Review of the rate of return guideline for energy

Submission

David Richardson
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Introduction

This submission responds to the call for submissions on the draft rate of return guidelines as set out by the Australian Energy Regulator (AER).

The consumer groups have complained that the regulated entities are very profitable and attribute that to flawed methodology on the part of the regulator. We want to support that and follow up two issues; the guidelines relating to equity premia and the gearing ratio.

Equity premia

The approach here is to set a rate of return equal to the risk-free rate plus an equity premium to reflect market risk. This is called the 'market risk premium' or 'MRP' in your documentation. The argument is that the market tends to require a higher rate of return to compensate for any higher risk and if the market appears to do it then the public sector should do it. There are two main points to argue here:

- The equity premium as measured ex post is a flawed measure of any ex ante premium that companies may seek.

- There is no theoretical justification for arguing that large players, and especially governments who can pool risk, should be anything but risk neutral.

EQUITY PREMIUM PUZZLE

In much of the serious literature on the equity premium it is referred to as a 'puzzle' mainly because it appears to make little sense.

Mehra and Prescott (1985) produced the seminal work that generated the now fairly extensive literature on the equity premium. They found that the average real annual yield on the S&P 500 Index was six percentage points higher than the average yield on short-term government debt. Mehra and Prescott thought that the six per cent differential was far too high and could not be explained with standard (neoclassical) economic theory. It is worth quoting some of their remarks. As they put "The question addressed in this [their] paper is whether this large differential in average yields [the equity premium] can be accounted for by models that abstract from transactions costs, liquidity constraints and other frictions absent in the Arrow-Debreu set-up. Our finding is that it cannot be…" (Mehra and Prescott 1985 145). This is important because if the equity premium cannot be justified in an idealised model of the economy then it will be a very imperfect guide for policy makers who want to emulate the outcomes that might be produced in an ideal perfect market.

DeLong and Magin (2009) provide a good review of the subsequent literature and of the unsuccessful attempts to solve the puzzle. There is no evidence that the AER guidelines are informed by the literature on the puzzle nor do the guidelines appear to recognise why the concept of the equity premium remains a puzzle.

In 2017 I presented a paper (attached) to the conference of the Society of Heterodox Economists which showed that the estimated equity premium was merely a statistical artefact and nothing could be inferred about whether or not investors did actually require a 600 basis points premium. The process by which investors make decisions is unobservable.

The empirical estimates themselves should have set off alarm bells. The equity premium apparently hovers around 600 basis points on an asset in which the investor shares in both the upside and downside risk. One would expect if the equity premium meant what the AER thinks it means then the risk premium should be much higher than 600 basis points on assets in which there is downside risk only. Such an asset is a bond issued by a company. We showed that on the date chosen, an A-rated company bond had a premium of 100 basis points over the risk free rate and the BBB-rated bond had a 142 point premium. These figures suggest only a modest premium for very risky bonds compared with 'safe' corporate bonds and the risk-free rate. So there is a massive contradiction: we get a small effect when the risk is in one direction only but a large effect when the investor shares both the upside and downside risk. Incidentally, the fact that a financial instrument with only downside risk commands a premium in the market says nothing about risk aversion or other attitudes to risk on the part of the bond holders. The expected outcome of such a bond will always be less than the nominal contractual yield. So a risk neutral investor will estimate the expected outcome as less than the contracted outcome.

Given the problematic nature of the concept in the literature one wonders why the AER continues to use it.

RISK AVERSE, RISK LOVING OR RISK NEUTRAL?

Apart from the observed 'equity premium' whose interpretation we dispute, there is no a priori reason to expect investors to be severely risk averse.

Some unpublished work we have done suggests that only around 10 per cent of the share market is held by what might be called the ultimate investors represented by Australian households. The rest is held by financial corporation and foreign investors (who are most likely also financial corporations). Financial interests are in turn dominated by organisations who buy the index and so are pooling their risks.

Neoclassical theory suggests that investment should take place until the expected return on capital equals the public's inter-temporal discount rate. Applying a hurdle to the expected return on capital puts inefficiencies into the system since it implies that governments are forgoing investments that generate a higher return than is required

to elicit the funds supplied by households. A Pareto improvement is being denied. That is a cost to the economy and it is no excuse to suggest that the private sector appears to do it as well .

Gearing ratio

We note that gearing would not be an issue in the world of the Modigliani Miller theorem (MM). We would be applying the same rate of return to equity as debt and everyone would earn the going rate of return. This is the extreme perfect competition result but the authors of the guidelines might reflect further on what MM means for public investment.

We have two problems with the use of the gearing ratio guidelines and in any case we could well ask why the regulator would want to use anything other than the actual gearing ratio for the companies concerned. The first problem is that the gearing ratio is arbitrary and seems to result in the curious method behind the rate of return guidelines. The second problem is the issue of the type of asset on which the rate of return applies.

60 PER CENT

The guidelines suggest a gearing ratio of 60 per cent (debt is 60 per cent of the regulated asset base or RAB) based on market surveys. Those surveys use the market value of the companies surveyed rather than the actual asset base or 'net assets'. However, a gearing ratio based on market values in surveys is going to be biased downward. For example top 20 companies tend to have a market to net tangible assets of a bit over five. Market valuations of companies include the capitalised value of their monopoly profits. In a perfect market the market value and net asset value would be the same. Expectations are not disappointed and no-one can better the going rate of return. But there is no sense in trying to emulate the perfect market by plucking values out of an imperfectly competitive world.

Looking at the major poles and wires corporations we find that the net assets are around zero if we discount the notional items that we discuss in the next section.

NOTIONAL ITEMS IN THE REGULATED ASSET BASE

The second problem is that there are many items in the corporations' RAB and the rate of return guideline should not be applicable to all of them. The regulated rate of return should only apply on the investments in physical plant and equipment and other items that are strictly required to supply electricity. For example we understand retained earnings are a permitted asset that can be included in the RAB. But of course for a

normal firm whether it retains or distributes its profit has no bearing on the activity/s that generate the profit. If that company wanted to retain some earnings then they would be expected to be invested in some financial asset that would generate its own return. Decisions to retain profit should be made on that basis and not so as to increase the asset base in order to earn a higher profit. The argument against 'gold plating' applies equally if not more so in the case of gold-plated financial engineering.

Likewise items such as goodwill do not contribute to the capacity to produce anything and no-one has had to buy goodwill in order to produce electricity. At best goodwill arises when someone pays more than the book value on an asset—usually because of the expectation of supernormal profits. But it is circular reasoning to then include goodwill in the RAB.

Incidentally 'goodwill' is a controversial concept and the Economist notes that 'when it comes to concepts with inappropriate names, goodwill is near the top of the list. Instead of benevolence and big-heartedness, it provokes irritation and theological feuds among financial types' (Economist 2018). A large amount of goodwill on a company's books makes it appear to have a larger net equity than it really has and makes it look more solid that another company that might be the same in all other relevant respects but has no goodwill. In acknowledging the problems with goodwill the International Accounting Standards Board (IASB), which frames the rules in most countries is reviewing the treatment of goodwill. The IASB is apparently considering a proposal that would write off a certain percentage of goodwill every year, rather like depreciation on ordinary physical assets (Economist 2018).

The IASB idea of writing off notional items like goodwill seem to have a good deal of merit, as does the ACCC's (2018) suggestion that the over-investment in gold-plated real assets be written off.

When we examined the books of corporations likely to be affected by the guidelines we found other nominal items that should not be included in the RAB. Revaluation reserves are bogus items in that no-one ever put up the money and in practice it seems to be a sort of accounting for inflation or the capitalisation of future profits. Neither of these produce electricity. The guidelines are elsewhere about non-inflation adjusted concepts but the RAB allows revaluations to inflate the RAB for price effects. Note too that if depreciation allowances are 'invested' in assets that include a compensation for inflation then there is no issue about the corporation concerned financing replacement capital items whose costs may have also increased with inflation when the time comes to replace them.

The other 'trick' we have noticed is that corporations inflate the value of their property, plant and equipment to give estimates of fair value well above historic cost.

'Fair value' is estimated as the market value of selling the businesses rather than the market value of the items that are owned by the business. This is another way of illegitimately inflating the value of the assets concerned. And this does not stand the 'pub test'. Imagine telling the front bar that you can inflate the value of your assets because they earn above the going rate of return but then you use the inflated values as the base on which to apply the going rate of return. This almost amounts to saying that you know the regulator will allow you to get away with it so that is the basis for your inflated RAB values.

Obviously some intangibles are legitimate. We should be happy to see software development and other intellectual property treated as an investment to be depreciated over time. At the moment expenditures on these items are treated as current outlays and deducted immediately as current expenses.

Conclusions

The present draft of the guidelines is a hybrid with bits taken from the perfectly competitive ideal world of neoliberal economics and bits taken from the awkward real world dominated by industries that display non-competitive features of one type of another. To misquote Tolstoy 'Perfectly competitive corporations are all alike; but every non-competitive corporation is non-competitive in its own way'.

We recommend the AER completely rethink its approach to setting allowable rates of return. In particular

- The notion of the equity premium be rejected as a basis for setting allowable rates of return.
- Reject the notion that the government sector should apply a high rate of return hurdle to public investment just on the basis that the private sector appears to do so and appears to be risk averse. Governments should be risk neutral and be guided by expected returns.
- Any regulated rate of return should be applicable to both debt and equity and if different for debt and equity the appropriate rates should apply to the actual debt and equity rather than some market average.
- When calculating allowable prices that reflect the regulated asset base there should be no values attributed to 'goodwill', 'asset revaluation reserves' and other notional items. The exceptions should be limited to intellectual property and software which are essentially investment-type outlays.
- All rules that affect profit need to be guarded against attempts by for-profit corporations to game the system.

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The equity premium in Australia

David Richardson[1]

The equity premium puzzle has been around a long time and there are now many references to it. DeLong and Magin (2009) provide a good review of the literature and of the attempts to solve the puzzle. Indeed, given all the firepower that has been focused on the puzzle it is time perhaps to question the puzzle itself.

The importance of this puzzle is evident in the common use of the premium in setting charges for government services including those provided by utilities delivering essential services such as electricity and water. Hence for example the Productivity Commission (PC) has set up criteria for consideration in competitive neutrality issues. According to the PC a government owned corporation should be earning the same rate of return as its peers and the suggested value of the rate of return is the government bond rate plus 6 or 7 per cent (CCNCO 1998). The ACCC uses estimates of what it calls 'the market risk premium (MRP) for the purpose of determining regulatory prices' (Gibbard 2013). Officer and Bishop (2012) estimate a MRP of 6 per cent for use with NBN Co's special access undertakings. Special access undertakings govern the prices that NBN charges for its services to retail telecommunications providers. Given the NBN Co is a very capital intensive operation adding 3.5 percentage points to the 10 year bond rate of around 2.5 per cent imposes substantial burdens on the final consumers.[2]

All of these and other attempts to saddle the government sector with additional burdens to meet the equity premium *plus* the cost of capital create an inevitable bias against government enterprise. For some reason we have forgotten earlier thinking that saw the logic of big organisations as being able to pool risk and so virtually ignore it. The corporation was invented to do just that and, where projects were too big even for the company, then the logic pointed to government undertakings.

We identify two themes that point to the inappropriate use of the equity premium and similar concepts. First the suggestion that rates of return are too high. There is an increasing literature from around the world that suggests the modern corporate sector is increasingly concentrated with fewer firms dominating various industries with the

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[2] The six per cent equity premium averaged over equity plus debt.

consequence that profits are much higher than would be obtained in a competitive environment. US research, especially the work of Barkai (2016) shows increasing profit shares due to increasing concentration of big business into even bigger and fewer businesses. In his treatment 'profit' is the excess of total corporate income over the return that would have been obtained in a competitive economy. What Barkai is really doing is pointing to high rates of return in concentrated industries and comparing that with the returns investors are prepared to accept in the market. For example, in Australia banks may be earning 15 per cent after-tax but Australian investors in the same banks can only get around 5 per cent before-tax. The difference is the above normal profit that the bank can extract from the Australian market. In the US profits following Barkai's usage increased from virtually zero in the early 1980s to around ??? recently. This move has been consistent with the shift in the income distribution away from labour.

An earlier Australia Institute paper on the big four banks pointed out that 'The Australian banking industry is the most concentrated in the world with the big four currently accounting for 79 per cent of resident assets, 80 per cent of gross loans and advances and 83 per cent of housing loans (residential and investment).[3] The Australian big four banks are the ANZ, the Commonwealth Bank, the National Australia Bank and Westpac. The Australian big four were also among the most profitable in the world. Between them they make profits of 2.9 per cent of GDP which is higher than the top four banks of any other comparable country.[4] They make up four of the eight most profitable banks in the world'.[5] The big four banks argue that they are highly competitive but the evidence shows clearly that this is not the case. The earlier TAI paper discussed the tight control of the banks on behalf of a number of nominee companies.[6] Since then there has been some research examining the implications of common ownership in the US banking system and showing that more common ownership implied higher profits.

The common ownership issue was taken up by *The Economist* earlier in 2016 in an article that said the ownership of America's big banks gets behind the corporate veil and finds much more concentration than is apparent through a mere counting of the

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[3] These are the figures for just March 2016 from APRA (2016) *Monthly banking statistics*, March 2016.

[4] TAI calculations based on Caplen B (2017) 'Top 1000 world bank results', The Banker, 3 July and IMF (2017) *World Economic Outlook Database, April 2017*.

[5] Richardson D (2012) *The rise and rise of the big banks: Concentration of ownership*, The Australia Institute Technical Brief no 15, p. 2.

[6] Richardson D (2012) *The rise and rise of the big banks: Concentration of ownership*, The Australia Institute Technical Brief no 15,

apparent players.[7] Later *The Economist*, in discussing high and persistent US profits, wrote:

Another factor that may have made profits stickier is the growing clout of giant institutional shareholders such as BlackRock, State Street and Capital Group. Together they own 10-20% of most American companies, including ones that compete with each other. Claims that they rig things seem far-fetched… But they may well set the tone, for example by demanding that chief executives remain disciplined about pricing and restraining investment in new capacity. The overall effect could mute competition.[8]

Our earlier paper suggested the big five Australian shareholders alone held over 50 per cent of big bank shares and that there were stronger indications of shareholders 'setting the tone' as *The Economist* euphemistically puts it.

Zingales for one looks at the political economy and paints a picture of a crony capitalism where big business is mistaken for the 'the market' and, in collusion with politicians, arranges for the elimination of competition and the capture of the state to deliver benefits through government contracts, favourable regulations and tax cuts for the rich. In a recent contribution Zingales expressed concern about the effort put into lobbying and similar activities:

In other words, the problem here is not temporary market power. The expectation of some temporary market power based on innovation is the driver of much innovation and progress. The fear is of what I call a "Medici vicious circle," in which money is used to gain political power and political power is then used to make more money. This vicious circle needs to be broken. In the case of medieval Italy, it turned Florence from one of the most industrialized and powerful cities in Europe to a marginal province of a foreign empire (Zingales 2017)

Zingales is one of a number of critics of contemporary capitalism (Zingales 2012) and while the bulk of the discussion concerns the US that discussion raises the question of the extent to which the same could be said of Australia. Indeed, with the degree of foreign ownership in Australia we can question whether it could be turned into a 'marginal province'.

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[7] The Economist (2016) 'Retail banking: Blunt elbows', *The Economist*, 9 January.
[8] The Economist (2016) 'Business in America; Too much of a good thing', 26 March.

In the meantime Jim Stanford (????) for example has shown how the wages share has plummeted to its lowest level since the present national accounts series were first published in 1959-60.

The second objection to the equity premium is that it is a statistical artefact. It seems that an answer to the equity premium has been staring us in the face for ages. The observed equity premium is an ex post measure of total returns from holding shares. It has been assumed that the returns from holding shares would be equal to the risk free rate of return in the absence of an equity premium. However, the investment decision is made ex ante and it is not at all clear that the ex ante decision will translate into the expected ex post relationship.

It will be shown here that the apparent equity premium can arise even in the absence of investors demanding an equity premium. All that is needed is basically the assumption that companies grow with the overall increase in the economy. That is all that is required to generate something that looks like an equity premium.

In the most simple case take an investment that will generate future returns R_0, R_1, R_2 in years 0, 1, 2,… For the sake of the argument suppose the annual return is growing at rate g so that

1) $R_{t+1} = (1+g).R_t$

Suppose also that the market values the stream of returns according to the function:

2) $V_0 = f(R_0, R_1, R_2 …,i)$ where i is the risk-free rate of return.

Equation 2 may well take the form:

3) $R_0.(1+i)^0 + R_1.(1+i)^{-1} + R_2 (1+i)^{-2} + …$

In this simple case there is no equity premium being applied to the valuations. Equation 3 is merely an expression for discounting the future returns with the discount rate being the risk-free rate. But we now look at the same calculation next year. Then

2a) $V_1 = f(R_1, R_2, R_3 \ldots, i)$ which again may take the form:

3a) $R_1.(1+i)^{-1} + R_2.(1+i)^{-2} + R_3 (1+i)^{-3} + \ldots$

Recall that by assumption $R_{t+1} = (1+g).R_t$ which implies

4) $V_1 = (1+g).V_0$

Equation 4 tells us that the capital gains on this investment are equal to g which will be part of the total return to the investor. It might be expected that the company will also make a dividend payment which, given the market valuation of the company implies a dividend yield of d. That gives total returns to the investor of g + d. Of course, g is here given by assumption while d will reflect the functional form of equation 2. In addition we have not included an additional term for any retained earnings that would also add to the annual increment in value.

While d is not determined here, the orders of magnitude of this and the other variables are well-known. In an economy with nominal economic growth at around 5 per cent most other nominal magnitudes should be growing by roughly the same amount. Nominal growth at around 5 per cent in company revenues, costs and profits, together with market dividend yields of around 4 per cent would give an apparent equity premium of around 6 per cent given long term bond rates of around 3 per cent.

The crucial point is that so long as the profit stream is used to value the company in the same manner from time to time, then the rate of capital gains are independent of how the profit stream is valued so long as the functional relationship is homogenous to degree one in profits. Yet capital gains are the bulk of returns to equities over time. In the period from 1959 to 2016 the average annual increase in the Dow Jones Industrial Average has been around 6 per cent despite the global financial crisis.[9]

The homogenous-to-degree-one assumption seems a reasonable approximation in practice. Everything else being equal a company with twice the earnings should have twice the value. Similarly, a company the same in all other respects should have twice the value down the track when its earnings have doubled. Hence investors can value

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[9] Figures based on the Dow Jones web site at http://www.djindexes.com/ accessed 24 Nov 2017.

stocks by fully discounting future earnings without adding an equity premium. The result will still be an apparent equity premium when researchers examine actual returns ex post. But the equity premium is apparent, not real. The apparent equity premium is a statistical artefact that can be produced despite the assumption here that investors discount stock market returns at the risk free rate of interest without any equity premium.

Of course, despite the argument here, investors may indeed demand an equity premium. That would leave the capital gains component of actual returns unchanged so long as valuations are roughly homogenous to degree one in profits. Any equity premium demanded by investors might be reflected in the market dividend yield. Those considerations suggest that if the equity premium is to be found it will be reflected in the size of the dividend yield itself.

We can conclude by noting that ex ante there need be no equity premium. Ex post there does seem to be a premium puzzle but it may be a statistical artefact and merely reflect revaluations of the profit stream as economic growth takes place. If our argument is correct then we certainly cannot use ex post data to infer the size of a possible equity premium.

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