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Thanks for the opportunity to respond to the Working Group's Discussion Paper. This short submission makes two related points. First, the Working Group's support for a broader base, lower rate approach to corporate tax reform is not based on solid empirical or conceptual grounds. Second, the Group's view that an Allowance for Corporate Equity (ACE) should not be considered in the short-to-medium term is potentially a costly mistake.

An ACE, which allows firms to deduct an imputed cost of equity from their accounting profits, has several potential advantages over a reduction in the corporate tax rate. I have addressed several features (and weaknesses) of an ACE in a presentation to Federal Treasury last August. The slides of this presentation are attached and should be seen as part of my submission. I would be happy to discuss the contents of the presentation with the BTWG members directly.

To summarize the attached presentation, an ACE will address the current divide between the tax treatment of debt and equity in Australia and mitigate the distortions of the current tax regime on marginal investment. An investment that should be undertaken in the absence of taxes does not go ahead in the presence of current corporate tax rate. The reason for this is that an investor needs to secure a post-tax return to compensate for the tax paid on return on equity, which is treated as accounting profit. Unless a marginal investment is one hundred per cent financed by debt, it does not go ahead. This leads to lower investment, lower productivity and, in turn lower wages. Thus, the introduction of an ACE has the potential to unleash a substantial amount of new investment.

Importantly, an ACE at the existing current corporate tax rate would benefit all firms but the benefit would be greater for lower return firms over higher return firms. That is, firms struggling because of the high Australian dollar would benefit more from an ACE than firms that are enjoying high returns. In contrast, a straight reduction in the corporate tax rate has the potential to be of greater benefit to firms that are already highly profitable. Ultimately, however, the choice between an ACE and a lower corporate tax rate ought to be based on quantitative, empirical analysis. Treasury is in a unique position to access economy-wide and industry specific data that is needed to assess the impact of the proposed changes on investment, productivity, welfare and future tax revenue. I urge the Working Group to pursue such modeling before dismissing the introduction of an ACE in the short to medium term.

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An Allowance for Corporate Equity (ACE)

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Plan for this lecture

- What is an Allowance for Corporate Equity (ACE)?
- Theoretical underpinnings of an ACE
- Implementation Issues
- International Experience
- Conclusion

Problems with the current system

- Divide between the tax treatment of debt and equity in Australia.
 - Interest is a tax deduction while dividend payments are not
 - Heavier reliance on debt financing
 - Lots of evidence on the tax sensitivity of debt-equity choice. E.g. for Germany, a 10% increase in the corporate tax rate increases leverage by approximately 5% (Dwenger and Steiner, 2009).
 - Efficiency losses of tax-induced distortion of the debt-equity ratio will be high if it leads to more bankruptcies as firms become more vulnerable to adverse shocks
- Marginal investments don't go ahead under the current regime
 - Leads to lower investment, lower productivity and, therefore lower wages (Gordon, 1985)

What is an Allowance for Corporate Equity (ACE)?

- Under an ACE, a corporation is able to deduct a notional interest rate on their equity.
- An ACE aims to address this discriminatory treatment of equity financing and to eliminate the taxation of marginal investment.
- The aim is to eliminate the taxation of normal returns on equity, while still taxing economic rents.
 - Low return firms will benefit proportionally more than high return firms.
- The ACE neutrality also provides opportunities for tax simplification
- An ACE is economically similar to a flow of funds tax.
 - There are, however, important differences.

The Theoretical Underpinnings (Boadway and Bruce, 1984)

Terminology

K_t = *capital at time t*

$$\dot{K}_t = \frac{dK_t}{dt}$$

δ = true depreciation rate (exponential)

$Y(K_t)$ = production function

P = constant nominal price of output = 1

Q = Constant nominal price of the capital good

Terminology (cont'd)

$Q \dot{K}_t + \delta Q K_t$ = value of the gross investment
= I_t

r = wacc

B_t = stock of debt of the firm

i = constant nominal interest rate on debt

T_t = business taxes paid

ρ = constant discount factor

Abstracting from inflation, relative price changes and other complications from the original model

The Firm's Problem

To maximise the value of equity V_t at $t = 0$:

$$\max \int_{s=t}^{\infty} e^{-(s-t)\rho} [Y(K_t) - I_s + \dot{B}_s - iB_s - T_s] ds \quad (1)$$

This is equivalent to:

$$\max \int_{t=0}^{\infty} e^{-rt} [Y(K_t) - I_t - T_t] dt \quad (2)$$

Neutral Tax

Define accounting stock, A_t , which evolves as follows:

$$\dot{A}_t = I_t - \alpha A_t \quad (3)$$

Where α = accounting depreciation rate (exponential)

αA_t = analogous to a scheme of historical cost depreciation at exponential rate α .

Neutral Tax (Cont'd)

Proposition (Boadway and Bruce, 1984):

$$T_t = u(Y(K_t) - (r + \alpha)A_t) \quad (4)$$

is neutral for any rate α , u constant, and T positive or negative.

Proof: Replacing (4) into (2) yields:

$$\text{MAX} \int_0^{\infty} e^{-rt} \{ [Y(K_t) - I_t] (1 - u) - u (I_t - (r + \alpha)A_t) \} dt \quad (5)$$

Neutral Tax (Final)

From (3), $I_t = \dot{A}_t + \alpha A_t$ and so (5) can be written as:

$$\text{MAX} \int_0^{\infty} e^{-rt} (Y(K_t) - I_t) (1 - u) dt - uA_0$$

Since A_0 is constant, this is the same as

$$\text{MAX} (1 - u) \int_0^{\infty} e^{-rt} (Y(K_t) - I_t) dt$$

This is the same problem as (2) when $T_t = 0$, scaled by $(1-u)$. The F.O.C is the well-known user cost of capital and it is not a function of tax!

The ACE is a special case of a neutral tax

- Set $\alpha = \delta$ so that we are depreciating the accounting stock at the true physical depreciation rate
- A_t = replacement value of capital stock (except for a constant if $A_0 \neq QK_0$)
- Allowing $(r + \delta)A_t$ as a capital cost deduction is equivalent to the Samuelson rule
 - Of course, r varies across sectors but need to set one r for all firms. Usual prescription to set imputed cost of equity at government bond rate – (social) hurdle rate for the marginal project
- The Cash flow tax is also a special case: let $\alpha \rightarrow \infty$ so $A_t \rightarrow 0$, $\alpha A_t \rightarrow I_t$ and from (4) $T_t \rightarrow u(PF(K_t) - I_t)$
 - Immediate write-off (Cash flow) case; recall that T might be negative [Both required for neutrality]
- Bond and Devereux (1995) extended this neutrality result to uncertainty

An ACE is neutral with respect to:

- Marginal variations of investment choices and the size of firms
 - Marginal investment is driven by the user cost of capital which increases with the EMTR
 - $EMTR = 0$ for marginal investment
- The source of investment
- Different asset lives and/or different rates of depreciation and varying rates of inflation
- Types of investment (e.g., real assets, financial securities, etc.)

An ACE and extensive investment

- The ACE is not neutral wrt the choice of investment projects
- The model and logic applies to undiversified corporations with all projects with the same return
- Tax applies at the corporate level and not at project level...but ACE rate will be the same for all corporations and set so as not to distort marginal project (see later)
 - These discrete investment choices are driven by the EATR
 - Since an ACE taxes economic rents, $EATR > 0$, so distortion exists
 - “It is impossible to introduce an overall neutral tax under uncertainty as long as we have a variety of investment projects”(Gries, Prior, and Sureth, 2012).
- Such distortions already exist currently
 - An ACE **at existing corporate tax rate** mitigates the distortion

The ACE and Location versus Firm Specific Rents

- An ACE taxes rents and not normal returns
 - A tax on normal returns is shifted onto immobile factors
- Extensive investment for firms with location specific rents will be inelastic wrt tax
- Extensive investment for firms with firm specific rents will be elastic wrt tax
- In Australia: location specific rents in mining, banking, and some services?

The ACE and profit shifting

- Firms might shift profits by transfer pricing and the use of internal debt
 - Bartelsman and Beesma (2003) show that 60% of additional tax revenue following an increase in the corporate tax rate in OECD countries is lost due to profit shifting
- Again this distortion already exists under the current regime
- However, an ACE **at the existing corporate tax rate** mitigates the distortion

ACE and Revenue Neutrality

- Distortions on extensive margin and profit shifting already exist under the current regime
 - An ACE at existing rate mitigates these distortions;
 - Increasing crt so that the introduction of an ACE is revenue neutral may increase distortions – Cooper (2012) suggests rate would need to rise to 37%
 - Empirical evidence suggests that extensive margin might be more sensitive to tax than intensive margin (de Mooij and Ederveen, 2008)
- Better to cast it as a choice, for example, among: (i) ACE @ 30%; (ii) ACE @ 25% + no imputation; (iii) reduction of ctr to 25% (with or without CBIT)
 - Need to get a better grasp of quantum and elasticities of intensive versus extensive investments (and location versus firm specific rents)
 - Recall that standard CBIT will distort marginal investment further
- Effect on tax base should be evaluated over time

Implementation Issues

What are some of the key issues?

- What should be the value of equity
- What should be the imputed rate
- Transition and other issues
 - Imputation credits
 - New equity only versus existing equity
 - Anti-avoidance rules
 - Limits to carry-forward of ACE allowances

“Value of Equity” (Isaacs, 1997)

- + Shareholders’ funds for the previous period
- + New equity
- + ACE allowance for the previous period
- + Taxable profits for the previous period
- + dividends received and amounts realised in disposals of other companies shares
 - Tax paid on those profits
 - Dividends and distributions to shareholders and capital repaid
 - Amounts invested in the share capital of other companies
- **Devil is in the detail – need to iron out the details**

The Imputed Rate

- It's meant to represent the opportunity cost of capital
 - Discount rate used by firms
- But need a single imputed rate for all companies
- The 10-year bond rate is often suggested (e.g., IFS)
 - Nominal so as to cover inflation risk
- The underlying logic is that government is a silent partner and will underwrite ACE payments for unsuccessful companies
 - Not doable for a variety of reasons (including inability to commit)
- Pragmatic Approaches
 - In Chile, for example, government set bond rate + risk premium for highways PPPs
 - An Economy-wide risk premium (plus bond rate)? This is problematic as it can create moral hazard
 - Average corporate bond rate?

The ACE and the personal tax system

- Gap between highest personal income tax rate and corporate tax distorts decision to distribute income.
- Introducing an ACE rather than reducing corporate tax rate to 25% reduces this distortion.
- Other models:
 - Chile: companies pay a 18.5% tax on profits, yet technically this tax is a credit against future dividend payments by the company. Foreign companies pay the 18.5% on profits and once they ship profits abroad (which is equivalent to withdrawing profits) it is assumed that their marginal rate is 35%, so they pay the difference between 18.5 and 35 at that point.
 - Corporate tax becomes a backstop to personal income taxation and to tax location-specific rents at source.
- Mirrlees Review: households to deduct a normal return on all forms of savings.
- This is a complex area.

The ACE and Dividend Imputation

- Cooper (2012): Australian entities that invest more domestically would be advantaged by an ACE in comparison to those that invest internationally
 - But this is already the case under existing dividend imputation
- Dividend imputation may be eliminated
 - Public concern with transition can be alleviated by transforming existing credits into a starting base
- Current imputation exempts rents from taxes

Transition and Other Arrangements

- Only applies initially to new equity or existing equity?
 - Want to avoid large windfall gains and losses to individual firms
- How to value existing equity
- Anti-avoidance rules – how is this different from integrity measures needed when other tax changes were introduced?
- Carry forwards (5 years, indefinite?)
- Careful treatment of investment; reduction in the book value of equity for investment that generates no taxable income.
- Thin capitalisation rules no longer required (or can be simplified)? How about TOFA, capital allowances, etc

International Experiences

An ACE is neither a new nor untried concept

- It was discussed extensively in the optimal taxation literature of the 1970s;
- It was brought into the policy arena by the Institute for Fiscal Studies in the early 1990s;
- It has been tried by a number of countries including Austria, Belgium, Brazil, Croatia, and Italy; and
- It was recommended recently by the Mirrlees Review (2001) of the UK Tax System.

Practical Experiences with an ACE system - Italy

- Italy introduced a (partial) ACE system from 1998 to 2003 (See Bordignon et al., 1999, 2001)
 - Only new subscription of capital and retained earnings
 - Imputed rate = 7%, changed to 3.5% and then 3% by new government and then was abolished.
- Bontempti et al. (2003): in a sample of about 12,000 firms, debt/asset ratio was reduced on average by 0.21%; Bernasconi et al. (2005) found similar results
- Santoro (2005): large, profitable firms were more likely to issue equity and benefit from the ACE.
 - Small firms were less likely to issue equity and benefit from the system, even though they already had a higher cost of debt.
- Oropallo and Parisi (2005): effective tax rates have increased for most firms post-abolition.

The New Italian ACE

- Reintroduced in December 2011
- Imputed rate initially set at 3%
- No later than January 31st of each year the Minister of Economy and Finance determines the new rate; in line with the average return of public bonds + 3%
- Applies to new equity; starting level = firm's net wealth as of 31st December 2010
- It also applies to sole proprietors and partnerships but the government is not a silent partner (so no cash in of losses)
- Anti-avoidance rules: If shareholders inject new equity in company A and then transfer this money to a subsidiary B, only B gets the allowance
- Panteghini et al. (2012) estimate that the ACE would lead to a decrease in debt and significant reduction in the tax burden (18-20%); Italy's current corporate tax rate is 27.5%.

Practical Experiences with an ACE system - Croatia

- Croatia implemented a full ACE regime in 1994 (was later abolished in 2000).
 - 5% adjusted for industrial products price inflation
 - carry forward ACE allowance for 5 years (adjusted for inflation)
- Keen and King (2003):
 - Find that the ACE raised a similar amount of revenue (relative to GDP) as on average in the EU.
 - Thus, while the ACE reduced taxable profits, the revenue from corporate taxes increased from 1994 to 1998; this happened for a variety of reasons....but foreign direct investment was higher in Croatia than all neighboring countries (excluding the Czech Republic).

Assessing the Impact of Implementing an ACE in Germany (Finke and Heckemeyer, 2010)

- Finke and Heckemeyer (2010) use a micro simulation model to analyse the effects of implementing an ACE system in Germany.
- The authors find that the corporate tax rate under an ACE (set at the government bond rate) would need to increase from 15% to 17.8% in order to balance the budget.
- However, corporations with high profitability and a low debt ratio would still benefit from the reform as the equity allowance more than offsets the costs arising from an increased tax rate.

Summary

- An increase in the tax rate to make ACE revenue neutral might not be desirable
 - Elasticity of intensive investment (+) might be dominated by elasticity of extensive investment (-) at higher corporate tax rates
 - There are also cautionary tales of countries backing off from an ACE when it creates cash flow problems for firms
- Choice between ACE @ 30% and alternatives depends on quantum and elasticities
 - If intensive dominates extensive margins, ACE @ 30% might be better (or ACE @ 25% with no imputation system) then reducing ctr (with or without CBIT)
 - Location specific rents suggest that this is possible
 - CGE modeling for Europe suggest that ACE dominates if effect on tax base is not too large and if reduction in tax revenue is financed by less distortionary tax
- Details matter: careful attention needs to be paid to implementation of an ACE – many challenges
- International momentum for an ACE
 - There might be first mover advantages

Key Messages

- An ACE will eliminate tax bias towards debt and introduce neutrality w.r.t. marginal investment
- An ACE taxes rents but not normal return on equity
- It can be financed by other changes in the system, and increases in tax revenue in the long run as a result of increased productivity
- Its effects on tax base needs to be estimated carefully given location specific rents and over the relevant time period
- An ACE provides an opportunity to simplify the tax system

- Thank you!

Questions/comments:

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