\Pi$ [dividends "grossed-up" by $(1-u^*)$]:

$$u^*\lambda\Pi = u^*D/(1-u^*) \quad \text{(AI.3)}$$

With dividends paid to the home country subject to host country non-resident withholding tax at rate $w^f \geq 0$, dividend income in the hands of the parent D^n is given by:

$$D^n = D(1-w^f) \quad \text{(AI.4)}$$

Under classical treatment, corporate income tax is collected at rate u* in the host country on subsidiary profits regardless of whether profits are distributed or retained, implying that host country withholding tax is the only relevant host country repatriation tax.

Thus total host country tax imposed on distributed profit, denoted by T*, and total host country tax imposed upon repatriation (*i.e.*, the host country repatriation tax rate), denoted by T^R*, differ as follows:

$$T^* = \lambda\Pi[u^*+w^f(1-u^*)] \quad \text{(AI.5)}$$

$$T^{R}* = \lambda\Pi[w^f(1-u^*)] \quad \text{(AI.6)}$$

where, as is clear from equation AI.2, $\lambda\Pi = D/(1-u^*)$ measures the amount of pre-tax profit underlying the distribution of D currency units.

Home Country Taxation

Under typical residence-based tax rules, a parent must include, in the calculation of its home country taxable income, foreign dividends measured gross of foreign withholding and foreign income tax, together with other foreign source income measured on a gross basis and allocated to the same pool or "basket" of income for foreign tax credit purposes. Let the sum of other gross foreign source income allocated to the same basket be X. The parent claims a foreign tax credit FTC in respect of this pool of income, implying the following home country tax liability on foreign source income allocated to the relevant basket:

$$u(\lambda\Pi+X) - FTC \quad \text{(AI.7)}$$

where u denotes the home country corporate income tax rate. The amount of home country corporate income tax collected on the distribution of $\lambda\Pi$ currency units of pre-tax profit can be expressed as follows:

$$T = u\lambda\Pi - FTC^D \quad \text{(AI.8)}$$

where FTC^D gives, for analytical purposes, a notional foreign tax credit claim offsetting domestic tax on the dividend inclusion.[1] As noted above, in most residence-based systems, the ***foreign tax credit claim*** in respect of the basket of income to which D is allocated is capped to be no greater than the lesser of *i*) the pre-credit amount of domestic tax on that income $u(\lambda\Pi+X)$ and *ii*) the amount of unused foreign tax credits in respect of that basket, consisting of currently earned foreign tax credits on D, and on other current foreign receipts (that can be mixed with D for tax credit purposes), plus unused tax credits under foreign tax credit carryover provisions. This implies that the foreign tax credit that can be claimed to offset domestic tax on the dividend (D) can be expressed as:

$$FTC^D = \min[u,(c+\chi)]\lambda\Pi \quad \text{(AI.9)}$$

where c measures the amount of creditable foreign tax earned per currency unit of the distribution (D). In relation to foreign tax credit mixing and carryover possibilities, χ measures the amount of unused (excess) foreign tax credits available (per currency unit of pre-tax distributed profit $\lambda\Pi$) earned on other income in the current year or other years that can be used to shelter domestic tax on D. The amount of creditable foreign tax earned per currency unit of pre-tax distributed profit is given by the amount of host country withholding tax and underlying corporate income tax imposed per currency unit of D (see AI.5). That is:

$$c = u^* + w^f(1-u^*) \quad \text{(AI.10)}$$

Substituting (AI.10) and (AI.9) into (AI.8) gives the following general expression for the total ***net home country tax*** on the distribution of $\lambda\Pi$ units of pre-tax subsidiary profit:

$$T = (u - \min\{u,[u^* + w^f(1-u^*) + \chi]\})\ \lambda\Pi \quad \text{(AI.11)}$$

© OECD 2001

The excess foreign tax credit case

In the excess foreign tax credit case where the pool of unused foreign tax credits is sufficiently large to offset home country tax on the foreign dividend receipt D, the foreign tax credit claim per currency unit of pre-tax distributed profit is given by (using AI.9 and AI.10):

$$(FTC^D/\lambda\Pi) = u \leq [u^*+w^f(1-u^*)+\chi] \quad \text{(AI.12)}$$

which gives the result (using AI.8) that home country tax on the dividend receipt D is zero,

$$T = 0 \quad \text{(AI.13)}$$

Therefore, the combined host and home country tax on the distribution D of foreign profits, which we can denote by T^C, is determined by expression (AI.5) alone (with no home country tax):

$$T^C = T^* + T = T^* = [u^*+w^f(1-u^*)]\lambda\Pi \quad \text{(AI.14)}$$

Similarly, the combined host and home country tax imposed upon repatriation, denoted by T^R, is given by (AI.6) alone (no home country repatriation tax):

$$T^R = T^{R*} + T = T^{R*} = [w^f(1-u^*)]\lambda\Pi = w^fD \quad \text{(AI.15)}$$

Note that while (AI.14) measures the amount of underlying foreign corporate income tax plus withholding tax on distributed profit, (AI.15) captures only the amount of tax that is triggered by a distribution. In the excess foreign tax credit case, this additional tax set off by a distribution is the withholding tax alone.

The combined host and home country repatriation tax rate t^R is determined by differentiating equation (AI.15) with respect to distributed profit ($\lambda\Pi$):

$$t^R = (\partial T^R/\partial(\lambda\Pi) = w^f(1-u^*) \quad \text{(AI.16)}$$

In other words, in the excess foreign tax credit case, no home country tax is imposed on foreign dividend income, with home country taxation eliminated by foreign tax credit claims. Where a foreign dividend receipt D is the single item allocated to the relevant income basket for foreign tax credit purposes, the ***general excess foreign tax credit result*** requires that the host country average effective corporate income tax rate plus the effective host country withholding tax rate exceeds the home country corporate tax rate, that is:

$$u < [u^*+w^f(1-u^*)] \quad \text{(AI.17)}$$

With no home country tax effects, this leaves the effective foreign withholding tax rate $w^f(1-u^*)$ determining the effective repatriation tax rate, as shown by (AI.16.)

The result of no home country taxation and the foreign withholding tax rate determining the effective repatriation tax rate on dividend income may also be observed where (AI.17) is not satisfied. That is, home country tax may be eliminated even where the home country tax rate exceeds the effective host country tax rate on distributed profits (*i.e.*, $u > [u^*+w^f(1-u^*)]$) if excess or unused foreign tax credits, captured above by χ, are available in respect of other income pooled together with D for foreign tax credit purposes, such that condition (AI.12) holds.

It should be noted that the excess foreign tax credit result, summarised by equations (AI.14)-(AI.17), is *also observed under the exemption tax system case*, which is the main alternative to the residence-based system approach. In the exemption system case, home country taxation is zero by virtue of the exemption given to foreign dividends received and paid out of active business income (with the exemption in some systems conditional on the income being subject to a minimum corporate tax rate at source). (See the discussion in Chapter 3, Section B., on controlled foreign company (CFC) rules.)

The excess limitation (insufficient foreign tax credit) case

In the excess limitation case where available foreign tax credits are insufficient to eliminate home country taxation, the foreign tax credit claim per currency unit of pre-tax distributed profit is given by (using AI.9 and AI.10):

$$(FTC^D/\lambda\Pi) = [u^*+w^f(1-u^*)+\chi] < u \quad \text{(AI.18)}$$

implying that home country taxation in this case is positive and equal to the following (using AI.8):

$$T = (u-[u^*+w^f(1-u^*)+\chi])\ \lambda\Pi \quad \text{(AI.19)}$$

The combined host and home country tax on the distribution D of foreign profits, given by (AI.5) and (AI.19), is as follows:

$$T^C = T^* + T = (u-\chi)\lambda\Pi \quad \text{(AI.20)}$$

In the absence of foreign tax credit mixing and/or carryover provisions ($\chi = 0$), the combined tax rate on distributed pre-tax profit is given by the home country tax rate u. Thus, host country tax incentives cancel out. The reason is that in this case, the introduction of host country tax incentives, while lowering the effective host county corporate tax rate u* below the statutory host country corporate tax rate, causes a unit-for-unit reduction in the home country foreign tax credit (and thus only a transfer from the host country to the home country in tax revenues collected).

© OECD 2001

The combined host and home country repatriation tax, measuring the total amount of tax triggered by the distribution, given by (AI.6) and (AI.19), is as follows:

$$T^R = T^{R*} + T = (u - u^* - \chi)\lambda\Pi > 0 \qquad \text{(AI.21)}$$

Finally, the combined host and home country repatriation tax rate in the excess limitation case is given by differentiating equation (AI.21) with respect to distributed profit ($\lambda\Pi$):[2]

$$t^R = (+\partial T^R/\partial\lambda\Pi) = (u - u^* - \chi) \qquad \text{(AI.22}a\text{)}$$

Where unused (excess) foreign tax credits are not available from other sources of foreign income or other years ($\chi = 0$), we have:

$$t^R = (\partial T^R/\partial\lambda\Pi) = (u - u^*) > 0 \qquad \text{(AI.22}b\text{)}$$

In the insufficient foreign tax credit case, the combined host and home country tax rate on distributed profits is "bumped" up to the home country tax rate, implying that any tax incentives provided by the host country are offset by a reduction in foreign tax credits. Note that the effective repatriation tax rate may be less than the bump necessary to bring the combined rate up to the home country tax rate to the extent that the unused (excess) credits are available from other income to shelter the dividend income in part from home country taxation. Thus the effective repatriation tax rate on a given dividend receipt will depend on the other items of income in the foreign tax credit basket, and the amount of creditable tax attached to them. Lastly, it should be noted that the above discussion considers only the main interactions of tax systems possible under a residence-based home country tax framework. In particular case studies, other important details will typically apply.[3]

NOTES

1. The amount is notional in the sense that the actual FTC calculation affecting the determination of the amount of net home country tax imposed on the distribution of D units of subsidiary after-tax profit (or $\lambda\Pi$ units of pre-tax distributed profit) is made with respect to the pool of income to which D is allocated (rather than to the particular dividend receipt in isolation).
2. Note that since χ measures unused (excess) foreign tax credits (earned on other foreign income) as a fraction of distributed profit (*i.e.*, $\chi = FTC^{unused}/\lambda\Pi$), it follows that $\lambda\Pi\chi = FTC^{unused}$ which is a stock amount invariant to changes in $\lambda\Pi = [D/(1-u^*)]$.
3. Indeed, host and home country tax system design features may interact in less visible, but nevertheless important ways in influencing FDI incentives. One example concerns the determination of the US indirect foreign tax credit for foreign corporate income tax. Under US rules, the indirect foreign tax credit limit is derived with reference to the percentage that distributed earnings are of subsidiary profits as calculated under US accounting rules. Where host country tax rules provide for accelerated write-offs that lower the present value of taxable income relative to the present value of economic income, the result can be a reduced average foreign tax rate used in the foreign tax credit calculation. Where a marginal investment in a given host country reduces the foreign tax credit that a US parent can claim on infra-marginal profits (*i.e.*, on profits from other foreign investments made by the parent), the outcome may discourage host country taxation. This result may encourage host countries to look for means of achieving corporate tax burden reduction by means other than reforms that rely on a shifting of the tax base over time.

© OECD 2001

Annex II

HOST COUNTRY TAX INCENTIVE RELIEF UNDER HOME COUNTRY TAX DEFERRAL

Home country taxation of foreign source income of investors can offset host country tax incentives in certain cases. In particular, where tax incentives lower the effective host country tax rate below the tax rate on profit repatriations, and profits are remitted as earned, the offset can be complete, with each dollar of tax incentive merely increasing home country tax revenues by the same amount. However, most countries with residence-based tax systems provide for deferral of home country tax on foreign source active business income (distinct from passive investment income). The deferral of home country taxation until dividend repatriation can mitigate possible offsetting home country tax effects.

To illustrate how deferral increases the attractiveness of host country tax incentives relative to the alternative of current period (accrual-based) taxation, consider the case where a parent company invests one currency unit (say a dollar) of new equity capital in its subsidiary, and distributes the profits after n periods. Let R denote the pre-tax rate of return on the investment, and let u* denote the host country average effective corporate income tax rate which is lower than the host country basic (statutory) corporate income tax rate on account of some combination of special tax rate reduction, accelerated/enhanced depreciation allowances, tax credits, or a corporate tax holiday. As illustrated in table set (AII) accompanying this annex, the original $1 investment, plus accumulated after-tax profits (after host country corporate income tax) at the end of period n is given by the following:

$$Z_n = [1+R(1-u^*)]^n \qquad \text{(AII.1}a\text{)}$$

This terminal amount, measured prior to tax upon repatriation, can be written alternatively as:

$$Z_n = 1 + \Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)]^{j-1} \qquad \text{(AII.1}b\text{)}$$

The summation term measures the sum of accumulated after-tax profits, while the first term is the original contribution of $1 of capital which, being a capital contribution as opposed to income, is free of income tax (*i.e.*, can be transferred back to the parent tax-free). The amount of principal invested at the beginning of each period j (j = 1, …, n) is measured by $[1+R(1-u^*)]^{j-1}$. Multiplying this term by R gives the pre-tax return on that principal, and then multiplying by (1–u*) gives the return net of host country corporate tax.

Assume that the accumulated after-tax profits at the end of period n are distributed to the parent as a cash dividend at the end of period n. The cash dividend D_n can be expressed as follows:

$$D_n = Z_n - 1 = \Sigma^n_{j=1}(\Pi_j - T^*_j) = \Sigma^n_{j=1}\Pi_j (1-u^*) \qquad \text{(AII.2)}$$

where accumulated profits before tax equal:

$$\Sigma^n_{j=1}\Pi_j = \Sigma^n_{j=1} R[1+R(1-u^*)]^{j-1} \qquad \text{(AII.3)}$$

and accumulated host country tax on those profits are given by:

$$\Sigma^n_{j=1} T^*_j = u^*\Sigma^n_{j=1}\Pi_j = u^*\Sigma^n_{j=1} R[1+R(1-u^*)]^{j-1} \qquad \text{(AII.4)}$$

Let w^f denote the rate of non-resident withholding tax imposed by the host country on dividends paid to the parent. The amount of non-resident withholding tax imposed at the end of period n on D_n is given by:

$$WT^*_n = w^f D_n = w^f\Sigma^n_{j=1}\Pi_j (1-u^*) \qquad \text{(AII.5)}$$

where dividends are shown in expression AII.2 as the full amount of the accumulated after-tax profits on the investment. The dividend receipt in the hands of the parent is:

$$D_n = D_n - WT^*_n = (1-w^f)D_n \qquad \text{(AII.6)}$$

Where the home country operates a residence-based system that defers payment of tax on foreign source active business income until the time of profit repatriation, the home country tax burden corresponding to the above investment is levied at the end of period n. The home country tax is given by:

$$T_n = u\Sigma^n_{j=1}\Pi_j - FTC_n \qquad \text{(AII.7)}$$

with the home country corporate tax rate u applied to the pre-tax profit amount. The foreign tax credit claimed on the period n distribution, denoted by FTC_n, is determined as the lesser of T^g_n, the gross amount of home country tax on the pre-tax amount of distributed profit, and CT_n measuring the creditable amount of tax including foreign income plus withholding tax:[1]

© OECD 2001

$$FTC_n = \min(T^g_n, CT_n) \quad \text{(AII.8}a\text{)}$$

$$T^g_n = u\Sigma^n_{j=1}\Pi_j \quad \text{(AII.8}b\text{)}$$

$$CT_n = \Sigma^n_{j=1}T^*_j + WT^*_n = [u^*+w^f(1-u^*)]\Sigma^n_{j=1}\Pi_j \quad \text{(AII.8}c\text{)}$$

In general, tax deferral advantages arise where the parent company is in an insufficient foreign tax credit position meaning that it would bear additional tax upon the repatriation of foreign earnings. In the context of this model, this occurs where the home country effective corporate tax rate u exceeds the host country average effective corporate income tax rate plus withholding tax rate $[u^*+w^f(1-u^*)]$. In this case, the foreign tax credit claimed against home country tax equals the full amount of creditable tax levied on the distribution, as given by CT_n.

Using equations (AII.5), (AII.7) and equation set (AII.8), the repatriation tax – that is, the amount of tax triggered by repatriation of the subsidiary's profits – is given by the sum of the withholding tax and home country tax on the distribution:

$$TR_n = WT^*_n + T_n = (u-u^*)\Sigma^n_{j=1}\Pi_j = \tau\Sigma^n_{j=1}\Pi_j(1-u^*) = \tau\Sigma^n_{j=1}(\Pi j - T_j^*) \quad \text{(AII.9}a\text{)}$$

which we can write alternatively as:

$$TR_n = \tau\Sigma^n_{j=1}R(1-u^*)[1+R(1-u^*)]^{j-1} \quad \text{(AII.9}b\text{)}$$

where τ denotes the dividend repatriation tax rate, measured by the following expression, and characteristic of the insufficient foreign tax credit case (in the absence of income mixing and the use of excess foreign tax credits earned on other streams of foreign income):

$$\tau = (u-u^*)/(1-u^*) \quad \text{(AII.9}c\text{)}$$

The non-resident withholding tax drops out of the repatriation tax calculation on account of the foreign tax credit provided by the home country. The effect of the repatriation tax is to bring the combined effective rate of tax on the accumulated pre-tax profit amount $\Sigma^n_{j=1}\Pi_j$ up to the home country tax rate u.

At the end of period n, the accumulated profit measured net of host and home country taxation plus the original \$1 invested (returned to the parent company on a tax-free basis), which we denote by K_n, is given by the following:

$$K_n = 1 + \Sigma^n_{j=1}(\Pi_j - T^*_j) - TR_n = 1 + D_n - TR_n \quad \text{(AII.10}a\text{)}$$

Substituting in equation (AII.9*a*) gives:

$$K_n = 1 + (1-\tau)\Sigma^n_{j=1}(\Pi_j - T^*_j) \quad \text{(AII.10}b\text{)}$$

Using (AII.3) and (AII.4), the above expression for K_n can be written in final form as:

$$K_n = 1 + (1-\tau)\Sigma^n_{j=1}R(1-u^*)[1+R(1-u^*)]^{j-1} \quad \text{(AII.10}c\text{)}$$

or alternatively,

$$K_n = 1 + \Sigma^n_{j=1}R(1-u)[1+R(1-u^*)]^{j-1} \quad \text{(AII.10}d\text{)}$$

Under Accrual Taxation

In contrast, with full accrual taxation, the subsidiary's pre-tax profits on its investment are subject to home country tax in each period j (j = 1, …, n) on a current basis as they are earned – that is, even where profits are retained. This stands in contrast to the deferral approach, which defers home country tax until profit distribution.

Where the parent is in an insufficient foreign tax credit position (*i.e.*, where $u > [u^*+w^f(1-u^*)]$ so that additional home country tax is due on distributions) then home country tax under current accruals taxation may be lowered by having the subsidiary distribute its earnings each period. This holds even where the optimal investment strategy calls for a reinvestment of the earnings back into the subsidiary's operations (as in the case considered here where earnings on the \$1 investment are reinvested for n years). The reason for this preferred distribution policy is that, while distributions each period attract withholding tax, this tax may be offset by home country foreign tax credits in the insufficient foreign tax credit case.[2]

To illustrate, consider accrual taxation of first period profits. The subsidiary earns $R(1-u^*)$ in after tax-profit on the initial \$1 capital injection and distributes this amount attracting withholding tax measured by $w^fR(1-u^*)$. The pre-tax profit amount on which home country tax is applied is determined by grossing the after-tax amount up by the amount of host country tax [*i.e.*, by dividing through by $(1-u^*)$], as follows:

$$\Pi_1 = R(1-u^*)/(1-u^*) = R \quad \text{(AII.11)}$$

Home country tax is given by applying the home country tax rate to pre-tax profits, with a tax credit for underlying foreign income tax, limited to not exceed gross home country tax,

$$T_1 = u\Pi_1 - FTC_1 \text{(AII.12}a\text{)}$$

$$FTC_1 = \min\{u\Pi_1\ [u^*+w^f(1-u^*)]\Pi_1\} \quad \text{(AII.12}b\text{)}$$

Under the assumption $\{u>[u^*+w^f(1-u^*)]\}$, the accrual (repatriation) tax is given by:

$$TR_1 = (u-u^*)\Pi_1 = \tau\Pi_1(1-u^*) \quad \text{(AII.13)}$$

© OECD 2001

where τ denotes the accrual tax rate $(u-u^*)/(1-u^*)$. Therefore, first period profit after host and home country taxation is given by:

$$\Pi_1 - T^*_1 - TR_1 = \Pi_1 (1-u^*)(1-\tau) \quad \text{(AII.14)}$$

Note that $\Pi_1(1-u^*)(1-\tau)$ reduces simply to $\Pi_1 (1-u)$ – that is, the combined host and home country effective tax rate is the home rate. However, the above expression is useful for highlighting the differential effects between deferral and accrual taxation.

More generally, for each period (j = 1, …, n), we have:

$$\Pi_j = R[1+R(1-u^*)(1-\tau)]^{j-1} \quad \text{(AII.15}a\text{)}$$

$$T^*_j = u^*\Pi_j \quad \text{(AII.15}b\text{)}$$

$$D_j = \Pi_j - T^*_j = \Pi_j (1-u^*) \quad \text{(AII.15}c\text{)}$$

$$WT^*_j = w^f(1-u^*)\ \Pi_j \quad \text{(AII.15}d\text{)}$$

$$T_j = u\Pi_j - FTC_j \quad \text{(AII.15}e\text{)}$$

$$FTC_j = \min\{u\Pi_j\ [u^*+w^f(1-u^*)]\Pi_j\} = [u^*+w^f(1-u^*)]\Pi_j \quad \text{(AII.15}f\text{)}$$

$$TR_j = WT^*_j + T_j = (u-u^*)\Pi_j = \tau\Pi_j (1-u^*) \quad \text{(AII.15}g\text{)}$$

$$\Pi_j - T^*_j - TR_j = (1-\tau)\Pi_j (1-u^*) = R(1-u^*)(1-\tau)[1+R(1-u^*)(1-\tau)]^{j-1} \quad \text{(AII.15}h\text{)}$$

At the end of period n, the original \$1 investment plus the accumulated profit measured net of host and home country corporate income tax applied on an accrual basis, which we can denote by letting $K(acc)_n$ is given by the following:

$$K(acc)_n = 1 + \Sigma^n_{j=1} (\Pi_j - T^*_j - TR_j) = 1+(1-\tau)\Sigma^n_{j=1}\Pi_j (1-u^*) \quad \text{(AII.16}a\text{)}$$

which can be written as:

$$K(acc)_n = 1+(1-\tau)\Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)(1-\tau)]^{j-1} \quad \text{(AII.16}b\text{)}$$

or alternatively (for comparison purposes) as:

$$K(acc)_n = 1 + \Sigma^n_{j=1} R(1-u)[1+R(1-u)]^{j-1} \quad \text{(AII.16}c\text{)}$$

Comparison of Deferral and Accrual Results

The advantages of deferral over accrual are evident when comparing equations (AII.10*d*) and (AII.16*c*) [or alternatively (AII.10*c*) and (AII.16*b*)]. The key difference is the fact that the build-up of capital is greater in the first case under deferral, accumulating at rate $R(1-u^*)$, which exceeds $R(1-u)=R(1-u^*)(1-\tau)$. The result is is intuitive. For a given pre-tax rate of return, deferred payment of home country tax permits increased reinvestment in each period (owing to a reduced tax take on profits for reinvestment), and thus greater cumulative after-tax profits over the reinvestment period, prior to earnings distribution, so that:

$$K_n > K(acc)_n \quad \text{(AII.17)}$$

Tables AII.1 and AII.2 illustrate this finding. The shaded boxes show, under stylised parameter assumptions, that an investment of \$1 of new equity in subsidiary operations at the beginning of year 1, held for 5 years, results in \$1.350 of capital (consisting of the original principal plus profit after host and home country tax) under tax deferral, as compared to \$1.338 under accrual taxation (or a 3.6% difference in after-tax profit.)

© OECD 2001

Table AII.1. **Illustrative results under deferral of home country taxation**

Year	Beginning period capital	Pre-tax profit	Host country corporate income tax (CIT*)	Profit net of CIT*	Principal + profit net of CIT*	Host country withholding tax (WT*)	Home country corporate tax (CIT)	Repatriation tax	Principal plus final after-tax return
1	1.0000	0.1000	0.0200	0.0800	1.0800	0	0	0	0
2	1.0800	0.1080	0.0216	0.0864	1.1664	0	0	0	0
3	1.1664	0.1166	0.0233	0.0933	1.2597	0	0	0	0
4	1.2597	0.1260	0.0252	0.1008	1.3605	0	0	0	0
5	1.3605	0.1360	0.0272	0.1088	1.4693	0.0235	0.0939	0.1173	1.3520
Sum		0.5867	0.1173	0.4693					

(Parameter values: R = 0.10, u* = 0.20, u = 0.40, w^f = 0.05, $\tau = 0.25 = (u-u^*)/(1-u^*)$. For parameter definition, see the main text.

Underlying formulae

Year	Beginning period capital	Pre-tax profit	Host country corporate income tax (CIT*)	Profit net of CIT*	Principal + profit net of CIT*	Host country withholding tax (WT*)	Home country corporate tax (CIT)	Repatriation tax	Principal plus final after-tax return
1	1	$\Pi_1 = R$	$u^*\Pi_1$	$\Pi_1(1-u^*)$	$1 + R(1-u^*)$				
2	$1 + R(1-u^*)$	$\Pi_2 = R[1 + R(1-u^*)]$	$u^*\Pi_2$	$\Pi_2(1-u^*)$	$[1 + R(1-u^*)]^2$				
3	$[1 + R(1-u^*)]^2$	$\Pi_3 = R[1 + R(1-u^*)]^2$	$u^*\Pi_3$	$\Pi_3(1-u^*)$	$[1 + R(1-u^*)]^3$				
4	$[1 + R(1-u^*)]^3$	$\Pi_4 = R[1 + R(1-u^*)]^3$	$u^*\Pi_4$	$\Pi_4(1-u^*)$	$[1 + R(1-u^*)]^4$				
5	$[1 + R(1-u^*)]^4$	$\Pi_5 = R[1 + R(1-u^*)]^4$	$u^*\Pi_5$	$\Pi_5(1-u^*)$	$[1 + R(1-u^*)]^3$	$w^f\Sigma_i\Pi_i(1-u^*)$	$(u-u^*)\Sigma_i\Pi_i - w^f\Sigma_i\Pi(1-u^*)$	$(u-u^*)\Sigma_i\Pi = \tau\Sigma_i\Pi_i(1-u^*)$	$1 + \Sigma_i\Pi_i(1-u) = 1 + (1-\tau)\Sigma_i\Pi_i(1-u^*)$
Sum		$\Sigma_i\Pi_i = \Sigma_i R[1 + R(1-u^*)]^{i-1}$	$\Sigma_i u^*\Pi_i = \Sigma_i u^* R[1 + R(1-u^*)]^{i-1}$	$\Sigma_i\Pi_i(1-u^*) = \Sigma_i R(1-u^*)[1 + R(1-u^*)]^{i-1}$	$1 + \Sigma_i\Pi_i(1-u^*) = \Sigma_i[1 + R(1-u^*)]^i$				

Note that $[1 + R(1-u^*)]^5 = 1 + \Sigma_i\Pi_i(1-u^*) = 1 + \Sigma_i R(1-u^*)[1 + R(1-u^*)]^{i-1}$
Also note that the terminal amount $[1 + (1-\tau)\Sigma_i\Pi_i(1-u^*)] = \{1 + (1-\tau)\Sigma_i R(1-u^*)[1 + R(1-u^*)]^{i-1} = ^*\} = \{1 + \Sigma_i R(1-u)[1 + R(1-u^*)]^{i-1}\}$

© OECD 2001

© OECD 2001

Table AII.2. **Illustrative results under home country accrual taxation**

Year	Beginning period capital	Pre-tax profit	Host country corporate income tax (CIT*)	Profit net of CIT*	Host country withholding tax (WT*)	Home country corporate tax (CIT)	Repatriation tax	Principal plus after-tax return
1	1.0000	0.1000	0.0200	0.0800	0.0040	0.0160	0.0200	1.0600
2	1.0600	0.1060	0.0212	0.0848	0.0042	0.0170	0.0212	1.1236
3	1.1236	0.1124	0.0225	0.0899	0.0045	0.0180	0.0225	1.1910
4	1.1910	0.1191	0.0238	0.0953	0.0048	0.0191	0.0238	1.2625
5	1.2625	0.1262	0.0252	0.1010	0.0050	0.0202	0.0252	1.3382

(Parameter values: $R = 0.10$, $u^* = 0.20$, $u = 0.40$, $w^f = 0.05$, $\tau = 0.25 = (u-u^*)/(1-u^*)$. For parameter definition, see the main text.)

Underlying formulae

Year	Beginning period capital	Pre-tax profit	Host country corporate income tax (CIT*)	Profit net of CIT*	Host country withholding tax (WT*)	Home country corporate tax (CIT)	Repatriation tax	Principal plus after-tax return
1	1	$\Pi_1 = R$	$u^*\Pi_1$	$\Pi_1(1-u^*)$	$w^f\Pi_1(1-u^*)$	$\{u - [u^* + w^f(1-u^*)]\}\Pi_1$	$(u-u^*)\Pi_1$	$1 + R(1-u)$
2	$1 + R(1-u)$	$\Pi_2 = R[1 + R(1-u)]$	$u^*\Pi_2$	$\Pi_2(1-u^*)$	$w^f\Pi_2(1-u^*)$	$\{u - [u^* + w^f(1-u^*)]\}\Pi_2$	$(u-u^*)\Pi_2$	$[1 + R(1-u)] + \Pi_2(1-u)$ $= [1 + R(1-u)]^2$
3	$[1 + R(1-u)]^2$	$\Pi_3 = R[1 + R(1-u)]^2$	$u^*\Pi_3$	$\Pi_3(1-u^*)$	$w^f\Pi_3(1-u^*)$	$\{u - [u^* + w^f(1-u^*)]\}\Pi_3$	$(u-u^*)\Pi_3$	$[1 + R(1-u)]^2 + \Pi_3(1-u)$ $= [1 + R(1-u)]^3$
4	$[1 + R(1-u)]^3$	$\Pi_4 = R[1 + R(1-u)]^3$	$u^*\Pi_4$	$\Pi_4(1-u^*)$	$w^f\Pi_4(1-u^*)$	$\{u - [u^* + w^f(1-u^*)]\}\Pi_4$	$(u-u^*)\Pi_4$	$[1 + R(1-u)]^3 + \Pi_4(1-u)$ $= [1 + R(1-u)]^4$
5	$[1 + R(1-u)]^4$	$\Pi_5 = R[1 + R(1-u)]^4$	$u^*\Pi_5$	$\Pi_5(1-u^*)$	$w^f\Pi_5(1-u^*)$	$\{u - [u^* + w^f(1-u^*)]\}\Pi_5$	$(u-u^*)\Pi_5$	$[1 + R(1-u)]^4 + \Pi_5(1-u)$ $= [1 + R(1-u)]^5$

2. Note that the terminal amount $= [1 + R(1-u)]^5 = [1 + \Sigma_l R(1-u^*)][1 + R(1-u^*)]^{l-1}$

NOTES

1. The illustration assumes that there are no excess foreign tax credits from other years or other sources of income available to offset home country tax on the distribution. This treatment isolates the tax effects to those arising solely from the distribution.
2. If instead the subsidiary's earnings are reinvested each period without distribution, then withholding tax imposed in period n on the distribution of accumulated retained profits generally would not be fully creditable (in the absence of excess or unused foreign tax credits earned on other sources of foreign income). This occurs where the foreign tax credit in period n is constrained to the amount of home country tax imposed on period n profits alone (with home country tax on profits realised over the preceding years (j = 1, ..., n–1) having been already subject to home country tax). Looked at another way, without distributing in each year and then reinvesting the subsidiary's earnings (*i.e.*, with a straight reinvestment), the company would give up foreign tax credit shelter in the amount of (u–u*) for each unit of pre-tax profit earned by the subsidiary over the reinvestment period. As these foreign tax credits could not be recovered in period n to offset withholding tax imposed on the period n distribution of accumulated profits, home country tax liabilities would be greater than they need be. Therefore the illustration in the main text assumes the tax minimizing strategy where the subsidiary distributes its after-tax profit to the parent in each period to minimize and cover payment of the home country tax charge, repatriation tax is paid on the dividend, and the after tax amount is reinvested in the subsidiary. Note finally that there would be no further income or withholding tax imposed on the reinvested (capital) amounts when returned to the parent (as with the original capital contribution of $1), with income taxation restricted to the profits derived from this capital.

© OECD 2001

Annex III

POSSIBLE IRRELEVANCE OF HOME COUNTRY TAXATION DISTINGUISHING FDI FINANCED BY RETENTIONS VERSUS NEW EQUITY CAPITAL

The general Hartman result shows that possible additional home country taxation upon the repatriation of host country profits would not be expected to influence (*e.g.*, discourage) FDI incentives provided that FDI in a subsidiary is financed at the margin out of subsidiary retained earnings. An implication is that host country tax incentives to encourage FDI would not be offset or "undone" on account of home country taxation, even where home country taxation is immediate (*i.e.*, in the absence of home county tax deferral). [The general Hartman result also applies to additional host country tax (*e.g.*, withholding tax) triggered by repatriation.]

The Hartman result assumes that, under the alternative use of funds scenario, profits that would otherwise be reinvested in the subsidiary are distributed to the parent to be invested in an alternative investment, taken to be bonds. Since the distribution of earnings for investment purposes outside the firm also attracts repatriation tax, the effect of the repatriation tax rate cancels, implying that the investment decision is unaffected by the repatriation tax rate (the same argument does *not* apply where the source of funds is new equity capital of the parent, not yet "trapped" in the firm). With FDI financed by subsidiary retained earnings, the relevant comparison is between the after-corporate tax rate of return at source on FDI (net of foreign corporate tax alone), and the after-domestic tax rate of return on domestic bonds.[1]

To illustrate the Hartman result, we will first consider the retained earnings case, then contrast the results with those obtained where the source of funds is new equity capital.

Subsidiary Investment Financed by Retentions

With $1 of retained earnings invested in a foreign subsidiary at the beginning of period 1, the principal plus accumulated after-tax profit (after host country corporate income tax) at the end of period n is given by:

$$Z_n = [1+R(1-u^*)]^n = 1 + \Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)]^{j-1} \quad \text{(AIII.1)}$$

where R denotes the pre-tax rate of return and u* is the host country average effective corporate tax rate. With investment financed out of retained after-tax profits, the eventual distribution of the $1 principal amount of after-tax profits is subject to home country tax upon repatriation (given that the principal amount invested is subsidiary profit (rather than a new capital injection by the parent company).

Assume that the accumulated after-tax profits on the investment plus the initial $1 invested are distributed to the parent as a cash dividend at the end of period n. Therefore the cash dividend D_n is as follows:

$$D_n = 1 + \Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)]^{j-1} \quad \text{(AIII.2}a\text{)}$$

or alternatively as:

$$D_n = 1 + \Sigma^n_{j=1} (\Pi_j - T^*_j) \quad \text{(AIII.2}b\text{)}$$

where accumulated profits before tax and accumulated host country tax on those profits are given by the following:

$$\Sigma^n_{j=1}\Pi_j = \Sigma^n_{j=1} R[1+R(1-u^*)]^{j-1} \quad \text{(AIII.3)}$$

$$\Sigma^n_{j=1} T^*_j = u^*\Sigma^n_{j=1} R[1+R(1-u^*)]^{j-1} = u^*\Sigma^n_{j=1}\Pi_j \quad \text{(AIII.4)}$$

Note that the first term in equation set (AIII.2) is the $1 initial principal amount of after-tax profit (which is distributed at the end of period n).[2] To simplify the illustration, the possible imposition of non-resident withholding tax is ignored.[3] Under the residence-based approach, the home country taxes the dividend measured gross of foreign tax, while providing a foreign tax credit (FTC):

$$T_n = u[\Sigma^n_{j=1}\Pi_j + 1/(1-u^*)] - FTC_n \quad \text{(AIII.5)}$$

The pre-tax amount corresponding to the distribution of the principal amount $1 of after-tax profits invested is given by $1/(1-u^*)$. The foreign tax credit claimed on the period n distribution FTC_n is determined as the lesser of the gross amount of home country tax on the pre-tax amount of distributed profit T^g_n and CT^*_n defined as the creditable amount of foreign tax:[4]

$$FTC_n = \min(T^g_n\ CT_n) \quad \text{(AIII.6}a\text{)}$$

© OECD 2001

$$T^g_n = u[\Sigma^n_{j=1}\Pi_j + 1/(1-u^*)] \quad \text{(AIII.6}b\text{)}$$

$$CT_n = u^* [\Sigma^n_{j=1}\Pi_j + 1/(1-u^*)] \quad \text{(AIII.6}c\text{)}$$

Under the assumption ($u^* < u$), the final home country tax is given by:

$$T_n = (u-u^*)[\Sigma^n_{j=1}\Pi_j + 1/(1-u^*)] \quad \text{(AIII.7}a\text{)}$$

which we can write alternatively as:

$$T_n = \tau\{1 + \Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)]^{j-1}\} \quad \text{(AIII.7}b\text{)}$$

where τ denotes the following dividend repatriation tax rate:

$$\tau = (u-u^*)/(1-u^*) \quad \text{(AIII.8)}$$

At the end of period n, the distributed accumulated profit plus the original principal amount measured net of host and home country taxation, in the hands of the parent company, which we denote by $K(sub)_n$, is given by the following:

$$K(sub)_n = D_n - T_n = (1-\tau)\{1 + \Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)]^{j-1}\} \quad \text{(AIII.9}a\text{)}$$

which can be written alternatively as:

$$K(sub)_n = (1-\tau)[1+R(1-u^*)]^n \quad \text{(AIII.9}b\text{)}$$

Consider now the alternative investment by the parent in bonds, financed by $1 in after-tax profits of the subsidiary. Upon the distribution of the $1 in subsidiary profits to the parent, home country tax liabilities arise as follows:

$$D_1 = 1 \quad \text{(AIII.10}a\text{)}$$

$$\Pi_1 = 1/(1-u^*) \quad \text{(AIII.10}b\text{)}$$

$$T_1 = u\Pi_1 - FTC_1 \quad \text{(AIII.10}c\text{)}$$

$$FTC_1 = \min[u/(1-u^*), u^*/(1-u^*)] = u^*/(1-u^*) \quad \text{(AIII.10}d\text{)}$$

$$T_1 = (u-u^*)/(1-u^*) = \tau \quad \text{(AIII.10}e\text{)}$$

Therefore, the amount of capital available to the parent to invest in bonds is given by:

$$K_1 = D_1 - T_1 = (1-\tau) \quad \text{(AIII.11)}$$

Assume that the parent invests this amount in bonds paying a pre-tax nominal rate of interest of i, subject to corporate tax at home country corporate tax rate u. At the end of period n, the amount of after-tax earnings plus principal in the hands of the parent is given by:

$$K(bond)_n = (1-\tau)[1+i(1-u)]^n \quad \text{(AIII.12)}$$

In considering the options of repatriating $1 of the subsidiary's after-tax profits and investing the after-tax amount in bonds, or alternatively reinvesting the $1 in the operations of the subsidiary, the parent would compare equation (AIII.9*b*) with equation (AIII.12). In making the comparison, the first term $(1-\tau)$ in each cancels out, so that the relevant comparison is between the after-tax returns $i(1-u)$ and $R(1-u^*)$.

The above example illustrates the basic Hartman result. Where the subsidiary's profits are the marginal source of finance, the parent need only compare the after-tax rate of return in the host country (*i.e.*, net of only host country corporate tax) and the after-tax rate of return available in the home country on an alternative asset of equivalent risk. In other words, the repatriation tax rate has no influence on the investment decision.

Subsidiary Investment Financed by New Share Issues

Consider now the case where a parent is considering investing $1 in new equity in its subsidiary, or instead in bonds. As reviewed in Annex II, the principal amount plus the accumulated after-tax profit (after host and home country taxation) at the end of period n, under this option, is given by (see equation AII.10*c*):

$$K_n = 1 + (1-\tau)\Sigma^n_{j=1} R(1-u^*)[1+R(1-u^*)]^{j-1} \quad \text{(AIII.13)}$$

If instead the $1 of capital is invested in bonds, the amount of after-tax earnings plus principal in the hands of the parent at the end of period n is given by:

$$K(bond)_n = [1+i(1-u)]^n = 1 + \Sigma^n_{j=1} i(1-u)[1+i(1-u)]^{j-1} + 1 \quad \text{(AIII.14)}$$

Therefore, in this case where the term $(1-\tau)$ does not cancel, the repatriation tax rate does affect the FDI decision – the greater is τ, the lower is the FDI incentive. The reason for this result is that, unlike the previous case where the investment is financed out of retained earnings, the repatriation tax rate is avoidable by the parent by investing in bonds.

© OECD 2001

NOTES

1. The incentive for FDI over bonds is greater the larger is the after-corporate tax rate of return at source on FDI (lowered by host country tax incentives), relative to the after- domestic corporate tax rate of return on bonds, and the longer is the allowed period of home country tax deferral.
2. We assume that the principal amount of after-tax profit ($1) is distributed to render the results comparable to those derived for the alternative investment in bonds (where we derive the amount of principal plus interest in the hands of the parent at the end of the investment).
3. Non-resident withholding tax could be introduced without materially altering the main results derived contrasting the effects of repatriation tax on FDI financed out of retained earnings *versus* new equity.
4. The illustration assumes that there are no excess foreign tax credits from other years or other sources of income available to offset home country tax on the distribution. This treatment isolates the tax effects to those arising from the distribution alone.

© OECD 2001

Annex IV

INVESTMENT EQUATION OF ALTSHULER, GRUBERT AND NEWLON (1998)

The basic investment equation used by Altshuler, Grubert and Newlon (1998) to explain US DIA into the host countries indexed by j is as follows:

$$\ln K_{jt} = \alpha_t + \beta_t \ln(1-ATR_{jt}) + \gamma Z_{jt} + \lambda \, TRADE_j \ln(1-ATR_{jt}) + \varepsilon_{jt}$$

Under this specification, the investment equations for the two years of data (1992, 1994) are:

$$\ln K_{j92} = \alpha_{92} + \beta_{92} \ln(1-ATR_{j92}) + \gamma Z_{j92} + \lambda \, TRADE_j \ln(1-ATR_{j92}) + \varepsilon_{j92}$$

$$\ln K_{j84} = \alpha_{84} + \beta_{84} \ln(1-ATR_{j84}) + \gamma Z_{j84} + \lambda \, TRADE_j \ln(1-ATR_{j84}) + \varepsilon_{j84}$$

Differencing these equations gives:

$$(\ln K_{j92} - \ln K_{j84}) = c + \beta_{92} \ln(1-ATR_{j92}) - \beta_{84} \ln(1-ATR_{j84}) + \gamma (Z_{j92} - Z_{j84}) + \lambda \, TRADE_j \, [\ln(1-ATR_{j92}) - \ln(1-ATR_{j84})] + \nu_j$$

Rearranging terms gives the following estimated investment equation shown in sub-section C(2) of Chapter 4,

$$(\ln K_{j92} - \ln K_{j84}) = c + \beta_{92} \, [\ln(1-ATR_{j92}) - \ln(1-ATR_{j84})] + \beta_{diff} \ln(1-ATR_{j84}) + \gamma(Z_{j92}-Z_{j84}) + \lambda \, TRADE_j \, [\ln(1-ATR_{j92}) - \ln(1-ATR_{j84})] + \nu_j$$

where $\beta_{diff} = \beta_{92} - \beta_{84}$

© OECD 2001

Annex V

ILLUSTRATION OF UNINTENDED TAX AVOIDANCE FACILITATED BY TAX HOLIDAY INCENTIVE

Tax avoidance and evasion opportunities created by tax holidays can be demonstrated with reference to a simple example. Consider a pre-holiday situation (illustrated in Table AV.1) where a parent company (PCo) and its subsidiary (OpCoA) both operate in a given host country with a statutory corporate income tax rate of 50%. The parent company may be assumed to be fully or partially foreign-owned. The parent company holds $1 000 in operating assets (*e.g.*, plant and machinery) and $1 000 in financial assets (bonds and shares) reflecting its ownership of OpCoA. The subsidiary is capitalised with $200 of debt capital and $800 in equity capital. The market rate of interest is taken to be 10%, and the representative firms are assumed to be price-takers in the sense that their lending and borrowing has no impact on the "world" rate of interest.[1] Therefore, the parent would earn 5% after-tax on bonds (with a 50% corporate tax rate applied to corporate income), which sets in the example the minimum rate of return required by investors on equity shares of equivalent risk. Of course, investors would be attracted to investment projects that provide a post-tax rate of return greater than 5% and would be expected to channel investment funds to such projects.[2]

Table AV.1. **Initial direct financing structure with no tax holiday**

	Parent company (PCo)		Subsidiary (OpCoA)	
Corporate income tax rate	**50%**		**50%**	
Balance sheet items	Assets Operating: – Plant/machinery 1 000 Financial: – Loans to OpCoA 200 – Shares in OpCoA 800	Liabilities Equity 2 000	Assets Operating: – Plant/machinery 1 000	Liabilities Debt (PCo) 200 Equity (PCo) 800 (debt/capital): (1/5)
Pre-tax rates of return	Parent operations	**10%**	Subsidiary operations	**10%**
Corporate income tax (CIT)	Net operating income Interest income (*from* O*p*C*o*A) Dividend income (*from* O*p*C*o*A) Total income Dividend received deduction Net taxable income Corporate income tax *of which*: – CIT on PCo operating income – CIT on interest income (O*p*C*o*A)	100 20 40 160 40 120 **60** **50** **10**	Net operating income Interest expense (@10%) Net taxable income Corporate income tax (CIT) Distributed profit	100 20 80 **40** 40
Post-tax rates of return	Parent operations Subsidiary (OpCoA) operations	**5%** **5%**		
Total corporate income tax	**100**			

N*ote*: The parent companys' required after-corporate tax rate of return on investments is 5% as determined by i(1–u) = (.10)(1 – .5) where the market interest rate on bonds (i) is 10% and the host country corporate income tax rate (u) is 50%. The operating surplus of the subsidiary (OpCoA) is taxed in full at the corporate level at rate u (with interest returns taxed in the hands of the parent, and subsidiary profit taxed at the subsidiary level). The required pre-tax rate of return on subsidiary operations (Fk) that yields the 5% required after-corporate tax rate of return is Fk = 10% as determined by iβ(1–u) + (Fk–iβ)(1–u) = i(1–u) where β denotes the debt/capital ratio (0.2).
The post-tax rate of return on PCo's operations equals (100-50)/1000, while that for OpCoA equals (100-40-10)/1000.

© OECD 2001

In the example shown in Table AV.1, the subsidiary's operating income is split between interest income and dividends paid to its parent PCo, in accordance with OpCoA's capital structure and the assumed market and shareholder required rates of return. Distributed profits are taxed in the hands of the subsidiary at 50%, while interest – deductible for tax purposes at the subsidiary level – is taxed in the hands of the parent at 50%. As is normal practice, dividends received by the parent from its domestic subsidiary are received tax free (deductible from the tax base) in order to avoid double taxation of the underlying profit amount. As the table shows, a total of $100 in corporate income tax is collected with a 5% after-tax rate of return on the operations of the parent and its subsidiary.

Table AV.2 considers the introduction of a tax holiday, and illustrates the desired outcome of the tax policy. In particular, PCo is shown to invest an additional $500 in the host country, establishing a new subsidiary OpCoB that undertakes the activities qualifying for tax holiday treatment. Targeting under the tax holiday could be towards activities undertaken in a given geographic area in the host country (*e.g.*, a regional tax incentive) or in a given industry (e.g., manufacturing activities). In the example, investment in OpCoB is shown to occur up to the point (at the capital stock level of $500) where the pre-tax rate of return is 5 per cent, which equals the required post-tax rate of turn under tax holiday treatment.[3]

Table AV.3 also considers the introduction of the tax holiday, but takes into account two possible but unintended incentives created by the new regime. First, it may be that the parent company, rather than expanding its operations, would attempt to recharacterise existing capital already in production as "new" capital qualifying for the tax holiday. An actual expansion may be viewed by the parent as unprofitable, due for example to financing constraints, limited factor supply, or limited output demand. In any event, even where some additional investment is encouraged, the incentive would remain to recharacterise "old" capital as "new". This incentive is illustrated in Table AV.3 which shows the parent reducing its own operations by $500, and diverting this capital to OpCoB. This has the effect of reducing host country tax revenues as income generated by this capital, previously subject to tax, is now earned tax free.

Second, an incentive is created to structure loans to the corporate group through OpCoB qualifying for the tax holiday. In the example, rather than loaning $200 to OpCoA directly, the parent's tax bill can be reduced by having this loan intermediated by OpCoB. This can be structured by recalling the loan to OpCoA, investing an additional $200 in equity in OpCoB, which in turn on-loans the funds to OpCoA. The $20 on interest on this loan, which continues to be a deductible expense to OpCoA, is now received tax free in the hands of OpCoB, and converted and paid out to the parent in the form of a tax-free inter-corporate dividend.

Together, these distortions have the effect of lowering host country tax revenues to $65, as compared to the $100 figure in Table AV.2 (showing the desired outcome). Furthermore, the reduction in the amount of tax on income generated by OpCoA creates an incentive to expand the amount of capital employed in the non-targeted sector. The example shows that at the existing capital stock level of $1 000, OpCoA generates a post-tax rate of return of 6%. This means that the capital stock employed in OpCoA can be increased, while generating above-normal post-tax rates of return. Expansion in OpCoA's capital stock would be expected to continue up to the point where the post-tax rate of return falls back to 5 per cent. The ability to earn above-normal rates of return on OpCoA operations means that the parent's shareholders enjoy a windfall gain, on account of the tax holiday, on assets employed outside the non-targeted sector.

In addition to encouraging the routing of interest income through the new intermediary OpCoB, an incentive is created to charge OpCoA a non-arm's length price on the loan. By increasing the interest raet charged on the $200 loan above the arm's length (market) rate of 10 per cent, the corporate group is able to reduce its host country tax bill even further. This is illustrated in Table AV.4, which considers the case where the interest rate is increased to 20 per cent. Because the interest charge is deductible, this reduces the amount of corporate income tax paid by OpCoA from $40 to $30. As in the previous case, the interest is paid to OpCoB where it is received tax free, which may be then paid to the parent as a tax-free inter-corporate dividend. The result is a further reduction in host country tax revenues ($55), an increased rate of return on OpCoA operations, and thus a further incentive to expand the capital stock in the non-targeted sector.

The investment distortions towards non-targeted sectors identified in the examples are noteworthy. In particular, in addition to unintended revenue leakage, the introduction of a tax holiday can create unintended efficiency losses. In general, an efficient allocation of capital requires an equivalence of pre-tax rates of return across assets. This follows simply from the fact that, where pre-tax rates of return differ, aggregated gross returns can be increased by shifting capital away from the least productive towards the most productive uses. Therefore, given that investment behaviour tends to equate after-tax rates of return – placing additional (less) capital towards assets providing higher (lower) after-tax rates of return, tending to decrease (increase) the corresponding pre-tax rates of return – efficiency generally calls for the application of uniform tax rates across assets. One exception to this rule is where uniform taxation leads to an inefficiently low capital stock, for example on account of an inability of investors to fully reap investment returns (*e.g.*, R&D), or due to imperfect information or imperfect capital markets – or more generally, in instances of market failure calling for the introduction of special tax incentives. It follows that efficiencies are lost where income that should be subject to uniform taxation is able to escape the tax net, as in the case of interest income paid by OpCoA in Table AV.3.

© OECD 2001

© OECD 2001

Table AV.2. **Expanded capital stock under tax holiday (illustration of policy goal)**

	Parent company (PCo)		New Subsidiary (OpCoB) *– qualifying for tax holiday –*		Subsidiary (OpCoA)	
Corporate income tax rate	**50%**		**0%**		**50%**	
Balance sheet items	Assets Operating: – Plant/mach. 1 000 Financial: – Loans to OpCoA 200 – Shares in OpCoA 800 – Shares in OpCoB 500	Liabilities Equity **2 500**	Assets Operating: – Plant/mach. **500**	Liabilities Equity (PCo) **500**	Assets Operating: – Plant/mach. 1 000	Liabilities Debt (PCo) 200 Equity (PCo) 800 (debt/capital) : (1/5)
Pre-tax rates of return	Parent operations	**10%**	Subsidiary operations	**5%**	Subsidiary operations	**10%**
Corporate income tax (CIT)	Net operating income Interest income (*from* OpCoA) Dividend income (*from* OpCoA) Dividend income (*from* OpCoB) Total net income Dividend received deduction Net Taxable income Corporate income tax *of which*: – CIT on PCo operating income – CIT on interest income (OpCoA)	100 20 40 25 185 65 120 **60** **50** **10**	Net operating income Net taxable income under tax holiday Corporate income tax (***tax holiday***) Distributed profit	25 0 **0** 25	Net operating income Interest expense (@10%) Net taxable income Corporate income tax Distributed profit	100 20 80 **40** 40
Post-tax rates of return	Parent operations Subsidiary operations – OpCoA Subsidiary operations – OpCoB	**5%** **5%** **5%**				

Total corporate income tax 100

Notes: The example shows the parent company raising an additional $500 in equity capital to invest in a new subsidiary (OpCoB) qualifying for the tax holiday. The pre- and post-tax rate of return on OpCoB's operation equals 25/500.

Table AV.3. **Intermediated financing under tax holiday (unintended policy outcome)**

	Parent company (PCo)		Subsidiary (OpCoB) *– qualifying for tax holiday –*		Subsidiary (OpCoA)	
Corporate income tax rate	**50%**		**0%**		**50%**	
Balance sheet items	Assets Operating: – Plant/mach. **500** Financial: – Shares in OpCoA 800 – Shares in OpCoB **700**	Liabilities Equity 2 000	Assets Operating: – Plant/mach. **500** Financial: – Loans to OpCoA **200**	Liabilities Equity (PCo) **700**	Assets Operating: – Plant/mach. 1 000	Liabilities Debt (OpCoB) 200 Equity (PCo) 800 (debt/capital) : (1/5)
Pre-tax rates of return	Parent operations Subsidiary operations	**10%** **10%**	Subsidiary operations	**5%**	Subsidiary operations	**10%**
Corporate income tax (CIT)	Net operating income Interest income Dividend income (*from OpCoA*) Dividend income (*from OpCoB*) Total net income Dividend received deduction Net taxable income Corporate income tax *of which* – CIT on PCo operating income – CIT on interest income (OpCoA)	50 **0** 40 45 135 85 50 **25** **25** **0**	Net operating income Interest income (*from OpCoA*) Net taxable income under tax holiday Corporate income tax (***tax holiday***) Distributed profit	25 **20** 0 0 45	Net operating income Interest expense (@10%) Net taxable income Corporate income tax Distributed profit	100 20 80 **40** 40
Post-tax rates of return	Parent operations Subsidiary operations – OpCoA Subsidiary operations – OpCoB	**5%** **6%** **5%**				

Total corporate income tax 65

Notes: The example shows the parent company diverting $500 of its productive capital to OpCoB to qualify for the tax holiday for "new" investment.
The parent's loan to OpCoA (which does not qualify for the tax holiday) is structured through OpCoB to minimise the tax on earnings of OpCoA (enabling the conversion of taxable interest to exempt dividend income in the hands of the parent).
The post-tax rate of return on PCo's operations is equal to (50–25)/500, while that for OpCoA is (100–40)/1 000, and for OpCoB is 50/500.
In the example, the tax holiday generates economic rents (above-normal rates of return) on the (unchanged)physical capital stock ($1 000) in OpCoA at $1 000. This non-arbitrage result creates incentives to expand the non-targeted capital stock in OpCoA.

© OECD 2001

© OECD 2001

Table AV.4. **Transfer pricing incentives under tax holiday (unintended policy outcome)**

	Parent company (PCo)		Subsidiary (OpCoB) *– qualifying for tax holiday –*		Subsidiary (OpCoA)	
Corporate income tax rate	**50%**		**0%**		**50%**	
Balance sheet items	Assets Operating: – Plant/mach. **500** Financial: – Shares in OpCoA 800 – Shares in OpCoB **700**	Liabilities Equity 2 000	Assets Operating: – Plant/mach. **500** Financial: – Loans to OpCoA **200**	Liabilities Equity (PCo) **700**	Assets Operating: – Plant/mach. **1 000**	Liabilities Debt (OpCoB) 200 Equity (PCo) 800 (debt/capital) : (1/5)
Pre-tax rates of return	Parent operations Subsidiary operations	**10%** **10%**	Subsidiary operations	**5%**	Subsidiary operations	**10%**
Corporate income tax (CIT)	Net operating income Interest income Dividend income (*from OpCoA*) Dividend income (*from OpCoB*) Total net income Dividend received deduction Net taxable income Corporate income tax *of which* – CIT on PCo operating income – CIT on interest income (OpCoA)	50 0 **30** **65** 145 85 50 **25** 25 0	Net operating income Interest income (*from OpCoA*) Net taxable income under tax holiday Corporate income tax (*tax holiday*) Distributed profit	25 **40** 0 0 **65**	Net operating income Interest expense (@**20%**) Net taxable income Corporate income tax Distributed profit	100 **40** 60 **30** **30**
Post-tax rates of return	Parent operations Subsidiary operations – OpCoA Subsidiary operations – OpCoB	**5%** **7%** **5%**				

Total corporate income tax 55

Notes: The investment structure is the same as that shown in Table AV.3. The ability to convert otherwise taxable interest income from OpCoA to exempt dividend income received from OpCoB creates a "transfer pricing" incentive to increase the interest rate charged on the loan to OpCoA to an artificially high rate (*i.e.*, a non-arm's length rate), in the example shown to be 20 per cent (rather than 10). The post-tax rate of return on OpCoA's operations increases from 6% (in Table AV.3) to 7%, given by (100–30)/1000. This further increases the incentive to expand the capital stock in the non-targeted sector (OpCoA).

NOTES

1. This corresponds to the small open economy assumption at the macro level.
2. A key assumption (used in virtually all investment models) is that the existence of economic rent (profits in excess of minimum required returns) would attract additional financing, with expansions to the productive capital stock tending to drive down the pre-tax rate of return under diminishing productivity of capital at the margin An equilibrium is reached where investment projects "break even", yielding a pre-tax rate of return that just provides the minimum required rate of return at the margin (zero economic rent), and no more. In the case of a 50% corporate tax rate, this break-even point is achieved at a 10% pre-tax rate of return.
3. The example assumes that the tax holiday period exceeds the productive life of the capital employed in OpCoB. Where it does not, implying that income generated by the capital would eventually be subject to tax during the post-holiday period, the required pre-tax rate of return would fall between 5 and 10 per cent.

© OECD 2001

Annex VI

ECONOMETRIC FINDINGS ON THE IMPLICATIONS OF HIGH STATUTORY CORPORATE TAX RATES

This annex considers empirical work addressing implications of alternative tax reforms on the financial and repatriation policies of multinationals. The first part considers work demonstrating that a firm's financial structure is typically influenced, in some cases significantly, by the tax regime of the host country. Empirical results at the aggregate level tend to confirm the central role played by the host country *statutory* corporate income tax rate in influencing chosen debt/equity ratios. In particular, a high statutory corporate tax rate encourages borrowing in the host country, tending to erode the corporate tax base. Thus generous tax deductions and credits "financed" by a high statutory tax rate put pressure on the tax base, heightening the need for effective design and administration of thin capitalization and other tax base protection rules.

The second part examines repatriation policy decisions. As theory would suggest, these decisions shown to be influenced by the setting of statutory corporate and withholding tax rates, with alternative forms of earnings repatriation having differential impacts on the host country tax base. Again, these findings help determine the appropriate choice of tax incentives, taking into account these host country effects.

1. Financial Policy Considerations

Work by Hines and Hubbard (1990) reveals a positive correlation between host country statutory corporate income tax rates and interest payments by US affiliates to their parents. Altshuler and Grubert (1996) use firm-level balance sheet data on US controlled-foreign corporations (CFCs) and show that the decision to finance affiliates with debt *versus* equity is strongly influenced by the host country statutory tax rate, with high rates attracting higher debt/equity ratios. Further evidence is provided by Grubert (1998) who finds that host country statutory corporate tax rates have a positive and significant effect on the interest payments of foreign affiliates to their US parents.

Thus the empirical evidence supports predictions that high statutory corporate income tax rates create incentives for earnings stripping by way of deductible interest payments.

At the same time, a high statutory corporate tax rate may frustrate the desired financial policy of foreign parent companies and lead to a higher cost of funds, thus indirectly discouraging investment in the host country. In recognition of the fungible nature of debt capital, US multinationals are required by law to allocate a portion of their interest expense against foreign source income on the basis of the ratio of foreign assets to domestic assets. High host country tax rates, by contributing to an excess foreign tax credit situation, can increase the cost of parent company debt by reducing the deductible portion of interest expense. Where a parent firm is constrained in its ability to respond to a high after-tax cost of borrowing by increasing affiliate borrowing (*e.g.*, by host country thin-capitalization rules), high-host country taxation may operate to reduce host country investment incentives on account of the cost of capital effect. A number of recent studies show that US firms particularly affected by US interest allocation rules have responded in predictable ways, searching for lower cost sources of funds and slowing their FDI growth.

Froot and Hines (1995), for example, consider a sample of 416 US multinationals and find that following the introduction of the US interest allocation rules, firms with excess foreign tax credits and significant foreign assets borrowed significantly less, and expanded their FDI at a slower rate, relative to other firms. The impact of high host country taxation on the cost of capital and FDI incentives of foreign parents is however hard to establish. Collins and Shackleford (1992) show that US firms have considerable scope to substitute away from domestic debt in response to the interest allocation rules. They find that firms most likely to be affected by the rules (*i.e.*, firms with relatively high percentages of foreign assets) issued more preferred stock following the 1986 tax change than did other firms. Froot and Hines (1995) also report that corporations caught by the 1986 provision responded by relying more on capital leases (with the borrowing component of the lease escaping the coverage of the rules). Similarly, Altshuler and Mintz (1995) find that firms facing high interest expense costs on domestic debt after the introduction of the interest allocation rules were more likely to borrow abroad through their foreign affiliates. This finding signals an additional channel through which high host country taxation, by contributing to excess foreign tax credits that tend to increase the cost of foreign parent debt, can contribute to host country base erosion.

© OECD 2001

2. Repatriation Policy Considerations

Affiliates of multinational firms may choose among alternative means to repatriate their operating income. Unlike dividends, earnings distribution by way of royalties, interest and management fees decreases the host country corporate income tax base. While earlier empirical work focuses almost exclusively on dividend repatriation tax effects, more recent work emphasizes the inter-relationship among the various means of flowing out operating income to parent companies. Not only own-tax price effects, but also cross-tax price effects are shown to be important in understanding repatriation behavior.

Reductions in the host country statutory corporate income tax rate increase the tax cost of using not only interest, but also royalties and management fees, for paying out a given amount of subsidiary earnings, thus discouraging their use. This implies that host country tax reform that reduces the corporate tax burden by relying more on lowering the statutory corporate tax rate, rather than enhanced deductions or tax credits, serves to protect the corporate tax base by affecting repatriation behavior. The following considers recent evidence on the importance of statutory corporate income and withholding tax rates in explaining the repatriation behavior of Canadian and other foreign manufacturing affiliates of US parent companies.

The most comprehensive analysis of this issue is found in recent work by Grubert (1994, 1998). His analysis extends earlier studies of repatriation tax rates for various payment types, including Grubert and Mutti (1991), Altshuler and Newlon (1993), and Altshuler, Newlon and Randolph (1994), which focuses mainly on dividend behavior. Repatriation tax rates are shown to differ between excess foreign tax credit and deficit of foreign tax credit (excess limitation) cases. In the excess foreign tax credit case, the repatriation rate for dividends depends on the host country withholding tax rate, while for deductible payments, withholding tax rates and the host statutory corporate income tax rate factor in. In the deficit of foreign tax credit case, withholding tax considerations net out and home country income taxation matters. Relief for host country tax on distributed income depends on the host country average income tax rate, while the tax price for deductible payments depends negatively on the host country statutory tax rate.

Grubert's modeling approach is appealing in that unlike earlier studies it analyzes simultaneously royalties, interest, dividends and retained earnings. Both own- and cross-price effects are analyzed in a system of equations that examines separately each of these forms of earnings repatriation.[1] In addition to repatriation taxes, Grubert introduces as explanatory variables parent R&D and advertising, normalized by parent sales, to capture the effect of intangibles provided to foreign subsidiaries by US parents, and a broad earnings measure to control for the profit effects (*i.e.*, to isolate the effects of tax prices on the repatriation of a given amount of pre-tax earnings).[2] The cross-sectional sample (1990 data) includes roughly 3 500 controlled foreign corporations of US parents in the mining, petroleum and manufacturing industries, which account for most US R&D (and royalty receipts).

Some of the main results of his work can be summarized as follows. Coefficients on the own-prices for dividend payments are found to be negative and statistically significant. Higher dividend withholding tax rates, and a higher home country tax rate relative to the host country corporate ATR discourage earnings distribution. Retained earnings, however, are shown to be invariant to dividend repatriation tax rates, a finding consistent with the Hartman model.[3]

As regards cross-price effects, the response of dividends to the withholding tax rate on royalties is found to be positive and significant. Firms generally react to a high royalty tax price by substituting towards dividend distribution. The substitutability of dividends and interest is unclear, as the coefficient on the interest withholding tax rate is statistically insignificant. The host country statutory corporate tax rate has a negative significant effect, indicating that firms switch away from dividends to deductible forms of earnings repatriation as the host country statutory rate increases.

The interest equation shows a negative and statistically significant interest payment response to its own-tax price – higher interest withholding tax rates discourage interest payments. Higher royalty withholding tax rates and higher dividend withholding tax rates are associated with higher interest payments, indicating that interest payments are to a degree substitutable with royalties and dividends as channels for earnings distribution.[4] The host country statutory corporate tax rate is found to have a positive significant effect, indicating that firms switch towards interest as a form of earnings repatriation as the host country statutory tax rate increases, a finding consistent with the dividends equation.

As with the interest and dividend equations, estimation of the royalty equation finds statistically significant and negative own-price effects. Higher royalty withholding tax rates discourage the use of royalties. Also, a higher interest withholding tax rate is associated with increased royalties, a result consistent with the substitutability of interest and royalties indicated by the interest equation. However, a higher dividend withholding rate is associated with reduced royalties, contrary to what the substitution effect would predict.

Furthermore, royalties are found to decrease, rather than increase, with a higher host country statutory corporate tax rate. These results suggest that dividends and royalty payments are complementary. US parents face incentives to shift profits, including income from intangible capital, to countries with low statutory income tax rates by licensing new products/processes through affiliates located in those countries and commodity (transfer) pricing. For countries with high statutory corporate rates, the effects are the opposite – incentives to shift profit out rather than in through commodity pricing and greater reliance on interest expense as a means of repatriating subsidiary earnings.

© OECD 2001

NOTES

1. The tax prices (repatriation tax rates) for each of the repatriation channels depend on whether an excess or deficit of foreign tax credit position applies. The foreign tax credit position is an endogenous outcome of financing and repatriation decision (*e.g.*, transfers of intangibles to foreign affiliates and large royalty receipts reduce the probability of an excess foreign tax credit position. These observations lead Grubert to include both the excess credit tax price and the deficit tax credit price as independent variables. The interest and royalty withholding tax rates (w^I and w^R) and the host country statutory corporate income tax rate (t^S) are entered separately in each equation, capturing repatriation tax rates for these payments in the excess foreign tax credit case equal to (w^I–t^S) and (w^R–t^S) respectively, and the deficit of foreign tax credit case where the repatriation tax rate for both payments is (t^{US}–t^S) where t^{US} is the home country tax rate.
2. The profits (operating surplus) measure is gross of interest and royalty payments. This recognises the endogenous nature of book profits which incorporate the effects of repatriation decisions. Grubert (1998) points out that in the model of Altshuler, Newlon and Randolph (1995) which uses a net profits measure (E&P), the coefficient on the E&P variable confounds repatriation effects (influencing E&P) and dividend income effects (the income elasticity of dividends).
3. The empirical results find retentions to be invariant to dividend repatriation tax rates (*i.e.*, financial rather than real behavioural responses are indicated). The model is silent on the effect of repatriation tax rates on investment financed by new share issues.
4. While the coefficients on the royalty (tax) price and the dividend tax price in the deficit of foreign tax credit case are both found to be statistically significant, the coefficient on the dividend (tax) price in the excess foreign tax credit case is found to be of borderline statistical significance. Similarly, in the royalty equation, the coefficient on the interest withholding tax rate, while positive, is of borderline statistical significance.

© OECD 2001

Annex VII

ANALYSING THE INFLUENCE OF FINANCING INCENTIVES (IMPUTATION RELIEF, AND DIVIDEND WITHHOLDING TAX RATE REDUCTION)

This annex considers how financing incentives – that is incentives meant to lower the cost of funds raised by companies – could operate to encourage FDI. The incentives examined include the provision of host county imputation relief and reduced withholding tax on dividends paid to non-resident shareholders.[1] Under the tax capitalisation view, the effect of these incentives on investment activity depends on the form of equity financing at the margin (new share issues vs. retained earnings), which follows from the fact that these incentives affect dividend repatriation tax rates (see Annex III). Another important consideration is whether the tax incentive relief provided is realised by foreign investors, or is instead partially or fully offset by home country taxation. A further issue examined is the effect of financing incentives provided to foreign investors where other investors (*e.g.*, tax-exempt investors, or taxable domestic investors) provide the marginal source of funds to a host country investment project, as for example could be the case where foreign direct investors take a non-controlling interest in a host country firm. As with other tax incentive provisions, expected benefits from additional investment must be weighed against corresponding costs including tax revenue losses, with estimates of unintended "spillovers" of tax relief factored in.[2]

A. Marginal Shareholder Taxation and Required Rates of Return

Consider an investment in a given host country firm financed at the margin by new shares issued to a direct foreign (or domestic) investor. For the marginal shareholder to be willing to inject additional equity into the firm, the subsequent net dividends (after payment of tax) must be at least as high as the after-tax return available on an alternative investment of equivalent risk, say bonds paying a market interest rate denoted by i. This implies the following (non-arbitrage) equilibrium condition:

$$\rho^m [1-t^{d(m)}] = i[1-t^{i(m)}] \qquad \text{(AVII.1}a\text{)}$$

which can be rearranged to solve for the firm's *discount rate*, as follows:

$$\rho^m = i[1-t^{i(m)}]/[1-t^{d(m)}] \qquad \text{(AVII.1}b\text{)}$$

where the discount rate ρ^m gives the required after-host country corporate income tax rate of return (established by the marginal shareholder through the pricing of shares) measured before imputation relief provisions if applicable.[3] The parameter $t^{d(m)}$ denotes the effective shareholder-level tax rate on dividend income of the marginal shareholder (including host country non-resident withholding tax and imputation tax credits if available, as well as possible further (*e.g.*, home) country taxation of that income), and $t^{i(m)}$ is the marginal investor's tax rate on interest income.

Financing incentives that lower the dividend tax rate $t^{d(m)}$ (and increase the net dividend rate $[1-t^{d(m)})]$ would operate to encourage FDI by lowering the discount rate (ρ^m) applied to expected after-host country corporate tax profits generated by additional equity investment in the host country. The discount rate ρ^m is an equilibrium "break-even" rate of return in the sense that it gives an after-tax rate of return (*i.e.*, after-host country corporate income tax rate of return) that a firm must earn in order that marginal shareholders earn their opportunity cost of funds, and no more (all economic rents if any, are exhausted).

It is important to recognise that the rate of return captured by ρ^m, which is a function of the pre-tax rate of return earned on capital in the host country firm and the host country effective corporate income tax rate, is relevant to all shareholders of the representative host country firm. In contrast, the "all-in" after-tax (combined host and home country) rate of return to shareholders differs across shareholders to the extent that the effective dividend tax rate (t^d) differs across shareholders.[4]

With the after-host country corporate income tax rate of return on shares in a given firm measured by ρ^m, the "*all-in" after-tax rate of return earned by a foreign direct investor* (*i.e.*, after-host and home country corporate-level tax) on those shares is measured by:

$$\rho^m [1-t^{d(fdi)}] \qquad \text{(AVII.2)}$$

with ρ^m determined by (AVII.1*b*) and where $t^{d(fdi)}$ is the effective shareholder tax rate on dividend income of the foreign direct investor, factoring in non-resident withholding tax, imputation tax credits if available to that investor,

© OECD 2001

and home country taxation. A key consideration is that the marginal investor group determining ρ^m may or may not be the foreign direct investor group considered in (AVII.2). A number of possible cases are considered below (in Section C).

B. Financing Incentives and Host Country Taxation

Dividends paid to a foreign direct investor (*e.g.*, parent corporation) may be accompanied by financing incentives provided by the host country. As noted, we examine two possibilities – a reduction to (or the elimination of) non-resident dividend withholding tax, and the extension of imputation relief to non-resident shareholders. Where one or both of these forms of financing incentive are provided, they may be provided unilaterally (under domestic tax law) or negotiated under a bilateral tax treaty.

Consider a dividend distribution D to a foreign parent of a fraction λ of current after-tax profits $\Pi(1-u^*)$ where Π measures pre-tax profits of the subsidiary in the host country and u^* is the host country effective corporate tax rate on profits of the host country subsidiary [that is, $D = \lambda\Pi(1-u^*)$].[5] Taking into account possible host country imputation relief and application of non-resident withholding tax, the after-tax return (net of host and home country tax) to the foreign parent is given by the following:

$$D[1-t^{d(fdi)}] = \lambda\Pi(1-u^*)[1-t^{d(fdi)}] \qquad \text{(AVII.3}a\text{)}$$

where the *net dividend rate* applicable to distributions to the foreign parent can be expressed as follows:[6]

$$[1-t^{d(fdi)}] = \theta^f(1-w^f)(1-t) \qquad \text{(AVII.3}b\text{)}$$

where w^f is the rate of non-resident withholding tax rate imposed by the host country on dividends paid to the foreign parent, t is the effective tax rate on net dividends imposed by the home country (which as noted below may be zero or positive), and θ^f equals one plus a measure of the degree of imputation relief provided to the foreign parent by the host country.

The *imputation parameter* θ^f can be measured as follows:

$$\theta^f = [1+ \gamma^f u^*/(1-u^*)] = [1-u^*(1-\gamma^f)]/(1-u^*) \qquad \text{(AVII.4)}$$

where γ^f gives the fraction of host country corporate tax underlying distributed profits (with imputation) returned to the foreign shareholder upon payment of a dividend. The identity given by (AVII.4) shows that the net effective host country corporate income tax rate (prior to withholding tax) falls from u^* to $u^*(1-\gamma^f)$ on account of imputation relief at rate γ^f. With non-resident withholding tax measured gross (inclusive) of imputation relief, total host country tax (net corporate income tax plus withholding) imposed on the distribution of one currency unit of distributed pre-tax profit ($\lambda\Pi = 1$) is given by:

$$u^*(1-\gamma^f) + w^f[1-u^*(1-\gamma^f)] \qquad \text{(AVII.5)}$$

where, from (AVII.4), we use the identity $[1-u^*(1-\gamma^f)] = \theta^f(1-u^*)$. Using AVII.5, **total host country tax** on the distribution of $\lambda\Pi$ units of pre-tax profit is measured by the following:[7]

$$T^* = \lambda\Pi\{u^*(1-\gamma^f) + w^f[1-u^*(1-\gamma^f)]\} \qquad \text{(AVII.6)}$$

Classical tax treatment

Where classical treatment applies and no imputation relief is provided in respect of host country corporate income tax ($\gamma^f = 0$), then θ^f equals one and distributed profits are measured net of host country corporate income tax on those profits with no further adjustment in determining host country taxation (other than possibly withholding tax):

$$D\theta^f = \lambda\Pi(1-u^*) \qquad \text{(AVII.7)}$$

Full imputation relief

If full relief from host country corporate income tax is provided, γ^f equals one and θ^f reduces to $[1/(1-u^*)]$. In this case, the dividend inclusive of imputation relief (but before withholding tax, if any) equals the full pre-tax distributed profit amount (host country corporate income tax on the distribution is fully paid back) – in other words,

$$D\theta^f = \lambda\Pi(1-u^*)[1/(1-u^*)] = \lambda\Pi \qquad \text{(AVII.8)}$$

Partial imputation relief

Alternatively, where the host country offers only partial relief from host country corporate income tax, the dividend inclusive of imputation relief (but before withholding tax) is given by (see AVII.4):

$$D\theta^f = \lambda\Pi(1-u^*)[1-u^*(1-\gamma^f)]/(1-u^*) = \lambda\Pi[1-u^*(1-\gamma^f)] \qquad \text{(AVII.9)}$$

© OECD 2001

C. Home Country Taxation and Net Dividend Rates for a Foreign Direct Investor

Turning now to home country tax considerations, *one possibility is that no home country tax is collected* on foreign dividend income benefiting from host country financing incentives (in which case the full value of these incentives may be realised by the home country direct investor). This could occur where the home country strictly follows the territorial principle of giving full taxing rights to the source country. Or it may be that a tax treaty exists between the host and home country which provides that the dividend is to be received tax-free (*i.e.*, received as exempt surplus). A number of countries in fact follow this practice, provided the dividends are paid out of active business income of a subsidiary operating in a treaty country (*i.e.*, in a country with which the home country has negotiated a tax treaty).

A third situation in which no home country tax is collected can arise where the home country operates a residence-based tax system and taxes resident direct investors (*e.g.*, parent companies) on their worldwide income, but the home country tax is eliminated using foreign tax credits (as reviewed in Annex I).[8] In order to analyse this case, assume that the parent has available χ units of unused (excess) foreign tax credits (per currency unit of pre-tax profit $\lambda\Pi$) generated and carried over from other foreign income sources through income mixing or foreign tax credit carryover provisions. A general formulation for the home country tax burden on the distribution of $\lambda\Pi$ units of pre-tax profit of the host country subsidiary is as follows: {using AVII.6 and $\theta^f(1-u^*) = [1-u^*(1-\gamma^f)]$} with the latter identity derived from AVII.4}:

$$T = \lambda\Pi\{u-\min[u,(u^*(1-\Omega\gamma^f)+w^f[1-u^*(1-\gamma^f)]+\chi)]\} \qquad \text{(AVII.10)}$$

where u denotes the home country corporate income tax rate, u^*, γ^f, w^f and χ are defined as above, Ω is a "switch" taking on the value of 0 or 1 [*i.*e., $\Omega = (0,1)$], and the min() function gives the available (indirect) foreign tax credit applied against home country tax on gross foreign dividend income. Foreign dividends are treated as included in taxable income gross of host country taxation (*i.e.*, gross of corporate income tax, imputation relief, and withholding tax). To avoid double taxation, the home country provides a foreign tax credit. Where the indirect foreign tax credit for underlying host country corporate income tax is measured gross (*i.e.*, exclusive) of host country imputation relief, Ω takes on a value of 0. Where instead the indirect foreign tax credit is measured net of host country imputation relief (*i.e.*, the relief is taken into account, implying a reduced foreign tax credit), Ω equals 1.[9] [See Annex I and in particular equation (AI.11) for a discussion of the basic operation of foreign tax credit systems.]

Where the parent is in an excess foreign tax credit position and able to eliminate home country taxation – or more generally when home country tax is not collected (*i.e.*, the foreign dividend is treated as exempt surplus, the home country corporate income tax rate is below the effective host country tax rate, "income mixing" or foreign tax credit carryovers apply ($\chi > 0$), or the foreign income is otherwise sheltered (*e.g.*, using an offshore tax haven)), home country tax and the home country tax rate t (see AVII.3*b*) are zero:

$$T = t = 0 \qquad \text{(AVII.11)}$$

In those cases where no home country tax is payable, the net dividend rate for the foreign direct investor is given by the following [and using (AVII.3*b*)]:

$$[1-t^{d(fdi)}] = \theta^f(1-w^f) \qquad \text{(AVII.12)}$$

T*he other main possibility to consider is where* (*residence-based*) *home country tax is collected* on foreign dividend income, as would often be the case in a non-treaty situation, and could arise in a treaty context as well (depending on the particular treaty partners). Where the foreign direct investor is in an *insufficient foreign tax credit position*, arising where the home country tax rate is relatively high and the available credit is constrained to the creditable amount of foreign tax attached to the foreign dividend benefiting from the financing incentive (*i.e.*, in the absence of unused (excess) foreign tax credits earned on other sources of foreign income (*i.e.*, $\chi = 0$)), the general solution to home country tax is given by the following {using (AVII.10) and the identity $[1-u^*(1-\gamma^f)] = \theta^f(1-u^*)$ from (AVII.4)}:

$$T = \lambda\Pi\,[u-u^*(1-\Omega\gamma^f) - w^f\theta^f(1-u^*)-\chi)] \qquad \text{(AVII.13}a\text{)}$$

With dividends paid to the foreign direct investor in the amount of $D = \lambda\Pi(1-u^*)$, home country tax T can be expressed alternatively as a percentage of dividends measured net of all host country tax considerations $[D\theta^f(1-w^f)]$ as follows:

$$T = D\theta^f(1-w^f)\{[u-u^*(1-\Omega\gamma^f)-\chi]/[(1-u^*)\theta^f(1-w^f) - w^f/(1-w^f)]\} \qquad \text{(AVII.13}b\text{)}$$

From (AVII.13.*b*) it follows that the home country tax rate t on host country dividends $D\theta^f(1-w^f)$ measured net of all host country taxation, equals:

$$t = [u-u^*(1-\Omega\gamma^f)-\chi]/[(1-u^*)\theta^f(1-w^f)] - w^f/(1-w^f) \qquad \text{(AVII.14)}$$

Substituting this solution for t into (AVII.3*b*) gives the following solution to the net dividend rate where the parent is taxable in the home country and in an insufficient foreign tax credit position:

$$[1-t^{d(fdi)}] = \theta^f(1-w^f)(1-\{[u-u^*(1-\Omega\gamma^f)-\chi]/[(1-u^*)\theta^f(1-w^f)] - w^f/(1-w^f)\}) \qquad \text{(AVII.15}a\text{)}$$

which (using AVII.4) reduces to:

$$[1-t^{d(fdi)}] = [1-u+(1-\Omega)\gamma^f u^* + \chi]/(1-u^*) \qquad \text{(AVII.15}b\text{)}$$

The net dividend rates, given by (AVII.12) where the parent can avoid further tax, and (AVII.15*b*) in the insufficient foreign tax credit position case, together with the solution for ρ^m derived using (AVII.1*b*), can be used to solve for the

© OECD 2001

"all-in" after-corporate tax rate of return to foreign direct investors in new equity shares. The latter can be used to consider how FDI might respond to financing incentives, both where foreign direct investors are the marginal investors and where they are not. Where other investors (*e.g.*, tax-exempts, domestic taxable investors) provide financing at the margin, financing incentives provided to foreign direct investor would not be expected to affect host country investment levels. As reviewed below, windfall gains to foreign shareholders or tax revenue transfers to foreign governments may result instead.

D. FDI Incentives Under Alternative "Marginal Shareholder" Cases

In the "typical" FDI situation where a foreign parent establishes a subsidiary in a host country, the marginal shareholder of the host country firm would be the foreign parent. However, a foreign direct investor may take less than a controlling interest in a given host country firm. Therefore, also examined in this section is the case where the marginal shareholder of a "candidate" host country firm (*i.e.*, a host country firm being assessed as an investment option by a foreign direct investor) is a foreign or domestic tax-exempt investor (*e.g.*, pension fund). We also examine the case where the marginal shareholder of a candidate host country firm is a resident (taxable) investor.

1. *Foreign parent as marginal shareholder*

Consider first a typical FDI scenario where a foreign parent company is the marginal shareholder of a host country firm (subsidiary) attempting to raise new equity financing. In this case, the foreign parent earns an after-corporate tax (net host and home country tax) rate of return equal to that on the alternative investment in bonds [see (AVII.1*a*)]. However, financing incentives can operate to stimulate FDI flows, assuming that the incentives are not offset by current home country taxation. To see this, note first that where additional home country) tax is not levied or is avoidable, the net dividend rate $[1-t^{d(m)}]$ appearing in (AVII.1*b*) is given by (AVII.12):

$$[1-t^{d(m)}] = [1-t^{d(fdi)}]_{\text{no home tax}} = \theta^f(1-w^f) \qquad \text{(AVII.16}a\text{)}$$

while in the taxable (insufficient foreign tax credit) case the net dividend rate is given by (AVII.15*b*):

$$[1-t^{d(m)}] = [1-t^{d(fdi)}]_{\text{insuff.ftc}} = [1-u+(1-\Omega)\gamma^f u^* +\chi]/(1-u^*) \text{(AVII.16}b\text{)}$$

Substituting (AVII.16*a*) into (AVII.1*b*) gives the following solution to the *firm's discount rate where the foreign parent* (*marginal shareholder*) *can escape further* (*home country*) *taxation*:

$$\rho^m = i(1-u)/\theta^f(1-w^f) \qquad \text{(AVII.17}a\text{)}$$

with the *pre*-tax required rate of return given by:

$$[\rho^m/(1-u^*)] = i(1-u)/[(1-(1-\gamma^f)u^*](1-w^f) \qquad \text{(AVII.17}b\text{)}$$

where interest income of the parent is taxed at rate u $[t^{i(m)} = u]$.[10] Note that if no withholding tax applies, and imputation relief is not attached to dividends paid to the marginal foreign direct investor ($w^f = \theta^f = 0$), the host country firm must earn an after-host country corporate tax rate of return equal to the after-tax rate of return on bonds, that is $\rho^m = i(1-u)$.[11] The *pre-tax* rate of return on capital $\rho^m/(1-u^*)$ is higher (lower) than the pre-tax rate of interest, the higher (smaller) is the host country effective corporate income tax rate u^* relative to the home country rate u, with the two rates of return equal $[\rho^m/(1-u^*) = i]$ if the host and home country corporate tax rates are identical. With full imputation offered to the foreign investor ($\gamma^f = 1$), the pre-tax required rate of return equals the after-tax rate of return on bonds, grossed up by withholding tax.[12]

Where home country tax is avoided on foreign source income, an increase in the rate of imputation relief extended to foreign shareholders ($\theta^f \uparrow$) and/or a reduction in the rate of non-resident dividend withholding tax ($w^f \downarrow$) can have the effect of lowering the host country firm's discount rate ρ^m (*i.e.*, the required rate of return on new equity shares). For a given host country corporate tax rate u^*, a lower discount rate implies a lower required pre-tax rate of return on capital in the host country firm (on a larger host capital stock). Therefore, where taxation is taken into account by investors as modelled, both forms of financing incentive would be expected to encourage FDI financed at the margin by new share issues, with a lower discount rate increasing the level of host country investment than can provide foreign direct investors with their required rate of return.[13]

Consider now the case where the parent must pay home country tax on the foreign dividend (assume $\chi = 0$). Substituting (AVII.16*b*) into (AVII.1*b*) gives the *host country firm's discount rate where the foreign parent* (*marginal shareholder*) *pays additional* (*home country*) *tax on the foreign dividend*:

$$\rho^m = i(1-u)(1-u^*)/[1-u+(1-\Omega)\gamma^f u^*] \qquad \text{(AVII.18}a\text{)}$$

If the indirect foreign tax credit provided by the home country is measured net of host country imputation relief (*i.e.*, the foreign tax credit takes into account reduced host country taxation on account of host country imputation relief, Ω=1), the discount rate reduces to:

$$\rho^m = i(1-u^*) \qquad \text{(AVII.18}b\text{)}$$

implying a required *pre*-corporate tax rate of return equal to the market interest rate:

$$\rho^m/(1-u^*) = i \qquad \text{(AVII.18}c\text{)}$$

© OECD 2001

Therefore we have the result that the host country firm must earn a pre-tax rate of return equal to the pre-tax market interest rate. In this particular case, the follows from the fact that, with host country taxation effectively replaced by home country taxation (through gross-up and foreign tax credit provisions), both dividend and interest income paid to the foreign direct shareholder are taxed at the home country corporate tax rate u. Therefore shares must earn a pre-tax rate of return equal to the pre-tax rate of interest to generate the same after-tax rate of return.

Neither the imputation tax credit parameter θ^f nor the non-resident withholding tax rate w^f factor into the calculation of the required rate of return of the foreign subsidiary in this case. This follows because, as noted above, host country tax on the distribution is exactly cancelled out, with a reduced indirect foreign tax credit that takes account of host country imputation relief, and an direct tax credit exactly equal to the host country withholding tax. Thus the overall (combined host and home country) effective tax rate on the subsidiary's pre-tax profit equals the home country tax rate u.[14] As a result, when determining the level of investment in the host country, host country financing tax incentives can be ignored. That is, financing tax incentives offered by the host country would not be expected to have any impact on FDI levels, resulting only in a transfer of tax revenues from the host to the home country (traced to a reduced foreign tax credit in the home country).

If instead the home country provides an indirect foreign tax credit for underlying host country corporate income tax measured gross (exclusive) of host country imputation relief ($\Omega = 0$), then we have the result:

$$\rho^m/(1-u^*) = i(1-u)/(1-u+\gamma^f u^*) \qquad \text{(AVII.18}d\text{)}$$

As in the previous case, the non-resident withholding tax rate w^f does not factor into the calculation of the required rate of return because the direct foreign tax credit exactly matches (cancels out) the (reduced) host country withholding tax rate. However, because the home country does not factor in the imputation relief for foreign tax credit purposes (*i.e.*, the indirect foreign credit is not reduced in respect of this amount), part of the financing incentive passes through to the investor.[15] Therefore, in this case, where imputation relief is taken into account by the investor, such relief could be expected to have some stimulative effect on FDI financed at the margin by new share issues, although the incentive effect from imputation relief would be reduced relative to the case represented by (AVII.17) where the relief passes through in full. However, in this latter case, some offsetting influence would be felt [relative to (AVII.18*d*)] due to the non-creditable withholding tax.

2. *Tax-exempt marginal shareholder*

Where a foreign direct investor is considering a non-controlling interest in a host country corporation [*e.g.*, ownership of less 50 per cent of the equity interest (votes or value)], one possibility is that the marginal shareholder supplying the last units of capital raised (and setting the host country firm's discount rate) is a domestic (or foreign) *tax-exempt entity* that, in addition to not paying income or withholding tax, is denied imputation relief by the host country. In this case, the net dividend rate of the marginal investor equals:[16]

$$[1-t^{d(m)}] = 1 \qquad \text{(AVII.19)}$$

With the tax-exempt also free of tax on interest income, the host country firm's discount rate (*i.e.*, its required *after*-host country corporate income tax rate of return on new equity funds) in this case equals the market rate of interest [substituting (AVII.19) into (AVII.1*b*)]:

$$\rho^m = i \qquad \text{(AVII.20}a\text{)}$$

and the required pre-tax rate of return is given by:

$$[\rho^m/(1-u^*)] = i/(1-u^*) \qquad \text{(AVII.20}b\text{)}$$

This illustrates the general result that the host country firm must earn an *after*-corporate tax rate of return equal to the *pre*-tax market interest rate[17] in cases where distributed profits of a host country firm (already subject to host country corporate income tax at rate u*) are subject to shareholder-level taxation at the same rate as interest income received by that investor (a zero shareholder-level tax rate in the case of a tax-exempt marginal shareholder).[18]

Neither the imputation tax credit parameter relevant to distributions to a foreign direct investor θ^f nor the non-resident withholding tax rate w^f factor into the calculation of the firm's required rate of return, given that tax-exempt status of the marginal shareholder in this case. Moreover, as reviewed below, host county shares providing a pre-shareholder tax rate of return (*i.e.*, after-host country corporate income tax rate of return) equal to the interest rate on bonds would be attractive, on account of tax considerations, even in the absence of such relief).

Where shares in the firm pay an after-corporate tax rate of return ρ^m equal to the market rate i, the *after-tax rate of return to an* (*infra-marginal*) *foreign direct investor where no additional* (*home country*) *tax applies* is given by (using AVII.12 and AVII.20):

$$\rho^m[1-t^{d(fdi)}] = i\theta^f(1-w^f) \qquad \text{(AVII.21)}$$

In the decision of whether to hold shares in the host country firm or bonds, an infra-marginal foreign direct investor compares the above result with a benchmark taken to be the net rate of return on bonds i(1–u). Shares paying an after-host country corporate income tax rate of return equal to the market interest rate will be preferred to bonds provided that $\theta^f(1-w^f > (1-u)$. With the comparison depending on the host/home countries in question, this condition would be satisfied in the absence of imputation relief ($\theta^f = 1$) provided that non-resident dividend

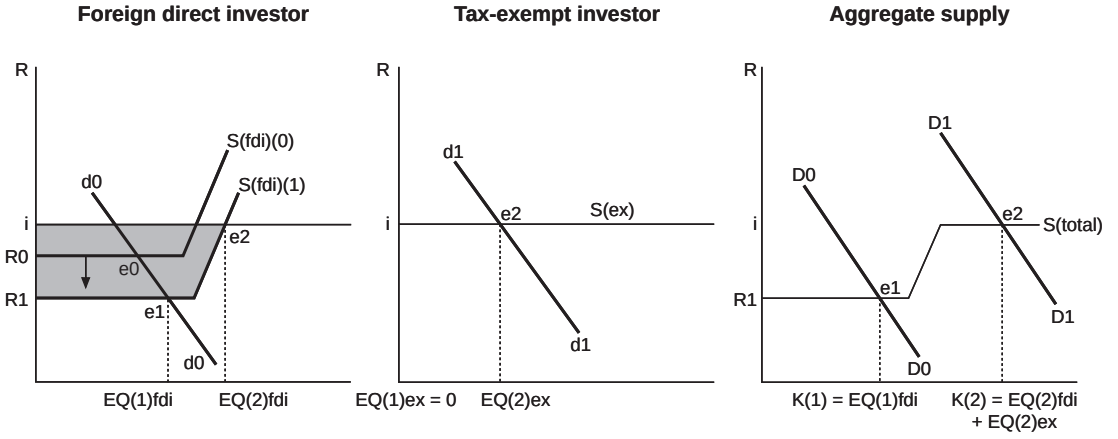
© OECD 2001

withholding tax is imposed at a rate below the home country effective corporate income tax rate ($w^f < u$), a condition that would often be held in the OECD area for example.[19] Where imputation relief is offered, windfall gains would result as FDI levels would not be affected (being determined by the marginal investor), and moreover, host country shares would be tax-preferred in the absence of integration relief provided that ($w^f < u$). Also, where this is the case, a lowering of the non-resident withholding tax rate would provide additional windfall gains.[20]

Pure windfall effects are illustrated in Chart VII.I. The example considers the case where a host country firm (operating a classical tax system) lowers its non-resident dividend withholding tax relief to attract additional FDI. The host country firm's capital demand schedule, shown by [Do] in the third panel and [do] in the first, intersects the supply of funds schedule for foreign direct investors S(fdi)(0) at the initial equilibrium point e0. The FDI group is able to avoid home country tax on foreign dividends (treated as exempt surplus). The supply of funds schedule S(fdi)(0) is infinitely elastic at the point where the shares pay an after-host country corporate income tax rate of return equal to $\rho 0 = i(1-u)/(1-wf0)$ [see (AVII.17*a*)], with $\theta^f = 1$), where the chart depicts ρ as R. Where host country shares pay R0 (before withholding tax), the realised rate of return is equal to that on the alternative bonds i(1–u).

Lowering the non-resident withholding tax rate to wf1 shifts the supply of funds schedule down, creating a new equilibrium e1 where shares pay a lower after-host country corporate income tax rate of return, equal to $\rho 1 = i(1-u)/(1-wf1)$, with ($wf1 < wf0$). The host country firm is able to expand its capital stock from K(0) (not shown in the diagram) to K(1), while continuing to pay foreign marginal shareholders with their required rate of return [at K(1) = EQ(1)fdi]. The tax-exempt investor shareholder group represented in the second panel does not supply funds to the host country firm (either pre- or post reform), as the shares pay an after-corporate tax rate of return below the market interest rate (see AVII.20*a*). The tax-exempt investor group is shown however to be drawn in following an increase in demand for the host country firm's output (or a technological shock that boosts productivity of the host country capital stock and allows the firm to cover higher factor costs), which shifts out the capital demand schedule out from D0 to D1, creating a final equilibrium depicted at e2 and a further increase in the host country capital stock to K(2) with infra-marginal financing by foreign direct investors [in the amount EQ(2)fdi], and marginal financing provided by the tax-exempt shareholder group [in the amount EQ(2)ex]. With shares paying an after-corporate tax rate of return equal to the market interest rate, infra-marginal foreign direct shareholders earn windfall gains, with the surplus enjoyed shown by the shaded area.[21]

Chart VII.I. **Illustration of non-resident withholding tax rate reduction**



Variable definition: i = market interest rate; wf = non-res. withholding tax rate; R = after-host country corporate income tax rate of return.
Initial equilibrium (e0): R = i(1–u)/(1–wf0), foreign direct investor (marginal shareholder) financing host country firm capital stock K(0)
Policy shock: reduction in non-resident withholding tax rate to wf1 (with wf1 < wf0), lowers R (R1 = i(1–u)/(1–wf1)) which leads to increased FDI (FDI stock increases from K(0) = EQ(0)fdi to K(1) = EQ(1)fdi. New equilibrium position at e1.
Demand (or technology) shock: Aggregate demand curve shifts from D0 to D1 (tax-exempt investor provides marginal financing). Infra-marginal FDI participation increases to EQ(2)fdi, with tax-exempt (marginal) shareholder investment equal to EQ(2)ex.
Final equilibrium (e2): FDI investors earn windfall gain (surplus) measured by shaded area scaled by (1–wf). The wedge (vertical distance) between the market interest rate (i) schedule and the FDI supply of funds schedule S(fdi)(1) is partly paid in withholding tax. Example assumes that imputation relief is not provided by the host country.
Source: Author's illustration.

Consider now the case where home country tax is payable on the foreign source income. The *after-tax rate of return for an* (*infra-marginal*) *foreign direct investor paying additional* (*home country*) *tax* is given by the following (using AVII.15*b* and AVII.20):

$$\rho^m[1-t^{d(fdi)}] = i(1-u)/(1-u^*) \qquad \text{(AVII.22}a\text{)}$$

$$\rho^m[1-t^{d(fdi)}] = i(1-u+\gamma^f u^*)/(1-u^*) \qquad \text{(AVII.22}b\text{)}$$

© OECD 2001

where (AVI.22*a*) considers the case where the indirect foreign tax credit is net of (factors in) imputation relief, while (AVI.22*b*) considers the case where the credit is gross of (excludes) imputation relief. In both cases, host country withholding tax is exactly offset by the home country foreign tax credit, and therefore a withholding tax rate reduction has no effect other than to transfer tax revenues from the host to the home country. Providing imputation relief to foreign direct investors is shown to be inefficient as well, reducing home country tax revenues while having no impact on FDI levels. Moreover, the tax-exempt treatment of the marginal shareholder acts to push the required rate of return on shares to an attractively high level., making domestic shares more attractive than bonds owing to this tax-interaction effect. Thus, the partial imputation relief that passes through in the second case (AVII.22*b*) provides an unnecessary windfall gain.

3. *Taxable domestic marginal shareholder*

Another possibility to consider is one where domestic taxable investors are the marginal shareholders of a host country firm in which a foreign direct investor is considering a non-controlling interest.[22] In this case the net dividend rate of the marginal investor is given by:

$$[1-t^{d(m)}] = \theta^{d}(1-m) \qquad \text{(AVII.23)}$$

where θ^{d} is the imputation parameter relevant to distributions to domestic taxable shareholders. Under a classical domestic tax system where corporate and personal-level income tax systems are not integrated (with double taxation relief limited to the inclusion in personal taxable income of dividends measured net of corporate income tax), the domestic imputation parameter is unity ($\theta^{d} = 1$). Where partial or full integration relief is provided to domestic shareholders on dividends received from host country resident companies, θ^{d} exceeds one. The tax rate m denotes the shareholder-level host country income tax rate applied to grossed-up dividend income [*i.e.*, dividends gross of imputation relief (if any)].

Substituting (AVII.23) into (AVII.1*b*) gives the following solution to the host country firm's discount rate in this case:

$$\rho^{m} = i(1-m)/[\theta^{d}(1-m)] = i/\theta^{d} \qquad \text{(AVII.24}a\text{)}$$

implying that the required pre-tax rate of return on host country shares exceeds the interest on bonds unless full imputation relief is offered to domestic shareholders [*i.e.*, the fraction of underlying host country corporate tax returned to domestic shareholders is unity ($\gamma^{d} = 1$)]:

$$[\rho^{m}/(1-u^{*})] = i/[1-u^{*}(1-\gamma^{d})] \qquad \text{(AVII.24}b\text{)}$$

Consider first that if the host country operates a classical tax system ($\gamma^{d} = 0$, $\theta^{d} = 1$), a host country firm must offer domestic taxable shareholders an *after*-host country corporate income tax rate of return equal to the *pre*-tax market interest rate (or equivalently, a pre-tax rate of return equal to the market interest rate grossed up by the host country effective corporate income tax rate). As in the tax-exempt case, this occurs where marginal shareholder are subject to the same tax rate on dividend and interest income, reflecting the fact that debt is tax-favoured relative to equity under classical treatment. Also note that neither the imputation tax credit parameter θ^{f} nor the non-resident withholding tax rate w^{f} applicable to distributions to the foreign shareholder enter the determination of the firm's discount rate, with domestic rather than foreign direct shareholders setting the required after-host country corporate rate of return.

Where a foreign direct investor does not face additional (home country) tax on host country dividend income, the after-tax rate of return (net of all corporate taxes) for that investor in host country shares would equal the following [using (AVII.12) and (AVII.24)]:

$$\rho^{m}[1-t^{d(fdi)}] = i(\theta^{f}/\theta^{d})(1-w^{f}) \qquad \text{(AVII.25)}$$

In this case, a foreign direct shareholder would be attracted to foreign shares over bonds provided that $i(\theta^{f}/\theta^{d})(1-w^{f}) < (1-u)$. Under a classical tax system ($\theta^{f} = \theta^{d} = 1$), this condition would be satisfied where non-resident dividend withholding tax is imposed at a rate below the effective corporate income tax rate of the home country ($w^{f} < u$). While the result depends on the host and home country setting of tax rates, where the condition does hold, a foreign investor (able to escape home country tax on FDI) would be attracted to host country shares (over bonds) paying an after-host country corporate income tax rate equal to the market interest rate.

However, if domestic shareholders are provided imputation relief ($\theta^{d} > 1$) but foreign direct shareholders are not, then the tax distortion in favour of host country shares is reduced and possibly eliminated. This arises because increased imputation relief provided to the (marginal) domestic shareholder group would operate to lower the after-host country corporate tax rate of return. Where the foreign direct investor is denied this relief (and thus there is not compensating offset to the reduction in ρ^{m}), interest in host country shares is discouraged. This illustrates the possible pitfall that providing tax incentives to one group of investors to the exclusion of others can do more than leave the non-targeted group neutral – participation by this group can be discouraged due to a lowering of the pre-tax rate of return set by the (targeted) marginal shareholder group. In this respect, financing incentives are distinct from other corporate tax incentives that lower the effective corporate income tax rate (and therefore benefit all shareholders).

© OECD 2001

In the above example, denying imputation tax credits to foreign shareholders that can escape (net) home country income tax, while providing such relief to domestic investors, can have the effect of discouraging infra-marginal FDI participation. One possibility to rectify this is to extend imputation relief to foreign shareholders. However, this may be an expensive option and moreover, extending this form of relief to foreign direct investors resident in countries that adopt the residence-based approach (with worldwide taxation) would mean that at least part of the relief provided would be offset through reductions in foreign tax credits abroad (as noted in the context of firms in an insufficient foreign tax credit position). This latter point suggests that, if such relief is to be offered, efficiency could be improved by limiting its provision to foreign direct shareholders in countries that exempt foreign direct dividends.

Finally, where a foreign direct investor is considering a non-controlling interest in host country shares with after-host country corporate tax rates of return set by domestic shareholders (given by AVII.24) and where *the foreign direct investor pays additional home country tax* [*i.e.*, *insufficient foreign tax credit position*), *the after-tax rate of return* (*net of all corporate taxes*) *for that investor in host country shares would equal the following* (using (AVII.15*b*) and (AVII.24)]:

$$\rho^m [1-t^{d(fdi)}] = i(1-u)/[\theta^d(1-u^*)] \qquad \text{(AVII.26}a\text{)}$$

$$\rho^m [1-t^{d(fdi)}] = i(1-u+\gamma^f u^*)/[\theta^d(1-u^*)] \qquad \text{(AVII.26}b\text{)}$$

Where the host country operates a classical system and shareholders are denied integration relief ($\theta^d = 1$), tax considerations would tend to encourage the foreign investor to hold host country shares over bonds. In both cases represented above, with host country withholding tax exactly offset by the foreign tax credit, lowering the withholding tax rate only serves to transfer tax revenues from the host to the home country. Providing imputation relief to foreign direct investors reduces home country tax revenues while having no impact on FDI levels. Moreover, with classical treatment of domestic shareholders tending to raise the rate of return on shares to an attractive level (above the market interest rate), the operation of the tax system serves to render the shares an attractive investment without imputation relief. Again, the partial imputation relief that passes through in the second case (AVII.26*b*) provides an unnecessary windfall gain.[23]

However the relative attractiveness to the foreign direct investor of host country shares over bonds declines with the level of integration relief provided to the *domestic* investor alone (as θ^d climbs above 1), as higher levels of domestic integration relief operate to lower the return on host country shares. In the limit where the host country provides full imputation relief to domestic shareholders [$\theta^d = 1/(1-u^*)$], the foreign direct investor is indifferent between host country shares and bonds.

© OECD 2001

NOTES

1. A reduction in non-resident withholding tax (like the extension to non-residents of imputation relief) can be viewed as a form of host and home country tax integration.
2. Possible unintended revenue leakage in the case of financing incentives can occur with "treaty shopping", where investments are routed through another (third) country in an attempt to access favourable tax treatment (*e.g.*, reduced withholding tax rates, imputation relief, favourable treatment of gains) negotiated between the host country and the conduit country (without similar benefits negotiated between the host and home country). For a discussion of such leakage in the cross-border portfolio investment case, see OECD (1999).
3. Imputation relief, if provided to the marginal shareholder, gets factored into the discount rate through the parameter $t^{d(m)}$ – the greater the imputation relief provided, the larger is $[-t^{d(m)}]$ and the lower is the discount rate ρ^m.
4. Possible source of divergent tax treatment include the level of imputation relief, the applicable withholding tax rate, and subsequent (*e.g.*, home country or conduit country) tax treatment.
5. The host country effective corporate tax rate u* may be lower than the host country statutory corporate income tax rate on account of other investment incentives (*e.g.*, accelerated depreciation, or investment tax credits).
6. The "net dividend rate" considered here measures the direct shareholder's after-tax return (net of host and home country corporate-level tax) from the distribution of one unit of profit by the host country foreign affiliate.
7. Note that the host country repatriation tax equals $T^{R*} = \lambda\Pi\{u^*(-\gamma^f)+w^f[1-u^*(1-\gamma^f)]\}$.
8. For certain countries with residence-based systems, foreign direct dividends are subject to home country tax (with dividend gross-up and foreign tax credit provisions) only in non-treaty cases (*i.e.*, where the dividends are received from foreign affiliates resident in countries with which the home country has not concluded a tax treaty), with exempt-surplus treatment applying in treaty cases. For other countries with residence-based systems, home country taxation of foreign direct dividends is adhered to even in treaty cases.
9. The "normal" treaty practice is to measure the indirect foreign tax credit gross of imputation relief (*i.e.*, $\Omega=0$).
10. The marginal shareholder (by definition) earns an after-tax rate of return on shares equal to that on bonds. To see this, in the excess foreign tax credit (FTC) case, substitute equations (AVII.17) and (AVII.16*a*) into (AVII.2), which gives $\rho^m(1-t^{d(m)}) = i(1-u)$. The same result holds in the insufficient FTC case [substituting (AVII.18*b*) and (AVII.16*b*) into (AVII.2)].
11. Interest income is free of tax at source (deductible) but in this case is taxed in the hands of the parent at rate u. In contrast, the distributed profits are taxed at source (at rate u*) with no further taxation at the shareholder level.
12. This non-neutrality (with full imputation relief) arises in this case because interest income is taxed whereas dividend income is not.
13. Under standard investment theory, increased investment occurs if a firm's discount rate (flow cost of funds) is reduced. Where the firm's (flow) cost of funds is reduced, a firm is able to expand the capital stock and earn lower pre-tax rates of return at the margin while continuing to pay shareholders their required (lower) after-corporate tax rate of return.
14. The tax rate u applies to interest income and to gross foreign dividend income, and therefore the common term (1–u) cancels out in the (non-arbitrage) condition determining ρ^m.
15. Part of the financing incentive is offset, however, where (as modelled) the foreign direct investor is required to include in taxable income foreign dividends measured gross of the host country imputation relief.
16. If the tax-exempt is a foreign direct investor, (AVII.19) is consistent with the case where a treaty applies that waives non-resident withholding tax.
17. Or equivalently, the firm must earn a pre-tax rate of return that exceeds the pre-tax interest rate on bonds (*i.e.*, equals the market interest rate grossed-up by the host country effective corporate income tax rate).
18. This occurs because, when comparing after-tax rates of return on shares *vs.* bonds, the impact of shareholder-level taxation (at the same rate) of dividend and interest income cancels out. With interest tax-free at source

© OECD 2001

(deductible), and profits taxed at source, the after-host country corporate income tax rate of return on shares must equal the pre-tax interest rate (implying that the pre-tax rate of return on capital in the host country firm must exceed the interest rate $[\rho^m/(1-u^*) = i]$ for the investor to be indifferent between shares and bonds. This non-neutrality (relative to the no-tax case) could be corrected, in principle, by denying the interest deduction at source, or removing corporate-level tax on distributed profits through a dividend deduction or full imputation relief (with a tax-exempt investor, this would require providing that investor with a cheque (or equivalent) in the amount of the underlying corporate income tax, and withholding tax if applied; with a taxable shareholder, the imputation relief could be claimed at the shareholder level against personal income tax).

19. For example, the non-resident withholding tax rate on direct (as opposed to portfolio) dividends is 5 per cent for many OECD countries (10 per cent for others) in the treaty situation. Statutory (non-treaty) rates can be significantly higher (*e.g.*, 25-30 per cent).

20. Where foreign direct investment is structured through a tax haven with a low or nil corporate income tax rate and a low or nil non-resident dividend withholding tax rate (applied to profit distributions from the tax haven (*e.g.*, holding company) to the home country (parent)), lowering the host country withholding rate may increase the attractiveness of host country shares. However, this would require that a low (attractive) withholding tax rate apply on distributions to the tax haven, and that home country controlled foreign company (CFC) rules do not apply (see Chapter 3, sub-section B.4).

21. The surplus earned per unit of capital supplied (up to the kink in the supply curve) is measured by $(i-R1)(1-wf1)$ (where $\rho = R$) which we can write as $[i-i(1-u)/(1-wf1)](1-wf1) = i(1-wf1)-i(1-u) = i(u-wf1)$.

22. This can include the situation where shares in a host country firm are purchased directly by resident individual (marginal) shareholders, and the case where the shares are purchased by another domestic corporation held by resident individual shareholders. Under the latter interpretation, it is assumed here that dividends received by the intermediary corporation are received tax-free (under a standard inter-corporate dividend received deduction) and also that the intermediary raises funds for its investment in the (target) corporation by issuing new equity shares to the domestic individual shareholders.

23. The return on shares, like the return on bonds, is subject to home country corporate income tax in the hands of the parent at rate u, but the shares (and not the bonds) attract a foreign tax credit.

© OECD 2001

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(23 2001 07 1 P) ISBN 92-64-18344-2 – No. 51941 2001