Capital gains tax: historical trends and forecasting frameworks

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Capital gains tax, introduced in 1985, is a relatively small but important source of government revenue. This article explores historical trends in capital gains tax, focussing on the behaviours of different entities, and describes Treasury's modelling framework for forecasting the tax.

This article is split into two parts. After some introductory observations on relevant concepts and the nature of capital gains tax (CGT), the first part of the article will describe historical trends in CGT, providing a context for the second part, which will describe Treasury's methodology for forecasting CGT.

Introduction to understanding capital gains tax

CGT is more complicated than most other items on the income tax return and requires an understanding of several related concepts. First, capital gains income may be *realised* or *unrealised*, referring to whether the asset has been actually sold or not. Tax is paid only on realised gains. Second, capital gains income may be a positive capital *gain* or a negative capital *loss*. Tax is only paid on capital *gains*. Capital losses may be used to reduce capital gains, but not below zero. Third, these capital losses may be from the *current year* or a *prior year*. Both of these losses may be subtracted from current year gains for the purpose of determining taxable capital gains income. Importantly, a *current year* capital gain or loss refers to gains or losses realised in that particular year, even if the gains or losses had accrued over many years.

From a tax perspective, capital gains income is unusual for a number of reasons — five are discussed here.

First, 'capital gains tax' tends to be discussed as a separate tax. In fact, income from capital gains is simply a component of general taxable income, and 'capital gains tax' does not exist any more than, for example, 'interest tax' or 'depreciation tax', two other items reported on income tax returns. In this sense, 'capital gains tax' is a misnomer. In order to satisfy public interest in the amount of tax generated from capital gains, CGT is estimated[2] by applying each taxpayer's tax rate to their amount of taxable capital gains income.[3]

Second, capital losses are treated separately from other taxable income losses. A realised capital loss cannot be deducted from other income to reduce tax. Instead, the capital loss must either be deducted from another current year capital gain or carried forward to a later year to be deducted from a future capital gain. Understanding the generation and use of these losses is important for understanding CGT.

Third, capital gains income is recorded for tax purposes only on the sale, or 'realisation' of the asset. From an economic perspective, this treatment is the same as if an employee had full discretion as to when to receive his or her wages — be it after one week, one month, one year or ten years — and only pay tax on the income at that point. Reporting gains only on realisation effectively enables the taxpayer to defer the payment of tax such that the real tax liability is lower than at the time when the gains were accrued. This tax advantage is only possible, however, if the taxpayer does not need to realise the income, so the effect is usually expressed in terms of savings,[4] where the tax deferral advantage benefits financial investment in capital growth assets ahead of assets which provide an income flow, such as bonds.

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2   CGT amounts presented in this article and elsewhere, including in budget papers, are estimates from available data which are subject to revision as tax returns are processed. The amounts tend to stabilise around 18 months after the end of the relevant income year.

3   While this is straight-forward in the case of income taxes with flat rates (companies and superannuation funds), it is more complex in this case of individuals' income tax with a progressive rate. In this case, the taxpayer's average tax rate is applied to the capital gains income to estimate the CGT (see below for more detail).

4   See *Australia's Future Tax System Part Two: Detailed Analysis* (2009) page 62 (taxreview.treasury.gov.au).

The tax deferral effect is asymmetric: the taxpayer has an incentive to realise a loss quickly in order to take advantage of its full value.

The downside of deferring the realisation of the capital gain is that a large gain realised in a single year might be subject to a higher marginal tax rate than if the gain were realised as it accrued, assuming that the taxpayer's other income is not such that the top marginal rate applied regardless of the capital gain.

Fourth, unlike other income, capital gains income has been adjusted for the effects of inflation. Until 21 September 1999, capital gains income was explicitly deflated by the consumer price index (CPI). Since then, the CGT discount has performed a broadly equivalent role (see below).[5] These adjustments have made capital gains income more attractive than other forms of income.

Fifth, capital gains income is unusually volatile compared to other tax bases, given its dependence on a number of volatile aspects, such as changes to asset prices and the rate of realisation of the accrued gains. Net capital gains income is the second most important driver of volatility in individuals' taxable income, behind wages, which is around forty times larger in value.

CGT has been a major contributor to revenue forecasting errors over the past 10 years,[6] partly due to its volatility. Since 2000-01, CGT has been around 3 per cent of total tax receipts, but errors on the CGT forecasts have been responsible for over 20 per cent of the forecasting error for tax receipts in the budget year.

Part 1: Historical trends in capital gains tax[7]

Capital gains income became subject to tax on 19 September 1985, with only realised gains from assets acquired after the start date[8] being assessable. Not all assets have been subject to CGT, most notably the main place of residence.

Because gains on assets purchased only after the start date are subject to tax,[9] taxable capital gains income increased slowly over many years as assets gradually entered the CGT system (Chart 1). In order to generate taxable capital gains, an asset purchased before CGT needed to be sold twice — the first sale, after 1985, did not result in any assessable gains but only brought the asset into the CGT system. The second sale, which realised the post-1985 gains, resulted in taxable income.

Taxable capital gains income has risen over time, notwithstanding several violent movements, as pre-1985 assets have entered the system. The remaining value of unrealised pre-1985 assets is unknown, although it can reasonably be expected to be small and the CGT system is now likely to be approaching maturity.

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5   From 8 May 2012 the CGT discount is generally not available for capital gains income received by non-residents. Since 12 December 2006 such gains are generally subject to tax only where they relate to direct or indirect interests in Australian real property and the business assets of the Australian 'branch'.

6   2014-15 Budget Paper 1, page 5-22.

7   Analysis of CGT relies on data reported on tax returns and associated documentation. Since 2000-01, all of the relevant data items are reported on the CGT schedule, with some also reported on the main income tax returns. Before 2000-01, however, the detailed items were largely unreported on the main income tax returns. In some years only the final amount of 'net capital gains' was reported. Analysis of CGT before 2000-01 therefore relies on some assumptions and reconstructions of data, making results from this period less reliable.

8   This article will refer to '1985' as the beginning of CGT as shorthand for the full date.

9   For superannuation funds, all of their assets were deemed to have been sold and re-purchased at the introduction of CGT, instantly bringing all of the assets into the system. At this time, however, superannuation fund income tax was relatively small.

Chart 1: Net capital gains income

Per cent of GDP   Per cent of GDP
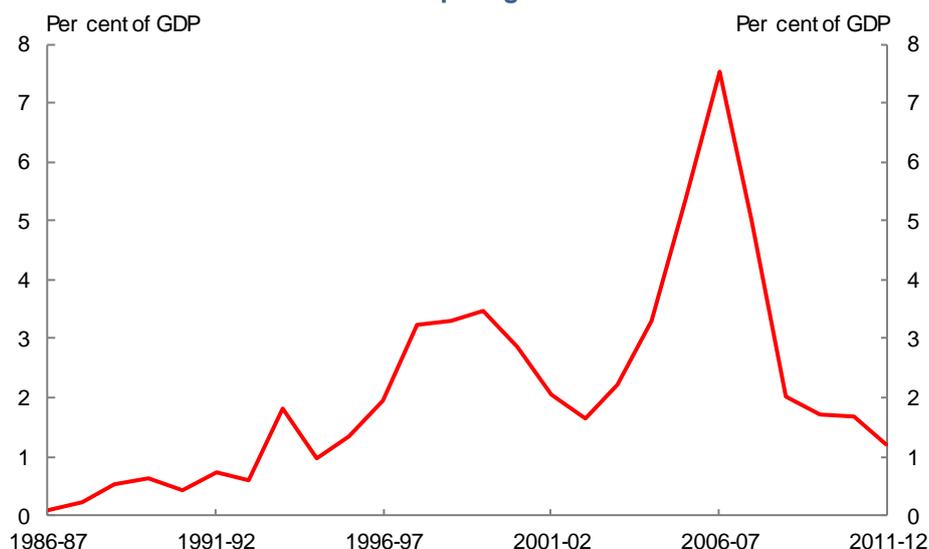
Over the past decade, the largest movements in net capital gains income have been related to the share market, particularly the decline in the early 2000s associated with the dot-com crash, followed by the rapid increase in the ASX 200 to the record index of 6800 in October 2007 and the subsequent decline during the global financial crisis (GFC). Net capital gains income is still to recover from this last decline.

In the future, after the effects of the GFC have fully resolved, capital gains income is projected to average around 3½ per cent of GDP, with CGT averaging around 1 per cent of GDP.

In general, individuals, companies and superannuation funds report similar amounts of net capital gains on their tax returns, and the evolution of the three amounts over the last 10 years is also broadly similar (Chart 2).

Chart 2: Net capital gains income reported on tax returns

$billion $billion
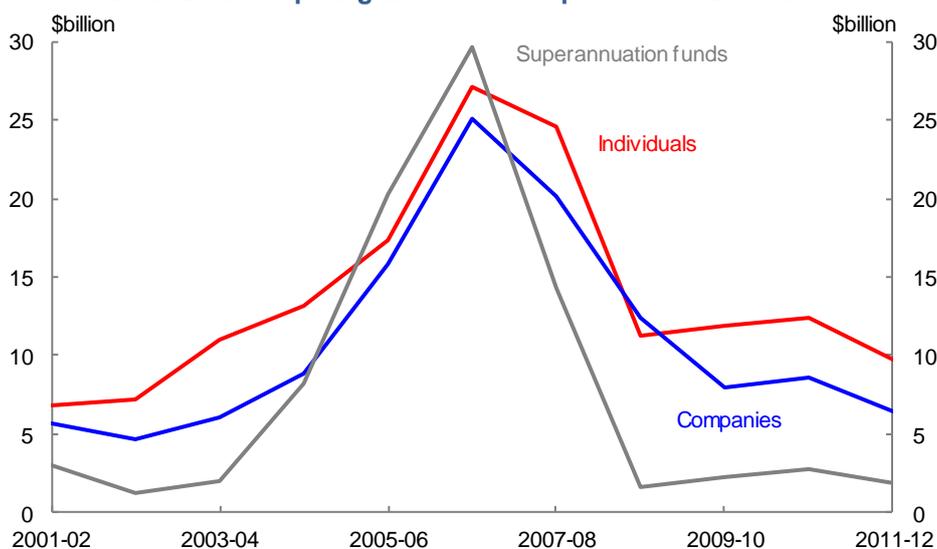
Although capital gains income is similar for each entity, it is very different as a share of the taxable income of each entity. Over the past 10 years, taxable net capital gains income has been 2.7 per cent of total taxable income for individuals, compared to 5.4 per cent for companies and 11.1 per cent for superannuation funds.

Income from net capital gains is generally more volatile for superannuation funds than for companies or individuals, which are the least volatile. This is due to the different asset mix for each type of entity. Individuals have a relatively large share of their capital gains in real estate, which is less volatile, while companies and superannuation funds tend to have a relatively large share of their capital gains in shares, which is more volatile (Chart 3).

Chart 3: Current year capital gains income proportions by asset type
(average 2002-03 to 2011-12)
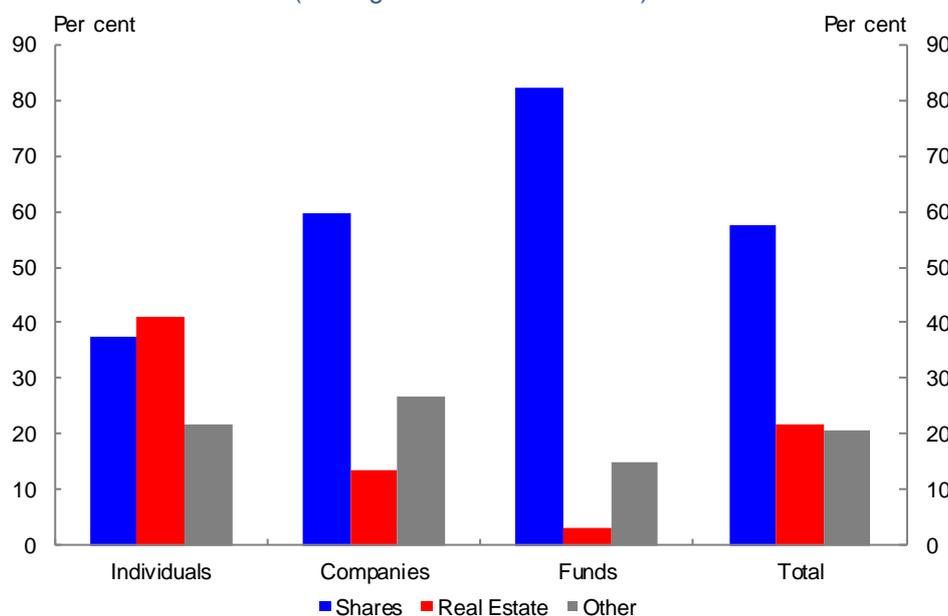
The 'other' category is difficult to interpret because of how trust distributions of capital gains are reported. The 'other' category is likely to be a mix of a wide range of different capital gains, from assets such as collectables, financial instruments (for example bonds sold before maturity), fixed assets and goodwill, but some capital gains distributed from trusts — which will be a mix of shares and real estate as well as the other asset types — will also be included within this category.

Capital gains tax policy before and after 2000-01

CGT changed significantly from the 2000-01 income year. Previously, income from capital gains had been adjusted for changes to the CPI, the intention being to tax only the real gain in the value of assets. The adjustment applied to capital gains realised by all entities. From the 2000-01 income year, the indexation method did not apply to gains realised on assets purchased after 11.45 am (ACT time) on 21 September 1999. Instead, the 'discount method' could apply if the asset was held for at least twelve months. The discount method allows individuals and trusts to report only half of the net capital gain for tax purposes and superannuation funds to report two-thirds of the net capital gain.

The indexation method and the 50 per cent discount method result in broadly similar amounts for net capital gains, assuming CPI increases yearly by 2½ per cent (the middle of the RBA target band) and asset prices increase yearly by 5¼ per cent.[10] For superannuation funds, eligible for a one third discount on their gains, the discount method is not as generous as the indexation method.

Generally, the discount method does not apply to companies, whereas before 2000-01 all entities could adjust their capital gains income for inflation. This means that, following the 2000-01 changes to

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10 5¼ per cent is the projected growth rate for nominal GDP in the *Intergenerational Report 2010.*

CGT, there is a reduced incentive for domestic companies to realise capital gains. Chart 4 shows the percentages of total capital gains from shares reported by individuals, companies and superannuation funds. The percentage of gains reported by companies had fallen from around 35 per cent in the early 2000s to around 20 per cent a decade later. While the amounts are volatile, this decline is consistent with the asymmetric incentives introduced in 2000-01.

Combined with the advantages from the income being taxable only on realisation, previously discussed, the total effective concessions on capital gains income are significant. Both the indexation and discount methods have provided a strong incentive towards financial investment in products which provide significant capital growth, such as shares or property, rather than in products which primarily provide income streams, such as bonds. The concessionary treatment of capital gains income is arguably the primary motivation for financial investment in negatively geared real estate, which aims to shift all of the investment return into the capital gain on the eventual sale of the asset.[11]

Chart 4: Realised capital gains from shares
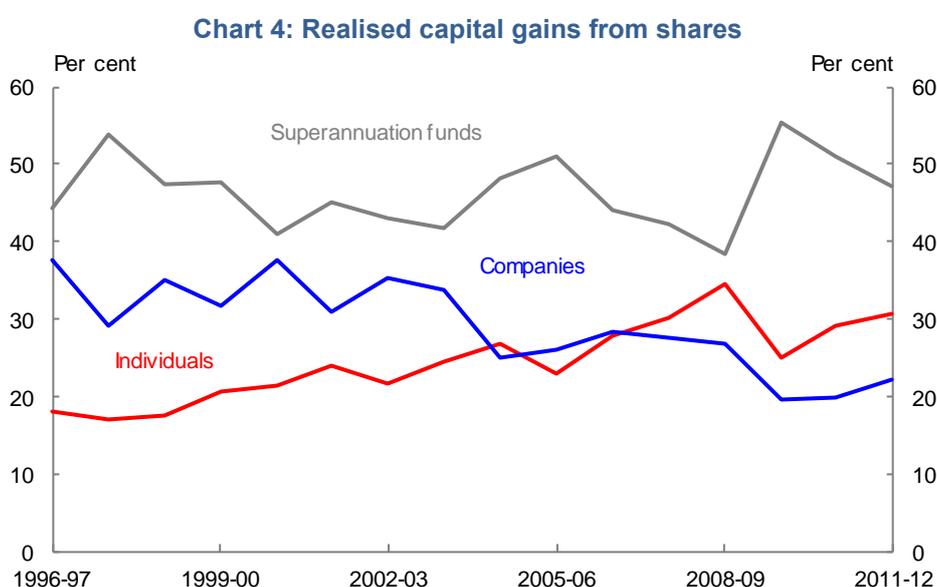
Realisation rates

Realisation rates are one of the three key determinants for the generation of most taxable net capital gains income, the others being asset prices and the utilisation of losses.

The realisation rate is defined as the percentage of the stock of estimated available gains or losses (both new gains from the current year which will be subject to tax and unrealised gains from previous years) which are realised in the current year. Information on realised gains is available for shares and real estate, from CGT schedule data since 2000-01. Before that, back to the mid-1990s, *Taxation Statistics* provides asset data on gains which can be transformed into the required amounts via some broad assumptions. Realisation rates can then be calculated for gains and losses through history.

Estimated historical realisation rates for individuals' shares and real estate gains and losses are shown in Charts 5a and 5b. These realisation rates are estimated from a combination of actual and modelled data, and are thus experimental and subject to both: (a) significant margin of error, particularly in the

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11 Assuming historical trends in key variables such as house prices, interest rates and rental income and depreciation, the largest tax benefit from investment in negatively geared property is the CGT discount, which is around twice as large as either the CGT tax deferral advantage or the ability to offsetting operating losses against other forms of income.

years before the introduction of the CGT schedule in 2000-01; and (b) future revisions, with further analysis and as more data becomes available.

Chart 5: Estimated realisation rates for capital gains paid to individuals

a. Shares
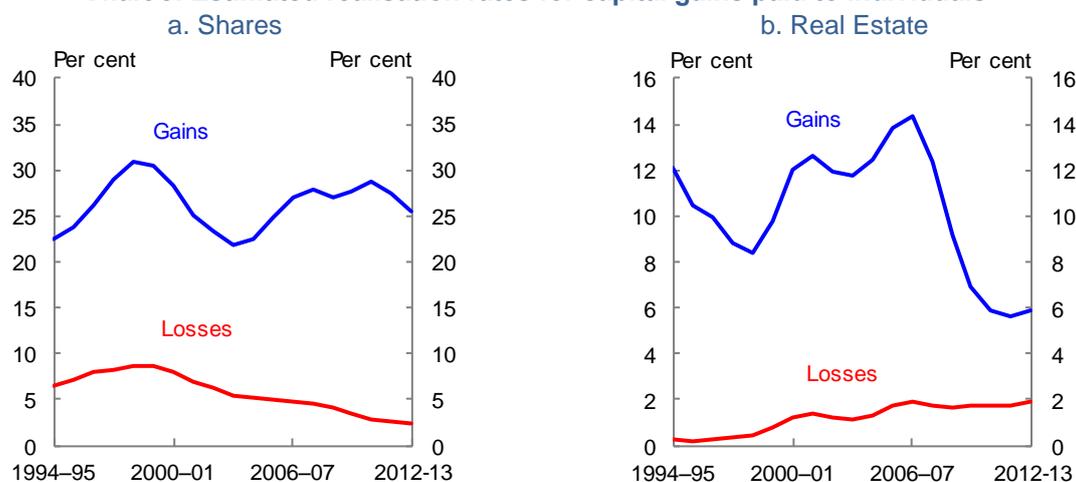
b. Real Estate

The average estimated realisation rate for gains from shares is around 25 per cent, meaning that individuals hold their shares for around four years on average. In contrast, the average realisation rate for real estate is around 10 per cent, equivalent to holding the asset for around 10 years on average.

Individuals appear to be highly reluctant to realise losses, however, for both shares and real estate, where the realisation rates are around 4 and 2 per cent respectively. This is in marked contrast to companies and superannuation funds (see below). Individuals tend to wait until an asset is in a gain situation before selling.

Interestingly, realisation rates for gains from shares fell during the dot-com crash, but did not change markedly through the GFC. By contrast, real estate realisation rates increased during the dot-com crash and fell during the GFC. This may reflect the differing size and nature of the events. For the GFC, the decreased realisation rates may reflect a desire to hold on to 'safer' assets, such as real estate, while the share market plummeted. In addition, the share market falls followed very large rises and many investors would have still sold their shares making substantial gains. The earlier behaviour during the early 2000s may reflect both smaller increases in the share market in the lead-up to the falls and less dramatic falls.

Estimated realisation rates for capital gains earned from shares by companies and superannuation funds are shown in Chart 6, which show a different behaviour to individuals, particularly with regard to capital losses. As will be discussed later, companies realised an enormous amount of capital losses during the first decade of CGT. This is reflected in the high estimated realisation rates for share losses, which continued through to the early 2000s. Realisation rates for gains gradually increased over the first twenty years of CGT, only becoming higher than for losses in the share market boom before the GFC. In the last few years, in the wake of the GFC, estimated realisation rates have been comparatively low for both gains and losses.

Chart 6: Estimated realisation rates for capital gains from shares

a. Companies	b. Superannuation funds
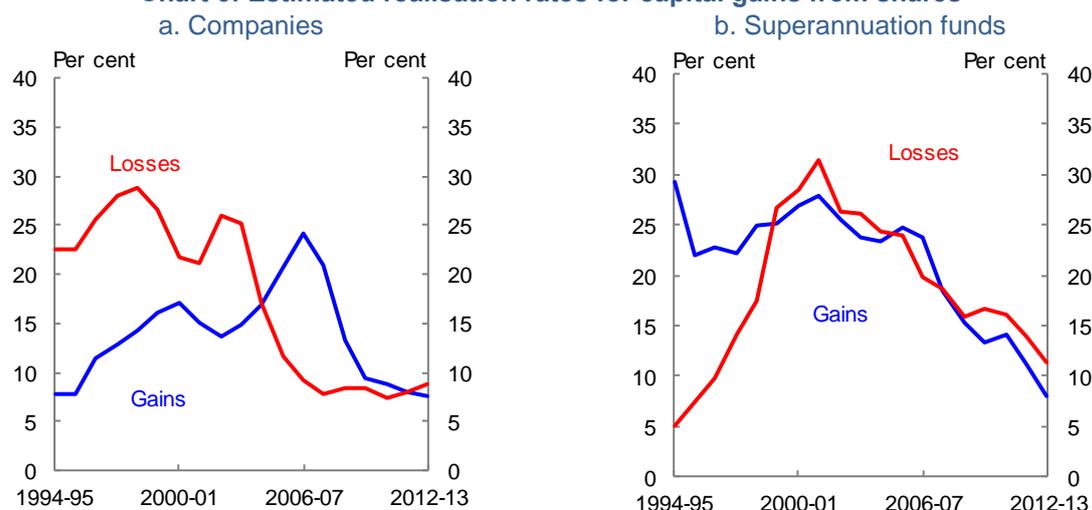
In contrast, superannuation funds realised few losses in the first decade of CGT, but realised substantial gains over this period. Estimated realisation rates for capital losses accelerated markedly in the late 1990s, and have largely moved with realisation rates for gains in recent years. Estimated realisation rates for capital gains have been relatively constant at around 25 per cent — similar to the estimated realisation rate for individuals — until 2006-07, before falling steadily to around 10 per cent, for both gains and losses, by 2012-13. In 2012-13, superannuation funds realised very few gains, despite earning a record $189 billion of investment income in 2012-13, including over $90 billion of capital gains from APRA regulated funds alone.[12]

The very low capital gains income from superannuation funds in recent years is therefore not primarily driven by the utilisation of capital losses realised during the GFC (as has been previously thought), although this is still an important factor, but by reluctance by funds to realise gains.

Two possible reasons for the marked decline in realisation rates since 2006-07 are considered here. First, the large and continually increasing amount of superannuation contributions flowing to funds mean that funds do not need to realise capital gains in order to either meet their benefit payment commitments or rebalance their portfolios following asset price movements. It should be noted, however, that contributions have not increased dramatically over the last seven years, except for a one-off spike in contributions following the announcement of changes to superannuation in May 2006. Second, the Cooper review into the Superannuation System,[13] released in 2010, recommended that superannuation funds report their investment returns on a post-tax basis, which may have led to lower realisation of gains.

Capital losses

A net capital loss in one year cannot be deducted against other taxable income. Instead, the loss can be deducted against capital gains made in later years. This requires taxpayers to maintain a running stock of realised losses carried forward which are available for use in a later year. The stock of carried forward losses tends to increase when asset prices fall and tends to decrease, albeit slowly, as asset prices rise.

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12 *Superannuation Fund-level Profiles and Financial Performance* (8 January 2014) see www.apra.gov.au.

13 *Super System Review Final Report* see www.supersystemreview.gov.au.

The share market falls associated with the GFC generated substantial losses, particularly for superannuation funds, rapidly increasing the stock of capital losses being carried forward (Chart 7).

Chart 7: Capital losses carried forward
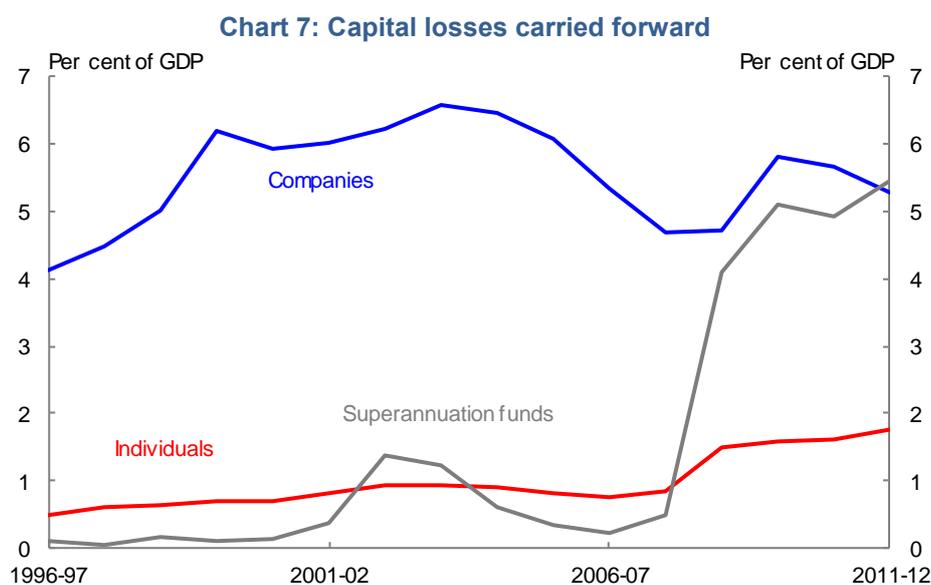
There are two striking features of this chart. The first is the enormous stock of capital losses accrued by companies over the first decade of CGT, reaching over 4 per cent of GDP by June 1997. Capital losses held by companies at the end of the 1995-96 income year, the first year this data was reported, was around $22 billion, considerably more than the $13 billion of taxable net capital gains reported until then. The large stock of losses accrued by 1997 may indicate that, in the years immediately following the advent of CGT, companies that chose to realise some assets preferred to realise those in a loss position rather than those in a gain position (and therefore defer paying tax on the gain). Under this scenario, with a capital loss already realised, the companies would then be able to make a later capital gain and offset it with the earlier loss. There was little incentive to realise assets in a gain position before those in a loss position, and given the timing of the 1987 share market crash there was ample opportunity for companies to have loss making assets available.[14]

Even with reliable data for the stock of losses for companies, it is not clear to what extent these losses are available to be used to offset future capital gains. In the case of a company with carried forward losses being acquired by (or merged with) another company, that company may not be able to access those losses, depending on the details of the companies and the transaction.[15] The losses, called 'trapped losses', continue to be reported despite the fact that they cannot be used.

The second striking feature of Chart 7 is the rapid increase in the stock of capital losses by superannuation funds in 2008-09, from around $6 billion at the end of 2007-08 to over $50 billion a year later. These realised losses are still only a quarter of the total accrued capital losses (both realised and unrealised) of more than $200 billion[16] in 2007-08 and 2008-09. The size of these losses is considerably larger than the losses realised during the share market falls around 2002-03, even abstracting from the size of the superannuation asset base.

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14 The ASX 200 index did not permanently exceed the level reached in 1987 until 1996.

15 The two main criteria are administered via the 'same business test' and the 'continuity of ownership test'.

16 *Annual Superannuation Bulletin* (June 2013) www.apra.gov.au. Net investment income to funds is reported as a loss of $190 billion in 2007-08 and 2008-09, which includes positive income such as interest and dividends. The capital loss component is therefore expected to be in excess of $200 billion.

More importantly for future prospects, there is no sign of this stock of capital losses decreasing. This is in contrast to the steady decrease in carried forward losses following 2002-03. Two possible reasons for the different behaviour are that: the share market grew more quickly after 2003 than after 2009; and realisation rates for gains and losses are much lower in recent years than around 2003. The rate at which these losses are utilised is a key question for forecasting CGT from superannuation funds. With the superannuation system still to reach full maturity, capital gains behaviour may continue to vary significantly for several years.

Capital gains income and companies

Analysis of company capital gains is complicated by the nature of their income. Many companies conduct their capital gains activities on their operating account rather than as a capital gain — for example, companies whose main business activity is share trading. The amount of capital gains realised in this way may have increased since the changes to 2000-01 when the CGT discount was not accessible to companies. There are over 30,000 companies classified as 'financial asset investors' in *Taxation Statistics*,[17] making it the second largest grouping of companies after 'property operators'. In these cases there is no detailed information on capital gains since the income is only recorded as general revenue. Most of these companies are, however, relatively small.

Another complication for company capital gains is that a large share of capital gains events are unrelated to commonly used investment products, such as shares and property, but instead relate to acquisitions and disposals of other businesses, trading stock and other assets. Sometimes the amounts involved are very large. For example, the coal seam gas joint venture Australia Pacific LNG was created via the 2008 purchase of a part of Origin Energy by ConocoPhillips, resulting in a one-off capital return of $2.8 billion.[18] This kind of one-off capital gain occurs infrequently, but the amounts are large enough to be a regular important explanation for the aggregate amounts. This makes corporate CGT amounts 'lumpy', and often unrelated to standard asset price indicators such as the ASX 200 index.

Chart 8 shows net capital gains reported by non-financial corporations, illustrating the impact of one-off lumpy capital gains.[19] In some years the capital gains from lumpy items are worth half of the total.

Abstracting from the lumpy amounts, the remaining net capital gains reported by non-financial corporations (the blue line in Chart 8) is approximately in line with typical gains from financial investments such as shares, peaking around 2006 and falling with the onset of the GFC.

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17 *Taxation Statistics 2011-12* (www.ato.gov.au).

18 Origin Energy *Annual Report 2009*, page 5.

19 This data was constructed by identifying very large amounts of net capital gains income for businesses which reported negligible amounts for the surrounding years. The broad amounts are readily estimated from data published at a fine industry level in each year of *Taxation Statistics*.

Chart 8: Net capital gains reported by non-financial corporations
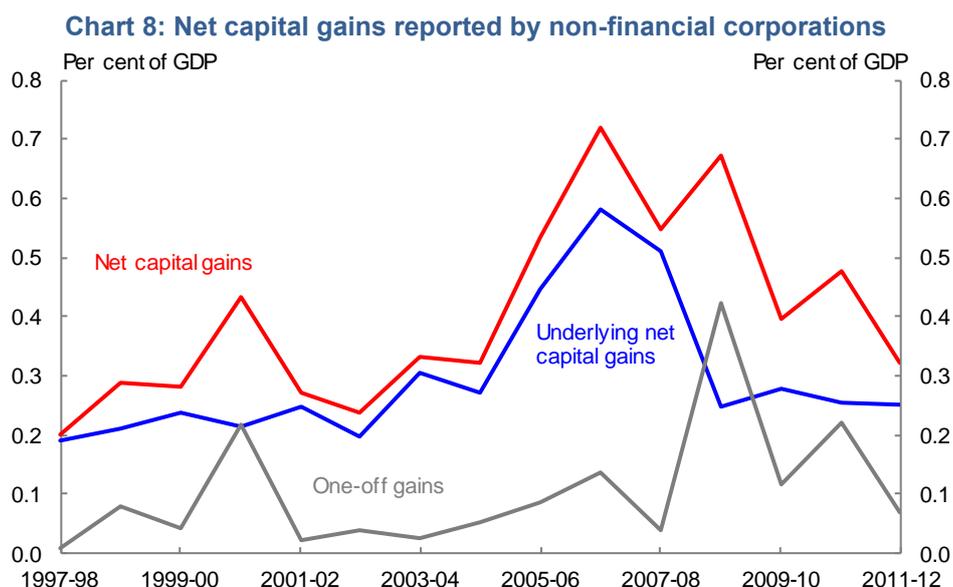
Part 2: Forecasting capital gains tax

Forecasting CGT can be divided into six steps, which are described in some detail here.[20]

Step 1: Asset bases

First, the appropriate asset bases are determined, of which the most important is the total value of shares and investment property held by individuals, companies and superannuation funds. For domestic shares, these amounts can be found in the ABS Financial Accounts.[21] Property asset bases can be found in the Annual National Accounts sectoral balance sheets.[22] APRA provides information on assets held by superannuation funds, which tend to hold the majority of international shares. An allowance is made for assets held by companies which are in the business of financial investing, as described above, which will not be reported as capital gains.

Step 2: Price assumptions

The second step is to determine appropriate price assumptions for the future. No attempt is made to explicitly forecast asset prices.[23] Rather, capital gains forecasts are based on technical assumptions, in a similar manner to those used for interest rates and exchange rates. All asset prices are forecast to grow with nominal GDP [24]. The choice of nominal GDP rather than the consumer price index, or some other price amount, may seem surprising. In should be noted, however, that quantities such as the ASX 200 index are not strictly 'prices' and they contain a volume and a price component. That is, the share 'price' of a particular company will increase proportionally with the value of the company, remembering that the ASX 200 index abstracts from the issuance of new shares.

The value of property is also not linked strongly to other prices such as the CPI, because the value of property is driven by the value of land, which is largely a fixed quantity.

Charts 9a and 9b show the relationships between the ASX 200 and house prices with nominal GDP and the CPI, together with long-run trends. While neither nominal GDP nor CPI is a strong indicator

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20 The *Review of Treasury Macroeconomic and Revenue Forecasting* (2012) recommended that Treasury publish the basis of models used economic and revenue forecasting (www.treasury.gov.au).

21 ABS Cat. No. 5232.0.

22 ABS Cat. No. 5204.0.

23 A common quip is that if the tax forecasters could forecast asset prices then they would have already retired.

24 2012-13 Budget Paper 1, page 5-7.

of short-term movements in asset prices, nominal GDP is a much less biased indicator in the longer term — the nearly flat trend lines in the ratios to GDP indicate that the values grow with GDP in the long term — and forms a reasonable technical assumption for the purpose of forecasting.

Chart 9: Key asset values compared to nominal GDP and the CPI (average = 1)

a. ASX 200 compared to GDP and CPI (with trend lines)
b. House prices compared to GDP and CPI (with trend lines)
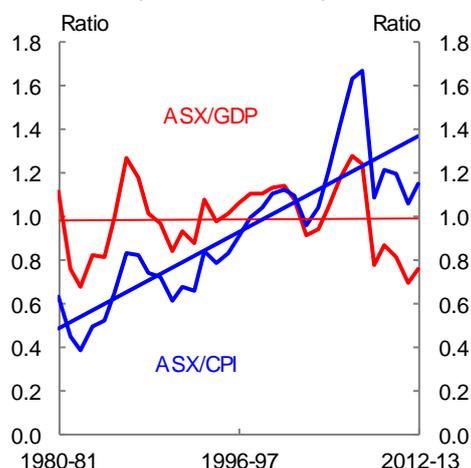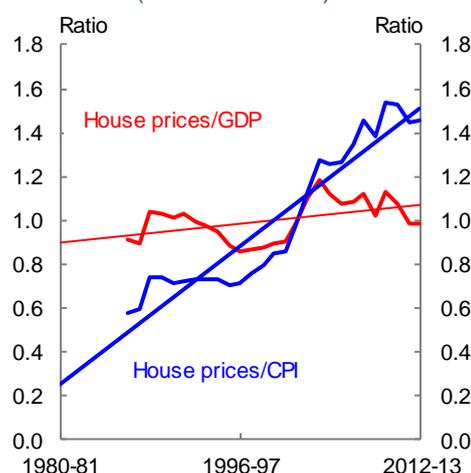
Step 3: An accounting framework for accrued gains and losses

The third step in CGT forecasting is to apply the growth rates in the relevant 'prices' to the asset bases to calculate an estimate of accrued gains or losses for that year. Importantly, there will still be a mix of gains and losses: some shares will increase by more than growth in the ASX 200 index and some by less, with some even moving in the opposite direction. For example, if the total value of the Australian share market was $1.5 trillion, and the relevant index (for example the ASX 200 index) increased by 5 per cent, then the total gains will be $75 billion, which may consist of $100 billion of gains and $25 billion of losses, or some other combination. Because only the realised gains and losses are observed, this mix of gains and losses is modelled, as described below.

The accrued gains and losses are added to the stock of unrealised gains and losses as at the start of the year. The resultant amounts are the stock of unrealised gains and losses available for realisation in the current year. By the end of that year, some of these gains and losses will be realised, reducing the stock of unrealised gains. The accounting framework for the stock of unrealised capital gains is illustrated in Chart 10, using superannuation fund gains as an example, where the end-year amounts of unrealised gains (shown by the circles) equals the start-year amounts of unrealised gains for the next year (the blue bars).

Chart 10 shows that, for example, at the start of the 2007-08 year superannuation funds are estimated to have held around $130 billion of unrealised capital gains (the red bar). During that year the share market fell markedly, resulting in an estimated $120 billion of capital losses (the blue bar). In addition, superannuation funds realised around $16 billion of net gains (the grey bar), which *decreases* the total amount of unrealised gains. At the end of the 2007-08 year, superannuation funds therefore held an estimated -$12 billion of net unrealised gains (the red circle), which becomes the starting amount of unrealised gains for the 2008-09 year (the next red bar).

Chart 10: Unrealised net gains held by superannuation funds[25]
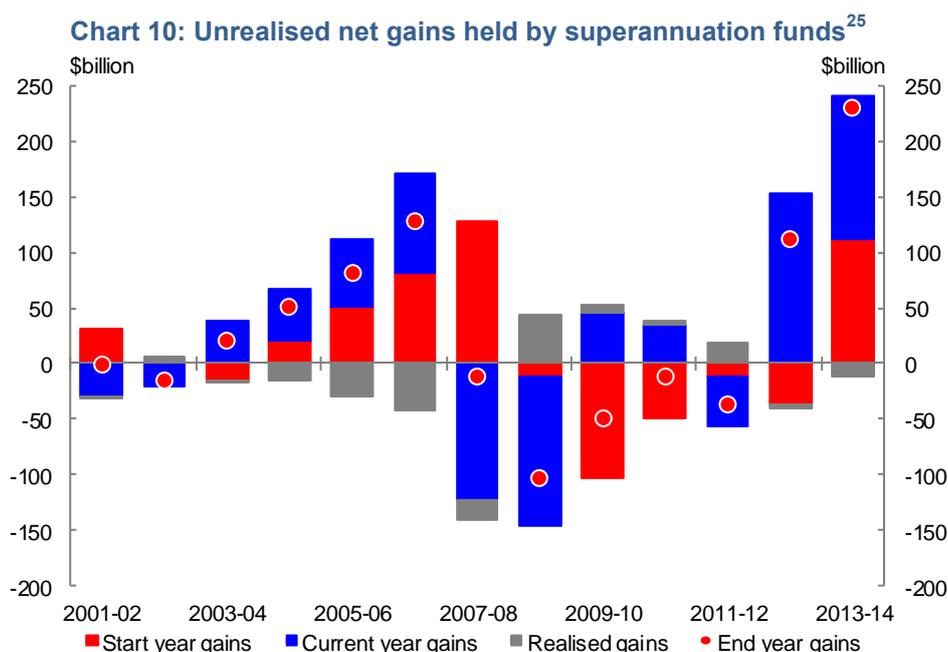
The advantage of this 'rolling stock' framework is that individual assets do not need to be tracked through from purchase to sale, and the year in which the asset was purchased is not required. In addition, the starting point for the stock of gains is zero in 1985 and the stock of unrealised gains is built up from that point. There is a significant degree of approximation involved in the calculation, but it should be noted that uncertainty in the exact size of the past stock of unrealised net gains tends to become less relevant over time because recent gains and losses will almost always be significantly larger than gains and losses from the distant past, if only through inflation.

Estimating the stock of unrealised gains is likely to be most accurate for superannuation funds, given the availability of high-quality financial asset data collected by APRA, and least accurate for companies.

For companies and superannuation funds, it is assumed that there are negligible assets remaining from before 1985 and almost all of the relevant assets are now part of the CGT base. This is less likely to be true for individuals, where it is expected that some people are still holding property and 'blue chip' shares purchased before the introduction of CGT. Given that these assets have been held for an extended period, however, it is assumed that they will continue to be held into the near future.

For real estate assets, held mostly by individuals, an allowance is made for the costs of purchasing the asset, which is included in the asset base for the purposes of calculating capital gains. The ownership transfer costs are sourced from the Annual National Accounts,[26] adjusted for the fraction of dwelling assets which are rented (around a quarter).

Step 4: Realisation rates

The fourth step in CGT forecasting is to apply realisation rates to the available stock of accrued gains and losses available for realisation, in order to produce amounts of realised capital gains and losses relevant for tax.

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25 The amount of realised gains for 2013-14 is calculated assuming realisation rates are unchanged from 2012-13.
26 ABS Cat. No. 5204.0 table 49.

Realisation rates have been previously discussed. In the forecast period, realisation rates are generally assumed to be consistent with recent trends, with the additional constraint that they must be sustainable. For example, if the very low realisation rates currently observed in individuals' real estate were to continue, this would result in an ever-increasing stock of unrealised gains. Similarly, superannuation funds will realise their large amount of accrued capital gains at some point in the future, and the realisation rates are expected to trend back to their long-run averages. The evolution of these realisation rates presents a significant risk to the CGT forecasts.

Step 5: Use of losses

Once forecasts of amounts of realised capital gains and losses have been determined, the fifth step in CGT forecasting is to determine expectations for the amounts of losses (from both the current year and prior years) utilised in order to offset capital gains. The stock of capital losses is the subject of another accounting identity, where the stock of losses at the end of the year is equal to the stock at the beginning of the year, plus any new losses realised, less any losses utilised.

As at the end of the 2011-12 income year, individuals reported around $26 billion of carried forward capital losses (1.8 per cent of GDP), a large increase from about $8 billion (0.9 per cent of GDP) on average in the five years leading up to the GFC. The losses held by individuals are small, however, compared to those held by companies ($75 billion at the end of the 2011-12 income year) and funds ($80 billion). The different capital loss behaviours for different entities relate to observations made above. First, individuals are generally reluctant to realise losses. Second, many of the corporate capital losses have been carried forward for over a decade and are likely to be 'trapped' such that they will be utilised at a very slow rate over many years or not at all. Third, declining realisation rates for superannuation funds mean that there is a lack of capital gains available to enable the utilisation of the large amount of losses realised during the GFC (around $50 billion in 2008-09 alone), despite strong gains in share markets over the past few years.

The aggregate amount of capital losses utilised in any year is constrained by the amount of capital losses available to be used and the amount of capital gains available to be offset. For aggregate individuals, being a large number of small taxpayers, capital losses are utilised relatively slowly. Companies utilise their aggregate capital losses more quickly, but are restricted by the 'trapped' losses. Aggregate amounts for superannuation funds are dominated by some very large taxpayers who, by virtue of the size and number of capital transactions, utilise their capital losses more quickly, provided they choose to realise enough gains to do so. For example, the capital losses realised during the share market falls of the early 2000s were almost entirely utilised three years later.

The utilisation of capital losses in the future is assumed to follow historical trends. Similar to the assumptions for realisation rates, these assumptions introduce a risk to the forecasts in terms of the timing of the resultant CGT. For example, the losses may be used quickly, resulting in less CGT over the next three years but more CGT in the three years after, or the losses may be used slowly, resulting in more CGT over the next three years but less CGT in the three years after, all else being equal.

Step 6: Calculation of taxable net capital gains

After applying losses, any CGT concessions or discounts are applied to produce taxable net capital gains. Almost all capital gains income reported by individuals and superannuation funds is subject to the full discount — taxpayers ensure that they hold their assets for a year before realising — so this calculation is trivial. Other available CGT concessions are relatively small and stable. For forecasting purposes these can be assumed to remain as a constant share of pre-concession net capital gains (around 2 per cent).

Calculation of capital gains tax

The forecasting process ends with the calculation of net capital gains income, which is then added to forecasts of the other items on the income tax return to calculate a forecast for taxable income. As discussed earlier, CGT is an allocation of total income tax to that particular item. While this is straight-forward in the case of income taxes with flat rates — companies and superannuation funds — it is more complex in this case of individuals' income tax with a 'progressive' rate. For individuals, assigning an amount of tax to net capital gains income requires information on the income distribution.

Taxable net capital gains income tends to be received by individuals at the higher end of the income distribution. Around half of total taxable net capital gains income reported for 2011-12 was received by taxpayers whose other taxable income was above $180,000 (the top tax rate threshold). For the 2011-12 year the average statutory rate of tax on taxable net capital gains income was 30.9 per cent, compared to the overall average rate of around 22.2 per cent.[27] Since 2000-01, the average rate of tax on taxable net capital gains income has varied between around 29.3 per cent in 2008-09 (the year most affected by the GFC) and 32.6 per cent in 2003-04. The general decline in average tax rates in CGT is partly because of weaker capital gains income over the last five years and partly because of increases to the top tax rate threshold, particularly since 2004-05.

Forecasts of CGT for individuals are constructed by assuming that the relative income distributions for net capital gains income continue into the future.

Summary of forecasting steps as equations

The steps described above can be summarised as both a conceptual flow chart and as a set of equations, of which several are accounting identities. Both are shown below. These effectively form the CGT forecasting model.

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27 *Taxation Statistics 2011-12* (www.ato.gov.au) and Treasury calculations.

Chart 11: Net capital gains flow chart
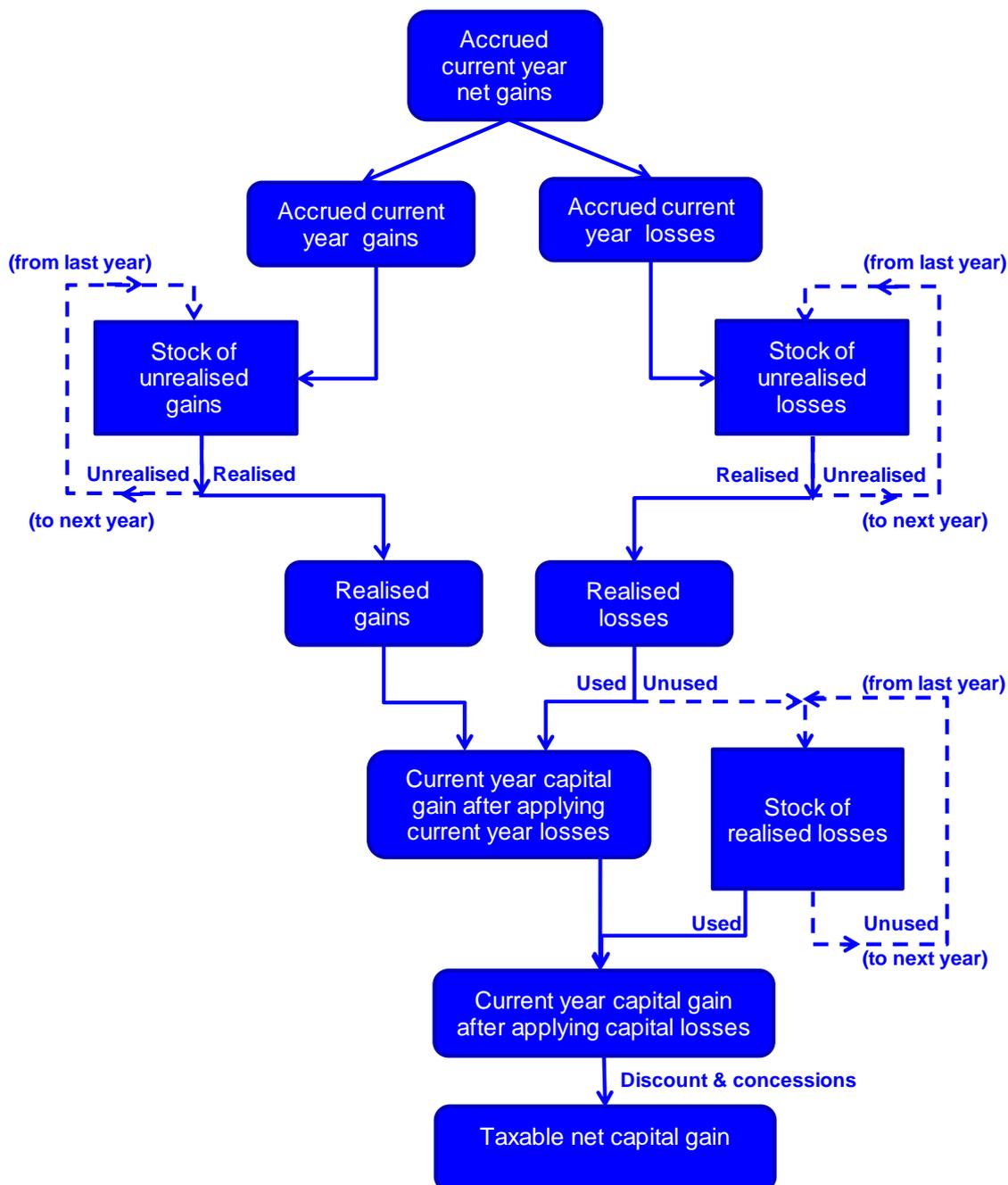
Capital gains forecasting equations

Calculating unrealised capital gains:

- price assumption: prices (for example ASX 200 index and real estate prices) grow with nominal GDP

- new accrued net gains = asset base (start year) **x** yearly price growth

Realised gains and losses:[28]

- stock of accrued gains available for realisation =
  stock of accrued gains (start year) + new accrued gains;

- realised gains =
  stock of accrued gains available for realisation x realisation rate; and

- stock of accrued gains (end year) =
  stock of accrued gains available for realisation — realised gains.

Use of losses:

- losses available for use = stock of losses (start year) + realised losses

- losses used = losses available for use x loss use rate[29]

- stock of losses carried forward (end year) = losses available for use — losses used

Net taxable capital gains:

- taxable capital gains = realised gains — losses used — discount and concessions.[30]

Key risks to CGT forecasts

The risks to the CGT forecasts are related to the assumptions used. If asset prices move significantly differently to nominal GDP growth then CGT will also be significantly different from the forecast amounts. Major variations in realisation rates from the assumptions will also result in forecasting error. Unexpected loss utilisation behaviour will also drive forecasting error, although, as noted above, this will mostly be an error on the timing of payments of CGT rather than of the overall quantity of CGT.

Summary

Over the thirty years since its inception, CGT has become a significant stream of Australian Government revenue. Volatility in CGT is a major driver of aggregate revenue volatility and revenue forecasting error. CGT forecasts depend on assumptions regarding asset prices, realisation rates and the utilisation of losses. Capital gains behaviour varies across asset types and entities, and their characteristics need to be taken into account.

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28 There are two sets of equations, one set for gains (shown here) and a mirror set for losses.

29 As discussed above, the rate at which losses are used is dependent on the amount of losses available and the amount of gains available to be offset.

30 If applicable.