

TAX POLICIES TO IMPROVE THE STABILITY OF FINANCIAL MARKETS

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While tax policies did not cause the recent global financial crisis, they almost certainly contributed to key vulnerabilities in the international financial system. In this paper we review existing tax policies identifying a number of channels by which tax distortions increase an economy's vulnerability to financial shocks. In particular, we highlight how current tax policies contribute to excessive leverage, reduced transparency and increased complexity due to unproductive financial innovation. Rather than improving financial stability, some recent tax proposals, such as a Tobin tax or other financial sector taxes and levies, may in fact add to the vulnerabilities of the financial sector.

We identify a number of policy reforms which would reduce the potential for financial shocks to become crises with severe consequences for individual wellbeing. These reforms include, reducing corporate debt biases (such as through an allowance for corporate equity), improving loss offset provisions, eliminating transaction based taxes and moving towards accrual based taxation. These reforms would significantly improve risk allocation in the economy, particularly by reducing the bias towards leverage, improving the price revelation of financial products and the stability of financial markets. Many of these issues were also outlined in the recent Australia's Future Tax System review.

1 Introduction

There appears general agreement among policy advisers and academics that while tax policy did not cause the recent global financial crisis, it may have contributed to it (see, for example, Lloyd, 2009; Slemrod, 2009; Shaviro, 2009, Keen *et al.*, 2009). This paper first discusses the likely causes of the crisis before outlining in more detail the likely role of the tax system. The paper then discusses some potential reforms to the tax system to improve financial market stability, which notably does not include additional taxes on the financial sector. Many of these issues and potential reform options were outlined in the recent Australia's Future Tax System review (Henry, 2010).

2 The impact of the Global Financial Crisis (GFC)

The world has recently progressed through one of the most destructive and dramatic economic events in the era of modern global capital. The financial crisis had significant real world economic effects, with output across the OECD falling 4.5 per cent in the year to 30 June 2009 and potential output being revised down by 2¾ percentage points compared to pre-crisis projections (OECD, 2009); unemployment in advanced economies rising to over 8 per cent in 2009 (IMF, 2009a), and budget deficits in advancing economies rising to 8.9 per cent on average (IMF, 2009a). The effects were by no means universal, with jurisdictions with more sophisticated and extensive financial systems (such as the United States and Europe) suffering proportionately

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The views in this paper are those of the authors and not necessarily those of the Australian Treasury.

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more than others with relatively unsophisticated markets (such as China and India). Countries with more trade exposure and less exposure to the kinds of “toxic” assets originating in the US subprime mortgage market also escaped with relatively better performances.

The GFC also significantly changed the international financial landscape. Indeed, the important financial centres of the world were unrecognisable from what they were just one year before. In late 2010, of the world’s one hundred largest banking groups only nine were rated AA or higher (and Australia had four of those) (Swan, 2010). Today, as well as some institutions, some previously ubiquitous financial products – such as mortgage backed securities (assets backed by expected mortgage flows), collateralised debt obligations (assets backed by mortgage backed securities, MBS, and other obligations) and credit default swaps (swaps which improved MBS by having other entities insure the default risk) – have evaporated. For example, global private-label securitization gross issuance (made up of asset-backed securities, collateralized debt obligations and derivatives and mortgage-backed securities) soared from almost nothing in the early 1990s to peak at almost \$5 trillion in 2006. In 2009 volumes dropped off sharply to around \$1 billion, much of this only with government support, while the United States MBS market no longer existed (IMF, 2009a, p. 81).

The GFC also changed the way that many people think about economic management, with the near universal re-emergence of counter-cyclical fiscal policy and pressure for increased regulation to address perceived failures in financial markets. Governments have also shown that they are willing to use less traditional economic responses to perceived economic problems, including equity injections and loans (for example, the US Government support for AIG), guarantees, the purchase of financial assets (such as the US Government’s Troubled Asset Relief Program) and even nationalisation (such as the takeover of Northern Rock by the UK Government).

3 What is a “financial crisis”?

One indicator of the path of the progress of the financial crisis is the interest rate spread on inter-bank lending (measured by the London Inter-Bank Offer Rate, or LIBOR). The LIBOR is the interest rate that banks charge each other in the London wholesale market. Since the funds are unsecured, the interest rate spread accounts for both credit and liquidity risk (see Figure 1).

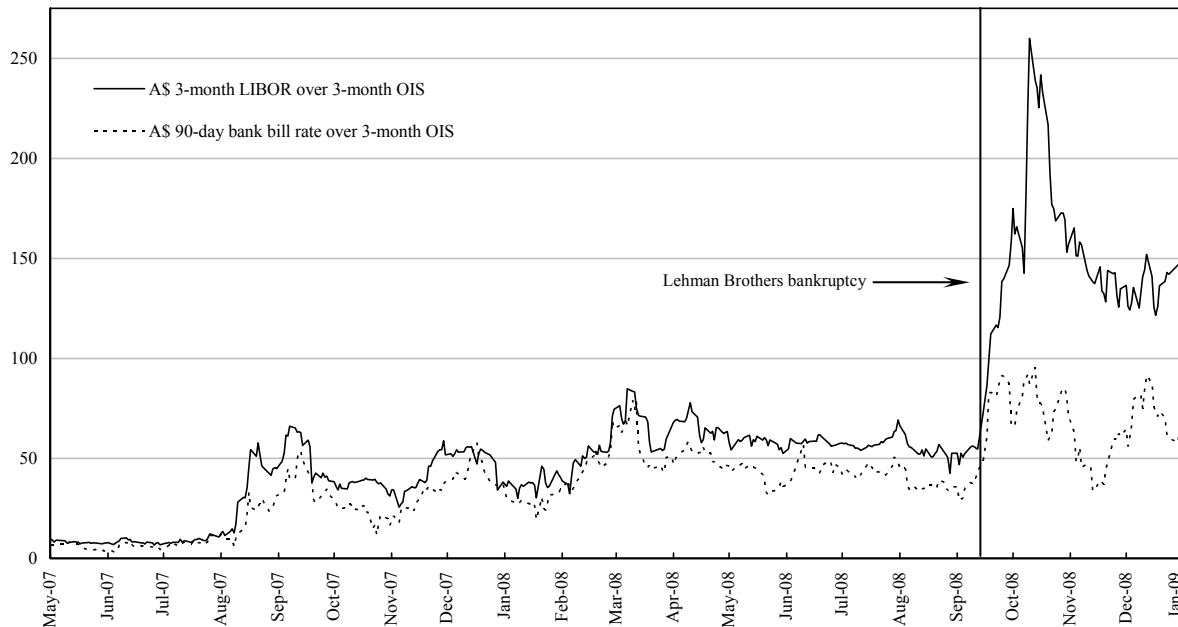
The crisis started in late July 2007 as default rates on United States “sub-prime” loans began to increase. This led to a slowly building concern in the United States mortgage backed securities markets through the latter part of 2007, events evolved more rapidly in the Autumn of 2008 with the collapse of Lehman Brothers. Soon after the Lehman Brothers collapse, the risk of short-term inter-bank lending rose by more than two percentage points. When a financial shock envelopes the whole financial system, it turns into a crisis, typified by the almost complete ceasing of many private credit markets and a flight towards debt of major economies (but away from the vulnerable, such as Iceland). Credit became unavailable from banks due to the fear that potential borrowers would be unlikely to repay because the businesses and individuals that owed them could not repay. This is a system wide collapse that no individual firm could withstand.

But it was not the losses themselves that led to this crisis of confidence. The total value of subprime mortgages reported in March 2007 of \$1.3 trillion is still less than three per cent of world stockmarket capitalisation at that time.¹ So even if all such mortgages foreclosed and the houses were worth nothing, there should have been a small fall in equity markets, not the 40 per cent that

¹ The value of world stock markets was \$52.6 trillion in March 2007, falling to \$31.1 trillion in November 2008 (<http://www.world-exchanges.org/statistics/ytd-monthly>). One contemporary media account quoting \$1.3 billion in subprime losses can be found here <http://www.msnbc.msn.com/id/17584725> (Associated Press reported, 13 March 2007).

Figure 1

Long-run LIBOR Interest Rate Spread (basis points)



Source: Australian Treasury.

soon followed. Even today, total defaults in the US mortgage market are only a fraction of the \$11 trillion of total outstanding mortgages. The financial markets have withstood other financial shocks without this flowing through to a credit crisis. In the past, share prices have fallen significantly (for example, the Dow Jones industrial average fell 29 per cent on one day in October 1987), the economy weak (in 1982, US unemployment neared 10 per cent and GDP fell by nearly 4 per cent) large firms have gone bankrupt (such as Enron in 2001) and significant parts of the financial system have malfunctioned (such as the US savings and loans crisis of the late 1980s).

Fundamentally, the market struggled to determine the size of potential losses and who actually bore them. The uncertainty flowed from the complex nature of the financial assets and obligations. Existing process for managing and measuring risk had proved themselves unreliable. The major ratings agencies continued to provide Lehman Brothers with at least an “A” rating right up until its collapse (US House of Representatives, 2009). Agency costs – paying for the management and monitoring of investments – are a means of dealing with asymmetries of information.² One way of viewing the crisis is that technology advanced so rapidly that agency costs could not keep up with inherent information asymmetries (see Arrow, 2008). Sometimes managers had incentives to hide the extent of such losses, sometimes they themselves may not have known what they were due to the complex nature of the arrangements and malfunctioning technologies for measuring risk. Because of this asymmetry in information and distrust of the agency arrangements for containing them, lenders refused to extend credit in ways they had in the past – first to firms suspected of poor business practices (some mortgage originators), then those

² This may not mean financial markets are inefficient. The weak form efficient markets hypothesis recognises that information is not free and trading in it can be costly, but no individual trader can make excess returns from trading on publicly available information (Fama, 1970).

Table 1

Marginal Effective Tax Rates for Plant and Equipment, 2005

	Australia	Canada	Italy	United Kingdom	United States
Statutory tax rate	30.0	35.6	37.3	30.0	39.3
Equity financed	24.3	24.8	19.1	20.3	23.6
Debt financed	-23.1	-37.0	-48.5	-27.6	-45.9

Source: Devereux, Griffith and Klemm (2002) and updated data available at www.ifs.org.uk

with a heavy reliance on short term credit (investment banks) and finally even standard retail banks and businesses in the real economy. The economic purpose of financial markets is to relay information to guide efficient investment. When that information becomes tainted and unreliable, the consequence for markets has proven to be severe.

4 The influence of tax policy

Tax systems around the world did not cause the recent global financial crisis, however it is likely that some elements at least contributed to the turmoil being of greater magnitude and duration than necessary. In that sense, it has a similar type of culpability to financial regulation that is sometimes cited as contributing to the crisis (for example, Cukierman, 2009). In particular, the tax system favours debt financing, investment in housing and assets earning capital gains. It also encourages people towards behaviours to avoid transaction taxes and make use of tax losses. The tax system therefore encourages people to expose themselves to risks that they normally wouldn't, increasing the overall susceptibility of the economy to financial shocks.

4.1 Tax bias towards debt financing and corporate finance

Firms can raise finance in one of three ways, debt, new equity and retaining profits. Corporate tax systems in most countries are based on the full return to equity. Systems based on taxing the full return to equity have a bias towards debt financing over equity at the corporate level and therefore may encourage companies to rely excessively on debt finance. The bias towards debt arises because interest expenses are deductible while the cost of equity capital is not. The debt bias can be seen by comparing Marginal Effective Tax Rates (METRs) in Table 1 for equity and debt financed investments. For example, for Australia the METR for new investment in plant and equipment is estimated to be around 24 per cent, just below the statutory rate of 30 per cent. However, for the same investment financed by debt the METR is around -23 per cent. This suggests that the tax system not only favours debt financing, but subsidises investments that are debt financed.

While the implications of significant leverage are unclear, high levels of leverage can make companies more vulnerable to economic shocks and increase the probability of bankruptcy and therefore create a cost of financial distress. Highly leveraged companies are susceptible to volatility in profits, as they are required to make interest payments irrespective of profitability. As such, they are also more susceptible to volatility in interest rates.

BOX 1
EFFECTIVE TAX RATES – DEBT AND EQUITY

The effective tax burden on capital income can be measured using Marginal Effective Tax Rates (*METRs*) and Average Effective Tax Rates (*AETRs*).³

The *AETR* measures the proportion of the value of an investment project which is paid in tax. It is given by the net present value of the tax paid by the investment divided by the present value of the pre-tax profit flows from the investment. As shown in Sørensen (2009) the *AETR* is given by:

$$AETR = \frac{\tau [p - \rho + (1 - A)(\rho + \delta) - \beta(r + \pi)]}{p} \quad (1)$$

where τ is the company tax rate, p is the real net rate of return before tax, ρ is the company's real cost of finance, that is, the rate of return required by the investor supplying the funds for the project, A is the net present value of allowances, δ the real rate of economic depreciation, β is the debt-to-asset ratio, and $r + \pi$ is the nominal interest rate.

From equation (1) it can be seen that the *AETR* can be used to measure the tax burden on inframarginal projects where $p - \rho$ is the pure rent from the project – that is, the difference between the actual pre-tax return and the investor's required return.

In contrast to the *AETR*, the *METR* measures the tax burden on the marginal unit of investment which generates no net profit for the investor. The *METR* is given by:

$$METR = \frac{c - \rho}{c} \quad (2)$$

where c is the real pre-tax rate of return on the marginal investment (user cost of capital). The user cost of capital, as shown in Sørensen (2009), is given by:

$$c = \frac{(1 - \tau A)(\rho + \delta) - \tau \beta (r + \pi)}{1 - \tau} - \delta \quad (3)$$

First, consider the case where investment is financed by equity ($\beta=0$ and $\rho=r$), where tax depreciation is set to reflect the true decline in the nominal value of the asset. The present value of depreciation allowances (A) and the user cost of capital (c) are given by:

$$c = r/(1 - \tau)$$

$$A = \frac{\delta - \pi}{r + \delta}$$

Hence:

$$MERT = AETR = \tau \quad (4)$$

That is, the *METR* and *AETR* where the investment is financed by equity are equal to the statutory tax rate.

³ The methodology used to calculate *METRs* and *AETRs* in this paper is based on Sørensen (2009).

Now, instead, consider the case where the investment is fully debt-financed ($\beta=1$ and $\rho=r$). The user cost of capital is now given by $c=r$. From (1) and (3):

$$\text{METR} = 0$$

and

$$\text{AETR} = \tau \left(\frac{p-r}{p} \right) \quad (5)$$

For a project earning rents, that is $p>r$, the $\text{AETR}<\tau$. As such, under a conventional company income tax where debt is deductible, the METR and AETR will be lower where the investment is funded by debt.

If leverage levels become unsustainable and lead to a credit crunch, firms and households are unable to access credit required for investment and consumption which can result in a collapse in demand. Such concerns are particularly relevant for countries with relatively large current account deficits (such as Australia) that are financed by the international community's willingness to lend in order to rollover existing debt.

Where markets cease to function, financing strategies predicated on the existence of well-functioning markets has serious consequences for individuals as well as nations. The uncertainties and costs associated with bankruptcy are one of the transaction costs that can accentuate financial crises. The International Monetary Fund recently suggested that the bias towards higher leverage increases the vulnerability of the private sector to shocks (IMF, 2009a).

As highlighted previously, the tax bias towards debt may be made worse where the tax system also allows assets to be depreciated at accelerated rates. Where the tax system allows for a deduction for both financing costs and economic depreciation, the tax system would have no impact on investment decisions at the margin. In this case the METR would be equal to zero (see Box 1) as all costs – financing and depreciation – are fully recovered. However, where accelerated depreciation is allowed in addition to debt deductibility, the METR becomes negative, that is the investment is subsidised (see Box 2). As a result, this can distort resource allocation, and may encourage low-productive investment that would not have been viable in the absence of the tax system.

While tax systems based on the return to equity are biased towards debt, there are some factors that may have acted to reduce this bias. Company income tax rates have fallen across OECD countries over the past 30 years (see Figure 2). The unweighted average company income tax rate fell from around 47 per cent in 1982 to around 28 per cent in 2007. The weighted average (which is heavily influenced by the United States, Japan and the United Kingdom) has fallen to a lesser extent, from around 50 per cent in 1982 to 36 per cent in 2006. A lower tax rate increases the cost of debt financing as it reduces the benefit from interest deductibility.

In some circumstances, financial innovation may be reducing the tax bias towards corporate debt. For example, if a financial instrument acts like equity for accounting or regulatory purposes (and has similar economic characteristics), while having the additional benefit of being deductible for tax purposes, then the tax bias is eliminated. For example, in the United States hybrid instruments such as convertible debt obligations are treated as debt for tax purposes, but have equity like characteristics (Shaviro, 2009). Of course, while they may qualify as debt for tax purposes, the securities are likely to be less permanent, and give the investor greater rights to

BOX 2
EFFECTIVE MARGINAL TAX RATES –
DEBT AND ACCELERATED DEPRECIATION

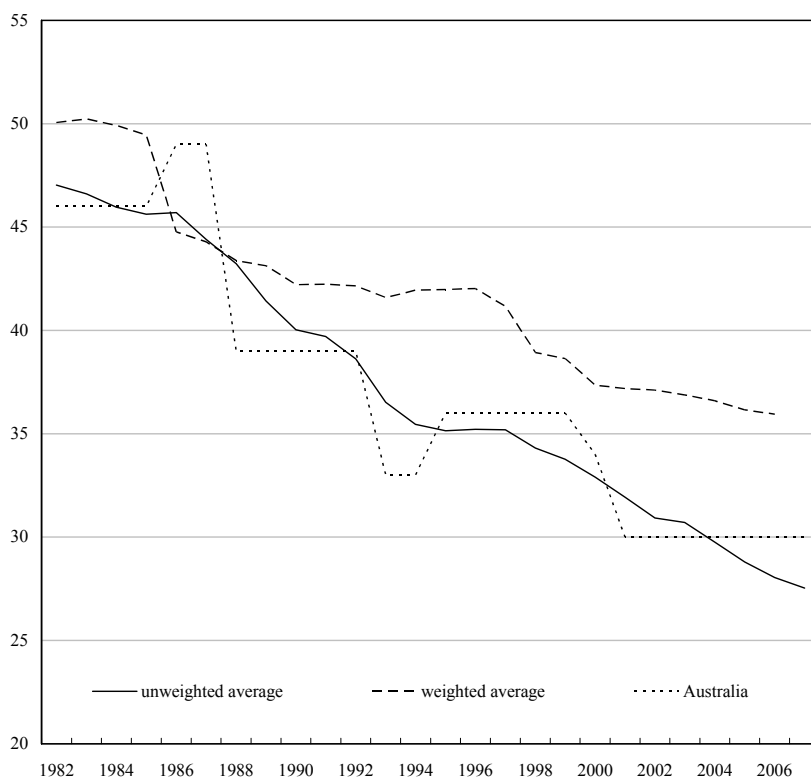
Where an asset is written off at an accelerated rate the required return will fall below r . The required return falls below r because accelerated depreciation is effectively allows for tax to be deferred. Where the required return falls below r the METR will be negative, this compares to an METR of 0 where tax depreciation is appropriately measured (see Box 1).

To see this, consider the case where investment is debt financed and the cost of the new investment is immediately expensed. In this case the present value of depreciation allowances (A) would equal 1. Using (3) again, the cost of capital equation for a break even project would be:

$$c = r - \frac{\tau(r + \pi)}{1 - \tau} \quad (6)$$

The cost of capital in (6) is less than the discount rate for positive values of r and $r + \pi$, thus yielding a negative METR, or a subsidy.

Figure 2
Statutory Corporate Tax Rates in the OECD, 1982-2007
(percent)



Source: Loretz (2008), with additional data from author.

dividends/interest, than ordinary share capital and as such may be a less secure (that is, more risky) form of capital. Global issuance of such hybrids reached \$170 billion in 2007 (Lloyd, 2009, p. 8).

One alternative means of accessing debt interest deduction, if you are a multinational, is to take advantage of the tax benefits for debt financing by lending to subsidiaries (and in extreme cases transfer pricing). The use of such tax avoidance mechanisms reduces the corporate debt tax bias, while effectively allowing taxpayers to choose their tax rate. Investors are effectively able to choose whether they wish to be taxed at the

corporate tax rate (through equity finance) or their individual marginal tax rate (through debt finance) (Shaviro, 2009 and Slemrod, 2009). Rather than increasing financial risk, the social cost is the loss in revenue from an optional tax system, valued at the cost of making up the revenue from other distorting taxes (see Slemrod, 2009).

In relation to the regulated financial sector, capital adequacy rules limit the debt component of a company's capital. However, the tax deduction for interest may still provide an incentive for

firms to maximise debt financing within the prescribed limits. Furthermore, the tax system may also encourage capital to be issued in the form of hybrid instruments that may be classified as debt at least for tax purposes (Lloyd, 2009).

To the extent that firms cannot access international finance, as may be the case for smaller unlisted companies, financing decisions may also be influenced by taxes at the individual level (such as the taxation of dividends, capital gains and interest). Where tax systems double tax the return to equity, this may also result in a bias towards debt financing. In recent years many European countries have moved away from full imputation systems, which remove the double taxation of equity, towards uniform credits (United Kingdom) or reduced dividend tax rates (Ireland).

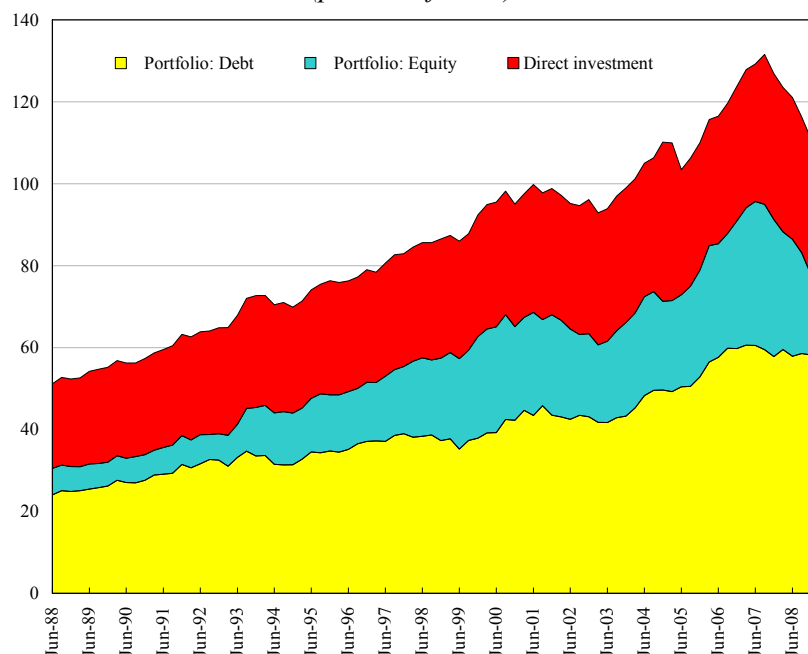
In Australia (and New Zealand) the bias towards debt may be offset to some degree by the full dividend imputation system (introduced in Australia in 1987) and concessional taxation of capital gains. These measures remove the double taxation of equity and result in a bias towards domestic equity for domestic resident savers. However, foreign investors cannot utilise imputation credits and therefore, for foreign investors debt is still preferred and has grown in recent years (Figure 3).

4.2 The tax preference for housing

The accumulation of wealth in the form of home equity is one of the most important forms of household saving in OECD countries. It is also intimately associated with recent financial crisis in a number of ways. In particular, the crisis is generally thought to have begun in the United States subprime mortgage market. Further, the crisis also resulted in substantial falls in housing investment, particularly the United States and Spain (Lowe, 2010).

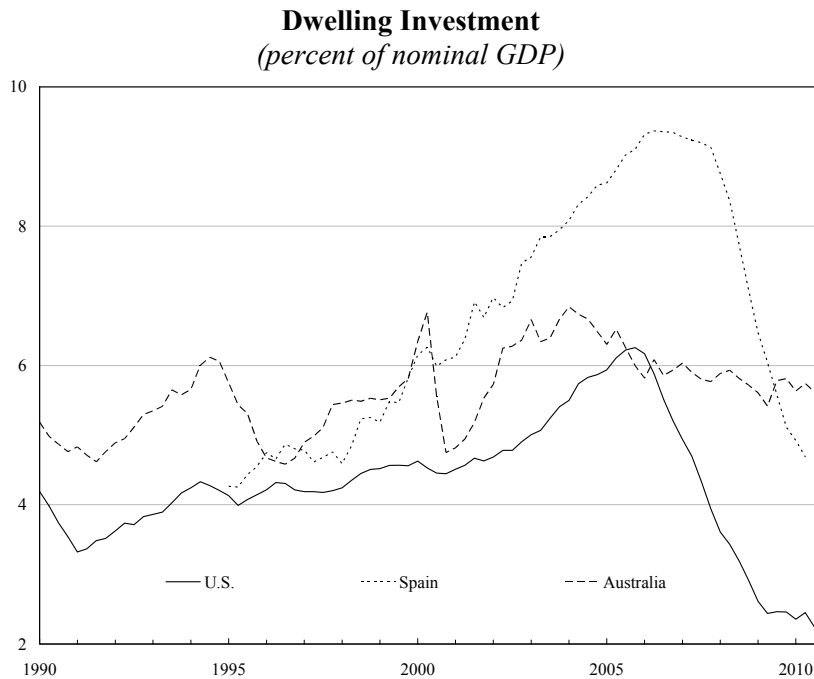
Figure 3

Inbound Foreign Investment in Australia by Type (percent of GDP)



Australian Bureau of Statistics catalogue 5302.0.

Figure 4



Source: Australian Bureau of Statistics catalogue 5206, Lowe (2010).

Australia stands out in not having a significant fall in housing investment. Indeed, the IMF recently announced that Australia's house prices may be up to 20 per cent overvalued – and that was before the most recent growth (IMF; 2009b). Many of the curiosities of the Australian housing market reflect the biases that you would expect from the way taxes are levied, although it is difficult to determine how important these effects are. The role of the taxation of housing should not be overstated, since its role in contributing to the instability in the financial system is inconclusive.

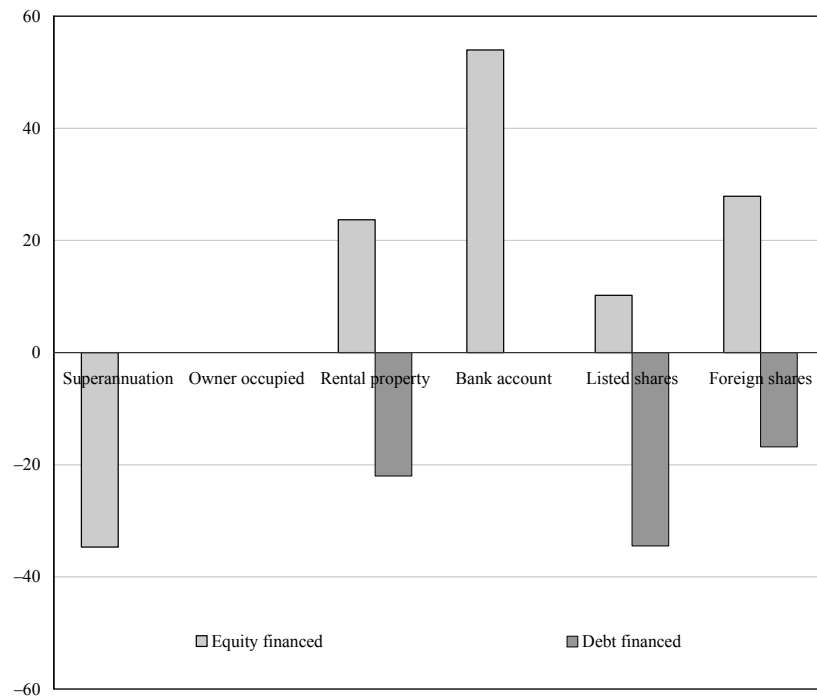
In particular, collapses in housing prices occurred in countries with limited preferences to home ownership (Shaviro, 2008, p. 3). However, elements of some countries tax systems may have contributed to housing price booms. For example, until 1985, Australians could earn capital gains tax exempt income from any source, not just housing. As income tax rates have risen for more workers and available tax shelters have been reduced, the remaining tax preferences for housing have become more valuable. Similarly, Fane and Richardson (2005) argue that the 50 per cent CGT discount for rental property introduced in 2000 directly stimulated the increase in debt and housing prices. Other factors could include differential degrees of financial innovations, such as reverse mortgages, which effectively allow investors to make greater use of housing tax preferences as a means of saving. The Productivity Commission (2004) and Reserve Bank of Australia (2003) have suggested that favourable taxation settings in Australia can contribute to volatility of the housing market.

It is worth illustrating some of the features of tax systems around the world which may contribute to less stable housing and financial markets with reference to Australia. First, like most countries, owner occupied housing is exempt from income tax. Few countries tax imputed rents while capital gains are typically tax exempt. Investment properties are also favourably taxed with capital gains typically concessionally taxed, and taxed only on realization. Overall, because housing is a significantly tax preferred, more of the nation's savings is likely to be devoted to housing than under a more neutral diversified national savings portfolio. Indeed, relative to other savings tax preferences, biases to saving in housing may expose domestic economies to greater risk. The owner-occupied tax preference can only be accessed for most through domestic house purchases and few opportunities are available for investing in overseas investment properties. Housing assets are undiversified in many people's portfolios. According to the ABS, the principal assets of Australian households are: their own home (44 per cent of household assets) followed by other property – including rental properties (16 per cent) (ABS 6553.0).

Second, there is a debt bias towards investment housing in Australia, since the interest is fully deductible whereas the capital gains are only taxed at 50 per cent. The impact of these arrangements is highlighted in Figure 5. For rental properties, the effective tax rate will vary depending on the financing choice of the investor. Where the investment is funded by equity, the effective tax rate is small, but positive, reflecting the concessional treatment of capital gains. But, where the investment is financed (at least partially) by debt the effective tax rate is negative, this results in a significant asymmetry. This result also applies to shares.

Figure 5

**Real Effective Tax Rates
by Asset Type and Financing Arrangement**
(percent)



Source: Henry (2009).

Household mortgage debt has more than tripled in the past ten years to over one trillion dollars. Increasing house prices in Australia have been associated with a substantial increase in household debt, with household debt rising from around 90 to almost 160 per cent of annual household disposable income over the past 10 years (RBA; Statistical Tables). Debt financed housing contributes to a significant amount of Australia's gross borrowing requirements and contributes to a current account deficit, averaging 4.6 per cent of GDP over the same period. Such preferential tax treatment for housing may have higher social costs than corporate preferences for debt because of the relative unsophisticated or liquidity constrained nature of such investors and because the inherent "lumpiness" (non-divisibility) of the purchases reduces the scope for diversification. Corporates have more options for offsetting any debt biases by changing their portfolio (Slemrod, 2009, p. 5).

Third, there are a number of significant transaction costs to turning over houses in Australia, including: the realisation basis of taxing capital gains on investment housing; losing the exemptions from pension means tests when shifting from owner-occupied housing into other investments; and transaction taxes (in the form of stamp duty) twice the OECD average. This increases incentive to overinvest in existing homes. For example, young couples are more likely to buy larger homes than they need in order to not have to move and retired people may not downsize their accommodation as needed. This may be one reason why even though housing investment has been at historic highs for five years (at 6 per cent of GDP), housing supply has not kept pace. Even though investment in housing is higher than in the past, rental yields have continued to rise and vacancy rates are at record lows. Australians are investing in bigger and more expensive houses –

real expenditure on each new dwelling built is now 60 per cent higher than it was around 15 years ago. The size of the average Australian new home grew 40 per cent between 1984-85 and 2002-03 (ABS, 2005), even as the average household size fell (ABS, 2008). And Australians are upgrading their existing homes, rather than building new ones – a high proportion of dwelling investment is in the form of alterations and additions – that is upgrading existing houses rather than building new ones. Almost half of all dwelling investment has been accounted for by alterations and additions in recent years (Lowe, 2009). Transaction based taxes also reduce the turnover of housing, harming price discovery.

Fourth, a fragmented land tax regime with large thresholds for small investors. This may be one reason why rental properties are almost all held by small (as opposed to institutional) investors. Land tax applies only to investors and due to exemption thresholds, it increases with the number of properties owned, reducing the incentive for institutional investors and appropriate risk diversification.

Overall, the tax system provides incentives for small and relatively unsophisticated buyers that own highly leveraged, large houses that make up a disproportionate part of their financial portfolio.

4.3 *The tax preference for capital gains*

The Australian income tax system, like that on most other countries, tax returns in the form of capital gains concessionally. The concessional treatment of capital gains results in one of the greatest tax distortions to the savings choices of households.

Capital gains are typically only taxed when they are realised, providing a tax deferral benefit. The conventional justifications for deferring the taxation of gains until the time of realisation is that taxing accrued unrealized gains could lead to valuation and liquidity problems. Deferral however; generates its own problems by reducing the effective tax rate on accrued gains as investors as the payment of tax is deferred until the asset is realised, this effectively gives the taxpayer an interest free loan on their accrued tax liability.

Allowing deferral of taxation of accrued capital gains on shares could open the door to tax avoidance. For example, there is an incentive to construct positions where an investor holds gains and realises losses, thereby using the realisation event for tax arbitrage. Such possibilities have led to the introduction of limits in the tax system, such as limitations on loss utilisation even where a taxpayer incurs a true economic loss.

Taxing capital gains on realisation also creates a “lock-in” effect. This is because the tax deferral advantage encourages investors to hold on to assets with accrued capital gains. The lock-in effect impedes the efficient functioning of capital markets and distorts ownership patterns as investors are discouraged from switching assets and paying tax on a realised gain. The lock-in effect can also destabilise the stock market and real property market as shares and property are sold when prices decline (to realise losses) and are held onto when prices rise (to defer realisation of the gain).

In order to address the lock-in effect, most countries, including Australia, concessionally tax capital gains. For example, in Australia only half the capital gain is subject to tax where the asset is held for more than a year. This approach, while going some way to reducing the lock in problem, contributes to a further lowering of the effective tax rate on capital gains. This distorts asset allocation further, and may also distort company financing choice through the decision between distribution and retaining earnings.

The impact of a realisation based tax, combined with the 50 per cent exemption, is more pronounced where an asset is debt financed. Under this system, investors have an incentive to borrow (and deduct the full interest expense at marginal tax rates) and invest in assets that generate capital gains, which are concessionally taxed.

As the tax treatment of capital gains encourages investment in assets where the return can be categorised as capital gains for taxation purposes, to the extent that it is easier to convert the returns from a risk asset into capital gains the tax system could encourage more risky investment.

4.4 *Taxation and risk taking*

The tax system can affect risk taking. It has been well known since the contribution of Domar and Musgrave (1945), that an income tax system may encourage risk taking where full loss offset is provided.

Most countries corporate income tax systems do not however provide full loss offset. Income tax systems typically treat gains and losses asymmetrically. Gains are taxed when they are realised, while losses can only be used to offset future (or in some cases prior) taxable income, typically only under certain tests. While companies can use prior year losses against future income, typically subject to certain tests. While losses can be carried forward, their value erodes over time, and in some cases they can never be used and are wasted. In Australia, the stock of existing losses is over \$100 billion and growing with around \$30 billion of new losses generated each year, while only \$20 billion of losses are utilised (Abhayaratna and Johnson; 2009).

The asymmetric treatment of gains and losses is typically justified as an integrity provision. It reduces the scope for companies to create fraudulent losses in order to get a tax refund. Despite perceived integrity benefits, the asymmetric taxation of profits and losses is likely to lead to a misallocation of resources and risk in the economy.

Imperfect loss offset provisions can bias investment decisions towards safer investments over risky investments. In effect denying full loss offset reduces the expected return from risky investments. In addition, investments with a long lead time may not be undertaken because the present value of deductions diminishes when losses are carried forward and because of concerns that expenditure will fail loss-utilisation tests in future periods (under a partial loss-offset).

Similarly imperfect loss offset provisions may also distort corporate financing decisions towards equity rather than debt, as firms are unable to receive the full tax benefit of interest deductibility.

Limitations on the use of losses may in particular disadvantage entrepreneurial small businesses engaged in risky investments, with start up or closing down expenditure and without other income to offset losses against. The bias against small business may lead to greater market concentration, because larger more diversified businesses may have a higher expected post tax return when they have other income to use against a loss against.

Loss restrictions may also lead to inefficient takeover activity. This is because entities carrying losses forward are valued more highly by entities that can utilise those losses. The impact on takeover activity is likely to be exacerbated by loss utilisation tests which require a degree of continuity of ownership for the loss to be used.

In addition, such restrictions can lead to pressure on the government for concessions to compensate and attract investors to investments which suffer as a result of the restrictions. These concessions are typically targeted towards specific types of investments and therefore further

distort investment decisions. For example, in Australia concessions for research and development, film, and venture capital create a bias toward such investments.

Where losses are not fully refunded or where gains and losses are taxed at different rates, as under a progressive tax rate scale, these asymmetries will tend to discourage risk taking including entrepreneurial activity. The flattening of personal tax rate schedules in recent years may therefore have reduced the bias against risk taking.

In effect while restrictions on loss utilisation and progressive marginal tax rates may reduce risk taking, they may also discourage certain types of risk taking such as entrepreneurial activity, and therefore distort the allocation of, and pattern of risk in the economy.

During the crisis, imperfect loss offset also limited the tax systems effectiveness to serve as an automatic stabiliser. This is because the tax value of deductions is not injected into companies until they have income to offset the loss against. In turn this may have prolonged government deficits beyond the economy's recovery. In order to reduce these effects a number of countries extended (or introduced) loss carry-back provisions. Loss carry-back allows companies to utilise losses in the year they incur them, providing they have paid tax in prior years.

5 Are some of the proposed cures even worse?

The financial sector is one of the most important for a well-functioning modern economy. Today, nearly every real transaction in the economy gives rise (or is guided) in some way by related financial transactions. Governments therefore need to be careful when intervening in financial markets, even (perhaps, most importantly) during crises, given the pervasive effects of financial signals.

Even though tax has not been one of the proximate causes of the crisis, it has recently gained popularity as one of the proposed responses to it, either through a Tobin tax or some kind financial industry levy. However, there are different policy objectives and effects for different types of financial industry levies. Adopting an inappropriate instrument can mean the objective is missed or results in unintended consequences, while the costs associated with using the instrument are nevertheless realised.

5.1 Financial transactions taxes

A persistent policy proposal for addressing financial market instability has been to tax transactions in financial market products. For example, Keynes in 1936 proposed taxing bonds (Keynes, 1964, pp. 159-60), Tobin in 1972 suggested foreign exchange (Tobin, 1974), while more recently Professor Krugman (2009) and, Lord Turner (Turner, 2009) chair of the UK Financial Services Authority canvassed the possibility of a similar tax on all financial transactions.

While there are differences in the reasoning behind such proposals, the common thread is that by placing "sand in the wheels" of the financial system, destabilising trades will be reduced and prices will better reflect market fundamentals. For example, Tobin suggests that because destabilising foreign exchange speculation tend to be high-volume and short-term, they would be disproportionately affected by such a tax.

There are a number of problems with this reasoning, including:

- the mobility of financial markets means trades would still occur, just elsewhere (different jurisdictions) or in different forms (such as options), potentially under less regulation;

- there is no clear link between some of the market and government failures that lead to the crisis, and trading volumes; that is there is no link between trading volumes and the creation of systemic risk (for example, credit default swaps – which effectively transferred a lot of risk up from sub-prime borrowers to more secure financial institutions – are generally done over the counter and not traded in secondary markets);
- the tax would apply equally to stabilising as well as de-stabilising trades (if *ex ante* you could tell the difference, you would simply ban the destabilising trades). The proportion of each may be different at different times (which is why, for example, regulators tend to restrict short selling of financial stocks only at times of financial crises). The tax would apply indiscriminately to transactions that are socially useful – including those that contribute to financial system stability – and those that are costly;
- there is no evidence that destabilising trades are more responsive to tax than stabilising trades – to the extent that “raiders” are less responsive to tax than “smoothers”, the tax might increase volatility. Indeed, transaction taxes tend to reduce the number of trades,
- there would be real economic distortions. For example, large, vertically integrated businesses use fewer transactions to make the same product and would pay less tax. Even if levied at a low rate, a tax would cause some impediment to real activity (for instance, currency transactions are essential for international trade and investment).

There appears little practical ability to introduce a financial transaction tax that improves financial market stability, not the least because the conceptual case itself is unclear.

5.2 Financial levies

The first step when assessing whether a levy is appropriate is to be clear about its policy purpose. Some objectives of financial levies include:

- reducing systemic risk;
- recovering the costs of government assistance provided after the collapse of financial firms; and
- taxing economic rents due to a heavily regulated and subsidised (either explicitly or implicitly) financial sector.

Policy makers should be clear about the policy purpose because each objective requires a different policy design. Indeed, the objectives can actually be in direct conflict. For example, a levy aiming to reduce systemic risk will provide less revenue the more it “works” in changing behaviour, so it should not be relied on to finance government bailouts. In contrast, a tax on economic rent should leave the incentives in the financial system unaffected, since it explicitly tries to avoid changing marginal behaviour. Finally, a levy used to cost recover government financial assistance could apply to firms with large potential liabilities deemed worthy of covering, but which inherently have no implications for systemic risk.

One problem with using a levy to protect the *system* against a financial shock is that there are a number of potential sources of such risk in financial markets. Some may be generated by markets, such as increasingly complex financial transactions effectively hiding systematic relationships between financial returns from different assets. Agency problems may contribute to this, since financial managers may be more focused on short-term remuneration related returns over more stable investments with long term returns. But it is often difficult to determine *ex ante* what transactions undertaken by profit-seeking individuals improve financial risk management and which are more likely to harm it. Governments can also be sources of systemic risk.

Risk-based fees are used by some regulatory agencies (such as the Australian Prudential Regulatory Authority) to cost recover their expenses. Extending the principle would see these fees

rise proportionate to the social costs of the activities of these financial firms, rather than the regulatory costs. The IMF (2009a, p. 43) and Slemrod (2009, p. 4) have noted the similarity with Pigovian taxes on pollution. However, the recent financial crisis poses a number of problems for such taxes. The source of the systemic risk may not be in the (domestic) regulated financial sector. Taxing the domestic financial sector may actually encourage instability by providing more incentive to use external finance sector. The tax rate needs to be set *ex ante*, when the costs are often only apparent *ex post*. For example, few commentators would have thought an insurance company such as AIG was systemically important before the GFC. It is similarly difficult to know what behaviours will cause a future financial shock with sufficient provision to be able to tax it. The externality is unlikely to rise in a consistent way with different types of financial obligations or remain stable through time, making setting the tax rate difficult. There appear other significant difficulties in determining relatively objective measures of systemic risk. One proposal is to measure a financial firms proportionate contribution to stock index falls of more than five per cent (Acharya and Richardson, 2009). Using such a methodology as a basis for taxing systemic risk leads to a peculiar non-linearity where, during such an event, investors will continually bid down the share price of a financial firm by whatever the future levy obligation, leading to more and more significant reductions.

There are likely to be better ways of targeting the social cost of systemic risk than using tax instruments. Instruments which target the marginal behaviours that impose the social costs are likely to be less costly. For example, if agency problems (such as short-termism on asset managers rather than owners) drive the systemic risk, then regulatory reforms targeted at the problem will be less costly (such as greater voting rights on remuneration incentives by shareholders). If the problem is moral hazard by government, it is unrealistic to expect future governments not to intervene in the economy when facing potentially calamitous market failures. But it is not unrealistic for managers to know that they will be fired, shareholder equity extinguished and liabilities severely curtailed should “bail outs” be needed. Clarity about the costs likely to be imposed on managers and owners before a shock may be more effective means of ensuring they do not become a crisis.

Levies that aim to *recover costs* may appear “equitable”, particularly following a financial crisis that has seen the commitment of significant government revenues. But it is far from certain that those who pay a financial levy are the same ones who benefit from financial market interventions. First, who actually bears the burden of the levy depends on economic incidence, which may be different during a crisis (when the spending is made) compared to after when the tax is paid. Financial markets also capitalise the benefits and costs of policies into the value of financial asset. The owner of a financial asset when a government support program is announced (or is expected) gains, and they may be different to the owners of the same financial asset when a tax is announced. Second, the beneficiaries of the support also presumably include the wider economy, rather than simply financial asset holders.

More importantly, such levies are likely to be inefficient and may even increase instability. Unless the levy itself reflects the potential risk of default, it is likely to be a high cost way for the government to finance such guarantees – effectively taxing relatively “safe” firms to pay for “risky” ones. The most common form of such a levy is to fund deposit insurance. Deposit insurance may improve financial stability by reducing the incidence of bank runs. However, it is the guarantee, rather than the levy which potentially improves stability. While a single, unexpected capital levy (on any sector) may be efficient, the prospect of ad hoc and recurrent capital levies on the financial sector is likely to harm economic growth in the long run.

Further, by affecting how firms take on risk, the levies can increase financial instability. For example, applying a tax to covered liabilities means financial firms are more likely to rely on alternative financial instruments not subject to the tax. Ironically, this mirrors the regulatory

incentives preceding the crisis, where banks used derivatives to maintain risk while reducing their borrowing costs by ring-fencing liabilities in off-balance sheet subsidiaries (Lloyd, 2009, p. 3). Rather than taxing pollution, the tax may actually be causing more pollution. Further, going into a financial crisis, the prospect of higher taxes on financial firms that survive (in order to finance the bailouts of those that don't) is likely to increase financial market instability. Even a recurrent capital levy is likely to be inefficient since businesses that are systemically risky pay the same rate as those that are not. Instead of targeting the marginal social cost of a firm's contribution to systemic risk, levy rate is usually set to recover the cost of interventions (for example, Sweden's prospectively and the US proposal is retrospective). This makes them an inefficient source of financing.⁴ In principle, the least cost means of raising the required revenue should be preferred.

One alternative would be to require financial institutions to buy credit default insurance deposits on secondary markets. This would result in more risky financial firms paying higher fees, providing price signals to consumers. Such insurance would only be effective in cases of limited financial system failures (say, for individual firms), rather than for comprehensive global financial collapse.

There may be one area where recent events have increased the case for tax reform. If some form of (implicit and explicit) guarantees persist, along with new financial regulations, financial sectors may be typified as having subsidies and barriers to entry, increasing the potential for excess profits. For example, in Australia, the closing of much of the mortgage origination market has effectively eliminated the competition to the four major banks in providing bank finance. Some options for recouping this economic rent are discussed below.

6 Potential tax policy reforms

The previous sections outlined a number of areas where the tax system may have contributed to the key vulnerabilities in the financial system. In this section we highlight a number of tax policy reforms options that could be used to reduce these issues. Many of these options were also outlined in the recent Australia's Future Tax System review (Henry, 2010).

Rather than financial sector specific taxes, governments could instead consider reforms that address underlying risk misallocation in the economy, many of which relate to the tax system.

6.1 *Addressing the corporate debt bias*

There are a number of options that could be used to reduce the bias towards debt at the company level. For example, options such as the comprehensive business income tax system business or business level expenditure taxes (such as cash flow taxes and allowance based system) would either eliminate or significantly reduce the current bias towards debt.

6.2 *Comprehensive business income tax*

The comprehensive business income tax (CBIT) was originally proposed by the U.S. Treasury (1992). The CBIT aims for financial neutrality by abolishing the deductibility of interest. A broadening of the company tax base may allow the company tax rate to be reduced.

⁴ Pre-funding may actually introduce an additional uncertainty into financial markets since governments are likely to face increased incentives to bail out firms, even those for whom the funds are not ear-marked.

Introducing the CBIT would mean denying interest deductibility for existing loans. While it may be possible to phase this in over a number of years, this could further increase the vulnerability of highly leveraged firms, placing them at in further financial distress. In addition, denying interest deductibility could also increase the cost of debt financed from foreign investors.

The CBIT has not been formally adopted in any country, although there have been partial steps taken in some countries to limit interest deductibility (for example, Germany).

6.3 Cash flow taxes

The cash flow taxes, as discussed by the Meade Committee (1978), allow full expensing of investment in the year capital goods are acquired while, like the CBIT interest expenses are not deductible. In effect the government finances a fraction of investment equal to the tax rate. At the same time the government receives a fraction of all future cash inflows from the investment. Like the CBIT, as the cash flow tax is neutral towards debt and equity as the tax liability is independent of how investment is financed. Cash flow taxes only tax the above normal returns and as such are neutral to real investment decisions at the intensive margin.

There are various forms of cash flow tax. They can be imposed on a source base, or destination base (as suggested by Auerbach, Devereux and Simpson, 2009).

However, like the CBIT, because it abolishes interest deductibility, it raises a significant transitional problem for existing debt.

6.4 Allowance for corporate equity

The allowance for corporate equity (ACE) was proposed by the Capital Taxes Group of the Institute of Fiscal Studies (1991). Variants of the system have been tested in Croatia (Keen and King, 2002), Brazil (Klemm, 2007), Italy (Bordignon *et al.*, 2001) and in Austria (OECD, 2007, p. 130). More recently, an ACE system has been introduced in Belgium (Gérard, 2006) and Latvia.

Like the CBIT, the ACE is a sourced-based tax, but while the CBIT denies deductibility for interest the ACE eliminates the tax bias in favour of debt by allowing a company to deduct an imputed normal return on their equity, in addition to the deduction for debt. The ACE therefore only taxes rents, or profits above the required rate of return. The ACE is in effect similar to the “R+F” cash flow tax as outlined by Meade (1978), and therefore, like the cash flow tax, also does not distort real investment decisions at the intensive margin.⁵

As the ACE effectively narrows the company tax base it is often argued that it should be combined with an increase in the company tax rate. However this need not be the case. As highlighted in Sørensen and Johnson (2010), as the incidence of a company income tax is passed onto less mobile factors, such as labour and land through the taxing the normal return, the revenue loss from the introduction of an ACE could be funded by increases in taxes on these factors. In fact, as these factors carry more than the full burden of the company tax on the normal return, they would still be better off.

Furthermore, the immediate revenue impact of moving to an ACE-based system can be mitigated by only providing the allowance for new equity. That is, by setting the initial equity base for which the allowance is calculated to zero. This approach maximises the boost to equity financed investment for each dollar of revenue forgone. However, setting up an ACE-based system in this

⁵ Unlike a conventional company income tax system, under the ACE there is no distortion from accelerated depreciation. Any mis-measurement of profit is offset by a corresponding change in future allowances.

way may require complex anti avoidance provisions to prevent entities from re-characterising existing equity as new equity.

6.5 *More neutral treatment of savings income*

The previous options to reforming the company income tax system would not however address all distortions to financial decisions. There are still considerable distortions at the personal level, particularly in relation to the taxation of capital gains and housing.

Sørensen and Johnson (2010), who consider options for the fundamental reform of Australia's capital tax system, recommend consideration be given to introducing an ACE at the corporate level combined with a broad based dual personal income tax.

Dual income taxes have been introduced in its purest form in the Nordic countries, and combine progressive taxation of labour income with a low flat uniform rate on capital income.

Sørensen (2009) outlines a number of reasons for adopting a dual income tax. A flat tax reduces lock-in effects of a realisation based capital gains tax system under progressive taxation, whereby taxpayers can be pushed into a higher tax bracket when large gains are realised. A flat tax on capital income eliminates tax arbitrage opportunities where individuals exploit differences in marginal tax rates.

A low rate dual income tax may also allow for the tax base to be expanded to include currently exempt or concessionally taxed activities. Where concessions cannot be removed, for example due to political concerns or administrative difficulties, a move towards a dual income tax would reduce the relative attractiveness of the activities outside the system.

Under the model proposed by Sørensen and Johnson, all savings income would be taxed at a low flat rate. Australia's dividend imputation system would be replaced with the ACE, providing double tax relief at the corporate level.⁶

By providing a more symmetric treatment of expenses (such as interest) and capital income would reduce, and possibly eliminate the current biases towards debt financing investments, and consequently the incentive for individuals to take on too much risk. Such arrangements would also reduce concerns that the current arrangements may in fact amplify the volatility of the housing market which could in turn add to macroeconomic instability.

Returns from listed shares, would be taxed under the dual income tax with capital gains taxed on a mark to market basis (eliminating the lock-in effect). Thus the normal return on equity, (which is exempt from tax under the ACE) would be taxed at the dual income tax rate, and any economic rents would be taxed twice once in the company and again under the dual income tax.

6.6 *The taxation of housing*

The dual income tax could also be applied to housing. Sørensen and Johnson, proposed using the risk free return method (RFRM). Under this method the returns from saving through investment property or owner occupation is deemed on the either the net value of the property or gross value with a deduction for interest expenses.

⁶ This would further reduce the revenue loss from the introduction of an ACE, and reduce the complexity of the tax system.

A deeming approach to taxing property could replace existing transaction based taxes on housing, improving how the tax system impacts on housing, particularly reducing the susceptibility of financial markets to housing lead shocks.

6.7 Improving loss utilisation

In an ideal world losses would be made fully refundable. However, full refundability opens the tax system to increased opportunities for tax evasion.

In Australia, there are a number of options that could be considered to improve loss utilisation, and to reduce distortions arising from the current arrangements which favour particular forms of risk taking.

Many countries currently have loss carry-back arrangements. Under loss carry back firms can offset current year losses against tax paid in a prior year. Loss-carry back, like full refundability but to a lesser extent, would act as a microeconomic stabiliser. While this would free up loss utilisation, on its own it may further distort risk towards larger ongoing firms and away from start-ups and entrepreneurs who are less likely to have paid tax in previous periods.

In response to the GFC a number of countries extended (or introduced) loss-carry-back provisions, including the United Kingdom and the United States.

Another option could be to allow losses to be carried forward with interest. This would ensure losses maintain their real value and if combined with a relaxation of utilisation rules would have a similar impact to full refundability. This option would however have a significant cost to revenue, and if the current income tax system is maintained, would increase the debt bias, as the present value of losses arising from interest deductions would be preserved.

7 Conclusion

While tax policies did not cause the global financial crisis they are likely to have at least contributed to key vulnerabilities in financial systems. Introducing new taxes on the financial system appears to some to be one of the main means for addressing financial market instability. This is even more incongruous when one looks at the existing tax biases that distort the allocation of risk and increase the complexity of the financial system. Rather than the “new”, there appears significantly greater chance of success from attempting reforms to the “old”.

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