# Submission to the review of the rate of return guidelines

Discussion paper

**David Richardson**

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# Introduction

Thank you for the opportunity to respond to your invitation to make a submission to the *Review of the rate of return guidelines.* As an appendix we have attached a paper, *The equity premium in Australia*, that should be read in conjunction with this submission. This paper was prepared for the 2017 Conference of the Society of Heterodox Economists at the University of New South Wales.

This submission will mainly concentrate on the use of two premia; the inflation premium and the 'equity premium' as it is generally called in the economics literature. The issues paper uses the concepts, 'market risk premium' and 'equity risk premium' where the 'market risk premium' in the issues paper usage refers to the apparent overall risk premium investors want to obtain in order to invest in the market. The issues paper's use of 'equity risk premium' refers an individual asset and adjusts that asset's assumed premium by the extent to which that asset's movements are correlated with total market movements. First we focus on the market risk premium.

Another factor to consider is the treatment of inflation. We normally assume that market interest rates incorporate inflation and/or inflation expectations and that investors should be compensated for inflation. That might not be terribly controversial were it not for the fact that many of the valuations used for the assets included in the asset base are also indexed to inflation. That then gives the investor two bites at the inflation cherry. With inflation at modest levels this is not as serious a problem as it was in earlier decades, although it does distort pricing and adds substantially to the final burden on consumers. If you use depreciated historic costs then it is appropriate to use a nominal interest rates however if you use adjusted asset values, such as through the inclusion of 'revaluation reserves' and the like then the appropriate interest rate is the real, inflation-adjusted interest rate.

Having put the arguments above, there is of course a further major deficiency in the issues paper. There is no discussion of the social discount rate that should be applied to public assets. There are long standing arguments that market interest rates have no implications for the time preferences of individuals and so have no normative significance for this type of purpose. We cannot summarise this enormous literature here but suffice it to say that anything that does not take it into account fails to properly consider those matters that should be included. Without those considerations

the present issues paper seems to suggest that the market interest rate is the appropriate rate to use albeit with the adjustments considered below.

# Market risk premium

Use of the market risk premium, or just 'equity premium' here, seems a rather bold move for a government regulator to use given that there is a good deal of doubt about the concept from a theoretical perspective. That indeed is why many authors refer to the 'equity premium puzzle'.

First, some of the literature referred to in the appendix points to the inconsistency between the equity premium and the assumed behaviour of investors to focus on the expected returns. There is no theoretical reason why investors should be either risk-lovers or risk-averse. At the margin the value of a dollar gain is equal and opposite to the value of a dollar loss. However, if one wanted to assert the estimates of the equity premia were valid then one would have to also believe investors value the loss of a dollar as equal and opposite to the gain of $170 to use the example in the appendix. I am confident the Australian Energy Regulator (AER) would not want to make such an assertion. But it is certainly worth asking what the AER does think are the relative weights to attach to a dollar gain and loss in a diversified portfolio. Use of an equity premium means taking a stand on those valuations.

The more substantial point in the appendix is that the equity premium found in long run data is purely an artefact of how markets value a profit stream that tends to be growing at the same rate as the economy overall. How those valuations change over time is what produces the apparent premium even though investors may not use any premium at all.

In some work associated with the power point version of the appendix we also examined the market prices of corporate bonds in the market. Fixed interest securities are interesting because the risk is all on the downside: either the borrower pays the agreed amount according to the contract or not.

The swap rates for A and BBB rated are given in Table 1.

**Table 1: 10 year non-financial corporate bonds, spread over swap rate (basis points)**

|  | A-rated | BBB-rated | Supposed equity premium? |
|---|---|---|---|
| Oct-17 | 100.37 | 141.98 | 600 |

**Source: RBA**

Table 1 is very interesting. While the estimated equity premium is 600 basis points the corporate bonds, both A and near junk, BBB-rated bonds, have a premium well below 600 points. Moreover, going from A-rated to near junk status only increases the premium by 42 basis points. While the risk profile between bonds and equities is obviously different we think the premium on bonds is inconsistent with a relatively large premium on equities.

# Beta's use

The use of the beta ($\beta$) in estimating the 'equity risk premium' is rather curious since according to equation 1 an asset with a $\beta = 0$ would be set at the risk-free rate of return. That asset may even be more volatile than the market as a whole but just the fact that it is not correlated with the market means it would be treated as a risk-free asset. One wonders if that is really what the AER intended. Suppose you wanted the risk premium to apply to a put over the market as a whole (ie a put option over the all ordinaries index). The answer in the equation on page 25 of the issues paper would just be silly and could easily be less than zero. If you insist on using risk premia found on similar market sectors then you should measure the volatility directly for the relevant market sub-group. Of course the argument here is that no equity premium should apply.

# Conclusion

There are two main issues raised in this paper that have the effect of increasing the burden of electricity charges but have a very flimsy justification. Both relate to the setting of allowable rates of return that regulated electricity entities are allowed to charge. First the regulator increases interest rates according to the 'market risk premium'. The issues paper refers to the apparent risk premium investors want to obtain in order to invest in the market.

An appendix includes a paper that shows how the equity premium is a fallacious argument. While the concept was developed to explain actual observations of the data on rates of return to various financial instruments it is in fact an artefact of the data – something that obtains as a result of taking samples of market valuations at different points in time of a revenue series that itself grows over time. There can be no equity premium at all but the data will still appear to show one.

Likewise we are critical of the inflation adjustments used by the regulator. We point out that market interest rates incorporate inflation and/or inflation expectations and that the valuations used for the assets included in the asset base are also indexed to inflation. That then gives the investor two bites at the inflation cherry while the investor should only be compensated once.

Taking just a sample of five regulated distribution and transmission entities for which data is available we estimate that there is likely to be overcharging of something like $750 million per annum.[1] The actual overcharging estimate would be much higher if we could include *all* of the regulated entities.

**Recommendation**: That the Australian Energy Regulator ignores the inflation premium and the supposed equity premium when setting permitted rates of return.

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[1] That figure is based on estimates in Richardson D (2017) *Electricity costs: Preliminary results showing how privatisation went seriously wrong*, The Australia Institute Discussion Paper, June

# Appendix

## THE EQUITY PREMIUM IN AUSTRALIA

**David Richardson[2]**

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.[3]

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

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

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 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).[4] 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.[5] They make up four of the eight most profitable banks in the world'.[6] 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.[7] Since then there has been some research examining the implications of

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

[5] 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*.

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

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

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 apparent players.[8] 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.[9]

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)*

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

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'.

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.[10]

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

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