# 8 Taxation of saving and investment

**Outline**

This section provides a framework for analysing the often complex ways in which the tax system interacts with saving and investment choices in an open economy. It analyses a range of efficiency issues.

**Key points**

- The tax system has diverse impacts on savings and investment incentives. These occur because of the interaction of our tax treatment of different assets, different forms of financing, and different types of entities. The different tax treatments would be expected to affect savings and investment decisions across the economy.
- Rapid growth in cross-border investment has increased the importance of international factors in considering how we tax savings and investment. Other countries' company income tax rates continue to fall. There are ongoing challenges to our ability to tax residents on their foreign source income, and non-residents on their income from investing in Australia.

## 8.1 Savings and investment choices facing individuals

The importance of investment and savings to our society reflects their role in enhancing the level of retirement incomes and future consumption of individuals, the productive capacity of the economy, and the returns to other factors of production, particularly labour.

Individuals and businesses tend to make savings and investment choices based on a number of factors including the tax treatment of the investment. Therefore, tax settings can have an impact on the choices people make, which ultimately determine investment in productive assets and individual sectors in the economy.

Australia has a rich asset base compared to the vast majority of countries in the world. These assets include:

- our human wealth reflected in a highly skilled workforce (sometimes called human capital);
- our political, institutional and legal settings that contribute to the development and maintenance of social capital;
- our natural resource wealth including our extensive mineral resources as well as our native forests, our limited water supplies, our marine resources (including fisheries), the quality of our air, and our national parks; and
- financial and non-financial assets such as bank accounts, shares, factories and patents.

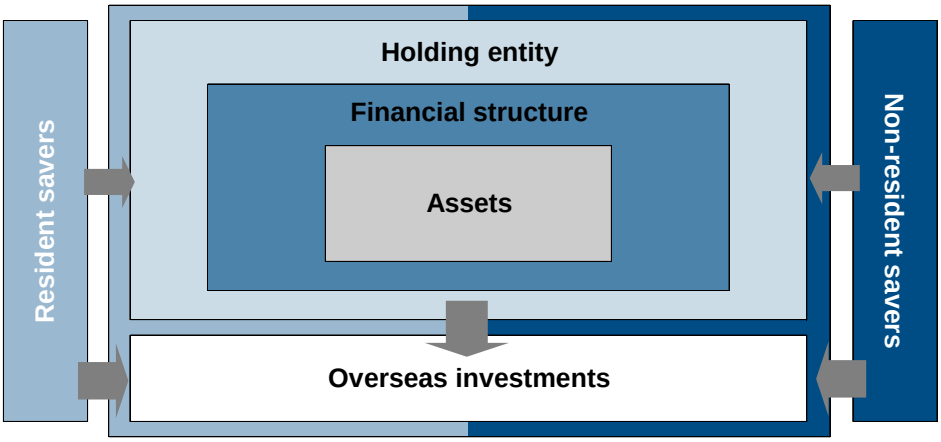
The focus of this section is on the latter two elements of our asset base, in part reflecting better information and tools of analysis.

## How taxes affect saving and investment decisions

The level and form of tax affects incentives to save (and hence the level of saving), whether investments are made in Australia or overseas, the type of entity used to invest the savings, the financial structure for funding investments, and the allocation between different types of assets.

As noted in earlier sections, Australia collects more of its total tax take through taxes on capital, relative to other OECD countries (see Chart 6.5). The tax paid on the returns from saving and investment accounts for around a third of total government tax revenue. It is collected through a variety of taxes on income, land and resources, and capital transactions levied by the different levels of government. The impact of taxes on savings and investment in an open economy such as Australia's can usefully be described through the model in Chart 8.1.

**Chart 8.1: Savings and investments in an open economy**




Starting from the left-hand side of Chart 8.1, individuals make an initial choice about how much to save. This is affected by several factors, ranging from holding some funds to pay for everyday needs or some 'lumpy' purchases such as a vehicle, through to decisions to save for a future family home or for retirement. Much of the analysis of savings and investment is based on an analysis of incentives between spending earnings now (consumption) and deferring that spending to some future point in time (saving). The impact of the tax-transfer system on the incentives of individual Australians to save is discussed in Section 7.5.

Once decisions have been made on the level of savings, resident savers then choose whether to invest that saving in Australia or overseas (the two right-facing arrows in the chart). Within Australia, the saver can choose to invest their savings directly in assets such as homes or rental properties, or through financial intermediaries such as banks, companies, superannuation funds or trusts (described as the 'holding entity' in Chart 8.1). In Australia, apart from housing, holding entities own most of the physical assets (such as machinery) and non-physical assets (such as patents) that add to the country's productive capacity. Resident savers and holding entities also make decisions about how to finance the purchase of these

assets, such as through borrowing funds or raising capital on the stock market (determining the financial structure of the asset acquisition).

Non-residents, such as foreign corporations or pension funds, also make decisions about whether to invest in Australia or other countries. Australia's tax system can influence these decisions.

## 8.2 Differences in the tax treatment of different assets and financing arrangements

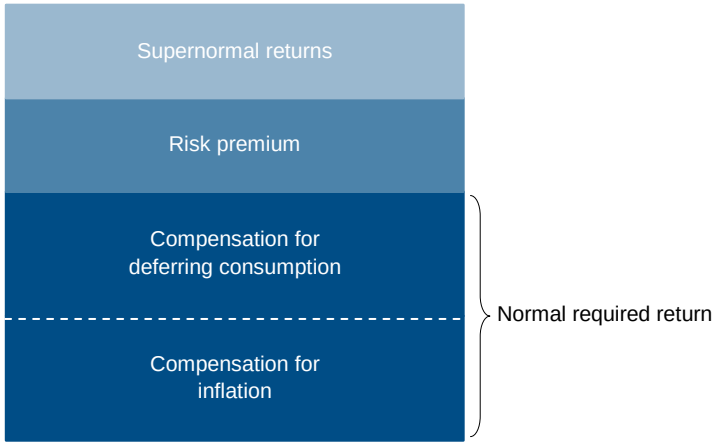
When examining the tax treatment of savings and investment, including through different assets and financing arrangements, it is important to understand the different components of income that can be earned from an asset (Chart 8.2).

The return to capital can be split into four components:

- the inflationary component — which compensates for rising prices;
- the compensation for deferring consumption — sometimes described as the 'return to waiting'. Combined with the inflationary component, this represents the 'normal', or risk-free, return to capital;
- the risk premium — for projects with uncertain returns; and
- the 'supernormal' return — an additional return arising from access to a unique asset or idea, a patent, or other factors.

In addition, for a particular investment, there can be a difference between the expected return at the start of an investment and the actual return. This uncertainty about the return can be called good or bad luck. Across the economy and over a sufficient period of time, this would be expected to net to zero.

**Chart 8.2: Components of the return to capital**




The inflationary component compensates the investor for the reduction in purchasing power arising from inflation, so that the investor is able to purchase the same quantity of goods and services in the future as they could when they decided to save. In other words, this part of

the return does not add to the purchasing power of the investor, unlike the remaining components of the return, often referred to as the real return to capital.

A nominal income tax base includes the inflationary component. Even at low rates of inflation there can be large differences in the effective rate of tax on the change in the purchasing power of the investor depending upon whether the inflation component is taxed.

For example, consider a taxpayer with $1,000 in a bank account earning 6 per cent interest, and inflation at 2.5 per cent. Under a nominal income tax the full $60 would be subject to tax, whereas if the inflation component were excluded, only $35 would be subject to tax. Taxing the entire return to capital results in a higher effective tax rate on the $35 increase in purchasing power, than if only the $35 were taxed. Importantly, the relativities between the real and nominal return to capital vary through time and across different types of assets. For example, the inflation component represents a larger proportion of the return to lower yielding assets such as bank deposits.

Australia notionally has a comprehensive nominal income tax base, but in practice it represents a hybrid income/expenditure base. This is similar to all other OECD countries which have concessions for particular types of savings and returns to investments. For Australia, deviations from a comprehensive nominal income tax base include:

- the exclusion of the returns from owner-occupied housing (including imputed rent) and other personal use assets (such as vehicles), and their related expenses from taxation;
- concessional treatment of investments in superannuation;
- the taxation of gains in asset values only when an asset is sold, with capital gains tax (CGT) discounts of 33⅓ per cent for superannuation funds and 50 per cent for individuals on assets held for at least 12 months;
- faster rates of write-off for some depreciating assets than the actual fall in their nominal value; and
- rules that limit the use of losses (negative income returns), especially for new businesses.

In addition to income tax, other transaction and wealth type taxes are applied to savings and investment. In particular, conveyancing stamp duties are applied to transactions on houses, and local rates and land taxes are based on the wealth holdings of some land (see Section 2.5). The tax treatment of housing is discussed further in Box 8.1.

For individuals who receive income support, the effective returns on savings and investments are also affected by income and assets tests used to target that support. The degree to which returns are affected depends on an individual's personal circumstances.

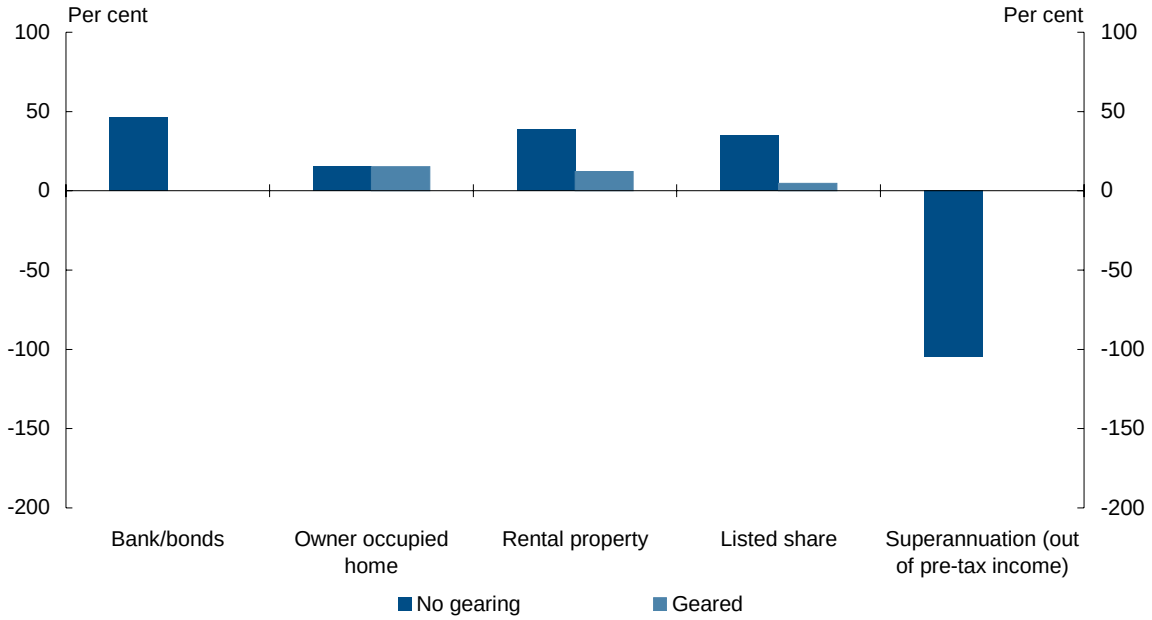
## Effective marginal tax rates by type of asset and financing

The variation in tax treatment for different assets and financing arrangements can be illustrated by calculating effective marginal tax rates (EMTRs) — see Section 3.5 for more information on options for measuring the impact of taxes. Given the complexities in modelling the interactions with the transfer system, the EMTRs presented in this section do not take account of the implicit taxes arising from income and asset testing.

EMTRs can be calculated for the nominal return to an investment or for the real return. The following analysis incorporates both the impacts of the different tax treatment of different assets (the 'no gearing' cases) and the impacts of different financing decisions (reflected in the differences arising from the 'gearing', where 70 per cent of the investment is assumed to be funded from borrowings).

Chart 8.3 shows nominal EMTRs for investments commonly made by individuals. As the entire nominal return from interest bearing deposits and from bonds is included in a taxpayer's income, the nominal EMTR is equivalent to the taxpayer's marginal tax rate. This outcome is consistent with a comprehensive nominal income tax. Relative to interest bearing deposits, owner-occupied housing, rental properties, listed shares, and concessional (pre-tax) contributions to superannuation are favourably taxed.

**Chart 8.3: Nominal EMTRs by asset type and financing arrangement**




Assumptions: Calculated for an individual taxpayer on a 46.5 per cent marginal tax rate. Assets held for seven years. Inflation 2.5 per cent, 6 per cent nominal return. Gearing 70 per cent — not applicable to bank/bonds and superannuation. Tax on debt providers is disregarded. For property, 70 per cent of the return is attributable to capital gains and 30 per cent to rent. A 3 per cent conveyancing duty is assumed on the acquisition value, and annual rates are applied at 0.6 per cent of the value. Land tax applies to rental property at the same rate as annual rates. The 'listed share' is a company holding an asset taxed on an accruals basis. The company retains 50 per cent of its profits each year. There is no duty on the purchase or sale of the listed share and accrued franking credits are assumed to be fully valued by the market. For superannuation, the taxpayer makes a one-off contribution at the beginning of the period out of pre-tax income and is eligible for a tax-free payout at the end of seven years.
Source: Australian Treasury estimates.

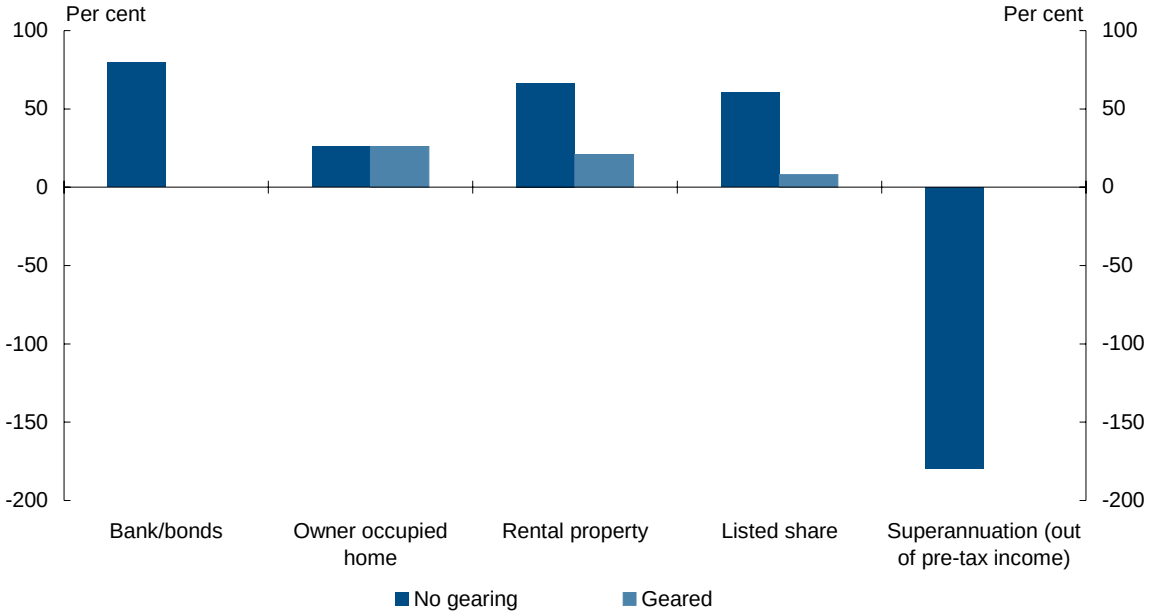
The positive EMTRs for owner-occupied housing and for geared rental property arise from the general operation of the income tax law as well as various housing and land specific taxes. The chart also shows the impact on the EMTR from borrowing to finance rental properties and listed shares and deducting the interest expense (at the taxpayer's marginal tax rate).

For concessional superannuation, the ability to invest out of pre-tax income produces a negative EMTR. For non-concessional (post-tax) contributions the EMTR is 15 per cent. Around a third of the flow into superannuation is made up of such contributions. The effective rate would be lower where the taxpayer receives superannuation co-contributions from the government of up to $1.50 for every dollar invested, to a co-contribution limit of

$1,000 a year. The results are also sensitive to the assumptions used, particularly for concessional (pre-tax) contributions to superannuation. For example, for these contributions the EMTR changes from -105 per cent for a seven year investment period to -26 per cent for 20 years.

Where EMTRs are calculated for the real (inflation-adjusted) return, their absolute values increase (Chart 8.4). On this basis, the extent of the non-neutralities between different assets and financing arrangements is greater.

**Chart 8.4: Real EMTRs by asset type and financing arrangement**




Assumptions: as for Chart 8.3.
Source: Australian Treasury estimates.

The above calculations do not take into account interactions with the transfer system. As noted in Section 7, these are complex and generate very different patterns of effective tax rates based on factors such as family circumstances. Tax-transfer effective tax rates will also apply to any capital income derived by individuals. For example, for a single income couple on average weekly earnings with two children aged three and eight with a personal income marginal tax rate of 31.5 per cent, the combined nominal EMTR on a bank account could be around 56 per cent and the real EMTR could be around 96 per cent.

As a general observation, the high EMTRs arising from the interaction of the tax and transfer systems will tend to be reflected in disincentives to save, just as they are in disincentives to participate in the workforce. On the other hand, these higher tax-transfer EMTRs also tend to mean that the value of tax concessions for capital income (including superannuation) may also be greater for some low and middle income families than for higher income families.

### Box 8.1: The taxation treatment of housing

The imputed rent and capital gains of owner-occupied housing are exempt from income tax. The cost of financing the purchase and other expenses are not deductible. Rental properties are subject to income tax, including CGT and are eligible for a 2.5 per cent annual depreciation allowance on the construction cost of the building. Further, the cost of financing is deductible and can be offset against income from other sources. It is not included as part of the cost of the asset when determining the net capital gain for CGT purposes.

Investment in residential property is taxed in the same way as some other assets, but the returns vary, as noted above.

Residential property is also subject to a range of state taxes, with a range of rates and thresholds. Sales of residential properties are taxed through stamp duty on conveyances, and rental properties are subject to ongoing land taxes. Local governments (and the Australian Capital Territory) also tax residential property through municipal rates.

Stamp duty is levied on housing transactions. While paid by the buyer, the incidence of stamp duty is likely to be shared and partly fall on sellers by lowering the after-tax price received though sale. As a tax on transactions, stamp duties can discourage turnover and influence housing decisions. They may also encourage some home-buyers to buy larger houses in order to avoid further stamp duty from subsequent moves into family-sized homes. Similarly, stamp duties may affect decisions of existing home owners. Some people wishing to upsize may choose to renovate their existing home rather than move. For those who would prefer downsizing to a smaller house, stamp duties can pose an additional difficulty in the relocation process, by increasing the required return on the property sale before they are able to move. These impacts are partly ameliorated by concessions that the States offer to first home buyers and to pensioners who move to homes that better suit their needs.

Other aspects of the tax-transfer system can also generate 'lock-in' effects that may discourage sales of housing. The principal place of residence is generally given a concessional treatment under income support assets tests. This means that moving from owner-occupied housing to rental accommodation can lead to lower pension payments for older people, as their assets are reallocated into non-concessionally treated categories.

Land tax is levied on the unimproved value of land, with investment properties subject to the tax and owner-occupied property exempt. In addition to favouring owner-occupied housing over investment housing, land taxation affects housing investment decisions in two ways. Most land tax regimes have progressive scales, which can discourage large scale investment in land. This impact can be significant. Averaging across jurisdictions, a single company holding ten land parcels worth $300,000 would pay five times more land tax than if the same parcels were held in separate hands. This encourages property investment by small-scale investors, who pay less tax per property than larger entities. Land tax is also likely to encourage greater investor participation in properties where land is a low proportion of total property value (such as apartments) than in detached houses.

Further issues arise in respect of the treatment of net losses on investments and aspects of the treatment of capital gains and of depreciating assets. These issues are not fully reflected in the EMTR calculations above and are discussed below.

## The tax treatment of losses

The tax treatment applying to losses can impact on incentives to invest in risky assets. Australia and comparable OECD countries typically have an asymmetric treatment of gains and losses overall.

There is some variation in the treatment of losses across the OECD. While no country provides full refundability, a number of arrangements are used to improve loss utilisation. Some countries, including the United States, United Kingdom, Canada, Ireland and the Netherlands, allow revenue losses to be 'carried back' and used against profits of previous years. The length of the carry-back is typically around one to three years. These arrangements, however, are of limited use to new companies.

A number of countries also provide flow-through arrangements for some companies. These arrangements allow losses or expenditure to flow through to investors. Examples include:

- S-corporations in the United States, which provides both partnership taxation treatment and limited liability protection for certain companies with no more than 100 individual resident or citizen shareholders;
- loss attributing qualifying companies in New Zealand, which can allocate company losses to specific shareholders, if the company has five or fewer shareholders who elect to become personally liable for any income tax not paid by the company; and
- flow-through shares in Canada, which can transfer expenses in relation to mining, petroleum and certain types of renewable energy to investors.

## Taxing gains on a realisation basis

Capital gains are typically taxed upon disposal (a realisation basis). Taxing gains on a realisation basis is considered more practical than accruals taxation due to potential difficulties in measuring gains as they accrue and the cash-flow problems that an annual accruals tax could cause for some taxpayers. However, there are elements of accruals taxation in the income tax system. For example, tax depreciation provides deductions for the decline in value of assets that are used up in production. An accruals method is also part of the proposed regime for the taxation of financial arrangements.

Taxing gains on realisation creates a tax 'deferral' advantage, as the asset holder is not required to pay tax on any gains until the asset is disposed. It may also induce a 'lock-in' effect, whereby investors are discouraged from switching assets due to the requirement to pay tax on the accrued gain at the time of disposal.

## Depreciation

Capital income may be generated by assets that decline in value as they age and are used up in production. The decline in value is known as economic depreciation. Consistent with an

income tax benchmark, where the assets are used in the production of income, the decline in value can be offset against income over time.

Such depreciation deductions can apply to both physical assets (for example, plant and equipment) and intangible assets (for example, industrial property). The 'uniform capital allowance' regime provides different deductions for certain types of capital expenditure, including immediate deductions for small value items.

The introduction of effective life depreciation as part of the *Review of Business Taxation* reforms, coupled with the introduction in 2006 of the 200 per cent rate for the diminishing value method, has resulted in a greater alignment of tax depreciation with economic depreciation.

The income tax system also provides for caps or upper limits on the lives of a number of assets for depreciation purposes. The caps represent a departure from economic depreciation and give rise to a significant tax expenditure (estimated to be $385 million in 2008-09). To the extent that different assets have different depreciation treatments, investments can be biased towards concessionally taxed assets, rather than those that generate the greatest pre-tax returns.

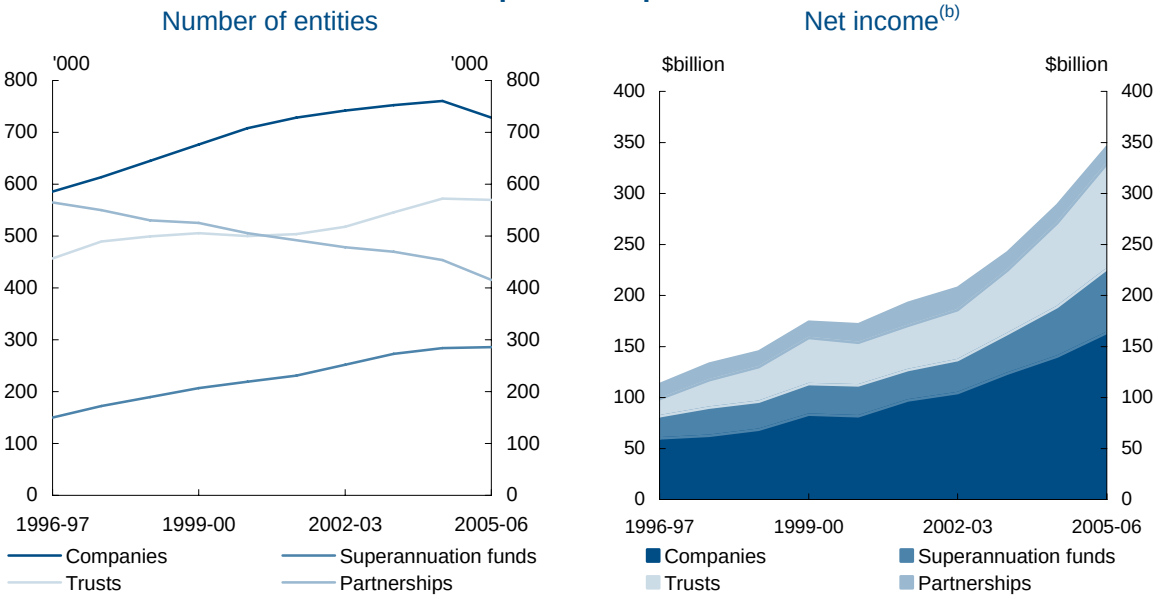
Changes to depreciation arrangements have also been a feature in other OECD countries. Corporate tax rate reductions in many OECD countries, (including Australia in 2000 and 2001) have been partly financed by corporate tax base broadening measures, including the implementation of less generous tax depreciation allowances (OECD 2007f).

## 8.3 The treatment of different holding entities

This section covers another element of Chart 8.1 — how holding assets through different entities can affect incentives. Apart from investments in housing, personal use assets and bank accounts, individuals predominantly invest in businesses and assets through entities such as superannuation funds (including through compulsory superannuation guarantee payments), ordinary life insurance companies and other companies (through share purchases), trusts and partnerships. In turn, superannuation funds and life insurance companies predominantly invest through other companies and trusts.

Of the various types of business entities, companies are the most common and most significant in terms of net income (Chart 8.5). They differ from partnerships and trusts in that significant tax is collected at the entity level ($57.1 billion in 2006-07, measured on a cash basis).

**Chart 8.5: Numbers and net income of companies, trusts, superannuation funds and partnerships[a]**

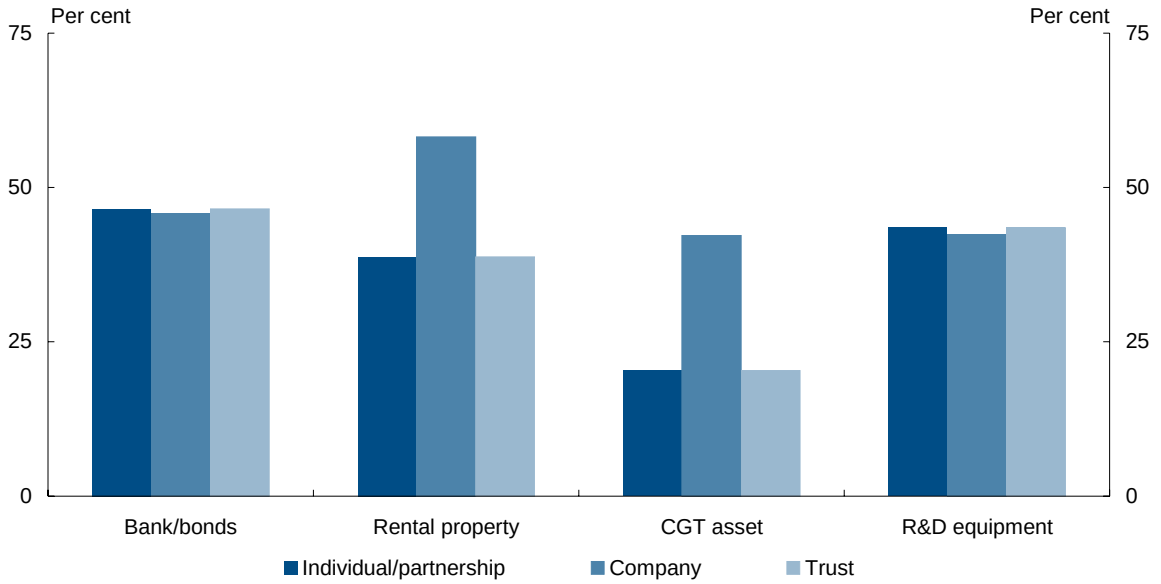



(a) The final year of figures does not include all returns.
(b) Net income excludes distributions received from an entity of the same type (for example, net income of companies does not include dividends received).
Source: Australian Taxation Office (2008).

The treatment of partnerships represents a fully integrated 'flow-though' approach to taxing an entity, with partners taxed directly on partnership income and also able to use the losses of the entity against other income they might have. In contrast, superannuation funds are taxed separately from their members. The treatment of companies and trusts falls between these two points. Company income tax is partially integrated with shareholders' personal income tax through dividend imputation. Beneficiaries of trusts are generally taxed on the taxable income of trusts. As with superannuation funds, losses of these entities are retained at the entity level and may only be offset against income of the entity. (See Table 2.15 and Table 2.16 in Section 2 for a more detailed comparison.)

The different treatments of companies, trusts and partnerships can result in different effective tax rates for a given investment of an individual taxpayer (Chart 8.6).

**Chart 8.6: Nominal EMTRs for an individual taxpayer investing in assets, directly or through a business entity**




Assumptions: As for Chart 8.3, except that: at the end of the seven years the company sells the underlying asset and distributes all current and retained earnings. The trust distributes income annually. 'R&D equipment' has an effective life of eight years and the company is eligible for a 125 per cent R&D tax concession.
Source: Australian Treasury estimates.

For higher income individuals, investing in bank accounts and bonds through companies is marginally preferred over other entities or investing directly. This reflects the tax deferral benefit that arises because the company tax rate is lower than the assumed marginal personal tax rate. For investment in equipment for research and development (R&D), companies benefit from a tax concession not available to non-corporate businesses. However, when dividends are paid to shareholders and taxed in their hands, the benefit of the company level concession is partially clawed back.

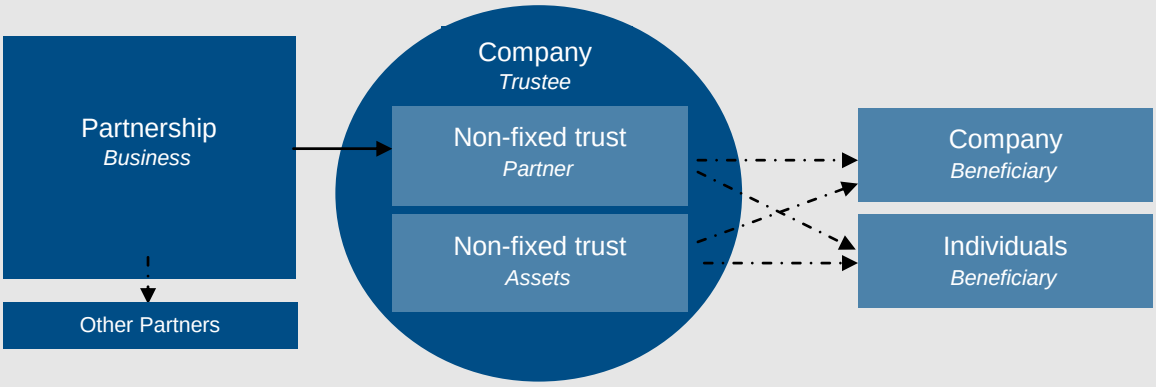
For rental property held by a company, stamp duty, land tax and rates result in estimated EMTRs above an investor's personal tax rate. For investors in rental properties and CGT assets, a company is not the preferred entity as no CGT discount is available when the company sells the asset. In contrast, individuals can obtain a 50 per cent CGT discount on assets held for at least 12 months, either directly or through a trust. If, however, the shareholder sold his or her shares (so receiving the 50 per cent CGT discount) instead of the company selling the rental property or asset and distributing the proceeds to the shareholder as a dividend, the EMTR for a rental property would fall to 40 per cent, and for a CGT asset, to 20 per cent, depending on the market valuation of the shares.

In practice, both small and large businesses will often own assets and operate businesses using a combination of entities for both tax and non-tax reasons, and will choose distribution and asset disposal strategies that best suit the particular entity or entities used. Box 8.2 discusses some of these issues from a small business perspective.

### Box 8.2: Multiple business entity structures for a small business

In deciding on a business structure, small businesses will consider a range of issues, both non-tax (protecting valuable assets from business risk, succession planning, and allowing outside equity investments) and tax (income splitting and access to various tax concessions, including CGT concessions). Different businesses will attach varying importance to different factors based on the nature of the business and the circumstances of the owners. Where no single entity alone meets all requirements, small businesses generally use a combination of entities to achieve a desired outcome (Chart 8.7).

**Chart 8.7: Illustrative small business structure**




For example, a business may operate through a partnership to allow for outside investment, business succession, and losses to flow through to partner level. Partnership interests may be held by non-fixed trusts (such as discretionary trusts) to allow for income splitting, with a company among the trust beneficiaries to allow income to be retained in a company when advantageous. Another non-fixed trust may own the partnership business assets to protect them from business risks and maximise access to the CGT concessions. In addition, trustees may themselves be companies to limit the trustee's liability.

The above EMTR calculations also do not incorporate a range of special treatments for small businesses, summarised in Box 8.3.

### Box 8.3: Small business tax concessions

Targeted concessions for small business are a relatively common feature in tax systems, and those in Australia are described briefly below. The principal reasons given for special concessions are that small businesses are important to the economy in creating wealth, stimulating competition and creating jobs. Other reasons commonly given are:

- the need to counteract market failures;
- the desirability of countering inherent disadvantages of being small, such as the regressivity of compliance costs (compliance costs as a proportion of total turnover are greatest for small business) and the asymmetry of taxable profits and losses; and
- the need to ensure that small businesses can survive family and other events which might threaten to break them up.

#### Payroll tax

All the States provide an exemption from payroll tax for annual gross wages below a given threshold. The threshold varies significantly between States, ranging from $550,000 to $1,500,000. For example, in NSW where the payroll tax rate is 6 per cent and the exemption threshold $623,000, a small business with an annual wages bill of $500,000 would receive an annual payroll tax concession of $30,000.

#### Income tax

Small businesses with an annual turnover less than $2 million may qualify for a range of tax concessions. A small business unable to satisfy the turnover test in an income year may still be able to access available CGT concessions if the business meets a $6 million maximum net asset value test.

##### Small business CGT concessions

*15 year exemption*: a capital gain on a business asset is exempt if the taxpayer has owned the asset continuously for at least 15 years and is at least 55 years old and retiring, or is permanently incapacitated.

*50 per cent active asset reduction*: the taxable value of capital gains on active assets is reduced by 50 per cent. This concession applies in addition to the generally available 50 per cent CGT discount for assets owned for at least 12 months by individuals or trusts.

*Retirement exemption*: a capital gain on a business asset is exempt, up to a lifetime limit of $500,000, if the individual is 55 or over, or, if under 55, the money from the sale of the asset is paid into a complying superannuation fund, an approved deposit fund or a retirement savings account.

### Box 8.3: Small business tax concessions (continued)

*Roll-over relief*: if a small business sells an asset and buys a replacement, the CGT liability is rolled over until disposal of the replacement asset.

#### Depreciation rules

Asset pooling is available with generally concessional depreciation rates and an immediate deduction is available for most depreciating assets costing less than $1,000.

#### Trading stock valuation

If the difference between the value of opening stock and a reasonable estimate of closing stock is $5,000 or less, a small business does not have to account for changes in the value of trading stock, or do stocktakes for tax purposes.

#### Immediate deduction for certain prepaid business expenses

A small business can claim an immediate deduction for prepaid business expenses where the payment covers a period of 12 months or less that ends in the next income year.

#### Entrepreneurs' tax offset

The entrepreneurs' tax offset can reduce tax payable by up to 25 per cent where the business has a turnover of less than $75,000. The 2008-09 Budget announced that a family income test will be applied to the entrepreneurs' tax offset from 1 July 2008.

### Goods and services tax

Registering and collecting goods and services tax is optional for businesses with an annual turnover of up to $75,000. A number of compliance cost saving arrangements are also available.

As well as affecting the effective tax rate on the underlying investments, the various tax treatments of different entities affect other choices made by individuals and business — most obviously, the choice of holding entity or entities, but also entity financing decisions, individuals' investment portfolio choices and whether to invest in Australia or overseas.

Given the importance of companies relative to other business entities, and their importance as the principal means by which non-residents make equity investments in Australia, they merit further consideration in their own right.

## Companies — the role and purpose of company income tax

Company income tax has two basic roles:

- as a withholding tax on income earned by Australian residents, through shares in a resident (Australian) company; and
- as a final tax on (generally Australian source) income earned by non-residents, through shares in an Australian company or a non-resident company's branch in Australia.

The design of Australia's company income tax system has historically taken account of both these roles. This has influenced decisions about the company income tax rate, base and other

rules, and the interaction of company income tax with the taxation of resident and non-resident shareholders.

## A withholding tax on residents

Company income tax reduces or removes potential tax advantages for residents from earning income through a company and deferring personal income tax until such time as company profits are paid out as a dividend, or the shares are sold. The income potentially sheltered from personal income tax can be either income from investments or labour income from the labour of owner-managers, subject to personal services income rules.

Where a shareholder's personal tax rate (including consideration of income support payments) exceeds the company income tax rate, there can be tax deferral advantages from earning income through a company and retaining it there.

The net benefit from deferring tax is, however, smaller than the gross amount of tax deferred. An indicative estimate of the net benefit would be a return of around 3 per cent per annum on the amount of deferred tax. The potential value of the tax deferral benefit is also only one part of a more complex story. For example, the cash-flow needs of an individual or family may preclude significant deferral, and the costs of creating and maintaining a company also need to be considered.

By providing a credit to shareholders for company tax paid on the profits from which dividends are paid, dividend imputation is the mechanism that converts company income tax into (in effect) a withholding tax rather than a separate (final) tax. Australia is one of only a few countries that still has a dividend imputation system but many other countries provide some form of relief to resident shareholders (for example, by exempting all or part of the dividend, or taxing dividends at reduced rates).

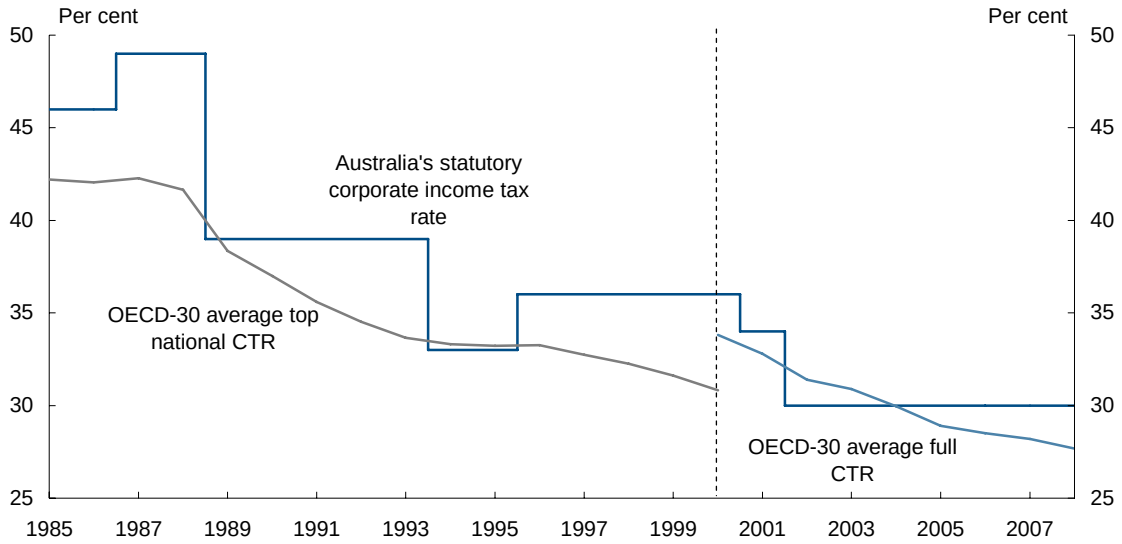
As discussed below, dividend imputation may also impact on company financing and overseas investment decisions. The relevance of resident shareholder tax arrangements for the decisions of many companies may be declining as non-residents become a more important source of capital.

## A final tax on non-residents

Non-residents own around 32 per cent of the shares in Australian companies. Company income tax is the primary means by which the returns to non-residents from their equity investments in Australia are taxed. Collecting tax from non-residents is of direct benefit to Australia but has the potential to reduce total investment and so reduce the productivity of Australian workers and, in turn, their real wages.

A simple, commonly used measure of Australia's international tax competitiveness is the statutory company income tax rate. While Australia's company income tax rate has fallen in recent decades, this has largely mirrored a world-wide trend and, in recent years, Australia's relative position in the OECD has slipped (Chart 8.8 and see also Chart 5.10).

**Chart 8.8: Statutory corporate income tax rates of OECD countries**




Note: Rates are top national statutory corporate tax rates until 2000 (that is, they exclude local and state company taxes imposed in some countries) and full corporate tax rates thereafter (that is, they include company taxes from all levels of government). Averages are unweighted.
Source: Australian Treasury estimates, OECD Tax Database; KPMG (various years); OECD (2006b); Deloitte (2006); national governments.

The company income tax rate is, however, only part of a more complex set of tax arrangements that together determine the effective rates of tax on investments into and out of Australia. Issues regarding cross-border investments are discussed further below.

## Company financing decisions and the debt/equity distinction

Companies can finance an investment by using retained earnings (taxed or untaxed profits that have not been distributed to shareholders), raising new equity capital (for example, by issuing new shares) or by borrowing (debt). As at March 2008, the debt to equity ratio for Australian non-financial corporations was 0.78. This reflects liabilities, other than accounts payable, of $935.3 billion and equity, including retained earnings, of $1,199 billion (ABS 2008c). The method of financing investment will be influenced by a company's profit distribution policy. That is, whether it retains profits and invests them, or distributes them as dividends or by other means to shareholders.

From the perspective of residents investing in an Australian company (particularly start-ups and fast-growing companies that rely on raising new equity), dividend imputation provides a tax treatment of returns on equity investment that is generally comparable to returns on debt. This neutrality between debt and equity is recognised as a significant advantage of Australia's shift to an imputation system in 1987. Some biases in the choice of financing new investment still remain, driven by differences between the company income tax rate and the tax rates applying to individual and superannuation fund investors, and the operation of CGT, which in effect acts as a tax on retained earnings. Other countries have explored different systems that improve the neutrality between debt and equity treatments, or at least reduce their differential impacts. These are discussed in Box 8.4.

### Box 8.4: Other countries' approaches to taxing capital income

Under a dual income tax, or schedular, approach, as adopted to varying degrees by countries such as Sweden, Norway and the Netherlands, capital income is taxed at a (low) flat rate, while returns to labour are subject to progressive rates of tax. Given the lower rate of tax applying to capital income, efforts are also made to tax company or business income that is attributable to the labour of owner-managers at the progressive rates of tax applying to labour income.

A few other countries have moved to not tax the normal required return on equity, particularly at the company level. Doing so has moved their systems closer to a post-paid expenditure tax treatment of capital (see Box 6.1) and provides for a more consistent treatment of equity and debt financing. A range of methods to achieve these outcomes have been developed, including the following.

- *Allowance for corporate equity* (ACE): under an ACE, a deduction is provided for the deemed normal return on equity, equivalent to that provided for interest on debt. As measured equity is reduced by the depreciation allowed for tax purposes, changes to depreciation rates produce offsetting changes to the deduction allowed for equity. Hence, debt and equity are treated equally, and the tax depreciation schedules rendered irrelevant. Belgium and Brazil have adopted such arrangements.

- *Cash-flow type taxes*: in its simplest form, a cash-flow tax applies to the sales of goods and services net of purchases, including an immediate deduction for all capital expenditure. No deduction for interest expense is provided. Rather, the immediate deduction of capital expenditures provides a tax benefit equivalent to interest deductibility and also provides an equivalent deduction for equity. More complicated cash-flow tax variants adjust for, or rely on, certain cash-flows associated with financial assets and liabilities. Australia's petroleum resource rent tax (PRRT) is a variant on a cash-flow tax, and Estonia's corporate tax can also be seen as an example.

An opposite approach to equalising the treatment of debt and equity, not yet adopted by any country, is a 'comprehensive business income tax' (or CBIT). The CBIT was developed by the United States Treasury in the early 1990s, and is otherwise like a normal company income tax base but with no deduction provided for interest paid. By not providing a deduction for debt, a CBIT ensures that the full return for debt, as well as equity, is taxed. Unlike the ACE, the CBIT represents a significant broadening of the tax base. This broader base means a lower tax rate can be applied to generate the same level of revenue.

Unlike resident investors, non-resident investors in Australian companies receive only a limited benefit from imputation credits — an exemption from any dividend withholding tax. Dividend imputation is therefore less relevant to the financing and investment decisions of Australian companies for which non-residents are a major source of finance — in particular, the Australian subsidiaries of foreign companies or internationally traded Australian multinationals.

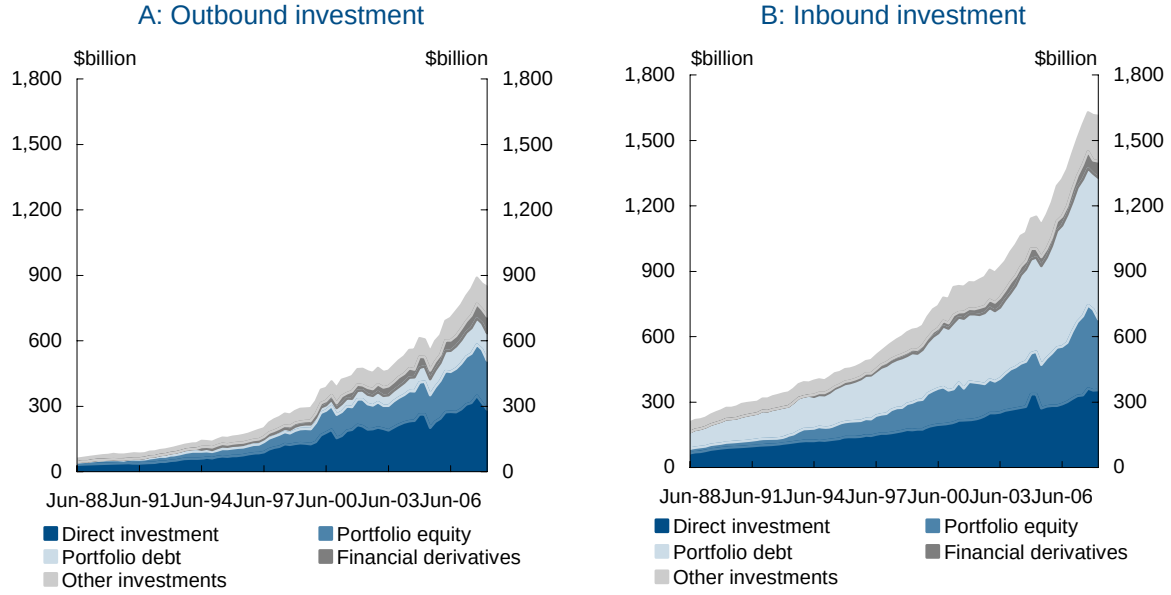
The different treatment of non-resident shareholders also creates incentives to pay franked dividends to resident shareholders and dividends that are not franked to non-resident shareholders (dividend streaming), or otherwise transfer imputation credits to residents

(franking credit trading). Guarding against these practices involves significant complexity in the tax law and compliance costs.

## 8.4 The treatment of cross-border investments

The past two decades have seen substantial increases in the levels of both inbound investment into Australia and outbound investment from Australia, which today represent 146 per cent and 80 per cent of GDP respectively. The compositions of inbound and outbound investment, however, are very different (Chart 8.9). The levels of inbound and outbound equity investment are roughly comparable, but Australians borrow significantly more from overseas than they lend. The tax treatment of the different components of inbound and outbound investment, as categorised in the national accounts, is summarised in Tables 2.13 and 2.14 in Section 2.

**Chart 8.9: Stock of inbound and outbound investment Australia**




Source: ABS (2008d).

Australian *residents* are, as a general rule, taxable on their world-wide income. Non-residents are only taxable on their Australian *source* income. Behind these basic principles of 'residence' and 'source' is a set of complex exceptions, multiple rates of tax and rules designed to enforce these taxing rights. Developments that have accompanied the growth in cross-border investments have, however, placed increased pressure on both residence-based and source-based taxation that may reduce the amount subject to tax (Boxes 8.5 and 8.7).

### Box 8.5: Residence taxation and its challenges

Residence is concerned with the allegiance a taxpayer has with a jurisdiction. In establishing residence for individuals, countries generally have regard to either a person's physical presence in the country or other facts and circumstances linking them to that country (covering family and other relationships, economic activity and assets). The residence of other entities (companies and trusts) is determined generally with regard to the place of incorporation or management or, in limited cases, the location of shareholders.

Taxing residents on their world-wide (capital) income has become a more significant issue with the increased mobility of capital. Doing so may have global efficiency benefits (see Box 8.6) and better align with community benchmarks regarding equity in assessing ability to pay (see Section 3). However, it can result in complexity (given the need to deal with flows and transactions overseas, foreign legal entities, and interactions with other countries' tax systems), practical enforcement difficulties (both from tax evasion and from avoidance through complex international arrangements) or taxpayers changing their country of residence. Residence taxation can also be problematic for resident companies to the extent they are owned by non-residents.

In practice, countries (including Australia) exclude much foreign source income from taxation or only tax it as it is received, rather than as it accrues. Most tax administrations, (including Australia's), have responded to the enforcement challenges by seeking enhanced international tax cooperation and information exchange — for example, through tax treaties and tax information exchange agreements. Other countries have also sought to meet the challenges by reducing domestic tax rates on capital income, either across the board (in 'dual income tax' systems), for particularly mobile capital income (such as interest), or for more mobile individuals (for example, expatriates).

## Taxing the outbound investments of resident companies and residents

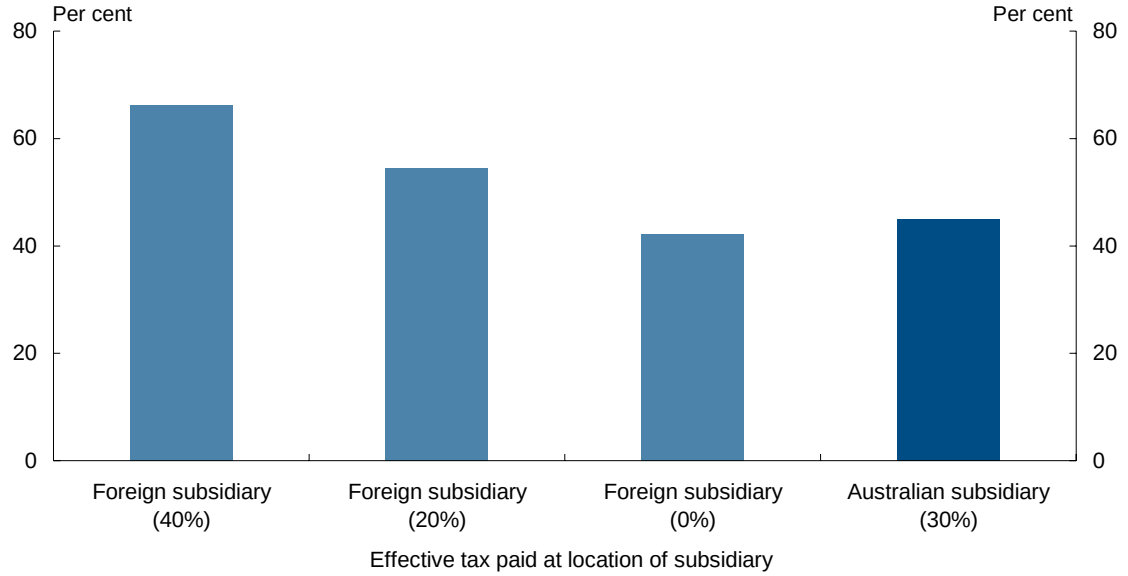
The tax treatment of outbound investments by Australian residents, including resident companies, varies depending on the nature of the outbound investment, the resident entity and the underlying investors (for example, shareholders). The different taxation treatments can be mapped against various efficiency benchmarks that guide policy on the taxation of cross-border (primarily offshore) investments (Box 8.6).

Most foreign income earned by Australian companies is not taxed at the Australian company level. This treatment is preserved on distribution by specific conduit foreign income rules. As a result, non-resident owners of Australian companies are generally not liable to tax on foreign income. This outcome is consistent with 'capital ownership neutrality' (Box 8.6) and enhances the ability of Australian multinational companies to obtain foreign equity.

For resident owners, it is at the shareholder level that Australian tax is typically collected. The exemption for most foreign income derived by resident companies means the company income tax does not generally operate as a withholding tax on offshore income. Rather, resident shareholders are effectively taxed on foreign income (net of foreign taxes) when they receive the income as a dividend or realise a capital gain by selling their shares. This is because dividend imputation only credits Australian company income tax.

The lack of a credit for foreign tax paid can offset incentives that could otherwise exist to invest offshore in low-tax jurisdictions and defer taxation at the resident shareholder level (Chart 8.10). This approach is consistent with achieving 'national neutrality'. Dividend imputation also provides an incentive to pay Australian company income tax in preference to foreign tax and, hence, to allocate profits where possible to an Australian company especially where franking credits are valued. As discussed above, neither of these biases may be operative where non-resident investors are the marginal source of funds for an Australian company.

**Chart 8.10: Nominal EMTRs for an Australian parent company investing in a foreign or domestic subsidiary[(a)]**




(a) For outbound investments, EMTRs are calculated for an individual resident shareholder on a 46.5 per cent personal tax rate, investing in an Australian company which invests in a subsidiary located either in Australia or a foreign destination. The subsidiary invests in an asset that provides a 6 per cent nominal rate of return (with inflation 2.5 per cent) and retains all profits. Profits are distributed after seven years.

Source: Australian Treasury estimates.

The decision to exempt foreign income requires rules around the deductibility of related interest expenses. Australia's approach is to allow deductions for interest expenses in respect of most foreign income (thereby avoiding practical difficulties of applying a 'tracing approach'). The outbound 'thin capitalisation' rules, which are broadly based on the level of debt an entity can use to fund assets used in its Australian operations, are then the primary means by which Australia seeks to limit excessive allocation of debt to Australian operations.

Another significant aspect of cross-border investment is the growing importance of collective investment vehicles. World-wide, these entities hold assets worth more than $29.7 trillion as at December 2007 (Investment Company Institute 2008). In Australia, the most significant form of collective investment vehicle is managed funds (largely trusts, including superannuation funds), which have assets under management in excess of $1.3 trillion at December 2007 (ABS 2008e) of which around 20 per cent is invested overseas.

Income from such offshore portfolio investment (and non-portfolio investment when not undertaken by a company) is generally subject to tax either when earned (including under the anti-tax-deferral rules) or on repatriation, with a credit provided for certain foreign taxes paid (such as dividend withholding taxes). This is broadly consistent with a 'capital export neutrality' benchmark (Box 8.6) as it limits the impact of source country taxation. However,

as is the case with direct offshore investment undertaken by Australian companies, generally no credit is given for foreign taxes paid by foreign entities.

### Box 8.6: Efficiency benchmarks for the taxation of cross-border investments

A number of efficiency benchmarks have been identified for the taxation of cross-border investments. The benchmarks focus on achieving a non-distorting (neutral) outcome for particular aspects of cross-border investments and savings, with a view to improving the efficiency of the national or global economy.

*Capital export neutrality* aims for neutrality in international investment decisions so that the allocation of investments between countries is unaffected by tax considerations. It could be achieved by countries taxing their residents on all their income from offshore investments as it accrues, with a full credit for foreign tax paid. Capital export neutrality has previously been an objective for some countries moving to more comprehensively tax outbound investment income.

*Capital ownership neutrality* aims for neutrality in the allocation of capital to companies so that the most efficient and productive companies attract capital. It can be achieved by countries not taxing the offshore investments of resident companies, with company income tax focussed on taxing domestic source income. Achieving capital ownership neutrality would be consistent with *capital import neutrality*, which aims for neutrality in international savings decisions.

*National neutrality* aims for neutrality in residents' investment decisions on the gross return to their country of residence, with pre-tax returns on domestic investments matching post-foreign tax returns on offshore investments. National neutrality maximises national, but not global, welfare. In effect, it is a variant of a capital export neutrality benchmark but with a bias to domestic investment achieved by treating foreign tax as an expense of doing business.

The relative merits of the benchmarks are a matter of debate among economists. From a world-wide efficiency viewpoint, ideally the capital export neutrality, capital ownership neutrality and capital import neutrality benchmarks would all be met. In practice, given the complexity of commerce, the interrelationships between countries' tax systems and sophisticated tax planning arrangements, achieving even one benchmark is challenging.

## Taxing the inbound investment of non-residents

Equity investments in Australia by non-residents are primarily subject to Australian tax through company income tax. For debt, nil or low withholding tax rates apply to interest income. Other forms of inbound investment may be taxed either on assessment or by means of a withholding tax. Withholding tax rates are set out in domestic law, but are usually reduced on a reciprocal basis under tax treaties.

Tax treaties play an important role in allocating taxing rights between countries, thus giving investors greater certainty as to how their investment will be taxed. The generally adopted approach in Australia's tax treaties is to apply the OECD model tax treaty, which generally restricts source country taxation in favour of residence taxation. Recent treaties have seen Australia's position move closer to the OECD model in some respects. However, Australia's

taxing rights over 'real property' are typically broader than under the OECD model, particularly in relation to our natural resources.

### Box 8.7: Source taxation and its challenges

Source is the primary basis upon which countries tax the residents of other countries on income that has a nexus with their jurisdiction. The source of income can be unclear or indeterminate, and countries determine what income is sourced in their jurisdiction differently: some legislate comprehensive source rules while others (including Australia) generally rely on judicial interpretation. Tax treaties may also set out source rules that modify the operation of domestic law. Typically, capital gains are not assessed to non-residents on the basis of source of the gain, but on a narrower connection of the asset with the country. In Australia's case, that connection is satisfied where the asset is land, or a non-portfolio interest in a land-rich entity.

As with residence-based taxation, enforcement of source-based taxation has faced a number of challenges that have become more acute as: cross-border capital flows have increased; cross-border trade between members of the same corporate group has become more important; intangibles have increased as a share of total assets; e-commerce has developed; financial instruments (and exploitation of debt/equity dividing lines) have become sophisticated; and as tax planning techniques have evolved. More recently, there has been an increased use of hybrid entities and securities that can duplicate tax benefits across jurisdictions, which can give rise to characterisation difficulties and avoid taxation in both residence and source countries.

Countries counter practices that seek to minimise source taxation primarily through 'thin capitalisation' rules to limit the excessive allocation of debt to source country operations, and 'transfer pricing' rules to prevent profit-shifting to low tax countries through sales between related parties.

Australian tax is, however, only part of the story. Effective rates of tax on an investment in Australia (or alternative investment location) also depend on the tax system of the foreign country from which the investment originates. This includes whether it provides a credit for Australian tax paid or, alternatively, exempts the income from tax. Additionally, effective tax rates are also affected by the country or countries through which the investment is channelled, and the operation of any relevant tax treaties.

The relationship between capital investment flows and taxation is complex. A number of studies have established a link between taxation, foreign direct investment (Box 8.8) and related decisions. However, the extent to which these findings can be applied to Australia may also depend on Australia's geographic position and the presence of location-specific rents in respect of its mineral resources.

### Box 8.8: Taxation and foreign direct investment (FDI)

Optimal tax literature suggests that, in the absence of location-specific rents, a small open economy should not impose source-based capital taxes when capital is perfectly mobile between countries. Doing so would reduce investment and, with lower levels of investment, labour productivity, wages and returns to other immobile factors (such as land) would fall.

In practice, capital is not perfectly mobile, location-specific rents are present (for example, in respect of natural resources and the existing capital stock) and foreign countries may credit domestic tax paid. However, as capital has become more mobile, countries have begun to compete more to attract capital investment. This is particularly so for FDI given its potential spillover benefits — for example, increased productivity in the domestic economy from replicating the efficient processes of multinationals.

While the motivation for competing to attract investment should be increasing real net national disposable income (see Box 3.2), empirical studies have focused on the responsiveness of various measures of foreign investment to taxes. The OECD commissioned a survey that found a direct relationship between levels of tax and FDI, although there is a wide variation in the estimates. Due to methodological and data limitations, the estimates set out in Table 8.1 should be used with caution.

**Table 8.1: Summary of empirical studies on the sensitivity of FDI to tax**

| | Semi-elasticity | | Ordinary elasticity | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| Time series | -2.61 | -2.75 | -1.23 | -1.28 |
| Cross section | -7.16 | -4.24 | -0.85 | -0.78 |
| Panel | -2.73 | -2.41 | -0.78 | -0.66 |
| Discrete choice | -3.43 | -2.80 | -0.30 | -0.19 |
| All | -3.72 | -2.91 | -0.75 | -0.57 |

Source: OECD 2007e.

On average, the literature review found that a one percentage point increase in the rate of tax would result in a decrease in FDI of 3.72 per cent. In addition, the responsiveness of FDI to tax has increased over time, with investments in physical capital more responsive than other investments (such as acquisitions). The originating country's taxation regime (specifically, whether it has a credit or exemption regime) does not appear to affect the FDI response, possibly because tax planning by multinationals negates its effect.

As noted in Section 5, non-tax factors are also important drivers of FDI. These non-tax factors include macroeconomic stability, a supportive legal and regulatory framework, skilled labour and labour market flexibility, and well-developed infrastructure. The new economic geography literature that considers location-dependent benefits (such as from business concentration economies and economies of scale) suggests these may alter the changes in capital flows that might otherwise occur following changes in taxation.

## 8.5 The treatment of natural resource assets

The Australian natural resources sector is made up of two components — the mining and petroleum sector and other natural resources such as forestry and fisheries.

These natural resources are owned by all Australians, with legal ownership vested through governments' rights over these assets. Governments often assign exploration, utilisation and production rights to the private sector in return for certain payments. These payments include company income tax, royalties, excises and licenses. Such payments can enable governments to collect a return from the extraction or use of the community's natural resources but can also impact on the level of investment, both by Australian and overseas investors.

There are challenges in valuing many of Australia's natural resources. A market price may not always exist and, where it does, it may not reflect the full value that the community ascribes to the asset — for example, the value of an old growth forest. There are a range of factors that can affect the price of these resources, including government ownership and regulation. In many cases, the prices (implicit or explicit) charged by government for access to the community's natural resources are non-transparent, or at least very difficult to compute.

### The Australian mining and petroleum resources sector

Australia has significant non-renewable resource endowments relative to other countries. In 2000, the OECD calculated that Australia's natural resources (excluding agriculture), as a percentage of total capital, ranked fourth in the OECD behind Norway, Canada and New Zealand (Boulhol et al 2008). Table 8.2 shows Australia's share and ranking in selected world proven mineral resources as at 2004.

**Table 8.2: Australia's share and ranking in selected world mineral resources[(a)]**

| | Share (%) | Ranking | | Share (%) | Ranking |
|---|---|---|---|---|---|
| **Metalic Minerals** | | | **Oil and gas** | | |
| Gold | 12 | 2 | Oil | 0.3 | 28 |
| Iron ore | 9 | 5 | Natural gas | 1.4 | 14 |
| Copper | 9 | 2 | **Coal** | | |
| Lead | 26 | 1 | Black coal | 5 | 6 |
| Zinc | 18 | 1 | Brown coal | 24 | 1 |
| Nickel | 37 | 1 | **Non metallic minerals (diamonds)** | | |
| Silver | 15 | 2 | Industrial diamonds | 10 | 4 |
| Uranium | 40 | 1 | Gem/near gem quality | - | High |
| Bauxite | - | 2 | **Mineral sands** | | |
| Tantalum | 95 | 1 | Ilmenite | 20 | 2 |
| Manganese | 11 | 4 | Rutile | 39 | 1 |
| Tin | - | 10 | Zircon | 41 | 1 |

(a) Based on economic demonstrated resources, as at December 2004.
Source: Hogan (2007).

The mining and petroleum sector accounts for 7.1 per cent of GDP, and generates 14.2 per cent of economy-wide profits (gross operating surplus and gross mixed income). Exports of mineral resources from Australia were valued at $91 billion in 2005-06, accounting

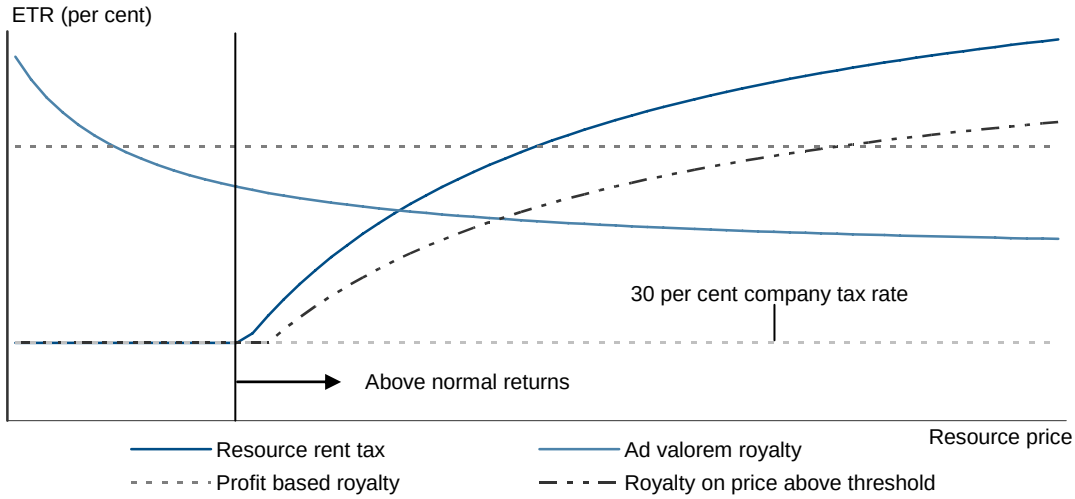
for 46 per cent of total exports of goods and services. Reflecting the rapid increase in commodity prices, mining exports are forecast to grow to $176 billion in 2008-09.

## Mining and petroleum revenue collection methods

Australia has a complex array of tax and non-tax revenue raising instruments that it applies to the mining industry. Different resource taxes, royalties and payment arrangements are imposed across different resources, and on the same type of resource depending on its location. In relation to petroleum, these include PRRT, crude oil excise, a series of different royalties applied by the Australian government (the offshore petroleum royalty, the internal waters royalty and the resource rent royalty) and different oil and gas royalties applied by the States. Further, mineral resources are subject to different royalty arrangements across the States including ad valorem royalties, specific royalties, profit royalties or a combination of these types of royalties. The details of these arrangements are provided in Section 2.

Each of the revenue collection methods (and those used in other countries), can result in different effective tax or revenue outcomes, depending on the resource's price and the rate of return to the private sector. Chart 8.11 shows how the combined rate of tax on the profits of a resource project changes as resource prices, and consequently profits, change.

**Chart 8.11: Illustrative combined rates of tax on profits of different resource revenue arrangements**




Note: The combined tax rate for each type of tax includes company income tax and the respective royalty as a proportion of pre-tax profits.
Source: Australian Treasury estimates.

Company income tax is a significant part of the effective tax rates shown in Chart 8.11. It applies to both the normal return and any additional profit. Nearly 50 per cent of all revenues from the mining sector come from company tax. As a tax on non-residents, company income tax is particularly important in the mining sector, with around 50 per cent of mining assets owned by non-residents.

The combined tax rate on profits arising from an ad valorem royalty decreases with a higher resource price, while the combined tax rate of a profit based royalty remains constant. These royalties can discourage high risk investments (for example, in the case of an ad valorem royalty, revenue can be collected even when net losses are being made).

A resource rent tax does not apply until a firm has earned above normal profits. Once this occurs, the combined tax rate on the total return increases as the resource price increases. The Australian Government's PRRT is Australia's only form of resource rent tax. A royalty on a price above a certain threshold has some similarity with a resource rent tax but the similarity depends on the price threshold.

### International comparisons

Countries in the OECD that have comparable natural resources to Australia include Norway and Canada and, while not in the OECD, Russia has similar natural resources to Australia. Table 8.3 provides a brief generalised description of natural resources taxes in Norway, Canada and Russia.

**Table 8.3: International natural resource revenue methods**

| | Norway | Canada | Russia |
|---|---|---|---|
| Natural resource taxation | 50 per cent 'special tax' in addition to company tax.<br>An additional deduction equivalent to 7.5 per cent of investment costs available in the first four years from when investments made. | Taxes and/or royalties applied by individual provinces.<br>Levied on profits from mining and processing operations with a deduction allowable for processing to reflect the normal return on processing assets.<br>8.55 to 16 per cent. | Mineral resources extraction tax and export duties based on physical volumes and subject to adjustment according to the world energy prices.<br>Regarding oil, Mineral resources extraction tax applies but only where the price for the oil reaches a certain threshold. The same applies for export duties on oil. |

Source: OECD (2007f), Natural Resources Canada (2008), OECD (2008b).

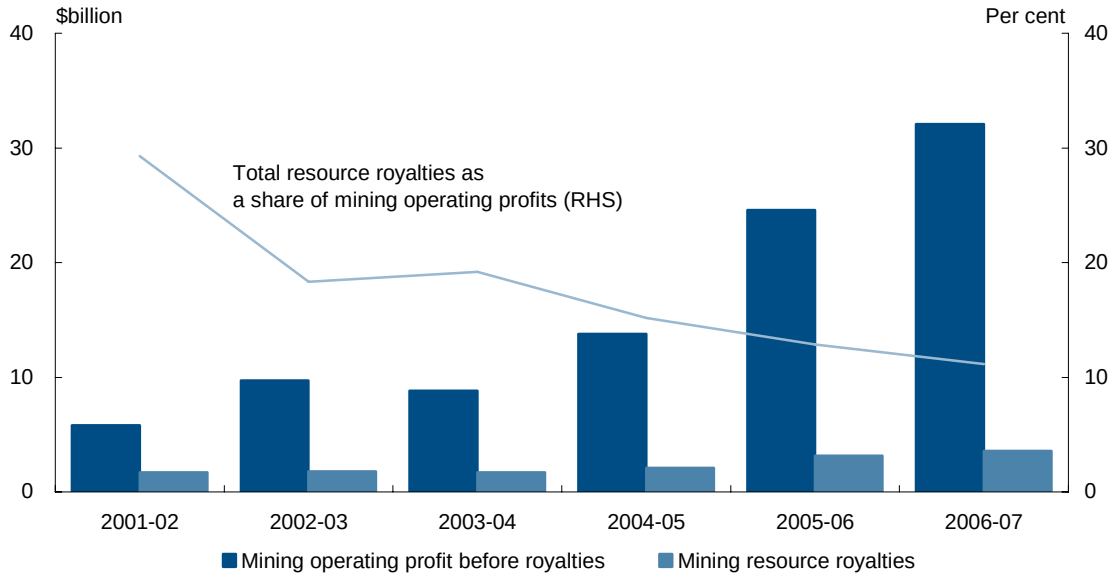
## Recent developments in the non-renewable resource sector

The recent increases in resource prices have led to an increase in operating profits of the mining sector.

Over the period since 2001-02, there has been a significant increase in operating profits in the mining sector in response to increased resource prices (the impact of price movements on resource profits is illustrated in Box 8.9). Operating profits (before tax) in the total mining sector (excluding petroleum) have increased from $5.8 billion in 2001-02 to $32.1 billion in 2006-07 (Chart 8.12).

The revenue from resource charges has also increased significantly over this period, though not as fast as operating profits.

## Chart 8.12: Mining royalty revenues and operating profits

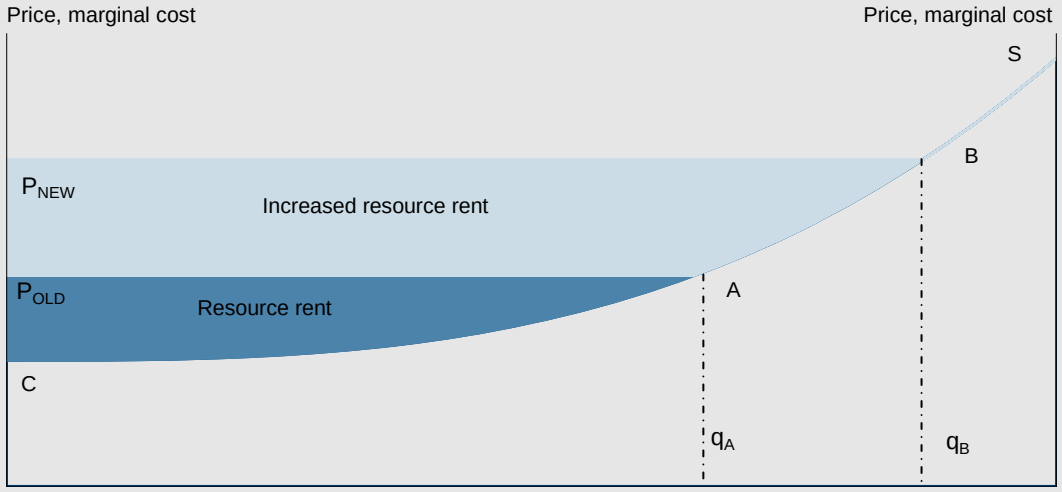



Source: ABS (2007e); ABS (2008f).

### Box 8.9: Higher commodity prices increase resource profits

Assume initially the world price for the representative commodity is at $p_{OLD}$, but then increases to $p_{NEW}$. The long run industry supply curve, $S$, represents the long run marginal cost of exploration, development and production (including abandonment), and includes provision for the normal required rates of return to capital and an appropriate risk premium. Given this industry supply curve, and the starting world price, firms initially maximised their returns by producing at point $A$, with output given by $q_A$. Even at this point there is resource rent, being the profit in excess of firms' costs and normal returns, as given by the area $Cp_{OLD}A$.

#### Chart 8.13: Increased resource rents




With an increase in world price to $p_{NEW}$, previously marginal or uneconomic projects become viable, and production increases to $q_B$. In addition, rents increase in respect of the initial output level $q_A$. The extent to which these increased rents are shared by the community depends on the particular tax or royalty arrangements that apply (see Chart 8.11).

Source: Adapted from Hogan (2007).

## Forestry

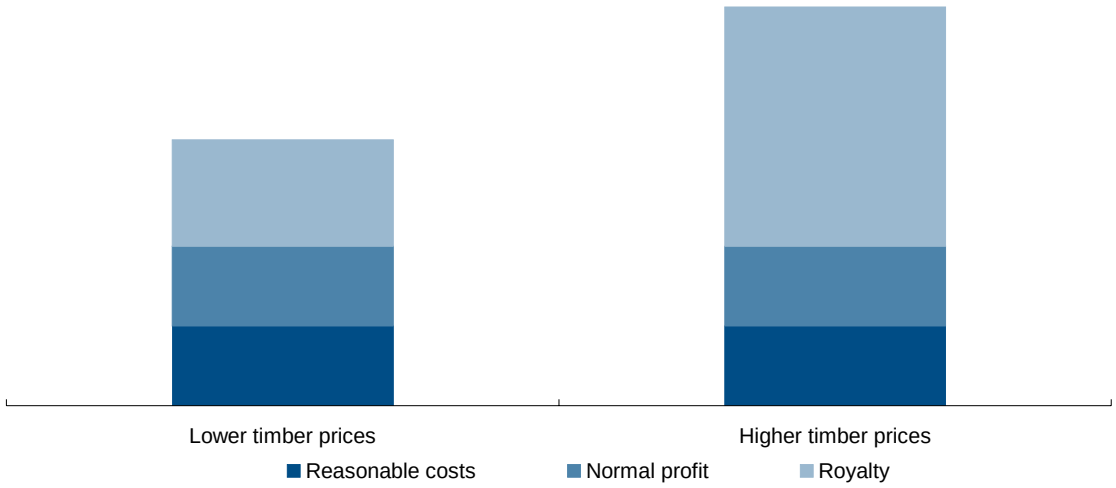
Of the approximately 10 million hectares of native forest that is available for wood production, about 7 million hectares is owned by state forest agencies (Productivity Commission, 2007). There are several possible methods for ensuring an appropriate recognition of the value of these native forests. Methods include options for charging for reductions in environmental amenity, regulatory controls on the extent or nature of forestry operations, and collecting royalties from the sale of trees on public land (state forests). This section focuses on royalties.

The conventional technique used to calculate a royalty on the stumpage, or log price from trees, is through a residual value pricing method. This method estimates a derived demand curve for native timber for a timber mill by subtracting 'reasonable' costs incurred by the sawmill from the prevailing market price, including an allowance for 'normal' profit.

As illustrated in Chart 8.14, this means that royalty collections increase as timber prices increase. However, the size of the royalty is also highly dependent on appropriate estimates

of 'reasonable' costs and 'normal' profit. Estimating these latter two components is particularly problematic, in part because the market for timber may not be fully competitive. For example, the high cost of transporting timber may mean that in some regions there is only one log supplier, the state forest agency, and one (or very few) buyers, such as a large sawmill. State ownership of forestry resources, may also mean that usual market incentives to minimise costs and seek an appropriate market return for the timber are diminished.

**Chart 8.14: Components of the market value of forestry under the residual value pricing method**




One basis for assessing the possibility of an underpricing of native forests is to examine the rates of return on assets for the various quasi-government bodies (Forests NSW, VicForests, the Forest Products Commission of Western Australia, ForestrySA, Forestry Tasmania and Forestry Plantations Queensland). These entities reported a positive return on assets in recent years with a return on assets across the forestry sector of 2.3 per cent in 2005-06 (Productivity Commission, 2007).

From the results in Table 8.4 it appears that most of these bodies are not achieving a risk-free benchmark return on assets (the return on 10 year Australian Government bonds averaged around 5.5 per cent in the period 2005-06 to 2006-07). Making an allowance for items such as community service obligations has little impact on these results. This may reflect under-pricing of the assets they are selling or the existence of high cost structures.

**Table 8.4: Return on assets, per cent**

| Entity | 2005-06 | 2006-07 |
|---|---|---|
| Forestry Tasmania | 2.27 | 2.42 |
| Forests NSW | 1.20 | 1.07 |
| Forestry Products Commission (WA) | 4.72 | 4.70 |
| ForestrySA | 4.30 | 3.90 |

The figures for Forestry Plantations Queensland are not available and VicForests did not publish the return on assets.
Source: Forestry Tasmania, ForestrySA, Forestry Products Commission (WA) and Forests NSW Annual Report 2006-07.

The possibility of under pricing is consistent with a series of empirical studies in the last 20 years that have indicated that royalties for sawlogs in state forests have been anywhere between 20 and 70 per cent below market value (Commonwealth Competitive Neutrality Complaints Office 2001). An alternative to residual value pricing is the use of auction or tender arrangements. When VicForests trialled an auction system in 2006, it resulted in significant increases in prices (150 to 160 per cent over the existing price).