

TRANSCRIPT OF PROCEEDINGS AUSTRALIAN

ENERGY REGULATOR OFFICE

Before: Ms Cristina Cifuentes, Presiding member, AER Board

Ms Paula Conboy, Chair, AER Board

Held at ACCC Hearing Room  
Level 20, 175 Pitt Street  
Sydney, New South Wales

On Thursday 5 April 2018

REVIEW OF RATE OF RETURN GUIDELINES  
CONCURRENT EXPERT EVIDENCE SESSION 2

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Dr Jonathan Mirrlees-Black, Facilitator, Cambridge Economic  
Policy Associates

Assoc Prof Graham Partington, University of Sydney

Mr Stephen Satchell, Trinity College

Dr Martin Lally, Capital Financial Consultants

Prof. David Johnstone, University of Wollongong

Mr Jim Hancock, South Australian Centre for Economic  
Studies

Prof. Stephen Gray, Frontier Economics

Mr Simon Wheatley, Houston Kemp

Mr Ilan Sadeh, Hastings Infrastructure

1 MS CIFUENTES: Thank you all. We are going to make a start  
2 and try and keep to time today. In fact we are going to  
3 try to finish a little early. A couple of us have some  
4 urgent meetings just after 4.30, so we will try to finish a  
5 little bit early.  
6

7 Good morning and thank you for joining us today. I'm  
8 Cristina Cifuentes. I'm a member of the AER Board. I'm  
9 joined by my fellow board member and chair of the AER,  
10 Paula Conboy, and also by Esmond Smith, who is the senior  
11 financial adviser to the AER. I would like to begin by  
12 acknowledging the Gadigal people of the Eora Nation, the  
13 traditional custodians of the land on which we meet today  
14 and to pay our respects to their elders, past, present and  
15 emerging.  
16

17 This is the second of our concurrent evidence sessions  
18 and this is part of our rate of return guideline review  
19 process. The purpose of these concurrent sessions is to  
20 assist the AER Board in making a rate of return guideline  
21 that will best achieve the national gas and electricity  
22 objectives. We will be hearing from a range of experts and  
23 hearing you discuss each other's ideas and to clarify your  
24 assumptions and conclusions and see how they differ  
25 relative to the other experts.  
26

27 As in the first session, we would encourage all the  
28 experts to focus on assisting the AER rather than  
29 advocating for the positions of their sponsors. Even  
30 though we have seen much of this information before, we  
31 nonetheless encourage innovative thinking and exploration  
32 of the ideas and discussion about how these new ideas might  
33 be implemented. I would, however, emphasise the need for  
34 options to be granted in robust evidence that can be  
35 assessed and tested by all participants.  
36

37 It's also important to note that these concurrent  
38 sessions are only one part of the overall stakeholder  
39 engagement that we are undertaking before we make our  
40 decision and most of you present here have been part of a  
41 very comprehensive engagement process and I thank you again  
42 for your assistance in that and we do appreciate the  
43 efforts that you have made in coming to the forums and  
44 working with Jonathan Mirrlees-Black, the independent  
45 facilitator, and the AER staff to add as much value as you  
46 can to these forums.  
47

1           So, before we get started I will just quickly spend a  
2 minute running through the structure and the agenda for  
3 today. We haven't actually made many changes from the last  
4 format which I think actually worked quite well. So while  
5 I will be chairing today's session, Jonathan will actually  
6 be facilitating and guiding the discussion to ensure that  
7 it does remain balanced and focused on today's objectives.  
8 Jonathan won't be advocating for any particular positions,  
9 but he will be asking questions and clarification or invite  
10 alternative viewpoints.

11  
12           The role of the AER Board today is to essentially  
13 listen to the discussion, the debate and comprehending the  
14 views of various experts. While the discussion will be  
15 largely shaped by the participating experts, the board may  
16 actually ask questions. But, as was the case in the first  
17 forum, we won't be taking questions from the floor. So,  
18 today's discussion will be focusing on three topics. The  
19 first one is the equity beta, followed by market risk  
20 premium and then the value of the imputation credits.

21  
22           On 15 March we published discussion papers on the  
23 above topics and they included questions we thought would  
24 cover the most important issues for discussion. Jonathan  
25 has been speaking with you, the experts, in advance of this  
26 session to get an idea of the areas that we would like to  
27 focus on and that has actually shaped the structure.  
28 I gather all of you have received the agenda and the issues  
29 papers developed by Jonathan to facilitate today's  
30 discussions.

31  
32           Now I will hand over to Jonathan who will go through  
33 the structure and the running order today. But before  
34 I do, if you could introduce yourselves for the purposes of  
35 the transcript.

36  
37 MS CONBOY: Paula Conboy, and I'm the chair of the  
38 Australian Energy Regulator.

39  
40 DR MIRRLEES-BLACK: Jonathan Mirrlees-Black, Cambridge  
41 Economic Policy Associates, independent facilitator.

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43 MR HANCOCK: Jim Hancock from the South Australian Centre  
44 for Economic Studies, and I'm appearing for the Energy  
45 Consumers Australia.

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47 MR SADEH: Ilan Sadeh from Hastings Funds Management.

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MR WHEATLEY: Simon Wheatley from Houston Kemp representing the APGA.

PROF JOHNSTONE: I'm David Johnstone, I'm professor of accounting at Wollongong Uni and honorary professor of finance at Sydney Uni.

PROF GRAY: Stephen Gray from the University of Queensland and Frontier Economics.

ASSOC PROF PARTINGTON: Graham Partington from the University of Sydney advising the AER.

MR SMITH: I'm Esmond Smith. I'm a financial adviser to the Australian Energy Regulator.

MS CIFUENTES: Sorry, just before we do hand over, can I just again emphasise that the experts here are experts in their own right rather than representing any organisation. So, while you may have been appointed by particular organisations, you are actually here to advise the board and not to present the views or advocate the positions of your respective sponsors. Thank you.

DR MIRRLEES-BLACK: Thank you very much, Chair. Just to reiterate that all of the experts have been provided with the (indistinct) guidelines of experts and have agreed that they will be acting as experts and not (indistinct) have nominated them. Also worth highlighting, compared to the last session we have new experts. So, Simon Wheatley takes the place of Greg Houston. Jim Hancock has stepped in and been appointed. Also Stephen Satchell, who is not at the table now, will be taking place shortly with Graham Partington for part of this session and also for a small part of the session on the market (indistinct).

In running the meeting you've all got the agenda. There's also an issues paper which has been provided to you all and which you all contributed to and that actually provides the detailed agenda items of the areas which we want to probe. Our objective is to identify areas of agreement and areas of disagreement and, because we've had some time to go through the issues in advance, we've highlighted the areas there where there's disagreement and it is more useful for us to spend time on those areas where there is disagreement, although if there's an area of

1 agreement subsequently, occasionally an expert may wish to  
2 make a short statement on that if it is helpful to the  
3 discussion. On this occasion we won't be having opening  
4 statements. We will go straight into the discussion before  
5 we refer (indistinct) agenda item.  
6

7 In terms of timing, we have got timings down here.  
8 I will be making sure we finish by 4.30, as Cristina has  
9 suggested. It may well be that we need slightly more time  
10 on equity beta and more on risk premium and if the  
11 discussion warrants it, then I may allow us to run over a  
12 little bit and eat into lunch by a short amount. I'm sure  
13 we will have adequate time, but we will be running the  
14 session in time to finish the day by 4.30.  
15

16 As Cristina said, my role is not to have views, it is  
17 to help the discussion. I can ask questions, I can clarify  
18 and invite contributions from people to ensure that the  
19 discussion remains focused and we achieve the outcome that  
20 we are aiming for. But it is not my role to have views  
21 (indistinct).  
22

23 After this we will be producing a joint report which  
24 will highlight areas of discussion and may elaborate on  
25 issues where we haven't had a chance to fully discuss it in  
26 the session. That's the best approach for time and discuss  
27 the joint report in more detail at the end, if that's  
28 useful.  
29

30 So that I think finishes my opening comments on  
31 running the session. So I think we move straight now into  
32 equity beta and consideration of the issues related to it  
33 and be rather directed in terms of going through the issues  
34 that have been highlighted in the document and we will be  
35 going through them as a list.  
36

37 One of the first issues that we have identified is  
38 that there's an approach that the AER has of looking at  
39 estimates of equity beta and then adjusting them for the  
40 leverage of the companies which you are observing and then  
41 re-leveraging back up to 60 per cent, which is the market  
42 gearing. I think there's agreement among a number of the  
43 participants that that is the appropriate approach, but  
44 it's not universal and I think some experts have concerns  
45 about this. So I will invite Graham Partington, who has  
46 some concerns about this in particular, to comment on the  
47 de-leveraging and re-leveraging approach adopted by the AER

1 before others contribute.

2

3 ASSOC PROF PARTINGTON: Okay. So, I totally agree that  
4 leverage affects the risk of equity and affects the equity  
5 beta. I suspect the effect may be considerably less severe  
6 in regulated utilities because of the volatility of the  
7 cash flows, particularly the revenue streams (indistinct).

8

9 Now, why am I concerned about the leveraging,  
10 re-levering? Well, let's start with the leverage ratio,  
11 measurement of the leverage ratio. The theory is that we  
12 should be using the market leverage ratio but we don't. We  
13 use the market (indistinct) of equity and we use the book  
14 value of debt. For some firms that will be a reasonable  
15 approximation. For other firms it will be a poor  
16 approximation. It is a common practice.

17

18 Now, let's think about the measurement of debt. There  
19 are measurement issues with the measurement of book debt.  
20 You would hope it would be a relatively simple task, but  
21 it's not. Recently there were two submissions from the  
22 network businesses about beta. Those two submissions use  
23 almost identical data. They got different results. Why?  
24 Because they used different leverage ratios because they  
25 measure debt differently. The AER had two goes at  
26 estimating betas. Why? Because they decided they needed  
27 to revise their measurement of the level of debt.

28

29 Then there are the issues of what should we do about  
30 look-throughs, what should we do about hybrids, what should  
31 we do about stable securities, and next year there will be  
32 an additional issue which is what should we do about  
33 capital operating leases. Then there's the question of  
34 which year's leverage are we going to use? Beta is  
35 observed through a set of time series data and the  
36 suggestion is we should be using five years, possibly 10.  
37 Over that time, the leverage of the firms that you are  
38 using for your estimation process changes. Which leverage  
39 ratio should you use? Well, some people use the latest  
40 leverage ratio, some people use an average taken over the  
41 data series. It's not clear that either of those is  
42 strictly correct.

43

44 Then we come to the choice of the re-levering formula.  
45 There are a number of formulas out there, somewhere between  
46 eight and 10, (indistinct) views and it largely depends  
47 upon what you assume about the risk of the tax shield, and

1 that in turn is largely seen to depend upon what you assume  
2 about the firm's capital structure policies. Is the level  
3 of debt is fixed? Is it growing in some way? Is there  
4 some target leverage? If you have target leverage, how  
5 frequently do you rebalance your target? Is your target a  
6 market value target or is it a leverage target or is it a  
7 book value leverage target?  
8

9 Now, if we use the Miles and Ezzell formula, for  
10 example, the assumption is that we have a fixed target and  
11 we rebalance that target once a year, and that target is a  
12 market value leverage ratio target. If you use the Hamada  
13 formula, which is a formula that's popular in practise,  
14 that essentially is (indistinct) debt. Now, it's been said  
15 that the AER uses the Miles and Ezzell formula. I don't  
16 believe that's correct, because there are terms in the  
17 Miles and Ezzell formula that don't turn up in the AER  
18 formula. The AER themselves in their discussion document  
19 say they use the Brealey & Myers formula, and that is  
20 correct in the sense that the formula they use is  
21 consistent with the formula given in Brealey & Myers. That  
22 formula appears in several places in the literature, so it  
23 is not just Brealey & Myers, it is a well established  
24 formula derived in a number of different ways.  
25

26 That formula assumes that you have a target leverage  
27 ratio and you continuously rebalance so you never deviate  
28 from your target, which is clearly not a realistic  
29 assumption, but it does greatly simplify the analysis and  
30 the reality is that the impact of that is not very much  
31 different from using the Miles-Ezzell formula.  
32

33 So, and here I have a question, is that what the AER  
34 is assuming as appropriate for the BEE that they have a  
35 fixed target that they continuously rebalance to or as a  
36 close approximation rebalance to and, if the latter, you  
37 might think about using the Miles-Ezzell formula, but it  
38 has some complications and you need to have a debt rate,  
39 you need to have the tax rate as well, and it doesn't  
40 really make a difference. So, if you're going to go down  
41 this route I recommend you stick with the Brealey & Myers  
42 formula.  
43

44 Then, since you are taking the comparators and  
45 on-levering their betas, you have to make an assumption  
46 about what is the debt policy of the comparators. Does  
47 anybody know? Is the assumption of a target leverage ratio

1 which is rebalanced at some frequency appropriate for those  
2 comparator firms? Don't know. What I can say is that in  
3 quantitative research looking at the issue of whether or  
4 not firms have target leverage ratios, it's been rather  
5 difficult to establish that in fact they do. In survey  
6 research there is some survey evidence that suggests firms  
7 have targets, not all of them, but a substantial subset,  
8 but many of those targets are rather loose; in other words,  
9 they drifted out a lot. You are not constantly rebalancing  
10 or even rebalancing with any particular frequency. You  
11 just have a target in mind, which I suspect in some cases  
12 is not driven by a particular policy, it's just driven by a  
13 firm's debt (indistinct) that they know, that they need to  
14 be a certain distance below their debt (indistinct) so they  
15 don't breach the (indistinct).

16  
17 So, there are some significant issues in the  
18 re-levering approach. It's even more significant if we are  
19 going to use overseas comparators. As implemented, the  
20 assumption is that the debt beta is zero. If indeed that  
21 is true, then the allowed rate of return for debt for  
22 regulated networks should be the risk-free rate, and that's  
23 a natural consequence of debt beta at zero. You might  
24 allow a little bit extra for an illiquidity premium; you  
25 wouldn't be allowing them the default premium as well.

26  
27 Now, the thing about the debt beta is it increases  
28 with lower credit ratings and maturity of the debt. So  
29 what is the debt beta? Well, there are varying estimates  
30 that I've found. Some suggest, for the sort of debt we're  
31 talking about, a debt beta of 0.1, some say 0.16, some say  
32 0.3, some are as high as 0.5. I think that's probably  
33 rather too high. If it were me, I would probably say 0.2,  
34 but that's just my sense from reading in this area. So  
35 I think that requires some more investigation.

36  
37 Steve's spreadsheet suggests that the assumption that  
38 debt beta is zero is not particularly material in these  
39 cases, and that's because, on the one hand, that you get a  
40 bias in on-levering and then you get the opposite bias in  
41 re-levering. And Steve's spreadsheet only covers debt  
42 betas of 0.1 and only covers leverage ratios down to 0.45.  
43 I seem to recall that some comparators possibly recently or  
44 in the past have had debt ratios below 0.45. Certainly  
45 there will be, if we start going overseas, there will be  
46 comparators with much lower debt ratios than the debt  
47 ratios that utilities have in Australia. So, I would like



1 to do a little bit more investigation with a spreadsheet of  
2 my own. Steve's spreadsheet's available so I can take  
3 that.  
4

5 We also heard in our last meeting that the weighted  
6 average cost of capital according to the AER's formula was  
7 not flat. Greg was suggesting it was upward sloping and  
8 the reason for that was the assumption that the debt beta  
9 was zero and he suggested we all read some judgment of the  
10 New Zealand High Court which explains that very clearly.  
11

12 Also, interestingly, Damadoran, who is a big authority  
13 in this area, who himself often assumes a debt beta of  
14 zero, points out that estimated betas, and I'm more or less  
15 quoting him word for word, estimated betas of highly  
16 levered stocks tend to be much lower than the estimates  
17 derived from the levered beta formula that he uses. In  
18 other words, you re-lever the betas, you get a higher  
19 number; you estimate them, you get a much lower number. He  
20 gives a few reasons for that, but one is the assumption  
21 that the debt betas are zero.  
22

23 So, lots of problems. I have laid out the problems.  
24 What might be a solution? Well, we heard last week we  
25 looked at leverage ratios which did vary around about the  
26 assumed 60 per cent and essentially the argument boiled  
27 down to, "Well, they do differ from 60 per cent but really  
28 when you take it overall the difference is not material,  
29 and so we can run with 60 per cent." Now with respect to  
30 re-levering the argument is, "Well, actually these  
31 differences are material and therefore we need to adjust  
32 the betas.  
33

34 So, my first line of argument is if in fact the  
35 differences are considered not material, then don't bother  
36 making the adjustment. My second line of argument is if  
37 the differences are material, then reconsider the level of  
38 leverage you are assuming for the bench market  
39 (indistinct), if you assume that the sample you've got is  
40 representative.  
41

42 Alternatively, you could use the property of the plain  
43 vanilla WACC that it represents the opportunity cost of  
44 capital and that is a constant invariant to leverage  
45 because it reflects the risk of the assets and once you've  
46 worked out the WACC at one level of leverage, you have the  
47 WACC for all levels of leverage, and you could stop at that

1 point and say, "Well, we have an estimate of WACC," or you  
2 could say, "Well, we have an assumed level of leverage and  
3 we have a known level of leverage for this WACC," so we  
4 have an assumed level of leverage, we know what the WACC  
5 is, and work out the cost of debt and then you can back out  
6 the costs of equity at your assumed level of (indistinct).

7  
8 You can go a step further. You can say, "Okay, now  
9 I've got the cost of equity at my assumed level of  
10 60 per cent, I could back out the beta from the CAPM."  
11 Interestingly enough, the results of that could in some  
12 cases be quite similar to the re-levering process, but you  
13 get around quite a few problems.

14  
15 DR MIRRLEES-BLACK: Thanks very much, Graham. I think we  
16 can unpack a few issues that come in there. Some of them  
17 are related to later questions. I think two of those  
18 (indistinct). One is what's the formula, if you are going  
19 to do de-levering and re-levering, what's the formula we  
20 should use and, secondly, should the debt beta be zero.  
21 Perhaps if we address those issues and we might come back  
22 to what the overall approach would be in terms of  
23 de-leveraging and re-leveraging. So perhaps we can address  
24 first of all what's the formula that should be used.  
25 Steve, do you want to --

26  
27 PROF GRAY: Yes. Maybe if I can have a go at summarising  
28 the view of everyone else. So, just unpacking what Graham  
29 said, I think there's a few different things. So the first  
30 one was Graham raised a whole lot of issues around how you  
31 would go about best meeting leverage or gearing. So, the  
32 AER will have to take all of those things into account, but  
33 ultimately it has to adopt a number for hearing. That's  
34 one of the WACC parameters that has to be written down.

35  
36 So, I know the AER has an open mind about all of these  
37 things, but for the sake of the example let's suppose that  
38 the AER considers all of those things and adopts a  
39 60 per cent number for gearing. I think it's just  
40 unquestionable that if a 60 per cent number for gearing has  
41 been adopted, then all of the betas have to be expressed in  
42 terms of 60 per cent gearing. Otherwise you have a very  
43 obvious internal inconsistency. So, in my mind the only  
44 question then is how do we go about regearing to the  
45 60 per cent leverage that's been adopted in the regulatory  
46 determination.

47

1           So, there there are two issues that Jonathan just  
2           outlined: which formula should be used and what debt beta  
3           should be used in that formula. I think the answers to  
4           those questions are also both very easy. The Miles-Ezzell  
5           formula is on the basis of a constant proportion of debt  
6           finance, which is exactly what the AER assumed throughout  
7           its analysis. It's built in to the PTRM in fact. And then  
8           in terms of the debt beta, for any reasonable level of debt  
9           beta, so textbooks, for example, will set out debt betas up  
10          to about 0.1. So, for example, Berk & DeMarzo, which is  
11          probably the leading textbook, has a table that cites work  
12          from Schaefer and Strebulaev that sets out debt betas for  
13          flat BBB I think up to 0.1.

14  
15          ASSOC PROF PARTINGTON:    0.16 or 0.17.

16  
17          PROF GRAY: The table in Berk and --

18  
19          ASSOC PROF PARTINGTON:    Yes, is the actual number in that  
20          book.

21  
22          PROF GRAY: We can go to documents later. So BBB is 0.1  
23          and BBB plus would be slightly below that. So, those sorts  
24          of levels of debt beta, whether you assume zero in the  
25          un-levering and re-levering process or whether you assume  
26          even up to 0.1, even a little higher than 0.1, as long as  
27          you work consistently in the un-levering and re-levering  
28          step, it makes hardly any difference to that final equity  
29          beta estimate. Certainly the difference that you get in  
30          relation to the different levels of debt beta is tiny  
31          relative to the standard errors of the beta estimate that  
32          you're starting with.

33  
34          So, in my mind it's very simple. So the AER needs to  
35          write down a gearing number. It must be the case. I can't  
36          see any argument for adopting a gearing of 60 per cent and  
37          then looking at betas that are geared to something  
38          different from 60 per cent. So, the only questions are:  
39          what formula do you use? And that's got to be  
40          Miles-Ezzell. And what debt beta do you use? It doesn't  
41          matter.

42  
43          DR MIRRLEES-BLACK: Does anyone else have a view that they  
44          are able to contribute? Simon?

45  
46          MR WHEATLEY: I would concur almost completely with what  
47          Stephen had to say.

1

2 MR SADEH: I agree with Stephen as well, just from an  
3 industry perspective, the questions about how do firms look  
4 at leveraging and what do they practically do. There's a  
5 bit of a difference when you look at listed companies, you  
6 look at infrastructure or a network owner versus a  
7 traditional corporate or industrial. A traditional  
8 corporate or industrial effectively will often target a  
9 dividend payout ratio and the leverage is kind of an  
10 output, depending what I have to do to get to my leverage  
11 ratio. Do I draw down debt or do I repay debt?

12

13 Infrastructure assets are very different because they  
14 are functions of - they are much more defined leverage  
15 covenants. For networks it is almost uniform in Australia  
16 that the privately owned networks have covenants, two key  
17 ones being a debt (indistinct) outcome which is, for all  
18 intents, let's just call it a book ratio for a second.  
19 Firms are efficiently levered, which means in practice as  
20 they are networks which means they have reasonably  
21 consistent amounts of capex coming through, they do in  
22 effect practically maintain a consistent level of leverage  
23 on that basis by fixing the amount of capex that they debt  
24 fund. So I do see it in practice being consistent that a  
25 constant level of gearing is the appropriate thing to do.

26

27 MR HANCOCK: It's really a question, and I think we're  
28 going to come to talk about the issue of low beta bias, but  
29 if we are making adjustments for low beta bias, then we are  
30 effectively adopting a quite high rate of return on a sort  
31 of zero risk asset and does that tell us something about  
32 the sort of debt beta that is embedded in the model and  
33 particularly if we are going to have estimates that are  
34 significantly higher than the risk free rate, do we have to  
35 rationalise that with higher debt betas?

36

37 MR SADEH: Can I just revert on the debt beta point as  
38 well. Again, from what I see as an investor, I literally  
39 never see debt betas used by independent valuers, and  
40 I actually think it is inconsistent to look at a starting  
41 point of an equity beta from market based evidence and say,  
42 correctly as Stephen points out, you need to adjust that  
43 free leverage consistent with the way you want to do it.  
44 You are doing everything based on market, then you say "I'm  
45 going to have a random override with a subjective number of  
46 debt beta that nobody knows where it comes from." I must  
47 say I have quite an intellectual problem with it.

1

2 PROF GRAY: Yes, I think it's more useful if we take it  
3 sort of issue by issue, so we will certainly come to low  
4 beta bias in a moment. But I think it would be useful if  
5 we get everyone's views on the proposition that suppose  
6 that the AER has determined a 60 per cent gearing is the  
7 number they are going to write into their WACC formula, do  
8 we all agree with the proposition that the betas the AER  
9 must use are betas which are re-gearred to 60 per cent for  
10 internal consistency?

11

12 PROF JOHNSTONE: Fair question. The subjectivity that Ilan  
13 is talking about, which no one likes, I think, is just  
14 inevitable given the exposition that we heard from Graham  
15 of just the insolubility of this issue. There's just so  
16 many inputs into the calculation and theoretical arguments  
17 one way or another and I do like tidy solutions, and  
18 Stephen's got quite a few of those, and it is nice for  
19 certainty for something to be axiomatic like 60 per cent,  
20 but we can't masquerade as if this is sort of physics.

21

22 So, in the end for me, if I was a regulator, I would  
23 be wanting to know what the end result is and working out  
24 whether that makes pragmatic sense or not. So the  
25 sensitivity analysis that Stephen did in his table, that  
26 would be the kind of thing that I think would be the way to  
27 come to a solution, a regulatory solution, and it's the  
28 only way that's not in danger of doing something  
29 ridiculous. We can get lost in theoretical arguments and  
30 hide the wood behind the trees, and end up with a  
31 theoretical proposition that when you work through the  
32 numbers you come to a result which is just outlandish.  
33 Then you think, "Oh, okay," and so you go back then and you  
34 come up with a new theory and go through until you get a  
35 result that, "Actually, that's plausible." So this is the  
36 kind of masquerade that I feel we can get involved in.

37

38 I know we need to get into the ballpark and you need  
39 some kind of framework to get there, but in the end I think  
40 rather than just relying per se on a theoretical tidy  
41 solution, we should be looking at the possibilities, the  
42 range of possibilities, and that leads me back to the  
43 subjectivity. I think it's just inevitable that the  
44 regulators are going to have to work within a range of  
45 possible outcomes and it's the bottom line that counts, not  
46 whether the theory is right or wrong, because the theory is  
47 definitely wrong. All theory in this area is all wrong.

1

2           It's not like there's theory which has got kind of  
3           empirical validity where it predicts and explains reality  
4           like a mission to the moon. I make a living from teaching  
5           this stuff, but I wouldn't claim that it's going to  
6           actually help me invent an engine for a car or something  
7           like that. It's so far off objectivity in terms of  
8           theoretical validity of that nature that we shouldn't  
9           pretend that we've got that. So, to get lost in  
10          theoretical arguments is in a way to delude ourselves and  
11          I think the theoretical arguments are great, you can  
12          actually go to and fro to get the range, but then in the  
13          end we actually need to look at what the end result is, not  
14          whether the argument is theoretically --

15

16         DR MIRRLEES-BLACK: I think in our last session we  
17         discussed we shouldn't be using a range of models and  
18         I think that was a discussion about the framework and using  
19         the Sharpe-Lintner CAPM as the framework model and the  
20         other models as having various elements of weight and then  
21         I think what you are referring to is that perhaps there's a  
22         role for a cross-check at the end and that's something  
23         which we can address in the last session of today, how do  
24         we test whether the AER through its decision is meeting the  
25         NGO and the NEO and that would be, if there is a role for  
26         cross-check, to assess whether the various models used are  
27         appropriate and give you an answer which is plausible. I  
28         think that can come through the cross-check.

29

30                 But at the moment I think we are addressing ourselves  
31                 to if we are using it within the AER framework, the  
32                 framework model, how do we implement that to come up with  
33                 the best answers. So cross-checks may come later. For the  
34                 moment we are looking at the framework model, and within  
35                 that I think it's worth addressing ourselves to Stephen's  
36                 question, which is firstly do we de-lever and re-lever  
37                 given the 60 per cent, if that's what the AER is doing as a  
38                 benchmark for (indistinct) and, secondly, what's the  
39                 formula and, thirdly, what's the debt beta. I think if we  
40                 answer those three questions, then maybe we can come to  
41                 (indistinct).

42

43         MS CONBOY: Yes, and I think if I understood correctly on  
44         that third question that Stephen was positing was that that  
45         may not matter, what the debt beta is. I don't know. Is  
46         that because it is formula specific to the Miles-Ezzell  
47         that you're talking about or is it regardless of? So, the

1 three questions in terms of the 60 or whatever it is, does  
2 that mean the comparator firms have to be de-levered,  
3 re-levered and then, regardless of what methodology you  
4 use, the debt beta, and I know Graham doesn't agree with  
5 the debt beta issue, is not as relevant. Do I understand  
6 that correctly?  
7

8 PROF GRAY: Yes, yes. So I would say the answer to the  
9 three questions: Do we have to re-gear? Yes. Should we  
10 use the Miles-Ezzell formula for that? Yes. And does the  
11 debt beta matter? No. So I would say the answer to  
12 question number 2 is you have to use the Miles-Ezzell  
13 formula because that's the one that's consistent with the  
14 whole AER process. Within that formula certainly the debt  
15 beta is insignificant, so long as it is used consistently  
16 when you un-lever and re-lever it.  
17

18 If you are using a different formula that was based  
19 incorrectly on the firm having a constant dollar amount of  
20 debt instead of a constant proportion of debt, then the  
21 same would apply. For reasonable estimates of debt beta,  
22 as long as you are using it consistently in the un-levering  
23 and re-levering set, it would drop out. It's tiny. The  
24 effect is tiny compared to the range of estimation  
25 uncertainty that we have with debt beta estimates that we  
26 have available.  
27

28 MS CONBOY: Thank you.  
29

30 ASSOC PROF PARTINGTON: Just on that, would the re-levered  
31 beta lie outside the 95 per cent confidence interval for  
32 your original estimated beta? I suspect not.  
33

34 PROF JOHNSTONE: Hoping 95 per cent would be wide.  
35

36 PROF GRAY: The way the AER currently does things is it  
37 places almost entire reliance on the domestic comparator  
38 firms. For those firms, the affected debt beta assumption  
39 does not even show up I think in a third decimal place  
40 because those firms are the same firms that are used to  
41 derive the 60 per cent gearing. So when you are un-gearing  
42 and re-levering, you are going a tiny amount one way and  
43 then a tiny amount back up to almost the same place. So  
44 that set of firms, and given the predominant reliance on  
45 those domestic firms, the debt beta issue is particularly  
46 trivial.  
47

1 ASSOC PROF PARTINGTON: That wasn't my point. My point was  
2 when we re-lever do we actually get a revised estimate of  
3 beta that lies outside the confidence interval for your  
4 original estimate?

5

6 PROF GRAY: Yes, so for those three firms the confidence  
7 intervals are best and the effect of the debt beta is --

8

9 ASSOC PROF PARTINGTON: No, I'm not talking about the debt  
10 beta. I'm talking about the raw estimate. You have a raw  
11 estimate of beta which has a confidence interval about it.  
12 You re-lever that beta. Does the result lie outside the  
13 confidence interval?

14

15 PROF GRAY: For the comparators, no. But, yes, if it did,  
16 what would --

17

18 ASSOC PROF PARTINGTON: So what we're saying is we go  
19 through this re-levering process to shift the number up but  
20 it still lies within the --

21

22 PROF GRAY: Or down.

23

24 ASSOC PROF PARTINGTON: It will be down, it's above  
25 60 per cent, and then we end up with a number that's still  
26 within the range of estimation.

27

28 MR SADEH: But I don't understand. I'll give you a simple  
29 example. Imagine you had a perfect example of a comparable  
30 listed company in the Australian market, and you said,  
31 "Here's this equity beta, but I'm going to adjust it for a  
32 debt beta and I'm going to do it inconsistently with this  
33 leverage," and all of a sudden you're saying it's revised,  
34 the beta is different to what it actually is. How can that  
35 be right?

36

37 ASSOC PROF PARTINGTON: I don't understand what you just  
38 said.

39

40 PROF GRAY: We seem to not want to answer the three  
41 questions that Jonathan has summarised. I think it would  
42 be useful --

43

44 DR MIRRLEES-BLACK: We could start backwards. So we could  
45 say if you are doing the de-leveraging and re-leveraging,  
46 is it appropriate to assume a debt beta of zero. We could  
47 say who agrees with that proposition? Who agrees that we



1 should assume the debt beta is zero for the de-leveraging  
2 and re-leveraging process?

3  
4 PROF JOHNSTONE: I think there are some questions over it  
5 that --

6  
7 MR WHEATLEY: I think there would be too, because just  
8 thinking about what a beta is. Now it's about the  
9 (indistinct) firms and the debt holder with the market and  
10 there are some issues about all sorts of things that could  
11 affect the amount and the reliability of those returns.

12  
13 MS CONBOY: Sorry, do I understand correctly Simon is  
14 saying yes for a zero, a zero debt beta as well. Jim is  
15 saying it depends, we need to ask more questions. Graham  
16 is saying you shouldn't assume it's zero, and I thought  
17 I heard Stephen saying at the outset it does not matter,  
18 it's not a relevant - it may be zero or it may not be zero,  
19 but the fact is it doesn't have a material impact.

20  
21 PROF JOHNSTONE: Is that dependent on the model approach,  
22 though? Is it immaterial on the other assumptions?

23  
24 DR MIRRLEES-BLACK: I think you could run through formula,  
25 but I think, if it's helpful, I don't think we need to  
26 address it here, but if you run through different  
27 de-leveraging formula I think it probably wouldn't make a  
28 large difference on (indistinct).

29  
30 PROF JOHNSTONE: That's got to be the way to go, to almost  
31 be considering what the difference is. Does it make a  
32 difference?

33  
34 DR MIRRLEES-BLACK: I'm not sure we are going to resolve  
35 the difference now, but we have identified who agrees with  
36 that and we have identified who disagrees with it. I know  
37 we are going backwards on the questions. The second  
38 question was the Miles-Ezzell formula and it's not the  
39 Miles-Ezzell formula for a classic tax system; it's a  
40 Miles-Ezzell formula - this is a formula effectively the  
41 AER already uses. So who agrees that that's the formula  
42 that should be used for de-leveraging and re-leveraging?

43  
44 ASSOC PROF PARTINGTON: Sorry, did you say the Miles-Ezzell  
45 formula is the formula the AER already uses?

46  
47 DR MIRRLEES-BLACK: There is a Miles-Ezzell formula --

1  
2 ASSOC PROF PARTINGTON: It's not the formula the AER uses.  
3  
4 DR MIRRLEES-BLACK: With a classic tax system. But there's  
5 a question of what's the appropriate formula for when you  
6 are making the assumption of constant leverage and you've  
7 got imputation taxes. I think that's the formula that --  
8  
9 ASSOC PROF PARTINGTON: And also how frequently you assume  
10 the rebalancing takes place because the frequency of  
11 rebalancing changes the formula.  
12  
13 PROF GRAY: This, I would think, is a highly controversial  
14 proposition. If you have a constant level of gearing which  
15 the AER assumes and is embedded into the PTRM, then the  
16 formula that the AER uses for un-levering and re-levering  
17 is the correct one.  
18  
19 DR MIRRLEES-BLACK: Who agrees with Stephen's statement?  
20  
21 ASSOC PROF PARTINGTON: We need to be clear about what the  
22 formula is. The formula is not what the AER uses. It's  
23 not the Miles-Ezzell formula.  
24  
25 MR WHEATLEY: (Indistinct).  
26  
27 MS CIFUENTES: Sorry, can we just hear each of you  
28 separately rather than together?  
29  
30 MR WHEATLEY: So the differences that Graham is talking  
31 about entail a lot of additional algebra but no appreciable  
32 difference in numbers. So the AER's formula is reasonable.  
33  
34 MS CIFUENTES: I think you acknowledged that in your  
35 opening statement.  
36  
37 ASSOC PROF PARTINGTON: What, that the AER's formula would  
38 be appropriate if we assume constant leverage with  
39 continuous rebalancing. The Miles-Ezzell formula would be  
40 appropriate if we assumed cost of leverage with annual  
41 rebalancing. But if you want to use the Miles-Ezzell  
42 formula you've got to drag in another term which is to do  
43 with the fact that the first used stack shield is known  
44 with certainty.  
45  
46 MR WHEATLEY: And without making any appreciable  
47 difference.

1

2 ASSOC PROF PARTINGTON: It doesn't make a big difference.  
3 So, if you forget about that, you go back to the formula  
4 that the AER uses which is originally I think it was Harris  
5 & Pringle 1985 or Brealey & Myers (indistinct).

6

7 MR SADEH: Unfortunately I can't add to the formula. I'm  
8 not qualified to comment on the formulas. But I think the  
9 practice of a constant re-leveraging, whether it's annual  
10 or effectively constant is appropriate.

11

12 MR HANCOCK: I can't add to the formula debate either, but  
13 I would agree that you want to have comparability across  
14 the leverage of the betas that you're using to observe or,  
15 sorry, the observations you're using to observe beta, you  
16 want to have them comparable. But I think Graham has  
17 raised some important questions about how you actually do  
18 measure leverage and that it's not necessarily  
19 straightforward.

20

21 PROF GRAY: Those things definitely have to be taken into  
22 account to be dealt with in that first section. Maybe a  
23 way of asking the first of the three questions is this:  
24 Most of us teach graduate finance students. If you had a  
25 question on a finance exam that you would set where a  
26 student had plugged in 60 per cent gearing into the WACC  
27 formula and then had re-gearing betas to 40 per cent, would  
28 the student pass that question or not? Mine would fail.

29

30 PROF JOHNSTONE: These days a lot of students get  
31 (indistinct). Part of that is that finance has got a lot  
32 that's not black and white about it. I just think if any  
33 position is taken as to a tidy position here, it really  
34 should be put forward with the end result attached to it  
35 and that's what then is the full story. I saw a document  
36 that IPART put out in 2011 on gamma and it actually worked  
37 through to notional cash flows to the entities based on the  
38 different arguments, and I think that's the full picture  
39 then because then we don't get in this bubble where we  
40 argue to and fro about different formula, to which I don't  
41 think there is ever any one and only one answer. I know  
42 Jonathan doesn't like that because he wants to get some  
43 answers --

44

45 DR MIRRLEES-BLACK: The aim of this session is not to get  
46 agreement. The aim is to identify where there is agreement  
47 and where there is disagreement. So what you have said is

1 areas of disagreement which will be noted and reflected in  
2 the joint report, that you have a different view from some  
3 (indistinct).

4  
5 PROF GRAY: Jim, would your student pass?

6  
7 MR HANCOCK: No, I wouldn't think so.

8  
9 ASSOC PROF PARTINGTON: I would hope what my students would  
10 say is the intention was there is a great deal more  
11 certainty about how one should do this and that therefore  
12 one shouldn't place a great deal of confidence in the  
13 re-levered number.

14  
15 DR MIRRLEES-BLACK: I think we have probably reached a  
16 conclusion on this particular issue. Despite the fact you  
17 say (indistinct), there are different opinions.

18  
19 PROF GRAY: But, just to summarise, the difference in the  
20 opinions, I think I have laid out a process that I believe  
21 to be uncontroversial and quite concrete, and it is  
22 effectively the process that the AER goes through right  
23 now, and a number of people have agreed with that process  
24 or at least aspects of it. The alternative is not a  
25 different process that people are suggesting the AER should  
26 go through, but I'm not sure whether the AER has got its  
27 answer that there has been any alternative suggested or  
28 just that it's a very hard thing and you have to think  
29 about it very carefully.

30  
31 PROF JOHNSTONE: Yes, I'm just thinking it's actually  
32 looking through to the bottom line and that's where we keep  
33 on saying we will do this later.

34  
35 DR MIRRLEES-BLACK: Well, I might suggest that what Graham  
36 has suggested is that rather than going through the  
37 de-leveraging and re-leveraging process and estimating  
38 re-levered beta and estimating the cost of capital for a  
39 commercial entity (indistinct) with that gearing, that  
40 Graham's suggestion is to estimate the WACC for a range of  
41 firms with a range of different gearing and then the AER  
42 would form a judgment from --

43  
44 ASSOC PROF PARTINGTON: That's one thing one could do, or  
45 you could go all the way through to getting an adjusted  
46 beta, but backing it out from the WACC.

47

1 DR MIRRLEES-BLACK: And I think Stephen has argued --.

2

3 ASSOC PROF PARTINGTON: I could write a process to do that.

4

5 DR MIRRLEES-BLACK: You wouldn't get necessarily a hugely

6 different result going through that process.

7

8 PROF GRAY: If everything is done internally consistently.

9 But then the approach that Graham seems to be suggesting

10 would be a very big change from what's been done over the

11 history of the AER and would be quite inconsistent with the

12 rules. Whether they are relevant or not I'm not sure, but

13 the rules require you to write down a WACC formula and to

14 plug numbers into the WACC formula for the various

15 parameters and to that extent --

16

17 ASSOC PROF PARTINGTON: You could do that on the

18 (indistinct). It would be feasible to do.

19

20 DR MIRRLEES-BLACK: But there is also a requirement to

21 calculate the rate of return for the benchmark

22 (indistinct).

23

24 ASSOC PROF PARTINGTON: Yes, you could do that as well.

25

26 MR SADEH: Can I raise two comments that I have. Firstly,

27 the point just before, I don't think you can have a fixed

28 WACC and the reason for that is at the end of the day the

29 whole framework is trying to provide a benchmark efficient,

30 you know, cost for a firm to go and practically replicate

31 in the market now. There is no network of scale that will

32 actually go and take a fixed rate of return, determine a

33 fixed WACC at the start of each guideline period, so not

34 even at the start of its own regulatory determination

35 because you don't completely flip over your capital

36 structure every five years. That's why I think the AER's

37 overall approach at the moment is good because it does

38 reflect the reality of companies who are trailing costs of

39 debt, portions from the cost of equity that reflect its

40 actual capital positioning. So I think to move to a fixed

41 immediate total refresh of a capital structure approach

42 I don't think would reflect reality.

43

44 ASSOC PROF PARTINGTON: The trailing cost of debt. Now,

45 Steve just asked a question about what would you do, how

46 would you mark a paper. So the question I would put is if

47 you gave your students a valuation exercise and they did

1 their discounting using the historic cost of debt, would  
2 you give them a passing grade?

3  
4 PROF GRAY: So there are two purposes for cost of capital.  
5 One is to evaluate new projects going forward. So there  
6 you would need forward looking estimates tied in. The  
7 second use of a cost of capital formula is the use for the  
8 AER which is to provide a fair return for investors and the  
9 benchmark efficient entity. So, to the extent that  
10 efficient form of debt financing is a staggered maturity  
11 trailing average approach, the allowed returns would have  
12 to be consistent with that.

13  
14 ASSOC PROF PARTINGTON: I don't think you answered the  
15 question, but I suspect most people if they're honest would  
16 say the student would fail.

17  
18 PROF GRAY: You are not suggesting that was a dishonest  
19 answer.

20  
21 ASSOC PROF PARTINGTON: No, I'm saying it was an evasive  
22 answer.

23  
24 DR MIRRLEES-BLACK: I think in the interests of achieving  
25 our objectives of the day, I think we need to accept that  
26 there are differences of opinion on this precise approach  
27 and I think in the joint report we need to reflect there's  
28 agreement among some of the experts for what Stephen laid  
29 out in terms of the process and the consistency with what  
30 the AER does and we need to reflect the other views as  
31 well.

32  
33 But I think we need to move on now to the  
34 (indistinct), to comparators in particular. There are a  
35 number of questions in the issues paper which relate to the  
36 appropriate comparators for estimation of beta and we have  
37 three comparator firms in the Australian market which is  
38 considered the benchmark (indistinct). But there's  
39 questions as to whether these are sufficiently  
40 representative or whether, in the interests of getting the  
41 best evidence of the benchmark efficiency entity, the AER  
42 needs to look more broadly at other companies (indistinct)  
43 for the process.

44  
45 So, in the contributions so far we've had a range of  
46 views. Would someone like to start off by suggesting - who  
47 would think we should expand the comparators to either

1 international or outside the (indistinct).

2  
3 Just for the record, Stephen Satchell has now joined  
4 the team and replaced Graham Partington. Welcome, Steve.

5  
6 MR SATCHELL: Thank you, but I don't want to kick off.

7  
8 PROF GRAY: Did you want to talk about how the beta  
9 estimates for the domestic comparator firms have changed in  
10 recent times as part of this discussion or is that a  
11 separate --

12  
13 DR MIRRLEES-BLACK: Formally it comes later. But it is  
14 relevant.

15  
16 PROF GRAY: If we constrain it to just what can we learn  
17 from the three domestic comparators that remain and if we  
18 were to expand the set, where would we look, I think maybe  
19 is what we can deal with now and talk about updated  
20 evidence in a moment. So we are at the point where the  
21 sample has dwindled over time, the sample of domestic  
22 comparators has dwindled over time. So, in 2013 the AER  
23 had a sample of nine companies that it examined, five of  
24 which were delisted or recently delisted at that time.  
25 Since that time there have been more companies that have  
26 been delisted, so we are left with a sample of three now.  
27 Some of the sample that had already been delisted in 2013  
28 have now, by the end of the currency of this guideline,  
29 will have been delisted for I think 12 or 13 years. So at  
30 some stage the debt firms have to drop out, I would think.

31  
32 So, we are down to a very small set and so the  
33 question is: is that set reliable enough to place  
34 100 per cent or almost 100 per cent weight on. So I think  
35 not, I think you need to balance comparability. Certainly  
36 these are the most comparable firms that we have, and  
37 that's very important, but with statistical reliability,  
38 and as the domestic comparator sample becomes less  
39 statistically reliable just because there are fewer data  
40 points over time, that balance needs to change and you need  
41 to look elsewhere. Where else might you logically look?  
42 Overseas network companies and other Australian  
43 infrastructure companies are the obviously places to look.

44  
45 Are they perfect comparators? No, they are not  
46 perfect comparators with a benchmark efficient entity and  
47 we need to take account of that. But we also need to take

1 account of the fact that we are down to three. Can we  
2 really sort of put our hand on our heart and say that those  
3 three data points will be sufficient to have 100 per cent  
4 or predominant weight on.

5  
6 MR WHEATLEY: Well, I think if you were down to no domestic  
7 comparators, then you would have to look elsewhere and you  
8 would have to make all sorts of assumptions to do so. So  
9 it's not a perfect solution, but it's difficult to think  
10 what the alternatives are. So I think you are forced to  
11 look at international comparators and potentially the  
12 regulator comparison.

13  
14 MR HANCOCK: We shouldn't quickly dismiss the old delisted  
15 firms. To the extent the betas changed, they are probably  
16 cycling, they are probably not sort of trending --.

17  
18 MR WHEATLEY: The data will reveal whether or not they have  
19 changed.

20  
21 MR HANCOCK: The difficulty of course is that we don't have  
22 data and that's what we are talking about. We are having  
23 to make leaps of faith --

24  
25 MR WHEATLEY: But we do have time series of returns and in  
26 fact if you use relatively frequently measured returns you  
27 can get fairly precise estimates of betas, so you should be  
28 able to determine whether or not betas have changed.

29  
30 PROF GRAY: And suppose there is some sort of cyclical  
31 effect on beta estimates for whatever reason, and we will  
32 come to this in a moment when we look at the updated  
33 estimates, so the estimates at the time of 2013 were quite  
34 low, the low point in the cycle. Now they are materially  
35 higher. So we have had this cyclical effect observed and  
36 that's one of the things that the AER will have to deal  
37 with in this process. But the point is that the firms that  
38 were delisted at 2013, their beta estimates are frozen in  
39 time at that point.

40  
41 So if you see that, look, the majority of the firms  
42 have their beta estimates frozen in time because they are  
43 delisted and happen to be, say, at a low point in the cycle  
44 you are talking about and all of the evidence of  
45 the remaining firms suggests a material increase in more  
46 recent times, then if you were taking just a simple average  
47 of the currently available now higher estimates with these



1 delisted firms that have been frozen in time a number of  
2 years ago, then you will be likely misled.

3  
4 MR HANCOCK: I mean, I accept that you do need to think  
5 through those issues, but the evidence that we've got, as  
6 I understand it, is three firms and our concern is that's  
7 too thin. So we can't sort of put everything on that  
8 evidence either. If we look at those historical - the  
9 delisted firms, maybe we can infer something from those  
10 price periods about whether they were atypically sort of  
11 low and then the time that they were used in 2013.

12  
13 PROF GRAY: I agree with that. That's relevant.

14  
15 DR MIRRLEES-BLACK: There is a statement here which maybe  
16 could be relied on. "A delisted firm should be included in  
17 the comparator set of weight to be placed ...(reads)... the  
18 time since delisting." Is that something we could say?

19  
20 MR HANCOCK: I feel hesitant about it. Basically to  
21 decrease weight on the delisted firms, we have to be  
22 putting increasing weight on something else, and what is  
23 it? What is it that's better than those delisted firms?  
24 If it were the case that we thought betas were something  
25 that was trending and therefore becoming more and more  
26 wrong, then you might say that the weight put on them  
27 should be decreased. But if you think that there's  
28 something that just sort of cycles up and down through  
29 time, then perhaps that historical data still gives a  
30 reasonable estimate of the long run average even if it is  
31 not picking up the short-term fluctuations in it.

32  
33 MR SATCHELL: Can I support that remark. It seems to me we  
34 have very imperfect data. We all agree there's a serious  
35 problem here, and that to throw away the one bit of  
36 information that at least is historically reliable could  
37 only be justified if we could find something better.  
38 Looking at what was discussed earlier such as international  
39 comparators, that does not seem the way to go. I mean,  
40 it's a different market portfolio you are measuring them  
41 against.

42  
43 Also, if we are going to use statistical testing, and  
44 I hear across the table that that seems like a good idea,  
45 you want to use the most reliable data possible, and that's  
46 basically a beta that's only calculated on the returns  
47 which are observable in the market and the returns on the

1 index which is observable in the market. So you don't want  
2 to do any calculations of testing that involve gearing  
3 calculations embedded in it, pure returns, because that at  
4 least has some statistical structure to it.

5  
6 MS CIFUENTES: Can I just tease out a little bit your  
7 notion that we can't look at overseas comparators because  
8 it involves a completely different market portfolio.

9  
10 MR SATCHELL: Absolutely. So it's not clear to me that  
11 there is any - and I know we can't talk too much theory  
12 here or we will be guided by it all the time - but the  
13 notion that, if you like, a cross-section of betas in one  
14 market is directly comparable with a cross-section of betas  
15 in another market, I don't think there is any evidence for  
16 it. The way one could deal with that is if you want to do  
17 comparisons between Australian companies and US companies  
18 is to embed them both in a global market. So you could do  
19 a global CAPM, if I may call it that, and then there's a  
20 valid point of comparison. Otherwise it seems to me it's  
21 just an ad hoc calculation. Then you get to the issue do  
22 you actually benefit yourself by using dubious statistical  
23 methods just so you get the illusion of more data? It's  
24 not clear to me that you do.

25  
26 MS CONBOY: You are talking about using the three that we  
27 have and holding the historical ones constant versus the  
28 overseas energy companies. Given the fact that we are  
29 talking about systematic risks, what about the fact that  
30 you would look at other Australian infrastructure  
31 companies?

32  
33 MR SATCHELL: It depends whether these companies are  
34 fundamentally similar. I do not claim to have expertise to  
35 fully answer that question, but if I was to address the  
36 question I would want to have a rather detailed look at  
37 these infrastructure companies and see whether they  
38 actually do have the same sort of, if you like, economic  
39 composition as the networks, and I don't know. So that's a  
40 research question to me.

41  
42 MR WHEATLEY: The question, and that is to say investors  
43 are making decisions every day, where they are looking at  
44 one set of companies which may well be Australian energy  
45 networks and then they may decide to switch their  
46 portfolios to something else which is an investment  
47 substitute. Thousands and thousands of investors through

1 the world are looking at "Here's one set of companies and  
2 there are another set of companies" which are relevant  
3 comparators for the purposes of investors. They are making  
4 those sorts of comparisons. Is it possible that - are you  
5 saying that the AER won't be able to make those comparisons  
6 and find those types of comparators? In the end, the AER  
7 has to make the decision what is the opportunity cost of  
8 capital for those who might invest in Australian energy  
9 networks but aren't doing so or are choosing to do so.

10

11 MR SATCHELL: This is like a global (indistinct)  
12 allocation. If you are thinking of building a global  
13 portfolio and comparing investment here with investment  
14 there, it's not clear to me that you would use the domestic  
15 betas as the fundamental decision point.

16

17 MR WHEATLEY: So which model would you use?

18

19 MR SATCHELL: That's a hard question and it's a commercial  
20 question too. I don't know.

21

22 MR WHEATLEY: It is a very hard question and --

23

24 MR SATCHELL: I'm sorry?

25

26 MR WHEATLEY: I think the thing is it is a very hard  
27 question. It's not uniform. I mean, it is less than  
28 uniform (indistinct) on which domestic pricing model to use  
29 as (indistinct) international.

30

31 MR SATCHELL: I entirely agree with that.

32

33 MR SADEH: The relative systematic risk to the overall  
34 market I think we discussed in the first session should be  
35 reasonably stable. So, intuition would tell me that beta  
36 shouldn't go up and down on day-to-day statistics. So  
37 I thought we talked about there shouldn't be a relatively  
38 high bar to change things and you don't just mechanically  
39 look at a set of data and therefore, "Here's a new beta  
40 this month, here's a new beta next year." When you take  
41 that as a point of there needs to be a demonstrable change  
42 in trend before you look at it using the data to change  
43 something, I think the role of data is very important and  
44 I think it would certainly provide a greater quality of  
45 decision to have an expanded dataset.

46

47 To the question of, you know, if I were making an

1 investment decision looking at betas and saying how should  
2 I apply that for a company, unfortunately the world isn't  
3 binary where I say that, "Here is a quality observation,  
4 therefore I'm going to place weight on it and here is  
5 something I will place no weight on it." There are a lot of  
6 things in the middle. My own view would be of course the  
7 domestic betas that are of currently listed firms are the  
8 most relevant, but then there is some relevance in my mind,  
9 in declining order, of number 1 delisted Australian firms,  
10 number 2 overseas networks where you do need to start  
11 looking at these in terms of what adjustment should I make  
12 or I'm using them more as a cross-check so I wouldn't apply  
13 an absolute arithmetic mean to them all, and then lastly,  
14 and probably lastly if at all, the other Australian  
15 infrastructure because of toll roads, airports, retail,  
16 that is quite uncorrelated to networks.

17  
18 DR MIRRLEES-BLACK: That sounds like a practical investor,  
19 and that's the process that you would adopt in assessing  
20 betas if you were looking at an investment.

21  
22 MR SADEH: If I was looking at an independent Daiwa's (?)  
23 Report where they will provide you with "here is my beta"  
24 and then naturally it isn't a functional formula, there is  
25 a number of artistic ways they get to it, and at the end  
26 they will provide you with tables of data of what they have  
27 used to have regard to the beta. Now, they will show you  
28 means and medians of different samples and they will show  
29 you overseas firms, et cetera. You will find that the  
30 global average isn't what they use. They just have regard  
31 to it as a cross-check because it's a useful  
32 thing - because there are a number of reasons why the  
33 overseas firms would be less comparable than the domestic  
34 firms.

35  
36 When you have three domestic firms, it is also  
37 potentially misleading to say "Therefore the average of  
38 those is what I must use." You take greater weight for  
39 that average but you use a cross-check for the second best  
40 data set and then an additional cross-check with less  
41 weight for the broader data set. But I think there's value  
42 in it, but you just need to temper it. Unfortunately  
43 I can't say I would apply weighting 50 per cent,  
44 20 per cent, 10 per cent to each of them, but one I would  
45 use reasonably mathematically and the other ones I would  
46 not have regard to an absolute mean.

47

1 MR SATCHELL: Thank you for that. I thought it was  
2 interesting. But I think if you're looking at it from the  
3 point of view of an Australian investor, which is what  
4 you've been saying to me, you then perhaps want to think of  
5 it in terms of there's an overseas regulated company and  
6 I'm going to regard that as, if you like, a domestic  
7 investment in the sense that I want to measure it against  
8 the Australian market and I want to convert US dollars into  
9 Australian dollars, that I think is an interesting exercise  
10 to do, but that's a different beta you get out of it than  
11 the beta we get from observing it against the US market.  
12

13 MR SADEH: Absolutely, and a different level of systematic  
14 risk compared to the Australian networks by virtue of how  
15 those regulatory jurisdictions work.  
16

17 MR SATCHELL: I see that as an interesting research  
18 question that's worth pursuing.  
19

20 DR MIRRLEES-BLACK: Maybe we should use comparators. But  
21 the second question would follow, which is if you are going  
22 to use comparators, what adjustments do you need to make in  
23 order to make them comparable so you can give them due  
24 regard. I think that's what you --  
25

26 MR SATCHELL: I don't say you shouldn't use any comparators  
27 or disregard all international information. I'm just  
28 saying you should use it rather carefully and I think it's  
29 at the research level rather than at the conclusion level,  
30 if you see what I mean.  
31

32 PROF JOHNSTONE: So we are craving data; I think everyone  
33 is saying the same thing about that. I totally agree with  
34 Stephen. If you are doing this exercise realistically, you  
35 would be running different sets of data and just seeing  
36 what the answers are, so you would be using delisted firms.  
37 But you would probably also be thinking of American  
38 utilities and I think I have seen somewhere from Graham  
39 Partington that in that book by Berk, US utilities are  
40 quoted as having betas of 0.2.  
41

42 PROF GRAY: I will come to that. That's not right.  
43

44 PROF JOHNSTONE: I thought you would.  
45

46 PROF GRAY: That's not right, but go on.  
47

1 PROF JOHNSTONE: So the thing with the local data too is  
2 I understand the three firms are not all regulated income.  
3 So their market betas are a reaction to all their  
4 activities, not just their regulated income. Their  
5 regulated income would have to be seen at the low end of  
6 their - if you have the businesses, two businesses  
7 regulated and unregulated, the unregulated business is  
8 going to be more responsive to the general market and the  
9 regulated is more anchored on the regulator's decisions, so  
10 I would have thought the regulated part of the income has a  
11 lower beta than the overall beta observed in the  
12 marketplace, surely.

13  
14 That leads me to thinking about something I saw in  
15 Ilan's work and that is that this makes a lot of sense to  
16 me. If you are trying to work out what the beta is and you  
17 are really trying to think of fundamental risks of the  
18 organisation, breaking it down between idiosyncratic and  
19 systematic risk, and Ilan is talking about things like this  
20 and I think this is getting down to concrete, he's talking  
21 about risk like political risk. For example, I would have  
22 thought political risk is actually the risk that it might  
23 be seen that these entities have been doing too well for  
24 too long and we've got to tighten up, that's part of it,  
25 but other risk that would actually be genuine risk to these  
26 entities like risk of reaction to climate change,  
27 technology changes, cyber security, those sort of  
28 fundamentals.

29  
30 Now, how we can talk about the risk of the entity in  
31 this gobbledygook of beta when we really should be thinking  
32 deep down of things like that, I think that would make a  
33 lot more sense, and then you could start to think about  
34 whether these are actually systematic or unsystematic  
35 risks. That's getting down to tin-tacks. Then largely why  
36 are there only three firms listed? When these firms are  
37 delisting, are they saying they can get their capital  
38 cheaper somewhere else or are they saying, in other words,  
39 is the true opportunity cost of capital is lower than the  
40 market would demand of them? Or are they saying that they  
41 want to get in on the economic rents that the regulator is  
42 providing to these entities? You know, "We want to  
43 monopolise these for ourselves rather than let any old  
44 shareholder have some of this."

45  
46 So, I think the fact that there's only three listed  
47 entities now is something really worth considering because

1 that's a genuine economic decision that's been made by  
2 these entities to delist and why are they doing that? What  
3 are the motives behind that? All we are concentrating on  
4 is the fact there are only three and it's a shrinking  
5 number but with short data series.  
6

7 The last thing I want to also say is that comparative  
8 entities really are not going to exist because unless they  
9 are regulated, they are subject to completely different  
10 market conditions. If they are in different countries and  
11 different market indices and so on, it's going to be very  
12 hard, apart from just cross-checking and getting a bit of a  
13 ballpark idea of using any comparative entity. I would  
14 think a natural comparator that the man in the street would  
15 think of is an American utility. What happens in the  
16 United States? How are their incomes regulated? What sort  
17 of (indistinct) are attached to them, which leads to the  
18 point too.  
19

20 PROF GRAY: Just to correct the record on that, so Berk &  
21 DeMarzo, page 457 of the global fourth edition, report a  
22 utilities asset beta of 0.22 to 0.36, which corresponds to  
23 an equity beta of 0.55 to 0.9, but I'm not sure that's  
24 relevant in any event. I think if you are going to use  
25 international evidence rather than use some sort of broad  
26 utilities portfolio, we should look at network businesses  
27 as the better set of comparators.  
28

29 PROF JOHNSTONE: It sounds pretty relevant to me, and the  
30 other thing is that 0.2 for an asset beta, that means that  
31 the WACC should be based on 0.2 --  
32

33 PROF GRAY: If that were the right number, but it's not.  
34

35 PROF JOHNSTONE: That's not equity. It's the overall --  
36

37 PROF GRAY: That's not the number they report.  
38

39 PROF JOHNSTONE: But you are saying the asset beta they  
40 report is 0.2.  
41

42 PROF GRAY: No, it's a range of 0.22 to 0.36.  
43

44 PROF JOHNSTONE: All right. Fair enough. So you take  
45 that. That wouldn't be the number that you would plug into  
46 a WACC formula because that's covering the overall average  
47 cost of capital to the assets. So it's a much lower number

1 than the numbers we talk in Australia.

2

3 PROF GRAY: Well, we are back to the original point of  
4 what's the AER's process. They are going to write down a  
5 gearing number and it would be - well, my students would  
6 fail if they had a beta that was geared to, say, 0.5 and  
7 plugged it into a WACC formula that had a gearing of 0.6.

8

9 PROF JOHNSTONE: Are you saying the American entities have  
10 a lower amount of debt?

11

12 PROF GRAY: Well, if they have a different level of gearing  
13 it has to be corrected, so we have it internally  
14 consistent.

15

16 PROF JOHNSTONE: Sure. That would be worth doing. But on  
17 the face of it, it looks like the betas coming out of the  
18 United States utilities are going to be on the low side  
19 relative to ours.

20

21 PROF GRAY: No --

22

23 MR SADEH: This is just networks. This is contracted.

24

25 PROF GRAY: That's right.

26

27 MR SADEH: So power generation. Is it merchant power  
28 generation? Might as well be a man on the moon.

29

30 PROF GRAY: Utility is broadly defined, so maybe we should  
31 not spend a lot of time because I don't think that's  
32 relevant.

33

34 DR MIRRLEES-BLACK: I think there's more of a question  
35 which is should we be using any of this data? We picked on  
36 one market and there are other markets, other companies in  
37 question. Is any of this evidence in any of these  
38 companies anywhere in the world relevant to the question  
39 which the AER is prepared to invest themselves in. That's  
40 the question.

41

42 PROF GRAY: Maybe it's a bit of a consensus formula. All  
43 of this is relevant evidence, so the three companies that  
44 we've got, that's certainly relevant evidence. Delisted  
45 companies, there's some relevance in that. Other  
46 Australian infrastructure firms, that's relevant evidence,  
47 and other overseas network firms is relevant evidence. So



1 this is an area where inevitably some level of judgment is  
2 going to be required and I guess my view is that it would  
3 be wrong to say I'm only going to look at the three firms  
4 and that I'm going to be blinkered to all of this other  
5 relevant evidence. I think all of this is relevant  
6 evidence and we should have regard to all of it.  
7

8 MS CIFUENTES: Ilan, that wasn't quite what I heard from  
9 you. I think you were questioning the value of other  
10 Australian infrastructure in terms of comparing energy  
11 networks with, say, roads, retail.  
12

13 MR SADEH: Yes.  
14

15 MS CIFUENTES: Even at its most generous,  
16 telecommunications. I think you were questioning the value  
17 of that and also the notion of using some of the overseas  
18 just because the jurisdictional differences are so great,  
19 and that's something that I think both Paula and I observed  
20 at the World Forum of Economic Regulators just last week,  
21 that in fact the ability to compare one regulatory  
22 framework overseas, pick any of them, with Australia was  
23 just about impossible.  
24

25 MR SADEH: I agree, and I think there's a sliding scale of  
26 weight that I would put on the different sorts of data. As  
27 I said, I would put the greatest weight on the existing  
28 currently listed domestic, less weight but more than the  
29 rest on the delisted Australian networks, and then you go  
30 into territory of more qualitative assessment for  
31 cross-checking rather than mathematical, as you said. The  
32 next most reliable to me is foreign, but you have issues  
33 with them. The US utilities, let's take out the  
34 non-network utilities, each state in the US has different  
35 regulators and a different approach. There are a number of  
36 US states where you don't have a regulatory determination  
37 until you ask for one. So, by definition it's going to be  
38 lower risk because things are changing less frequently.  
39 Then, lastly, a set of Australian infrastructure stocks  
40 I think have the most danger of looking at them. But the  
41 more you go down the spectrum of things further away from a  
42 natural comparable, the more the onus needs to be unpicking  
43 what's inside.  
44

45 DR MIRRLEES-BLACK: Can I just unpick that a little bit  
46 more. I think that when you look at other regulators, and  
47 it's interesting you refer to other regulators, some of

1 them will make determinations of beta for a range of  
2 different sectors and we would like to make sure that the  
3 beta estimates, the determinations that they make are  
4 sensible relative to each other so they are not internally  
5 inconsistent so that those centres which are perhaps more  
6 linked to GDP in terms of their volume pricing have a  
7 greater beta. And so the question then is for you, if you  
8 are looking at centres which are not directly related, they  
9 might form an upper bound or a lower bound for estimates  
10 that you make for the energy networks.

11  
12 MR SADEH: I agree. I kind of termed it as a semi-check or  
13 a cross-check. It's telling you is something too high, is  
14 something too low. As you said, you think this is  
15 correctly reflecting that one has volume risk or one  
16 doesn't, other major difference between jurisdictions.

17  
18 MS CIFUENTES: But not used to set a range, which I think  
19 Jonathan --

20  
21 MR SADEH: Indeed.

22  
23 MS CIFUENTES: The sense I get is from a practical  
24 investment perspective you would use that just to make sure  
25 that it is within the ballpark and it's a qualitative  
26 assessment at that level, at that third step.

27  
28 MR SADEH: Yes, that's right.

29  
30 MR SATCHELL: I think I entirely agree that all of this is  
31 relevant information, but the term "relevant information"  
32 needs to be understood as, if you like, potential  
33 candidates to inform us. It does not mean that at the end  
34 of the day they won't have a weight of zero attached to  
35 them. I think that's where I would be. So, yes, we should  
36 think about all of these things because this is a problem  
37 that's unresolved. But it doesn't necessarily we are going  
38 to hopefully end up putting 80 per cent on US networks.

39  
40 DR MIRRLEES-BLACK: Again, Simon has made comments in  
41 papers on some of this. Do you have anything further you  
42 would like to add?

43  
44 MR WHEATLEY: Again, if we ended up with no listed energy  
45 networks here, we are going to have to --

46  
47 MS CIFUENTES: Simon, would you kindly just speak up a little

1 bit. I'm still suffering from a head cold so I can't hear.

2

3 MR WHEATLEY: If we ended up with no listed energy networks  
4 in Australia, then you would be forced to look at foreign  
5 comparators.

6

7 MS CONBOY: You could, or you could take up I think Jim's  
8 suggestion that you still look at the delisted and have a  
9 look at the volatility.

10

11 MR WHEATLEY: Even if they were 40, 50 or so?

12

13 MS CIFUENTES: Again, if I understood, Jim was suggesting  
14 that you actually have a look at the period of time when  
15 they were actually frozen and then have a look to see  
16 whether it was at a cyclical low or a cyclical high. That  
17 in itself I think has some challenges because again how do  
18 you know whether it was at a cyclical high or low for the  
19 entire industry or there were specific factors. So I'm  
20 interested in that as a technique, but I do think that  
21 there's still going to be a lot of qualitative judgment  
22 there.

23

24 MS CONBOY: I think what I heard Jim say was that you had  
25 the delisted ones and to figure out whether they were in a  
26 high or low cyclical period you did need to have those  
27 extra three as a cross-check in terms of where they were  
28 going. Is that --

29

30 MS CIFUENTES: You need to use all of them, I would think.

31

32 MS CONBOY: Yes, but that's going out as a straight line,  
33 the delisted ones. So you have to look at the other ones  
34 as to where they are in the cycle. Is that --

35

36 PROF GRAY: Yes, that's right. That's what I was saying.  
37 The ones that are still alive, if you can observe that,  
38 say, since 2013 the ones that are still alive, their beta  
39 estimates have increased uniformly, then that would be  
40 fairly persuasive information, I think, that the ones that  
41 are frozen in time were frozen at a lower level, not in a  
42 cycle of betas, but in a cycle of beta estimates.

43

44 MR SATCHELL: May I ask a question? I'm completely  
45 ignorant on this. The ones that have been delisted are now  
46 privately owned, whatever, but they presumably have annual  
47 accounts. Is there any information in those that's

1 relevant to us or is it just --

2

3 MR SADEH: Not that you would use to estimate a beta  
4 accounting language (indistinct). Even if they did, the  
5 way the accounting book value is recorded is too  
6 (indistinct).

7

8 MR SATCHELL: Thank you.

9

10 MR HANCOCK: Using the overseas comparators or indeed any  
11 comparison, presumably you would put more weight on them as  
12 you became more confident that they are representative of  
13 the firms you are trying to regulate. So I think about how  
14 you would become more confident. One way that that might  
15 happen might be going back to the period when you had  
16 better data for the Australian entities and trying to  
17 establish a robust connection between the estimates you are  
18 getting overseas and what you are getting in Australia, and  
19 you find that different people approach that question in  
20 different ways and if they are converging on similar  
21 answers, then you become more confident about that overseas  
22 comparison. But, on the other hand, if they are using  
23 those overseas comparators and getting very disparate  
24 results, then you can't be very confident about what you  
25 take from them.

26

27 MS CIFUENTES: One observation I made while I was at the  
28 world forum just in the European zone, that the impact of  
29 EU regulations and the need for all of the network  
30 businesses to start complying and the regulators, but they  
31 were at completely different points in time along that path  
32 of compliance and within that, so regulatory structures  
33 change in short periods of time as well. So that is a  
34 particular problem in Europe in using any of the European  
35 comparators, as well as the problem of the US where you do  
36 have very, very different regulatory structures.

37

38 So, in some ways I think someone - Stephen, I think  
39 you might have said if you are going to do that, then use a  
40 global CAPM, and that's almost the answer, but I am not  
41 sure that is really going to be that informative either.

42

43 MR SATCHELL: I'm only saying in a sense theoretically how  
44 one should approach it. I'm not recommending it as a  
45 strategy. The other way one might want to think about it,  
46 again as a research question and not as an immediate  
47 practical application, is the impact of regulation, because

1 if one could, if you like, intellectually regulate and  
2 deregulate and then re-regulate, you can do the same thing  
3 you are doing with gearing, you can take a company that's  
4 not regulated, is not a network and then, if you like,  
5 infer information from that. That doesn't help us today at  
6 all, and I'm not saying that it's not mentally  
7 inconceivable.  
8

9 MS CIFUENTES: There were a few pipelines that fell into  
10 that space, but they've since been gathered up into the  
11 regulatory net.  
12

13 PROF JOHNSTONE: Has any work been done on the effect of  
14 the fact that the figures we are observing in the  
15 Australian market are actually related to income other than  
16 the regulated income and how big an issue is that? Because  
17 to me clearly, as I said before, the beta of the regulated  
18 income has to be lower than the beta of the company, if the  
19 company has any large operation outside its regulated  
20 stream of activities.  
21

22 MR SADEH: Not necessarily. I mean, from what I've looked  
23 at it's incredibly hard to separate the unregulated cash  
24 flows from regulated cash flows, unfortunately. I wouldn't  
25 necessarily say that unregulated cash flows were of  
26 themselves riskier than regulated cash flows. It depends  
27 what their business is, for example, and because in the  
28 valuation of a company it has both your existing  
29 unregulated value as well as your view on future  
30 unregulated value. Now, your existing unregulated  
31 contracts in the transmission network in my view are lower  
32 risk than a regulated asset because they are effectively  
33 20-year leases, something like that. So, that's one point  
34

35 The second point is, you know, arguably you also have  
36 lower beta bias when you've got some of these listed firms  
37 that have multiple networks. So to have two or three  
38 networks in different locations with different regulatory  
39 decision timelines is arguably diversification benefit  
40 which lowers - I mean, you can kind of go around and around  
41 qualitatively. I think quantitatively it is extremely hard  
42 to separate.  
43

44 PROF JOHNSTONE: That all makes sense and underlines how  
45 difficult this task is. The other thing I would just like  
46 to bring back to life, what you mentioned in the last forum  
47 was that remember that these betas we are observing, they

1 are the market observing the cash flows coming from  
2 the entities, knowing that behind the scene the regulator  
3 is governing those cash flows. So the market is observing  
4 those and its pricing is actually producing these betas and  
5 now we are looking at these betas as if they are exogenous  
6 when in fact they are a product of our previous decisions.  
7 So that's circularity, you know, it just can't be assumed  
8 away.

9

10 DR MIRRLEES-BLACK: I think we've got some measure of  
11 (indistinct). Stephen Satchell summarised it by saying  
12 this is all relevant data, all relevant information.  
13 I think the important question for the AER is, well, it may  
14 be relevant information. How should it use it? How does  
15 that relevant information then gets translated into the  
16 decision it will have to make on what is the beta statistic  
17 that it should use in the rate of return framework?  
18 I don't think we've had a firm proposal on how that  
19 comparator data, which is relevant information, can be  
20 translated into a beta estimate. Has anyone got a starter  
21 in terms of how that (indistinct)?

22

23 MR SADEH: I will have an attempt at it. I think there  
24 should overall be a high bar to change based on applying  
25 the observed data, that intuitively beta should be  
26 something that is relatively stable. So if your  
27 application of data in ascending order of its quality being  
28 domestic firms first suggests that your current estimate is  
29 materially out of line, you would then go to the next tier  
30 and look at that set of data qualitatively to see if  
31 there's been a demonstrable change in systematic risk in  
32 various areas, because three firms is quite dangerous to do  
33 that, but, as I said, I think after that it should be  
34 higher before you change the estimate.

35

36 DR MIRRLEES-BLACK: So you would look at the comparators  
37 before in terms of the relevant information and then use  
38 that to apply judgment as the current estimate change  
39 material --

40

41 MR SADEH: I would look at the three existing firms first,  
42 look at their data, and say has there been a material  
43 change, because if there hasn't been, just the mechanical,  
44 you know, it's not something that should be intuitive and  
45 happening, does that trigger an assessment into the next  
46 level of data, next level of data to see if there is a  
47 discernible pattern of systemic risk change.

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DR MIRRLEES-BLACK: Do others concur with the last suggestion?

PROF GRAY: Yes, I do. I think that there's no mechanistic formula that you can write down that says "This is what you should do." So there inevitably will be a level of judgment required, and I agree with Ilan that with all the regulatory parameters, sort of the high bar for change, that all stakeholders benefit as we discussed last time from some predictability and stability. So, my approach would be to set out, as Steve said, all of the relevant evidence, so use all of the relevant evidence, and then I would start with where we got to last time. So, peg in the sand from last time is 0.7, and then what does the relevant evidence tell us relative to how has the evidence changed since we looked at it last time and came up with 0.7? Is the evidence suggesting since that time an upward move or a downward move or is it inconsistent? And then if all of the evidence or the predominance of evidence is in one direction and if the AER determines that it is material enough, then a change will be made.

But it may be that the evidence is predominantly in one direction, but the AER determines that it's not material enough to make a change. But then that then sets a precedent for how other parameters would be judged. So if the evidence in relation to beta is not deemed to be significant enough to warrant a change, then that kind of threshold, that same threshold of materiality should be applied to the other parameters and symmetrically.

MS CIFUENTES: I will weigh in here and thank you both for those suggestions. They make perfect logical sense. The difficulty I at least have is in the step "let's gather all relevant evidence" and we know from years of rate of return determinations that that actually is a very, very difficult question. How do you decide what information is relevant or not? Some of it is quite obvious, so the three firms, the historical data of the firms that are delisted, that's pretty straightforward. I think it might even be straightforward to have a look at some of the other Australian infrastructure and bring that into the pool as relevant information.

I do, though, have a real difficulty with how we narrow down the international data. I still haven't got a

1 real sense from the experts on how we do that other than as  
2 a research exercise and I'm not sure that that's

3 necessarily going to be easy or satisfactory, because of  
4 course the research exercise would depend on what we  
5 specify, which means we are almost predetermining what you  
6 are going to be looking at.  
7

8 So, if you can turn your collective minds to how we  
9 would decide in that very broad category, remembering that  
10 it would be used as almost a final cross-check, a sanity  
11 check.  
12

13 PROF GRAY: I've got a couple of suggestions. So, one is  
14 in the evidence that we submitted last time around we went  
15 through an exercise with CEG that developed a set of  
16 comparator businesses that had more than 50 per cent of  
17 their revenues from network operations. So, that's one  
18 approach.  
19

20 The second thing that you might look at is the AER's  
21 not the only regulator to have struggled with this issue.  
22 So, New Zealand have two comparators. The UK have two  
23 comparators. So you look at the way that other regulators  
24 have struggled with the same issue. So the New Zealand  
25 approach is to take a very large set of overseas  
26 comparators, throw them all in, on the basis that some will  
27 be wrong, too low, some will be wrong, too high, will  
28 cancel out, a very large set. The UK approach is a little  
29 bit different where the regulator there applies judgment  
30 and puts a premium on stability. So they would be  
31 suggestions for how one might look at the overseas  
32 evidence.  
33

34 PROF JOHNSTONE: I can see the premium on stability.  
35 There's no doubt stability is a good thing. But when you  
36 boil the whole exercise down and if you were to start this  
37 exercise off and just think, "Okay, beta's a number we are  
38 going to plug into a formula, it's going to produce an  
39 important result," and you know your responsibility is to  
40 provide fair return to the set owner so they maintain their  
41 assets, they invest as they should, not too much, not too  
42 little, things like that, then at the same time you would  
43 probably be trying to reduce beta as much as you could  
44 whilst achieving those purposes.  
45

46 I think that's what's happened in time in Australia,  
47 that the beta estimates used have actually been brought



1 back and back and back and I suspect there's probably room  
2 to bring them back a bit further whilst not discouraging  
3 investment or maintenance of assets or the continued wish  
4 to hold these assets. So the companies that hold these  
5 assets are not getting out, they are not selling to other  
6 companies. So, these are the kind of considerations behind  
7 the scenes and in the end we've just got to think that beta  
8 is a number that we're not going to come up with a right  
9 answer, we've heard that over and over again, we know we  
10 have to plug it in, it's going to be important, and where  
11 in practical terms can it actually be reduced to, I would  
12 suggest, whilst at the same time not doing the entities in  
13 the eye.

14  
15 MR SADEH: You wanted to identify at an early level what  
16 are the kind of firms that you want to investigate further  
17 analysis overseas, kind of look towards new, high level  
18 criteria, you know, are these similar to the AER networks.  
19 So, for example, are you in a jurisdiction that uses a RAB  
20 based approach versus a (indistinct) book value. If you  
21 are not, I wouldn't include (indistinct). Are you a  
22 jurisdiction that has volume risk or not. If not, that  
23 might be too high a level of things to exclude. The issue  
24 of termination period, one year, five years, 10 years.  
25 There's a couple of simple criteria like that that you can  
26 use to screen.

27  
28 MR SATCHELL: Can I support that. Good point.

29  
30 MS CIFUENTES: That's very useful.

31  
32 MR HANCOCK: So that's sort of looking at particular  
33 characteristics to sort of reinforce your views about  
34 comparability. I also think the other thing is that if you  
35 are going to adopt particular overseas comparators and  
36 believe that they tell you something about what's happening  
37 in Australia today, then you should actually be able to  
38 establish links with the historical data and find that they  
39 explain something in the historical data, and if they can't  
40 explain anything in the historical data, then how can you  
41 be confident that they explain anything now?

42  
43 DR MIRRLEES-BLACK: I think we have a measure of agreement  
44 on this issue. The devil is in the detail when you  
45 actually write it down, but I think there is some agreement  
46 on how we would use the comparators.

47

1 Just in terms of translating the beta, though, all of  
2 the experts have expressed concern over a lack of  
3 transparency in the way that the AER exercises judgment  
4 obtaining the evidence on beta and then converting that  
5 into the final estimate, and I think I said the experts  
6 have agreed that they regard that as difficult and they  
7 would say they would like to be clear about how you would  
8 express that application of judgment. I don't think  
9 there's agreement here, though, about what's the process  
10 that should be adopted. So, take the beta, how it should  
11 be translated, how it should be applied. Does anyone have  
12 a view as to how that judgment should be applied, what's  
13 the process for applying (indistinct)?  
14

15 PROF GRAY: Just to comment on how not to apply, the AER's  
16 current approach has been to set the primary preliminary  
17 range based on the ability, namely the three comparators,  
18 and then use all of the other evidence to select the point  
19 within that range. That doesn't make any sense to me, for  
20 the reason that that range is set to reflect the  
21 statistical imprecision of the estimates of the three  
22 parameters, and there's just no reason that that should  
23 bound the information that you get from the other relevant  
24 sources.  
25

26 MS CIFUENTES: So, Stephen, can you just go through that  
27 again?  
28

29 PROF GRAY: So the primary range is based on just the  
30 domestic comparators, and the reason that there's a range  
31 is that we can't precisely estimate data. We can only  
32 narrow it down. So we are saying that the information that  
33 we have from the domestic comparators enables us to narrow  
34 down a beta estimate from that information to within this  
35 range. So that's a range that sort of reflects the  
36 statistical imprecision of the beta estimates from that  
37 subset of the data, and that may well be unreliable because  
38 we've only got three firms left. Then we've got all these  
39 other bits of evidence that we say are relevant evidence.  
40

41 It may well be that in some circumstances all of that  
42 other evidence is telling you that the number should be way  
43 above that statistical range or way below that statistical  
44 range. So, having a primary range only reflecting the  
45 statistical imprecision of the one very small subset of the  
46 relevant data is not a sensible way of constraining things,  
47 in my mind. So what do you do instead is I think what we

1 are agreeing on.

2

3 If I were the regulator doing this, what would I do?

4 I would have a table that sets out the evidence from the  
5 domestic comparators and look at what other regulators do,

6 look at the other domestic infrastructure and so on, so a  
7 table for all the bits of relevant evidence and then a

8 discussion about how have things changed since the 0.7 was  
9 derived last time, the stability and the high bar and

10 predictability and all of that sort of thing, and then set

11 out the application of judgment. What considerations did

12 I have in either leaving the number at 0.7 or increasing it

13 or decreasing it? What pieces of the relevant evidence did

14 I find particularly persuasive that led me to stay the same

15 or increase or decrease?

16

17 MS CIFUENTES: Sorry, just a question. Would that involve

18 some mental weighting rather than let's assign a specific

19 number along the lines of in our suggestion. So, if you do

20 set that out in a table and don't necessarily set out a

21 range, would you still use the priority listing that Ilan

22 suggested? So, you give primary weight to the observations

23 of the three. Then if something has materially changed,

24 you would then start to take into account the second column

25 of your table and then the third?

26

27 PROF GRAY: Yes, I think that's fine. I know a number of

28 other regulators have started assigning specific weights to

29 different pieces of evidence. The QCA has done that

30 recently in relation to market risk premium, for example.

31 That would be a big step I know for the AER. I think what

32 people are calling for is some better expression

33 qualitatively of the considerations. So, without going

34 through the kind of step by step approach, "We looked at

35 this first and then bounded it to this region and then only

36 after doing that did we factor in this other piece of

37 evidence"; I think rather than that, setting out, "Here's

38 all of the evidence," and then explaining why you gave much

39 more weight, much more regard in a qualitative sense, "so

40 more weight or more regard to this piece of evidence and

41 here's the reasons why, and we gave less weight to this

42 evidence and here's the reasons why."

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44 PROF JOHNSTONE: It's essentially the same thing, though,

45 isn't it? You still probably in the end argue for more

46 relevance for the local observed betas, so you are at the

47 same place.

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MS CIFUENTES: I think that's right.

MS CONBOY: I think that helps you start --

PROF GRAY: But it's very different from constraining based on the statistical imprecision of that subset of the data as a first sort of immutable range.

MS CONBOY: And does that help you then with the logic of starting with the 0.7, because you initially said you've used your point estimates to define the upper and lower range, and then conceptual analysis to find a point within that range, and you are saying that that first step was in your view incorrect, but that's what gave us the 0.7, but then you're saying let's start with the 0.7 and use that cascading approach that Ilan has mentioned, which I think would then say you're okay with starting at that 0.7 as your high bar.

PROF GRAY: Yes, I agree with that. I think stability and predictability is very important. What I think scares all stakeholders is where a regulator could assess the same piece of evidence or essentially the same evidence and come up with a different decision than what it had come up with last time or, even worse, where the evidence has moved pretty much uniformly in one direction and the regulatory estimate goes in the other direction. I think that's what really spooks stakeholders. So I would start with the 0.7 and then explain why it is that you moved or didn't move from there.

MS CONBOY: Okay.

MR SATCHELL: I think there's two sides of this. There's the new evidence and the impact it might have on where we are today and there's the, if you like, historic situation that where we are today is in relation to all the accumulated evidence in the past, and the value of the confidence interval, which I agree from a purely statistical sense is pretty weak as a bit of statistics, nevertheless by putting it at 0.7, which I understand is up one end of the confidence interval, is saying that taking into account all the previous uncertainty and based on evidence you have, you are thinking it's larger rather than smaller. I think that's valuable. To throw that away and just replace it by the number 0.7 could in many people's

1 minds be the centre of some other confidence interval  
2 between 0.9 and point something else. So I think there is  
3 value in it. I would not agree with throwing away the  
4 confidence interval as an idea.

5  
6 PROF JOHNSTONE: The only way to fully express the local  
7 data is in a confidence interval, it is not in a point.

8  
9 MR WHEATLEY: As long as it is borne in mind that other  
10 adjustments can take you outside that confidence interval.

11  
12 MR SATCHELL: Absolutely, because there's always that  
13 5 per cent anyway.

14  
15 MR WHEATLEY: We will discuss later the low beta bias.

16  
17 DR MIRRLEES-BLACK: I think we have reached a measure of  
18 agreement here. We will have the coffee break, but we  
19 might be able to finish off beta if possible in just  
20 10 minutes by doing two things: first of all, simply  
21 avoiding some of the detailed measurement questions which  
22 I think can be dealt with in later discussions that are not  
23 particularly pressing for today, but maybe the low beta  
24 bias question is one which is important to address. So if  
25 we might spend a few minutes on that before we break for  
26 coffee. I will say that there's a measure of agreement  
27 that empirically there is a low beta bias in the returns  
28 from stocks where the low beta is a bit higher than the  
29 CAPM would suggest. So there's agreement about that issue.  
30 The question is what should the AER do about it.

31  
32 MR SATCHELL: I want to raise a question on this which may  
33 shatter this sense of agreement. When we say "low beta  
34 bias", and I'm now putting a statistical hat, do we mean  
35 that we believe the true beta is larger, because that's  
36 what bias usually means, or do we mean that actually the  
37 CAPM doesn't hold and then in this particular world stocks  
38 that have low betas typically also have some alpha.

39  
40 MR WHEATLEY: (Indistinct). John Hanley, a former adviser  
41 for the AER, coined the phrase "low beta bias" and it  
42 refers to the second of the possibilities.

43  
44 MR SATCHELL: Yes. It's not a helpful phrase because --

45  
46 MR WHEATLEY: No. You will have to blame the adviser, John  
47 Hanley, and the AER for picking up on this phrase.

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PROF JOHNSTONE: I'm just thinking that the possibility there was the one Steve said the CAPM didn't hold. Is that what you meant?

MR WHEATLEY: The "low beta bias", that phrase refers to the idea that the CAPM underestimated returns to low beta stocks.

PROF JOHNSTONE: That's wrong.

MR WHEATLEY: Correct.

MR SATCHELL: I actually worked in this area in an academic sense. You can explain a lot of the low beta bias by historical interest rate movements. So, as interest rates have fallen historically from 1980, low beta stocks have typically exhibited this pattern, historically correct, and as interest rates are likely to go up in the future, we might anticipate they may go the other way. So, this is really a change in the structure of the CAPM rather than a flaw in the CAPM, if we are measuring something that's exogenous to the model. So I query whether there is a problem here or whether we need some adjustment.

MR SADEH: I think I agree with you and the reason I say that is I thought the weight of the regulatory framework works by having the benchmark efficient entity by nature bifurcates systematic versus non-systematic risk and therefore as an investor, if I'm looking at my required rate of return, I would naturally think what do I require as a return on all my cash flows. The rate of return from the regulator is on the RAB, so by definition I will want an alpha for the extra risks that I'm taking, but that is reflected in things like the opex allowance. So I actually don't see there being a disconnect there between it. As I said, over time you should absolutely expect that networks should earn a greater return higher than the pure AER return on RAB because they should be outperforming on opex.

PROF GRAY: But I think what we are talking about is there's like 60 or 70 years of empirical evidence. Every time someone looks at this question they come up with an empirical relationship that has a flatter slope than the CAPM would suggest. So, whether we call that low beta bias or we call it something else is a pervasive empirical

1 result that has applied for 70 years. The academics that  
2 are published in this area are basically a finance hall of  
3 fame: Black, Jensen, Scholes, Fama, Macbeth and so on.

4 Multiple Nobel Prize winners have published in this area  
5 and they all find the same thing, that the returns  
6 empirically on low beta stocks are consistently higher than  
7 what the CAPM would suggest. That's like 70 years.

8

9 So Graham's textbook, like all of the finance  
10 textbooks, sets out a picture of low beta bias or whatever  
11 you want to call it. In fact, Graham's textbook has two  
12 pictures, one that shows the effect over 70 years and then  
13 a second picture that shows the effect has become more  
14 pronounced in more recent times. So, the fact that there's  
15 this empirical evidence that low beta stocks outperform  
16 what the CAPM suggests I think is not subject to any  
17 question.

18

19 So then the issue is what are the possible  
20 explanations. So in the expert conference that we had last  
21 week, I think Graham quite usefully set out three possible  
22 explanations. So, one is that it's a real effect, that  
23 investors do actually price assets, low beta assets, to  
24 earn a return higher than what the CAPM would suggest and  
25 that's borne out in the data. That's one possibility. A  
26 second possibility is that there are just poor statistical  
27 tests that we can't trust for empirics. That seems quite  
28 unlikely given the widespread acceptance that's in of all  
29 the textbooks and so on and, as I said, the hall of fame of  
30 empirical researchers that have worked on this.

31

32 Then the third explanation is that there has been 60  
33 or 70 years of good luck, that investors in low beta stocks  
34 have priced those stocks hoping to return what the CAPM  
35 suggests, but just year after year in every developed  
36 market for 60 years they've had this extraordinary run of  
37 good fortune and just random good luck has meant they have  
38 outperformed.

39

40 So, I think the weight of evidence has to be on the  
41 effects being real, given how pervasive it is, how well  
42 accepted it is, it is in all of the textbooks, it's in  
43 every developed market, it's across 60 or 70 years, and so  
44 it is not something to be ignored on the basis of, well,  
45 things might be different in the future.

46

47 MR SATCHELL: I absolutely agree with the historical

1 record, that there's almost unanimity on this, but  
2 I actually query it to some extent. The effects may not be  
3 quite as big as has been found in the literature. One of  
4 the reasons why, and I don't want to go into a long  
5 statistical rant and this is something I'm quite happy to  
6 write up later, but just intuitively the slope and the  
7 intercept are negatively correlated. So if you pick stocks  
8 with a small beta, even if the true alpha is nought, you  
9 will find typically higher alphas. There's a negative  
10 correlation between them. Many of the methods --

11  
12 MR WHEATLEY: The size of the relation is minute.

13  
14 MR SATCHELL: I'm sorry, I can't hear you.

15  
16 MR WHEATLEY: The size of the relation is minute.

17  
18 MR SATCHELL: It may be minute. Is it minute in every  
19 single case? Probably not.

20  
21 MR WHEATLEY: In the report that you provided (indistinct).

22  
23 MR SATCHELL: I mean, the present - it is undoubtedly there  
24 and I'm giving the simplest example. I can give more  
25 complex examples why you might find this phenomenon too.  
26 In any case, I mean, even if we were to accept that this is  
27 something that's present, what do we do about it? One  
28 thing we could do about it is we could subtract alpha from  
29 all the network companies. When you are coming to compute  
30 what the required return should be, is it that we put alpha  
31 in, do we take it out? You could either increase returns  
32 or decrease returns.

33  
34 MR WHEATLEY: Your suggestion is to ignore the evidence and  
35 use the model anyway. That's what subtracting alpha is.

36  
37 MR SATCHELL: There's two things here. One thing is that  
38 I'm not entirely convinced by the evidence and secondly  
39 it's not clear to me precisely, even if you accept the  
40 evidence, what you're going to do next.

41  
42 PROF GRAY: So we need to apply the same threshold for  
43 evidence consistently across a regulatory framework. So if  
44 empirical work from Black, Jensen, Scholes, Fama, Macbeth,  
45 all of the textbooks, 70 years, every developed market is  
46 not sufficient to have regard to a piece of evidence, that  
47 has to be applied to all parameters.



1

2 MR HANCOCK: If for argument's sake, sort of accepting that  
3 evidence, in its absence we assume that cost of capital is  
4 given an independent gearing. In wanting to accept this  
5 proposition, what it's saying to me is that if I'm a low  
6 beta I should gear up to be a beta of one, and I won't  
7 really be penalised for that and what I will actually do is  
8 reduce my WACC. So, if that's the case, then is an entity  
9 financing itself efficiently if it runs at a low beta  
10 knowing that it doesn't have its WACC adjusted  
11 appropriately for it when it could move to a higher beta?  
12 So with this model it seems to me that the WACC actually  
13 becomes dependent on the gearing position and at that point  
14 we have to start saying, "What is an efficient gearing  
15 position?"

16  
17 PROF GRAY: The AER will have to make that call. That's  
18 what the AER will decide is what we think is the gearing  
19 number and then it will need to, I think, estimate, same as  
20 my students, estimate an equity beta to be consistent with  
21 that gearing number and that equity beta re-gearred to  
22 60 per cent I think will inevitably be less than 1. So  
23 that's what the AER will do and that's the number that it  
24 will come up with.

25  
26 Then the question is, given that it has come up with  
27 an equity beta less than 1, do we take into account this  
28 70 years of consistent evidence or ignore it? I think  
29 that's the question. Whether there might be some incentive  
30 in some sort of theoretical context of whether a firm might  
31 want to gear up higher or lower, I'm not sure that that's  
32 relevant. I think the AER will decide, "Here's the equity  
33 beta, here's the level of gearing that we are going to  
34 adopt for the benchmark efficient entity," and then the  
35 question is do we believe that the CAPM number is the right  
36 one or do we have some regard for the 70 years of empirical  
37 evidence?

38  
39 MR SATCHELL: How do we take it into account?

40  
41 PROF GRAY: Good question. By way of example, the AER  
42 currently uses the CAPM slope of 6.5 per cent. If you were  
43 to adopt a true slope, an empirical slope, of 4 per cent  
44 just for the sake of some numbers, so the CAPM,  
45 theoretical, 6.5 per cent slope. If the 4 per cent slope  
46 were used based on empirical evidence, then a raw beta of  
47 0.5 would go up to 0.7, because the way the AER will take

1 that into account is to compute what adjusted beta would we  
2 have to use to produce an outcome that's consistent with  
3 the empirical evidence. A raw beta of 0.6 would be  
4 adjusted up to 0.75, and a raw beta of 0.65 would be  
5 adjusted up to 0.8.

6  
7 So, I agree with David that you would have to look at  
8 a range of slope adjustments based on the observable  
9 evidence. My example there was going from 6.5 to 4. So  
10 there was a slope adjustment of 2.5 per cent, which is  
11 within the range that the AER itself looked at. I think  
12 the AER looked at ranges of 1 to 3 per cent slope  
13 adjustments in the 2013 guideline.

14  
15 MR SATCHELL: Stephen, if I'm understanding your example  
16 correctly, you are actually now talking about the beta  
17 bias?

18  
19 PROF GRAY: No, no.

20  
21 MR SATCHELL: So the (indistinct) and 6.5.

22  
23 PROF GRAY: So the way the AER has regard to it is rather  
24 than use the empirical function, it's still going to use  
25 the CAPM but it's going to adjust the beta and ask the  
26 question, "What beta when plugged into the Sharpe-Lintner  
27 CAPM would produce an outcome, return on equity, that is  
28 consistent with the empirical evidence?"

29  
30 MR SATCHELL: Isn't that conceptually similar to saying  
31 that the beta is wrong and therefore needs to be moved?

32  
33 MS CIFUENTES: Yes.

34  
35 PROF GRAY: No, it's not correcting misestimation in the  
36 beta, which is the way you normally understand a bias.  
37 It's a correction for the shortcomings of the model itself.

38  
39 MS CIFUENTES: But the net effect I think is what Stephen  
40 says, given his original --

41  
42 PROF JOHNSTONE: I'm a bit confused by the beta bias  
43 relevance in the context because, as I see it, the argument  
44 goes that the regulator's estimating beta appropriately,  
45 let's assume that, the regulator plugs it into the WACC  
46 formula and (indistinct) WACC, but the asset owners are not  
47 happy with that WACC because in the real world, in the real

1 market they would earn a higher rate of return on that beta  
2 than this WACC. So therefore it sounds very tendentious to  
3 me that we actually now want to actually use this apparent  
4 70 years of data to justify a result number greater than  
5 the one that the MPV zero formula suggests, after all the  
6 argument about how to measure that beta in the first place.

7  
8 PROF GRAY: That's a religious argument, isn't it, that you  
9 are going to have faith in the CAPM to the exclusion of  
10 70 years of consistent evidence?

11  
12 PROF JOHNSTONE: That's probably my fault. This has all  
13 been religion. There's a lot of religion.

14  
15 PROF GRAY: With the 70 years of data.

16  
17 PROF JOHNSTONE: Okay, again getting back to my point,  
18 though, it's a convenient argument because it's basically  
19 saying that when the devotion to the WACC doesn't give us  
20 the answer we want, we find the reason why we should  
21 actually earn more.

22  
23 MR WHEATLEY: (Indistinct).

24  
25 PROF JOHNSTONE: If the asset owners were earning half  
26 that, you're selling up.

27  
28 MR WHEATLEY: (Indistinct) it's not the WACC. It 's the  
29 (indistinct).

30  
31 PROF JOHNSTONE: It's the whole thing, the framework.  
32 Forget about the religion. If the real world would provide  
33 asset owners a greater return on what they are doing than  
34 the regulator is, then the asset owners would be walking  
35 away to that real world.

36  
37 DR MIRRLEES-BLACK: I think this is an issue we still need  
38 to return to. We need to have morning tea, so we will  
39 break now for morning tea and reconvene in 15 minutes.  
40 Thank you very much.

41  
42 SHORT ADJOURNMENT

43  
44 DR MIRRLEES-BLACK: We'll make a start. I have a note that  
45 applies to many of us that can we speak up when we are  
46 making a contribution, to make life easier for the  
47 transcriber, and to speak clearly and loudly. Thank you.

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There are some remaining issues on beta that we could discuss, and they include further issues in terms of adjustments and questions around stability of beta.

I think in the interests of making progress through the day we should park those issues and if there are burning issues remaining on beta we can pick those up in the last session, with the board's concurrence. So I think in that regard we will then move on now to discussing equity market risk premium issues and debate those.

Just in terms of this session I think the plan was that, Stephen, you will contribute to a small part of it, and then switch to Graham, is that right? Just for everyone's information. So, turning to market risk premium and preparing yourself for the relevant page of the document that we prepared, the first question is - there's a little question and it relates to what are the possible approaches to determining the required return, so backward looking, so forward looking dividend discount models and survey evidence. But I think we will turn to the individual estimations, those individual parameters in a moment.

But I think there's a question does anyone else have any alternative method of estimating the equity market risk premium that we haven't noted so far that they want to raise or are we down to those three methods that we have identified. So that's historic returns, dividend growth models and survey evidence of either, the sorts of evidence that we should be receiving, is there agreement about that. Stephen, I know you've had little time to contribute to that, but is there a source of evidence?

MR SATCHELL: Again, I won't lead off on this one, I don't think, thank you.

DR MIRRLEES-BLACK: Okay. Is there additional --

MR WHEATLEY: There are alternative methods that have been introduced in the literature over the last two or three years, but I don't know of anyone who's using them in a practical manner.

DR MIRRLEES-BLACK: Okay. So for the purposes of our discussion we can constrain ourselves to the models that have been considered as a result.

1  
2 The second question, and this is a question in  
3 relation to using the historic equity rate of return,  
4 there's a question: Should it be only the arithmetic  
5 average of historic returns that should be used? So this  
6 refers to the historic data on returns. There are normally  
7 two measures to assess average returns, the arithmetic  
8 return and the geometric return, and the statements by most  
9 of the experts here refer to the statistical properties of  
10 the arithmetic mean as the unbiased estimator of a one year  
11 return.  
12

13 There are two questions that come up about this. One  
14 is: Is the right holding period for investors to assume one  
15 year or is it longer than one year? I think we can observe  
16 some owners have expectations of holding assets for many  
17 years or decades. Then the question is: Then if the  
18 holding period isn't one year, what is the appropriate  
19 estimate for returns over a holding period that is longer  
20 than one year, and what implication might that have for the  
21 way that the historic returns are assessed? So would  
22 someone like to make a comment on that?  
23

24 MR WHEATLEY: So, to all intents and purposes in the  
25 regulatory process, an estimate of a WACC is not compounded  
26 over more than one year, and the problems that arise with  
27 arithmetic mean rates of return is when you're compounding.  
28 Then the regulatory process, an estimate of the WACC is not  
29 comparable, so it is my view that the AER should use only  
30 the arithmetic mean rate of return.  
31

32 PROF GRAY: I agree with that. The question is not how  
33 long might an investor want to hold the asset for, but how  
34 does the AER use the MRP number that it comes up with, and  
35 that's a year at a time.  
36

37 PROF JOHNSTONE: If you look at someone who holds an asset  
38 over a period of years, then what they actually physically  
39 earn is the geometric return compounded by the number of  
40 years. That's what they actually get. That's by  
41 definition.  
42

43 MR WHEATLEY: But that's using parameters, not estimates.  
44

45 PROF JOHNSTONE: An estimate --  
46

47 MR WHEATLEY: The issue is does the AER compound an

1 estimate?  
2  
3 PROF GRAY: And it doesn't.  
4  
5 PROF JOHNSTONE: If the estimate is of the geometric  
6 return, then you would compound that, sensibly. The  
7 validity of the estimate is another story. But if it is an  
8 estimate of a geometric return, you compound that  
9 correctly.  
10  
11 MR WHEATLEY: But the issue is does the AER have a  
12 compounding - can you point to where in the regulatory  
13 process that AER compounds an estimate?  
14  
15 PROF JOHNSTONE: I don't know. But all I'm saying to you  
16 is if you want to look at what someone earned over a period  
17 of time and you express it on a per year basis, you would  
18 express it as a geometric.  
19  
20 PROF GRAY: That's not the question, though.  
21  
22 DR MIRRLEES-BLACK: The question is the AER in the current  
23 guideline, in the supporting papers for it, it says the  
24 best estimate is the historical excess return over a 10  
25 year period is likely to be between the geometric average  
26 and the arithmetic average. That's what the AER has said.  
27  
28 PROF JOHNSTONE: It's actually not specifying what it's  
29 trying to catch. The best estimate of whatever - to be  
30 specific you need to write down the best estimate of the  
31 geometric return or the best estimate of the arithmetical  
32 return. They are two different things.  
33  
34 DR MIRRLEES-BLACK: Of the experts who submitted to this  
35 question here, Graham and the representative of Graham said  
36 that both geometric and arithmetic are used in practice and  
37 it is likely that the MRP lies somewhere between the two  
38 and Graham has looked at the table that Stephen --  
39  
40 MR SATCHELL: I don't want to comment on it, actually.  
41  
42 MR WHEATLEY: The AER does not use a 10-year rate of  
43 return. It doesn't compound. Where in the process does  
44 the AER compound an estimate?  
45  
46 DR MIRRLEES-BLACK: I guess the experts around this table.  
47

1 MR HANCOCK: I accept that to estimate a mean of an excess  
2 return that you use an arithmetic average of the past,  
3 assuming that mean is stable. I don't think that there's  
4 anything sacrosanct about a one-year rate of return. If  
5 you look at five-year rates of return, I did some rough  
6 calculations on some opposite data. If you look at  
7 five-year rates of return, then the excess returns are  
8 about a percentage point lower than on the one-year  
9 returns, and 10-year returns are sort of one and  
10 three-quarter percentage points lower. So there's a big  
11 difference and we're talking about investments that are  
12 long-lived and I'm not convinced that the one period point  
13 of view is the appropriate one.

14  
15 If you look at the dataset that these observations are  
16 drawn from, they are very, very volatile. So, although you  
17 may have sort of a 6 per cent average over a long run of  
18 years, that's made up of some years where it's 20 per cent  
19 and some years where it's minus 10 per cent and that  
20 volatility affects the end point that you get to and that  
21 sort of volatility is not built into the revenues that the  
22 AER allows. So, I'm not convinced that that sort of  
23 one-year figure without allowance for that volatility is  
24 consistent with the investment decisions that are actually  
25 being made here and the cost of capital that's required  
26 against them.

27  
28 MR SADEH: I'm not sure I understand the arithmetic or  
29 geometric point very much, but if it is simply a function  
30 of the return that I would get on a listed stock it can't  
31 be a geometric mean because if that's the case why are we  
32 talking about imputation credits because it would have to  
33 have a distribution rate of zero. Clearly a lot of the  
34 return in listed stocks, the networks, are from yield. So  
35 it has to be an arithmetic figure.

36  
37 PROF JOHNSTONE: To me it's just an issue of how you write  
38 something and one can be converted into the other back and  
39 forward. If you were using data to estimate and you  
40 actually have geometric returns as to data, then you are  
41 estimating the geometric return. If you have arithmetic  
42 returns as the data, then you are estimating the arithmetic  
43 return. You can then express one back and forward the  
44 other way.

45  
46 DR MIRRLEES-BLACK: Simon, just to clarify, in your view  
47 the fact that investors may intend to hold a stock for

1 longer than one year is irrelevant for the decision here.

2

3 MR WHEATLEY: I know that Martin Lally is not attending  
4 this session, but he's written a working paper that  
5 basically shows the same thing.

6

7 PROF GRAY: It's just a matter of mathematics, I think.  
8 You want an expected return for the use of the CAPM and the  
9 arithmetic mean gives you the expected return.

10

11 DR MIRRLEES-BLACK: I think the question is if your  
12 expected holding period was longer than one year, then  
13 I think it's a different question.

14

15 PROF GRAY: Potentially, but that's an irrelevant question  
16 because the AER does it a year at a time. There's no  
17 compound, as Simon says. I think the easier way, rather  
18 than sort of getting to the mathematics and sort of  
19 explanation as to why that's the case, the easiest way is  
20 to think about how do we assess the historical data.  
21 Suppose we've got 50 years of historical data. If the way  
22 to think about that data is that for next year the market  
23 risk premium could be like year one, if there's a one in 50  
24 chance that next year will be like year one in our  
25 historical data. There's a one in 50 chance that next year  
26 might be like year 2. There's a one in 50 chance that next  
27 year might be like year 3 and so on. That's how we should  
28 think about the historical data. We've got 50 observations  
29 of what that MRP next year could be like, and so if you  
30 think about it that way it just becomes abundantly clear  
31 you've got to take the arithmetic mean.

32

33 DR MIRRLEES-BLACK: An investor may not be considering just  
34 a one year return. An investor might be considering what's  
35 the return on a five year (indistinct) basis.

36

37 PROF GRAY: The AER is, and I think even if you're looking  
38 at a longer period, we can put together a little  
39 mathematical example to show that even over a two-year  
40 period the same applies, or any year period you are going  
41 to want an arithmetic mean. There's even a Harvard  
42 Business School case that deals with this very issue, the  
43 Marriott case. One of the key issues in that is explaining  
44 to students why they have to take an arithmetic mean if  
45 they are using historical excess return.

46

47 MR HANCOCK: Accepting that you take an arithmetic mean,



1 taking your 50-year example, I could break that into 10,  
2 five-year periods and average those 10, five-year periods  
3 and that would give me a consistent estimator of the five  
4 year returns, of a five year return to be used over a five  
5 year regulatory period.

6

7

PROF GRAY: And that would be - I'm not sure why that would  
8 be different from the mean of the one years.

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MR HANCOCK: It is.

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MR HANCOCK: The one period could be a five-year period.

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PROF JOHNSTONE: It could be, yes.

36

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39

PROF GRAY: Not the way the AER does it. It does things a  
year at a time. There's no compounding.

40

41

MR WHEATLEY: The issue is the bias when you compound  
estimates. The AER never compounds estimates.

42

43

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MR HANCOCK: In a sense a one-year estimate is like  
12-months when the estimate is compounded, a five-year  
estimate is five one-year estimates compounded. So to say  
there's no compounding, I'm not sure I really get the  
point.

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MR WHEATLEY: An estimate of a one-year rate of return is never compounded. So the inputs are one-year rates of return.

MR HANCOCK: But that could be five year rates of return.

MR WHEATLEY: But they're not. They are one year.

PROF JOHNSTONE: You can take the arithmetic return for a given year and express it as if it was a continuously compounded amount and that would be the geometric return in its pure form. So it's just a matter of expression. That's all it is, one back and forward.

DR MIRRLEES-BLACK: I think there is a question. Obviously after some reflection the AER made this statement. In the current rate of return it said the best estimate is a weighted average. I think you are saying that that's irrelevant and --

MR WHEATLEY: That is correct.

DR MIRRLEES-BLACK: And there may be some relevance to that. You are saying it's incorrect.

MR WHEATLEY: It's irrelevant because they never use estimates compounded over many years.

DR MIRRLEES-BLACK: I think we need to (indistinct) perhaps these statements in the joint report and it's a question of what precisely the estimation the AER has made should be. But I think there are some different statements that the AER has made in the past and I'm not sure we have finally resolved a position on that between the experts. But I don't think we should spend more time on it now.

PROF JOHNSTONE: Can I just say that I think part of the problem, at least in my case, is I don't fully understand where the question is going. I think I would benefit if the question was refined slightly and then I could perhaps comment more clearly.

DR MIRRLEES-BLACK: I think the question is in considering historic equity return, the statement that you might make is only the arithmetic average should be used. So there should be no weight placed on the geometric average.

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MR SATCHELL: In all conceivable contexts? In one specific context?

DR MIRRLEES-BLACK: In the context of determining the average of the historical equity returns on the data that is then used as evidence to construct the market risk premium in the regulatory process in Australia.

MR SATCHELL: If that's what the question is, I would go away and think about it.

PROF JOHNSTONE: The return in the CAPM is the arithmetic return because it's one period. One period can be any amount of time and you could re-express that return as continuously compounded or compounded monthly or whatever you like.

PROF GRAY: In the PTRM the period is a year at a time.

MR SADEH: Which presumably is meant to be consistent with the overall rate of return which includes things that get refreshed annually like the cost of debt. So it would be to me inconsistent to have different periods of time.

PROF GRAY: Everything happens one year at a time.

DR MIRRLEES-BLACK: Okay. Very good. We move on. I will make some statements that have been made and I think there's no contention about this in the paper. So, the historical equity return is one piece of evidence. It's not to be considered pre-eminent, but rather sitting alongside other evidence. There's a further statement, and this might be of importance for the AER. The data used for the estimation of the historic equity return should be based on the Dimson, Marsh and Staunton data and with certain adjustments. There are questions around those adjustments, and the experts in their conference there was a statement about whether we should be making the additional adjustments to the historic data sources and a general measure of agreement about the use of those adjustments.

PROF GRAY: Are we talking here about what's become known as the NERA correction?

DR MIRRLEES-BLACK: Yes.

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MR WHEATLEY: Which are those corrections used by Dimson, Marsh and Staunton.

DR MIRRLEES-BLACK: Yes.

MR WHEATLEY: Dimson and Marsh are professors of the London Business School and Dimson is also at Cambridge now, I think.

DR MIRRLEES-BLACK: Yes. And then there's a further statement of agreement that the data used for the historic equity returns should only be for periods of 50 years or more.

ASSOC PROF PARTINGTON: Well, there should be a substantial period, that's clear. It depends on the variability in the standard error of the estimators and what you think is sufficiently accurate.

PROF GRAY: Would we all agree that 17 years is too short?

ASSOC PROF PARTINGTON: Very likely.

PROF JOHNSTONE: Who knows? That's the problem. So we're meant to be estimating something for the future from the past. I would say you would be deeming that the past 17 years aren't representative of the future. Well, who knows?

MR WHEATLEY: The suggestion is not to exclude the last 17 years, but the past 17 years are a long enough period.

MR SADEH: I just think about it as simply as if I look at all the parameters in the WACC equation, what are intuitively the figures that are least likely to move? This to me is the parameter that should move the least.

PROF JOHNSTONE: Again, sensitivity analysis would be good just to see what a difference it makes over 10, 20, 30 years.

ASSOC PROF PARTINGTON: I can tell you if you did rolling averages over the last 20 years, it's been going down. It's over the last 50 years it's been going down.

MR SADEH: Relative to what interest rate, spot or average?

1

2 ASSOC PROF PARTINGTON: Relative to the rate prevailing at  
3 the time the measurements were done.

4

5 MR SADEH: So a spot rate.

6

7 ASSOC PROF PARTINGTON: Yes.

8

9 DR MIRRLEES-BLACK: That comes to the question as to over  
10 what period would you need to see lower returns in order to  
11 be able to justify that the MRP as used by the AER should  
12 fall, and I think some people are saying less than 20 years  
13 is too short, but if there is a beginning of a move down in  
14 the returns, when should you start to adjust the returns  
15 downwards that you are using in the regulatory process?

16

17 ASSOC PROF PARTINGTON: As we said before, we need high  
18 bars before we shift stuff and these things are measured  
19 very imprecisely. If I was making the decision right now,  
20 I would probably make it 5 per cent. My view is  
21 6 per cent, which has been the consensus for a long time,  
22 is probably too high. I've felt that for a long time but  
23 I haven't felt the weight of evidence has been sufficient  
24 to move it down.

25

26 MR SADEH: Is that statistically based or is that  
27 (indistinct)?

28

29 ASSOC PROF PARTINGTON: It's based on a number of things.  
30 One thing that I came across recently is a report that was  
31 sponsored by Challenger and just published in January this  
32 year. I have a copy of it somewhere. They reckon, using  
33 the DGM, it's 4 per cent, and using working with the Dimson  
34 et al data they come up with a figure of 5.9. I don't  
35 quite know how they came up with that. But if I look at  
36 their data, they have this very interesting chart where  
37 they do do 20-year rolling averages right from the  
38 beginning of the century and from the 60s onwards there is  
39 a very clear downward trend. There's confirmatory bias  
40 here on my part because it's consistent with my priors that  
41 the rate has been going down and there are all sorts of  
42 theoretical reasons why that would be the case.

43

44 MR WHEATLEY: So what is the topic of discussion at the  
45 moment? Is it (indistinct)?

46

47 DR MIRRLEES-BLACK: The question was - we are on actually

1 item 3f, so just confirmation that one needs a long  
2 strength of data on the historic equity return in order to  
3 be able to justify a significant move down, and I think  
4 Graham was expressing a view that --  
5

6 ASSOC PROF PARTINGTON: The 40 or 50 years would probably  
7 be an appropriate period.  
8

9 MR WHEATLEY: You were talking about the long-term average,  
10 and now he's talking about the short-term. It's referring  
11 to dividend growth models.  
12

13 MS CIFUENTES: No, I think it was in response to Jonathan  
14 asking at what point do you start moving it down, and  
15 I think that that's what --  
16

17 MR WHEATLEY: The question was about the long-term average,  
18 and --  
19

20 ASSOC PROF PARTINGTON: I was responding to Ilan's question  
21 about why was I thinking it should be lower.  
22

23 DR MIRRLEES-BLACK: Back on track. I think we have some  
24 form of words there which we can work with. Everyone also  
25 concluded that DGM is a useful source of evidence --  
26

27 PROF GRAY: Just before we get off the use of the  
28 historical data, the right approach, we had some discussion  
29 about this in the expert conference.  
30

31 DR MIRRLEES-BLACK: Indeed. I think we moved swiftly to 3f  
32 which is effectively that. There is a statement which  
33 I think is a hypothesis which is 3f, "Experts believe  
34 neither (a) expected market returns comprise the sum of a  
35 fixed expected MRP plus risk free rates; nor (b) expected  
36 market returns are stable, implying that the changes in the  
37 risk free rate precisely offset changes in the MRP." So  
38 within that, that encompasses the right approach. So there  
39 is one approach which is we assume that the model is that  
40 returns (indistinct) rate plus a (indistinct) risk premium,  
41 and on the other side there's an expectation about a total  
42 (indistinct) return, whether real or nominal, and that you  
43 deduct the risk free rate from the maximum (indistinct)  
44 varying MRP. I think that the consensus was that you  
45 didn't believe either of those were the truth.  
46

47 PROF GRAY: The truth is somewhere between those two

1 theoretical end points, yes.

2

3 MR HANCOCK: I sort of lean away from the right and towards  
4 the sort of Sharpe-Lintner varying (indistinct),  
5 particularly because I think it's better grounded in a  
6 theory of risk as something that consumers want to avoid.  
7 So people want to avoid uncertainty in consumption streams,  
8 so that leads you to something like a relatively stable MRP  
9 more than an MRP that's correlated with the risk free rate.

10

11 PROF GRAY: What is your reaction to what happened around  
12 the time of the GFC? So, the AER's approach has been to  
13 apply an effectively fixed market risk premium. At the  
14 time of the GFC, government bond deals fell from 7 per cent  
15 to 4 per cent in the week after Lehman Brothers defaulted.  
16 So the approach of applying a fixed MRP suggests an outcome  
17 where the cost of equity capital crashed dramatically at  
18 the time of a global financial crisis, which is clearly  
19 nonsensical, but that's the outcome that a constant MRP  
20 produces.

21

22 MR HANCOCK: My response would be, okay, so you are saying  
23 the effect of that is that we drag down the cost of equity.

24

25 PROF GRAY: No, no. So what happened was the AER's allowed  
26 return on equity was considerably lower at the time that  
27 the cost of equity obviously went through the roof.

28

29 MR HANCOCK: So the question is why did the cost of equity  
30 go through the roof. Was it because of a change in the MRP  
31 or was it because of people adopting a much more bearish  
32 outlook on to the future cash flows? How do we disentangle  
33 those two?

34

35 PROF GRAY: So do you think the investors' required return  
36 on equity went up or down at the time of the GFC?

37

38 MR HANCOCK: Okay. So, if I had a security for which an  
39 investor had the view that the risk characteristics of that  
40 security were unchanged, then I'm not convinced that their  
41 required return on it changed - sorry, that their risk  
42 premium on it changed.

43

44 PROF GRAY: I think that's extraordinary, that in the heat  
45 of a global financial crisis that the required return on  
46 equity does not change.

47

1 MR HANCOCK: No, I didn't say that. So the required rate  
2 of return on equity changes because people perceive it as  
3 being much more risky. That is what has happened.

4  
5 PROF GRAY: So required returns would go up or down when  
6 they change?

7  
8 MR HANCOCK: So when people think things are more  
9 risky - by leaving aside the time series, at a point in  
10 time looking across safe to risky assets, then people want  
11 a higher return on the risky asset. So, a shock like this,  
12 suddenly people are evaluating assets that they previously  
13 evaluated as safe as being more risky. But it doesn't mean  
14 that the sorts of parameters that they are applying to risk  
15 or the compensation that they require for risk has changed.  
16 What it means is that they think they've got more risk, and  
17 that's influenced by what they have just seen.

18  
19 PROF GRAY: Isn't that like a key part of the market risk  
20 premium, is the quantum of risk? Isn't it the quantum of  
21 risk and the price of risk?

22  
23 MR SADEH: Relative to a government model, which to me is  
24 the key point, or from my perspective what did I think  
25 happened during the GFC, from an investment point of view  
26 whether you look at property markets, infrastructure  
27 markets, and you can see, whether you look at federal  
28 versus state government bonds, whether you look at it  
29 versus A grade and B grade buildings, the first thing you  
30 started to see is that the premium for risk expanded. It  
31 meant that people had a view on low risk sovereigns  
32 relative to A rent banks. If you are looking in the bank  
33 market, before the GFC virtually all the banks issued paper  
34 at the same rate, whether they were a regional bank rated  
35 BBB flat, whether they were a major domestic bank. As soon  
36 as the GFC comes in, the first thing people do is go, "Oh,  
37 no, we need to look at risk layers differently again."

38  
39 So, I think in those extreme events of recession or  
40 frankly boom there is a change in the risk premium  
41 reflecting that heightened view on risk in recession and  
42 more relaxed view in boom. I don't think it's linear, so  
43 I don't think this happens during normal parts of the rate  
44 cycle. I think it only happens in extremes.

45  
46 PROF GRAY: I had a list of propositions that I thought  
47 were completely uncontroversial and this is one of them.



1 So maybe we just sort of test that, whether people believe  
2 that the required return on equity in the real world went  
3 up during the peak of the GFC. I think it did.

4

5 PROF JOHNSTONE: Yes, I would agree with that.

6

7 ASSOC PROF PARTINGTON: Yes, I agree. Difficult to say  
8 how.

9

10 PROF JOHNSTONE: But there's more to the story than that.

11

12 ASSOC PROF PARTINGTON: Cash flow estimates obviously  
13 collapsed as well as risk premiums went up. How you  
14 partition between the two is very difficult to say.

15

16 MR SADEH: The best way to look at it is if you look at  
17 graphs of corporate spreads between, you know, A grade, BBB  
18 grade corporate spreads, for example.

19

20 ASSOC PROF PARTINGTON: That is a default premium which is  
21 not part of the expected return.

22

23 PROF GRAY: But if we agree that required return on equity  
24 went up during the peak of the GFC, just mathematically  
25 it's the case that applying a fixed risk premium to the  
26 10-year government bond yield would have resulted in a  
27 3 per cent decrease in the allowed return, and so that's a  
28 real problem with applying a fixed risk premium, in my  
29 view. It produces a nonsensical outcome.

30

31 PROF JOHNSTONE: The GFC being a short period, don't we  
32 overcome that with long enough windows for the inputs,  
33 market risk premium and the risk free rate? The GFC  
34 effects are relatively short-term and (indistinct) come and  
35 go.

36

37 PROF GRAY: It depends what the AER is trying to do. If  
38 the AER is happy that it's going to undercompensate during  
39 some periods and overcompensate in other periods and over a  
40 longer period of time things will average out, then that  
41 would be okay. But I think the task for a regulator is to  
42 allow investors and charge users in every regulatory period  
43 what would be a fair return in that regulatory period.  
44 Otherwise you end up with these degenerative --

45

46 PROF JOHNSTONE: It's very generous, though, because saying  
47 anyone who holds assets is in a certain business can

1 actually retrospectively get rewarded for risks that they  
2 never foresaw. So they're just immune to risk,  
3 essentially.

4  
5 PROF GRAY: What I'm proposing is that if we all agree,  
6 which I think we just did, that required returns went up  
7 during the GFC, then like an MVP equals zero framework  
8 suggests that the allowed return should be equal to the  
9 required return.

10  
11 PROF JOHNSTONE: That's too generous. It's retrospectively  
12 changing the rules to make sure that someone who has made a  
13 business decision to be involved in a service provider  
14 actually is always going to be rewarded as if they made a  
15 decision that day.

16  
17 PROF GRAY: I'm not sure that's right. I think the way to  
18 think about it is, in relation to the return on equity,  
19 what the AER's task should be is to ask what's the return  
20 that equity holders would require for investing capital.

21  
22 PROF JOHNSTONE: Yes, that day.

23  
24 PROF GRAY: Today.

25  
26 PROF JOHNSTONE: Yes.

27  
28 PROF GRAY: And then set the allowed return commensurate  
29 with --

30  
31 PROF JOHNSTONE: That's what I'm saying, though. In other  
32 words, it just immunises these asset owners from GFC-like  
33 risk or any risk.

34  
35 PROF GRAY: No, I'm not sure it's immunising. I think it's  
36 a matter of setting the allowed return commensurate with  
37 the required return.

38  
39 PROF JOHNSTONE: Yes, it's the same thing.

40  
41 MR SADEH: I think you really need to look at the nature of  
42 the risk free rate together with the risk premium, i.e. is  
43 the risk free rate, which it is at the moment for cost of  
44 equity effectively a spot rate, because we will work with  
45 independent valuers and in the unlisted space to look at  
46 our discount rates; you know, the typical MRP that they  
47 apply is over a longer term risk free rate. Now, that is

1 not a uniform thing in the investment community,  
2 particularly when you get to extremes in the interest rate  
3 cycle, because you have people who start to compare a  
4 long-term investment, which a network is, compared to  
5 short-term stocks and bonds, they start to look at it  
6 compared to spot rates. But generally speaking the  
7 unlisted investment community will compare their MRP over a  
8 longer term average risk free rate. To your question about  
9 should it be moving, it's also relevant to on the basis of  
10 which base rate you use.

11  
12 PROF GRAY: I think there's a really fundamental point  
13 here, and this is probably on my list of uncontroversial  
14 propositions as well, is that the AER's task in relation to  
15 return on equity should be to set the allowed return on  
16 equity equal to the return that investors require. So,  
17 suppose we can reliably estimate the required return on  
18 equity. If we could do that, it would be a no-brainer,  
19 I would have thought, that the AER would set the allowed  
20 return to be commensurate with that, period by period.

21  
22 PROF JOHNSTONE: But what you are saying is you set it at  
23 the rate they require that day under those circumstances  
24 and then tomorrow you set it at the rate that they would  
25 require that day under those circumstances and so they are  
26 just dynamically getting protected.

27  
28 PROF GRAY: Well, first of all, it happens every five years  
29 and for each five-year period they are getting a return  
30 commensurate with the market equilibrium required return.

31  
32 PROF JOHNSTONE: Five years is a lot longer period. It  
33 seems fair enough. That's why I would argue, in the  
34 interests of stability, you would use long-term rolling  
35 averages, not too long, not 100, but who knows what, but  
36 you certainly wouldn't be reacting to GFC type events and  
37 things like that.

38  
39 PROF GRAY: Do others have a view on whether the AER should  
40 set an allowed return commensurate with its best estimate  
41 of the required return?

42  
43 ASSOC PROF PARTINGTON: That's almost tautology, isn't it?  
44 The problem is how do you do it? As I recall, the AER did  
45 raise the allowed market risk premium during the GFC.

46  
47 DR MIRRLEES-BLACK: The questions which we are addressing

1 ourselves to is what is the market risk premium in the  
2 circumstances. I think it is taken as a given that at the  
3 start of course we are trying to estimate what's the  
4 opportunity cost of capital for an investor who could  
5 invest in these businesses or something else, and that  
6 precisely is it reflects the required return, what the  
7 investor requires for that risk.  
8

9 But coming back to your - I think if we take it that  
10 it's almost uncontroversial, your statement in terms of are  
11 returns required. You have a series of other propositions?  
12

13 PROF GRAY: What follows from that, I think, and the GFC is  
14 a good example of that, is that setting a fixed risk  
15 premium or an almost fixed risk premium will not achieve  
16 that. What happened in the GFC, I think required returns  
17 went materially higher, allowed returns under a fixed risk  
18 premium would have gone materially lower. So that  
19 highlights a problem of having a fixed or almost fixed risk  
20 premium.  
21

22 DR MIRRLEES-BLACK: And it also raises a problem in terms  
23 of estimation historically. If you think that's the model  
24 that drives returns in the market, your estimation needs to  
25 reflect that too. So do others have a view of Stephen's  
26 propositions around movements in the market risk premium?  
27

28 MR HANCOCK: I accept the point that with a shift in  
29 subjective expectations being that things are much more  
30 risky, that you expect to see a larger risk premium go up  
31 under those circumstance, even with sort of a constant  
32 consumer price for risk, as it were, because in that case  
33 they actually have more risk and so therefore you do see a  
34 higher market risk premium. The question is can you see  
35 that correlation in the data? So can you find the  
36 correlation between the market risk premium and the risk  
37 free interest rate over a long period?  
38

39 PROF GRAY: The way I think about it is this. As Jonathan  
40 highlighted a little bit, at one extreme you can take the  
41 view that the market risk premium is constant over time and  
42 we all think, I believe, that that's silly, that's one  
43 theoretical end point that does not reflect reality. At  
44 the other extreme you can have a constant real return on  
45 equity and assume that the market requires constant real  
46 return on equity. So, whenever the government bond yield  
47 decreases, the market risk premium increases to exactly

1 offset that. That's equally silly at the other end of the  
2 spectrum.

3  
4 In terms of how would you go about processing,  
5 analysing the historical data that we've got on record,  
6 I think we all agree that the truth is somewhere between  
7 those two end points, and so I would have regard to both of  
8 those two end points when analysing the historical data.  
9 I think in terms of what can you glean just from  
10 the historical data, that's the best approach, you get the  
11 best kind of information out of the historical data. That  
12 needs to be supplemented, which I'm sure we are going to  
13 come on with, with forward looking like DGM type estimates  
14 and so on. But in terms of how do you get the best  
15 information out of the historical data, I think it is  
16 somewhere between those two end points.

17  
18 MR HANCOCK: If we accept that there will be sort of  
19 movement in the market risk premium, that in itself doesn't  
20 assert any link with the risk free rate, though, does it?

21  
22 PROF GRAY: It doesn't have to, no. So I'm not suggesting  
23 in any way that I would just place 100 per cent reliance on  
24 this right approach and have a constant required return on  
25 equity. All I'm saying in recommending a point within that  
26 sort of theoretical spectrum is that, in the real world,  
27 investors' required returns don't move one-for-one with  
28 changes in government bond yields. As government bond  
29 yields have decreased over time, I accept that required  
30 return on equity will decrease in that same direction, but  
31 not one-for-one. That's why I'm recommending a mid-point  
32 between those two theoretical extremes.

33  
34 DR MIRRLEES-BLACK: Graham, can I bring you in at this  
35 point and it's just in the evidence that you've written up  
36 you've said the right approach has little to recommend it.  
37 I think that's so.

38  
39 ASSOC PROF PARTINGTON: Like Jim, I would lean to the other  
40 end of the spectrum. I just find it fundamentally - and in  
41 fact that's what Steve said - it's fundamentally  
42 implausible that there's an inverse relationship between  
43 the interest rate and the market risk premium.

44  
45 PROF GRAY: A perfect inverse relationship.

46  
47 ASSOC PROF PARTINGTON: All right, perfect. I don't want

1 to put words into your mouth. It's not clear to me that  
2 that is the other end of the spectrum. I'm just not sure  
3 what the alternative might be. The other contribution  
4 I would make is we have repeatedly said you need a high bar  
5 to make a change. So the real problem is, if you were to  
6 adopt a varying approach, we've got 6 per cent, 6 per cent  
7 is a well established consensus, it's widely used in  
8 practice. If you are to change from 6 per cent, you need  
9 some fairly convincing evidence of a need to change, and  
10 that's the problem, is finding that convincing evidence.

11  
12 MR SADEH: I largely agree with that. I will come back to  
13 the 6 per cent point at the end. My observation is that  
14 MRP done by independent valuers in the unlisted investment  
15 market hasn't changed since before I had hair, which is a  
16 long time ago. Upwards of almost 20 years I haven't seen  
17 the two major independent valuation firms in Australia  
18 change their number on MRP by a dot.

19  
20 Now, the difference is, as I said, the typical  
21 independent valuer approach does that as a premium over a  
22 long-term average risk free rate. That goes to the point  
23 about 6 per cent. I think the AER's last was 6.5 per cent  
24 which I think is consistent with what might be more of a  
25 6 per cent over a long-term average. I looked at it  
26 yesterday. When you look at all the different independent  
27 valuer risk free rate plus MRP, it averages 0.7 of  
28 a per cent since 2000 over a spot rate instead. So I think  
29 6.5 per cent over spot compares to 6 over long-term  
30 average.

31  
32 MR WHEATLEY: I agree with Steve that the MRP is not a  
33 constant through time and I am also aware of evidence that  
34 the mean real return on the market is not a constant  
35 through time, which is Graham's formula, and that the truth  
36 lies somewhere in between the two.

37  
38 DR MIRRLEES-BLACK: So if the truth is somewhere in between  
39 the two, that has two implications. One is a question for  
40 you, which is what does that mean for the way you should  
41 assess the MRP historically and, secondly, what implication  
42 does it have for how you might set the MRP in the context  
43 of a binding number. It's just an estimation problem if  
44 you're just fixing your estimate of MRP for determination.  
45 Then the binding guideline, of course, you are setting an  
46 MRP which may then change through time. You don't have the  
47 option to revise in the context of changes vis-à-vis rate

1 at the time.

2

3 So there are two questions. One is historically how  
4 does it change your assessment and, secondly, fall in a  
5 period? So how should you take account of that estimation  
6 of the MRP, the fact that you are having to do two models,  
7 neither of which you think is 100 per cent true, but the  
8 truth is somewhere in the middle? What does that mean you  
9 should do?

10

11 MR WHEATLEY: The formula (indistinct) so you have a number  
12 for the mean real return, you have forecast inflation and  
13 you have a term structure of interest rates, so that should  
14 give you the right forecasts of the MRP. You can combine  
15 those with a constant MRP to give you some sort of average.

16

17 DR MIRRLEES-BLACK: So do we need historic data to  
18 construct a model of the MRP that falls between the two and  
19 then demonstrate that it has some statistical reliability?

20

21 PROF GRAY: I don't think so. One approach that the AER  
22 might adopt is just to have regard to all of the relevant  
23 evidence at the time of the guideline and to process all of  
24 that evidence and just to fix an MRP that will remain  
25 constant for the period of the guideline to be revised if  
26 there is a material change in market circumstances  
27 (indistinct) which we discussed last time. So that's one  
28 approach.

29

30 If that were the case, then all you need to do is the  
31 same as the approach that I laid out for beta, I think. We  
32 would start with the current estimate, which is currently  
33 6.5 per cent, we would lay out all of the updated evidence  
34 and ask how has that updated evidence changed since we  
35 processed that evidence and got to 6.5 per cent last time.

36

37 In terms of the processing of the historic call data,  
38 I would do what Simon recommended. We have an estimate  
39 from this theoretical end point, we have an estimate from  
40 that theoretical end point, and I would say that the  
41 historical data supports an estimate from somewhere in  
42 between, and that becomes one of the pieces of relevant  
43 evidence that we have regard to. Then we go on and look at  
44 DGM evidence and maybe surveys of things in addition to  
45 that.

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47 DR MIRRLEES-BLACK: Graham, do you agree with that?

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ASSOC PROF PARTINGTON: Certainly you can't argue against considering all the relevant evidence. The question is how much weight you apply to it.

MR SADEH: Is there any evidence of a negative correlation between MRP and risk free rate, because you need that to believe in having any of the right approach.

PROF GRAY: Just look at what's happened in the three years since the last guideline, three years in the last guideline, so if you look through the Officer data which goes back to 1888, they had a column for risk free rates and they had a column for market returns. The last three years since the guideline are the three lowest numbers in that entire series for risk free rates, and all of the reasonable evidence, I think, exogenous evidence, suggests that required returns have not come down one for one. The required returns have been relatively stable over the last three years, the headline required return on equity level, even as government bond yields have fallen to their lowest level in their 130-year history.

That's consistent. I'm sure we will come to independent experts and surveys and so on. That's consistent with what Ilan was saying, that there's two ways of accommodating that, the stability in required return on equity, even as government bond yields have fallen. One is increasing your estimate of the MRP. The other is using a risk free rate that is above the contemporaneous government bond yields. Both of those approaches will get you to the same headline number.

MR SADEH: Again I go back. My starting premise is if I look at all the parameters of the WACC, what should move the least. It should be the thing that is the broadest based in the market. I think we talked about risk free rates, they are separate, they shouldn't be a function of the market. Gearing is kind of firm, specific. Beta is industry specific. MRP is market specific. So surely that should change the least. As I said before, it should have very long observation periods.

So I agree with Stephen, the MRP certainly doesn't move in a one-to-one basis and certainly not during all normal parts of an economic cycle. I think when you do have distortions it is in extremes of the rate cycle



1 because what that does, which the MRP doesn't capture, is  
2 it reflects allocations of investors between the debt  
3 markets and the equity markets. That's what happens when  
4 interest rates get really low or really high. They are a  
5 function of are you in possession, are you in - so, you  
6 know, I will throw it out as a crazy idea.

7  
8 One way that I would do it is kind of have a formula  
9 that says I'm not linear here and all of a sudden I'm  
10 something else. I would literally have a table that said  
11 except for - and you could almost either pick it as a  
12 confidence interval with interest rates. If the interest  
13 rate environment is lower than X per cent, then your MRP  
14 goes up by half a per cent and when interest rates are  
15 above a certain level, i.e. near the top part of the cycle  
16 or bottom half of the cycle, the MRP goes down by a bit and  
17 at all other times it is 6.5. That is, you obviously have  
18 to choose what level you want. It seems to me 6.5 per cent  
19 makes sense in the normal period.

20  
21 MS CIFUENTES: Sorry, did you say 6.5 doesn't make sense?

22  
23 MR SADEH: No, it does. It does if you do it over your  
24 prevailing approach on risk free rate, which is a spot of  
25 10 years.

26  
27 MS CIFUENTES: Yes. Just on that, Ilan, one of the  
28 suggestions from what you are saying is that this is really  
29 a question that comes into play when you've got extremes in  
30 the market, and if that's the case, because if you take the  
31 view that over the long-term period, 20 years, the MRP  
32 hasn't changed relative to a long-term bond rate, so pick  
33 that up, but what you tend to see is movements more in  
34 extreme conditions in the market. Does that go to  
35 Stephen's point that perhaps that should be dealt with  
36 separately as a re-opener issue rather than try and adjust  
37 for it, given that we don't actually know what is a normal  
38 period? I don't know whether the current levels of risk  
39 free rate is normal or not.

40  
41 MR SADEH: That's probably a fair approach, you know, of  
42 naturally (indistinct) tables. You are right. You are  
43 talking by definition about an unusual event and therefore  
44 you should take that event circumstance into account as a  
45 re-opener. You can either specify it in a table with  
46 preprogrammed parameters or you can leave it like that.  
47 I think the circumstances should be so unusual that I think

1 we talked in session 1 that the re-opening issues should  
2 themselves be defined so it doesn't become just an overall  
3 subjective re-decision. Then you can use discretion in  
4 that sort of sense.

5  
6 PROF JOHNSTONE: I think the arguments for stability,  
7 no-one can argue against them. So stability for the asset  
8 owners, for the consumers, it's got to be better for  
9 everyone. The question is is it stable and too high or is  
10 it stable and okay. If it is stable and too high, then it  
11 is obviously too generous and the chickens are going to  
12 come home to roost and prices are going to look too high  
13 and so on. But if it is stable and it is set at some kind  
14 of good level, stability has to be the go. Using, for  
15 example, a longer run risk free rate rather than the ups  
16 and downs in the spot rate makes a lot of sense in terms of  
17 stability, as long as it is not engineered somehow or other  
18 so that the net result is that the tariffs are too high.  
19 That's what it always comes back to.

20  
21 PROF GRAY: Or too low. It's got to be symmetrical.

22  
23 PROF JOHNSTONE: Yes.

24  
25 PROF GRAY: So applying a fixed MRP to what's now the  
26 lowest government bond yields in the 130-year history  
27 results obviously in the lowest allowed return on equity  
28 ever. So the question is whether that's too high or too  
29 low or about right.

30  
31 PROF JOHNSTONE: Yes, that's the question.

32  
33 MR SADEH: And a lot of investors recognise that as a  
34 feature of the current framework which is, you know, a  
35 fixed MRP over a bond rate that moves, and that is seen  
36 particularly for long-term investors, superannuation funds,  
37 they want their members to have exposure to Australian  
38 macro-economic variables. They see this as a resetting  
39 bond in that circumstance. So they understand that in  
40 absolute sense, even though they are investing their equity  
41 for a long time, 99 years, they accept that during  
42 different five-year periods they are going to get an  
43 absolute return that is a function of the bond rate, and  
44 that's priced into the way the investment works.

45  
46 PROF JOHNSTONE: But are you saying it's a function of the  
47 short-term variations in the bond rate?

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MR SADEH: Yes.

PROF JOHNSTONE: So they are prepared to wear the risk, in other words.

MR SADEH: On the bond rate. Yes, on the bond rate, and that's a function of as when you look at that together with the trailing average cost of debt on the debt component because between the two of them they are something that the capital structure can fairly reflect because you do that by your interest hedging.

MS CIFUENTES: Again just if I'm understanding the logic of that you are saying from a practical real world perspective long-term investors, super funds, they are prepared to accept perhaps a lower MRP because that's part of the cycle and it's compensated for elsewhere.

MR SADEH: Sorry, I think I was saying that the MRP is quite constant and the rate of return that comes out of the whole equation by virtue of the application of the risk free rate is what goes up and down as a function of the market.

MS CIFUENTES: So is yours then an argument for saying the MRP - and we can argue about whether it is 6.5 or 6 - stays relatively constant and that is an accepted outcome for real world investors?

MR SADEH: Yes.

MS CIFUENTES: They wouldn't necessarily exit the market because they thought at any particular day or point in time that - let's assume for argument's sake they were wanting a return on equity of 6.5 or a MRP of 6.5 but the market is suggesting it's lower; that they wouldn't just accept the market?

PROF GRAY: That's not the question.

MS CIFUENTES: That's my question. Thank you.

MR SADEH: I do agree with it because, as I said, it's obviously on the basis that the stable MRP is an MRP that's fair. As I said, I do think 6.5 is fair and not 6 because it's a function of the (indistinct) that you are using.

1 So, yes, I do think (indistinct).

2

3 MS CIFUENTES: Thank you. Now you can ask your question,  
4 Stephen.

5

6 PROF GRAY: I was just going to say that the question is  
7 not whether a group of investors likes exposure to a  
8 particular macro-economic variable. The market risk  
9 premium is not particular to a small group of investors.  
10 It is a market wide parameter and it should be assessed in  
11 terms of what's the required return on a unit beta stock.  
12 That's what market risk premium is. The fact that a small  
13 subset of investors might find attractive the setting of  
14 allowed returns in a way that is variable in some way is  
15 I think a separate issue.

16

17 MR SADEH: I don't think it is because we're taking and  
18 reconstructing the returns into something different.  
19 I think I fundamentally do see the MRP as something that is  
20 stable and, as you said before, doesn't move in a one to  
21 one basis. In reality it probably moves in layers. Maybe  
22 it's a bit simplistic to have it flat accepting re-openers.  
23 But for the benefit of stability I think it's an acceptable  
24 trade-off. It might not be the logically most correct way  
25 of interpreting things, but the danger of having been too  
26 subjective kind of overshadows it.

27

28 DR MIRRLEES-BLACK: If I may summarise, there's acceptance  
29 that there are some nuances to the way you should look at  
30 the MRP is not fixed. There is not one for one with the  
31 right model and there is different weight which should be  
32 placed on those different approaches. But as an estimation  
33 historically it's not fitting a model. It's just saying  
34 let's look at the assessment of a fixed MRP and let's look  
35 at the assessment of a fixed market return. So both of  
36 those should be done and we should put weight on those.

37

38 Then jumping forward, but I think it is relevant to  
39 the discussion here, in terms of the approach that should  
40 be taken in the binding guideline to the MRP, Ilan is  
41 saying it is better if it is fixed --

42

43 ASSOC PROF PARTINGTON: I think as a pragmatic matter  
44 Ilan's suggestions make an awful lot of sense.

45

46 DR MIRRLEES-BLACK: And that there shouldn't be - there is  
47 the alternative of constructing a formula which would allow

1 it to vary but not one - one with the risk free rate, but  
2 perhaps a little bit of movement with the risk free rate,  
3 maybe 15 per cent of the movement in the risk free rate.  
4 Stephen I think is arguing that --  
5

6 PROF GRAY: No, I wasn't putting that forward as a - I was  
7 saying that, just logically, there are the three approaches  
8 that the AER - so one approach would be just to set a  
9 headline allowed return on equity, one would be to fix the  
10 MRP for the period, and then the third one would be to have  
11 some mechanistic updating formula. Just logically they are  
12 the three options open to the AER.  
13

14 DR MIRRLEES-BLACK: I think we accept there are those three  
15 options. Which of those three --  
16

17 PROF GRAY: In terms of having a fixed MRP, I think the key  
18 thing there would be that there would have to be the option  
19 for a re-opener if there was a GFC type event, as one  
20 example.  
21

22 PROF JOHNSTONE: But it should be remembered, too, that  
23 these issues are not independent. So if we work out a  
24 mechanism that stabilises the cash flow stream, then that  
25 affects the beta of that cash flow stream. So more stable,  
26 generally lower beta. So we can't decide these issues  
27 independently from one another.  
28

29 DR MIRRLEES-BLACK: Stephen, are you saying that you are  
30 not recommending personally the formula or are you saying  
31 that consideration should be given to it?  
32

33 PROF GRAY: I would be happy with any of those three  
34 approaches so long as it was done sensibly and there was an  
35 option for a re-opener. So one way, just to go through  
36 them, would be for the AER to set a headline required  
37 return on equity. That would have to be open to a  
38 re-opener. One thing that might cause a re-opener in that  
39 circumstance is a material change in risk free rates, for  
40 example.  
41

42 The other extreme, the AER could use its current  
43 approach, which is effectively to set a fixed MRP for the  
44 period of the guideline. The key thing for a re-opener  
45 there would be a GFC type event. I would be happy with  
46 that as well.  
47

1           Then in between would be some kind of mechanistic  
2 formula along the lines of what Ilan is saying. Adjust the  
3 required return on equity for changes in government bond  
4 yields, but in a less than one for one way.

5  
6           DR MIRRLEES-BLACK: And would you need a re-opener then?

7  
8           PROF GRAY: So it's less likely that a re-opener would be  
9 required there because, if the formula involved risk free  
10 rates, that would sort of automatically be reflected.

11  
12           DR MIRRLEES-BLACK: Graham, may I summarise your views.  
13 You say that affects the MRP. The guideline would be more  
14 pragmatic.

15  
16           ASSOC PROF PARTINGTON: Yes, with a re-opener.

17  
18           PROF JOHNSTONE: Just very quickly, an electricity price  
19 increase in the time of a GFC is not going to be a great  
20 result. That's what we are talking about.

21  
22           DR MIRRLEES-BLACK: Fixed MRP or --

23  
24           PROF JOHNSTONE: I don't know. But I would say that we  
25 didn't mention all these things when we were talking about  
26 beta. I just think we have to be careful of arguments all  
27 in the one direction.

28  
29           MS CIFUENTES: Can I just ask, Stephen, in your various  
30 scenarios I think one of the ones you mentioned was a  
31 material change in the risk free rate. What would be a  
32 material change? I ask that as someone that's been  
33 involved in financial markets for 20, 25 years. What was  
34 material when we were looking at this sort of stuff in  
35 IPART, you know, that was quite material. But, given where  
36 interest rates are now, it would seem much, much smaller  
37 moves. So what would be material?

38  
39           PROF GRAY: I think what would be really useful in the  
40 guideline would be for the AER to set out some examples of  
41 things that would have led them to or would in the future  
42 lead them to a re-opener. So an example would be what has  
43 happened since 2013. So if it were the case that the AER  
44 set a headline allowed return on equity and soon after the  
45 2013 guideline interest rates halved from 4 per cent to  
46 2 per cent, so that would certainly be material and, in my  
47 view, would be the sort of stuff of re-openers, if you had

1 adopted a headline allowed return on equity. So that would  
2 be an example of a material move, something that we have  
3 seen since the last guideline.

4  
5 MS CIFUENTES: This goes to the circumstances of  
6 re-openers. If that was to occur quite late in the  
7 regulatory period, presumably the time left for that  
8 current guideline might actually be a factor. This is the  
9 difficulty I have with the GFC. At what point do we  
10 declare a GFC?

11  
12 PROF JOHNSTONE: And on the other hand in good terms --

13  
14 MS CIFUENTES: That's the other --

15  
16 PROF GRAY: As we discussed last time, I think you sort of  
17 tie yourselves in knots if you try to write down a formula  
18 that says, "This is what is a GFC." I think last time we  
19 concluded that that's one of those events that you know  
20 what it is when you see it. So what happened around the  
21 time of the Lehman Brothers default is --

22  
23 MS CIFUENTES: If we conveniently get a major default, that  
24 would be the --

25  
26 PROF GRAY: Is a very clear signal. The only way I think  
27 that the AER can handle that in the guideline is to provide  
28 some examples of things that would be clear re-openers.

29  
30 Just picking up on David's point, if it were the case  
31 that the AER was of the view that even if there was a GFC  
32 it would be politically impossible for the AER to make any  
33 change in a re-opener, that should be set out. So I think  
34 that reflects what the allowed returns would be, if things  
35 are going to be applied in an asymmetric way like that.

36  
37 PROF JOHNSTONE: I think an obvious time for a re-opener  
38 would be when the assets are all up for sale and the owners  
39 no longer think it's good to have their money in - when we  
40 saw that, you would realise that the regulation had been  
41 too tight. Until that happens --

42  
43 PROF GRAY: Keep lowering the number until something blows  
44 up.

45  
46 DR MIRRLEES-BLACK: Can we just have from the other side,  
47 because it relates to a question at the end which is the

1 (indistinct) the option of a fixed MRP, a fixed total  
2 market return or a formula. Jim?

3

4 MR HANCOCK: I lean towards (b), a fixed MRP. But if  
5 someone were to put forward convincing evidence that  
6 there's a negative correlation between the MRP and the risk  
7 free rate, then I might be convinced to move away from  
8 that.

9

10 DR MIRRLEES-BLACK: Ilan, I think we have your view.  
11 Simon?

12

13 MR WHEATLEY: So the formula I gave you was information at  
14 the start of the guideline period, not to be updated each  
15 year necessarily because it's difficult to include other  
16 information. I think it would make sense to set it to be  
17 constant with the triggers for the --

18

19 DR MIRRLEES-BLACK: The MRP to be a constant with triggers?

20

21 MR WHEATLEY: Yes, over the period (indistinct). Not the  
22 assumption that the MRP is constant through time.

23

24 DR MIRRLEES-BLACK: No, it's not constant through time, but  
25 its fitness for the guideline for the purposes of all  
26 decisions that have to be taken during the course of the  
27 guideline. I think that's good. We have actually covered  
28 a lot of material.

29

30 One we haven't covered, though, is the estimation of  
31 the dividend growth model and how that's used. So  
32 obviously there are a variety of assumptions and evidence  
33 that can be used to derive long-term growth numbers which  
34 are a key part of the estimation. So, Graham, you have  
35 some scepticism about the use of a dividend growth model.

36

37 ASSOC PROF PARTINGTON: Yes, the dividend growth model is  
38 one of a large class of implied cost of capital. It does  
39 have the merit of being the one model in that class that is  
40 widely used in practice. Do I think the dividend growth  
41 model is hopeless? No. Do I think it can be reliably used  
42 to track changes in the market risk premium? Absolutely  
43 not.

44

45 There are a number of issues with it. One is the  
46 long-term growth rate, which we all know about. You can  
47 get varying estimates. This Challenger report, for



1 example, uses published Australian data on historic growth  
2 rates and from different studies it finds real growth rates  
3 varying from 0.9 per cent to 2.5. So you get widely  
4 varying estimates from the DGM just as a consequence of  
5 that. So that's a substantial problem.  
6

7 Then you have the problem of what I call incurable  
8 optimism. I don't think I have ever seen an application or  
9 example of a DGM model where you are coming up from a below  
10 normal growth rate to the long-term rate. It always seems  
11 to be the case that you are coming down from above to the  
12 long-term rate. Only to be on one side of the long-term  
13 rate all the time makes no sense. It is consistent with  
14 the mountain of evidence on analysts' forecast bias that  
15 they are optimistic, their forecasts are upward biased. So  
16 as a consequence of incurable optimism what you tend to get  
17 from the dividend growth model is an upward biased estimate  
18 of the cost of capital.  
19

20 You also have the problem, I call it sticky dividends,  
21 Martin I think calls it temporary fluctuations in the  
22 pay-out ratio or retention ratio, and it's the sticky  
23 dividends that drive those fluctuations. The problem with  
24 sticky dividends is worse in times of crisis. So what  
25 happens? We have the GFC. What do companies do? They  
26 don't all immediately cut their dividends. They hold them.  
27 Prices collapse. Dividend yields go up. That's fine as  
28 long as you then appropriately adjust downwards your  
29 expected growth rates, but that doesn't tend to happen. So  
30 you get a high dividend yield; not much change, if any, in  
31 the growth rate. What you get? You get an apparently big  
32 cost of capital according to the DGM, but it's really been  
33 driven by sticky dividends.  
34

35 Then there's an issue that seems to have received no  
36 attention which is dividend re-investment. A lot of firms  
37 have dividend re-investment plans. Participation in those  
38 dividend re-investment plans is typically of the order of  
39 30 or 40 per cent. So what that would mean, if you had a  
40 6 per cent dividend, effectively the cash you are  
41 distributing is only 4 per cent. So your true dividend  
42 yield is only 4 per cent.  
43

44 Alternatively, you can view it as, "Well, this is  
45 classic M and M. They paid out more cash and they got it  
46 back by having a share issue." We know what the  
47 consequences of that are. The growth rate keeps getting

1 lower and lower each time you have a share issue and  
2 eventually, if it goes on long enough, it will actually go  
3 negative.  
4

5 Then there are problems that Martin has identified.  
6 If there's a term structure in equity returns - we don't  
7 know whether there is or not; and I for one have no idea  
8 what shape it is - but if there is a term structure Martin  
9 has showed that that's another problem with your DGM  
10 estimates. I think you also have a quote, Martin, haven't  
11 you, that shows there's a problem sometimes with inflation  
12 in some of the dividend growth models, that they don't work  
13 very well in the presence of inflation. So I could go on,  
14 but I think it's clear why I don't have a lot of confidence  
15 in the estimates from DGM.  
16

17 DR MIRRLEES-BLACK: In contrast, in terms of the evidence  
18 that we have had so far, Stephen has made a number of  
19 comments indicating DGM should have more material weight  
20 than I think you are suggesting, Graham. So, Stephen, do  
21 you want to outline how you overcome the problems that  
22 Graham has just identified?  
23

24 PROF GRAY: Yes. Just to maybe outline a process, I think  
25 over many years we have had reports backwards and forwards  
26 addressing the same issues over and over again. I think  
27 what needs to be done - and it's been a very lucrative  
28 business model for the two of us but completely  
29 inefficient. I think what the AER really needs to do in  
30 its guideline is to set out here are the various issues  
31 and, where there is disagreement between the various  
32 experts, explain to us which view they favour and which  
33 view they reject and explain why. With respect, it's not  
34 enough to say, "We have expert support for this view" or  
35 "We have been advised that this view is appropriate."  
36 I think it is incumbent upon the AER to say, "There's a  
37 difference in views. We have carefully considered the  
38 different views that have been put forward, and here's why  
39 we have reached the conclusion that (a) is right and (b) is  
40 wrong."  
41

42 PROF JOHNSTONE: It's likely to be a very long document.  
43

44 PROF GRAY: I think that's the role of the regulator.  
45

46 PROF JOHNSTONE: I think the trouble is it is very hard to  
47 know why you rule the way you do in these situations. To

1 actually articulate that is asking a huge amount,  
2 considering the diversity of arguments, the fact that we  
3 don't even raise all the different points of view that we  
4 could. Sometimes we have more than one ourselves. I think  
5 that formalisation of the process is beyond human  
6 capacities.

7  
8 PROF GRAY: The other point to note is that all of these  
9 points were raised at the time of the 2013 guideline. So  
10 the AER carefully considered all of this and came up with  
11 its preferred - did a lot of work I think around the 2013  
12 guideline, came up with its preferred specification of the  
13 DGM.

14  
15 The AER has computed that model, its preferred  
16 specification, since 2006. The estimates from that  
17 approach look quite sensible to me. They vary a little.  
18 The MRP estimates - their return on equity estimates are  
19 kind of low in the initial period, so 2006/2007, during the  
20 big bull market. That seems to make sense. They increased  
21 materially, return on equity estimates, around the peak of  
22 the GFC, settled down, and since the 2013 guideline they  
23 have been very stable. The required return in the market  
24 has varied within I think just a one per cent range since  
25 the 2013 guideline, which all seems perfectly sensible and  
26 plausible. This comes back to the point of when presented  
27 with the same evidence making a different decision, I think  
28 that's the sort of thing that spooks stakeholders.

29  
30 DR MIRRLEES-BLACK: On the other side, Ilan, do you have a  
31 view the dividend growth model?

32  
33 MR SADEH: I think at the end of the day everybody wants  
34 quality decisions backed with rationale that gives  
35 everybody confidence, particularly the broader community  
36 who, for their luck, don't engage in debates on what  
37 valuers do and what different formula are. So we can't  
38 just go a bunch of businesses told us that 6 per cent makes  
39 sense or 6.5 per cent makes sense. So I agree with Stephen  
40 that you need to have something to demonstrate that, and  
41 I think the DGM by its nature is (indistinct) than  
42 historic.

43  
44 PROF JOHNSTONE: But no model is going to give you an  
45 answer accurate to half a per cent.

46  
47 MR SADEH: Correct.

1  
2 PROF JOHNSTONE: In the end that's going to have to be a  
3 judgment by regulators. They have no model that's going to  
4 get the answer down to plus or minus half a per cent or to  
5 a specific number.

6  
7 DR MIRRLEES-BLACK: Simon, do you have a view?

8  
9 MR WHEATLEY: There is empirical evidence in dividend  
10 growth models. So I think they provide useful information.  
11 A key ingredient is an estimate of dividend growth.  
12 I think estimates of dividend growth are best produced by  
13 looking at the time series of past dividend growths,  
14 looking for good predictors of dividend growth.

15  
16 DR MIRRLEES-BLACK: How does that relate to the estimation  
17 here? Are those (indistinct) process so far.

18  
19 MR WHEATLEY: A lot of the arguments have resolved around  
20 what dividend growth is. There's a natural inclination for  
21 a regulator to choose low estimates. There's a natural  
22 inclination for companies to choose high estimates. A  
23 mechanical way of estimating dividend growth would be to  
24 look at past behaviour of dividend growth. For example, if  
25 you look back to 1980 the dividend growth of the Australian  
26 market has pretty well matched GDP growth. So that  
27 suggests that perhaps looking at GDP growth is a sensible  
28 way to go.

29  
30 PROF JOHNSTONE: All these things make sense to me, but  
31 they are not going to decide between 6 and 6.5 per cent.  
32 None of that evidence is going to help you make that  
33 decision.

34  
35 MR WHEATLEY: How would you construct an estimate?

36  
37 PROF JOHNSTONE: I don't think there is an estimate.  
38 There's nothing that's going to help you objectively decide  
39 it's 6, it's 6.5.

40  
41 MR WHEATLEY: What would you tell the AER?

42  
43 PROF JOHNSTONE: Are you saying I tell them that it is 6 or  
44 it's 6.5?

45  
46 MR WHEATLEY: How would you provide an estimate of the MRP?  
47

1 PROF JOHNSTONE: An estimate of point estimate is  
2 statistical, historical, it's meant to be about the future;  
3 there's so much wrong about it you would have to write a  
4 book about it. The regulator in the end has to actually  
5 put a number on a piece of paper, and there's going to be  
6 no black and white answer to that. However I stated  
7 (indistinct).

8  
9 MR WHEATLEY: But what would you tell the AER?

10  
11 PROF JOHNSTONE: Just what I just said, which is actually  
12 staring us in the face and that is there is no objective  
13 answer to this.

14  
15 DR MIRRLEES-BLACK: There is a balance of opinions here.  
16 I think in terms of coming to a decision, though, it might  
17 be worth turning to page 65 of the --

18  
19 MS CIFUENTES: Sorry, if I can interrupt. Did we hear from  
20 you, Jim? Do you have a view on DGMs?

21  
22 MR HANCOCK: I think there's a subjectivity in choosing the  
23 parameters that go into it. So we wouldn't want to put too  
24 much weight into the idea that we got a precise answer.  
25 Simon suggests using GDP growth as an index for dividend  
26 growth. That sounds sort of reasonable. I think 10 years  
27 ago we were thinking that the long range GDP growth of the  
28 Australian economy was three and three-quarter per cent.  
29 Now Commonwealth Treasury talks about sort of three, three  
30 and a quarter per cent. Those sorts of variations in your  
31 assumptions can have quite big impacts for the MRP result  
32 that you get out of it. So, even if you come up with sort  
33 of reasonable rules to try and forecast something, there is  
34 still going to be a lot of uncertainty that makes your  
35 estimate still sort of hostage to subjective assumptions.

36  
37 DR MIRRLEES-BLACK: Does that mean that you should still do  
38 it?

39  
40 MR HANCOCK: I'm not saying not to do it, but I don't have  
41 very much confidence in the numbers that come out of it,  
42 especially when I see them producing quite a wide range of  
43 estimates off what people might argue are reasonable  
44 - sorry, coming off different assumptions that people will  
45 argue are reasonable, then which one is right?

46  
47 MS CIFUENTES: So would it be a question of then using

1 I think Stephen's more general formula that you start with  
2 whatever the number currently is, let's say 6, then you  
3 have a look at all the evidence, including DGMs, to see  
4 whether that would justify a change away from that; not  
5 wanting to put words in your mouth, but as a general model?

6

7 MR HANCOCK: I suppose what you would be doing would be  
8 looking at DGMs and looking at what you think are plausible  
9 parameters and running a few different ones and seeing what  
10 you are getting. If you are coming out of that, that  
11 process, you are getting a different point of view, then  
12 I suppose that would increase your inclination to change  
13 your MRP. But at the same time you would have to be  
14 questioning how much confidence you have got in those  
15 assumptions that are informing that decision. If you've  
16 got pretty good confidence, then put weight on it. But if  
17 you sort of think, "They sound reasonable, but I don't  
18 really know," then I don't think you can put much weight on  
19 them.

20

21 PROF GRAY: I think the starting point would be 6.5.

22

23 MS CIFUENTES: I'm just using 6 as a --

24

25 PROF GRAY: But, just in terms of the process, the AER  
26 spent a lot of time processing all of the relevant evidence  
27 in 2013 and suggested that that's overall 6.5. I think the  
28 task is how has each piece of evidence shifted since then,  
29 and is it in one direction or the other. If it is  
30 predominantly in one direction, do we think it's  
31 significant enough to warrant a change in the parameter?  
32 Does it reach that threshold bar, having regard to the  
33 benefits of stability and predictability? I think that's  
34 the exercise.

35

36 MR HANCOCK: It's sort of inherent in a DGM that you are  
37 assuming stability in the total return rather than the MRP,  
38 isn't it?

39

40 PROF GRAY: No, the data tells you that. If the market was  
41 requiring a lower headline required return that would come  
42 through in the data. There's no assumption about that  
43 that's built into the model.

44

45 MR HANCOCK: But, given that we are projecting forward and  
46 we are not (indistinct) into lots of variations, as I said  
47 a three stage model you have got some sort of trending, but

1 we are basically picking parameters that we think are  
2 reasonable averages and applying them going forward. The  
3 end result of that is to give us a total return that is  
4 relative - well, is stable. So previously we were talking  
5 about whether the idea of stable total return or stable MRP  
6 is the more reasonable approach. It seems to me that the  
7 DGM kind of - if you take it literally is sort of adopting  
8 that stable total return view of the world.

9  
10 PROF GRAY: If we go to that page 65 that Jonathan was  
11 going to take us to a moment ago you will see the variation  
12 in the AER's DGM estimate since 2006. So there's an agreed  
13 variation there. The estimates were quite low during the  
14 big bull market, which seems sensible. They went up a lot  
15 during the peak of the GFC, which also seems quite  
16 sensible. Settled back down, rose a little bit again, just  
17 a little bit during the European debt crisis, and then  
18 since the last guideline have been quite stable between 10  
19 and 11 per cent. So there is variation in those headline  
20 required return on the market estimates within the AER's  
21 preferred specification of the DGM. So the data tells you  
22 what the market is requiring in terms of the return of  
23 market portfolio.

24  
25 MR HANCOCK: Okay. I can see that it changed over time in  
26 the sort of regulatory determination. But, going forward,  
27 if you take this sort of model, unless I'm  
28 misunderstanding, you are assuming stability in total  
29 return going forward? That's what you are assuming that  
30 your --

31  
32 PROF GRAY: Yes. So the application of that is to derive a  
33 discount rate to be applied to cash flows going forward.  
34 But that's the task that the AER's charged with, is to  
35 figure out what would be the appropriate discount rate or  
36 required return for the cash flows going forward.

37  
38 PROF JOHNSTONE: Just remember the bubble we are in here,  
39 too, in that we are actually talking about a model  
40 completely different to the CAPM. We are saying now the  
41 market prices assets today on a dividend growth model,  
42 which is not the CAPM and not reconcilable. So again we  
43 are looking for a crutch, basically.

44  
45 MR WHEATLEY: So the dividend growth model and the  
46 Sharpe-Lintner CAPM are not inconsistent with one another.

47

1 MS CIFUENTES: Can you speak up a bit, please, Simon?  
2

3 PROF JOHNSTONE: I have never seen reconciliation. One's  
4 long period. One's one period. Different variables.  
5

6 MR WHEATLEY: The DGM can be consistent with --  
7

8 MS CIFUENTES: Simon, would you mind speaking up, please?  
9

10 MR WHEATLEY: The DGM and the Sharpe-Lintner CAPM are not  
11 inconsistent with one another.  
12

13 PROF JOHNSTONE: I think they are.  
14

15 MR WHEATLEY: The DGM can be inconsistent with other  
16 models, but it is not inconsistent with the Sharpe-Lintner  
17 CAPM.  
18

19 PROF JOHNSTONE: I'm sure it is.  
20

21 ASSOC PROF PARTINGTON: One is a one period model and the  
22 DGM is a multi-period model.  
23

24 PROF JOHNSTONE: That's right, and many other things.  
25

26 MR WHEATLEY: The Sharpe-Lintner CAPM can be derived in a  
27 multi-period as well.  
28

29 ASSOC PROF PARTINGTON: If all the parameters don't change.  
30 So that would solve everything because we just say, "Okay,  
31 it's fixed forever."  
32

33 PROF JOHNSTONE: There is no co-variance in the dividend  
34 growth model, and that's a completely different concept  
35 than anything in that model.  
36

37 DR MIRRLEES-BLACK: To summarise in terms of the MRP, maybe  
38 there are questions about the precise specifications of  
39 modelling, but I think views about historical equity  
40 returns, in terms of the DGM that we have just been talking  
41 about, care needs to be taken about the parameters, but  
42 there is evidence obtained here. How that's weighted we  
43 haven't quite discussed, but I'm sure that will come out in  
44 our discussion. There is obviously a range of views and  
45 I assume it will depend on how much weight you place on how  
46 much confidence you have in the parameters (indistinct)  
47 dividend growth model. But the general assessment is that,



1 with careful assessment of the parameters, there is a role  
2 to play for it in the process. I'm sure we can come to a  
3 form of words which reflects that.

4  
5 There's one source of evidence which we haven't  
6 covered and that is survey evidence. In our preconference  
7 discussion the view was that little weight should be placed  
8 on the survey evidence which is basically model  
9 practitioners, what their view is of the MRP. It was  
10 considered among the experts that wouldn't be reliable,  
11 which is why we haven't spent much time on it today. But I  
12 want to confirm with everyone that they haven't changed  
13 their --

14  
15 ASSOC PROF PARTINGTON: Actually, having read the paper  
16 that Simon recommended, I have rather changed my view on  
17 that. Because the thrust of that paper - and Shleifer was  
18 one of the co-authors, and he's done a follow-up paper.  
19 The thrust of the argument is actually that if you want to  
20 know what rate of return investors are thinking about and  
21 acting on then look at surveys. That's the thrust of his  
22 argument. His argument is because behaviour follows. If  
23 you look at funds flows they follow the surveys. If you  
24 look at the planned capital expenditure and the actual  
25 capital expenditure of the managers in the Graham and  
26 Harvey CFO survey, that follows their survey expectations.

27  
28 So his story is, well, it's the rational  
29 economic - they call it rational expectations theory that  
30 leads you astray in terms of measuring expectations. Those  
31 expectations, however, are not much use at all for  
32 forecasting the market, for forecasting what sorts of  
33 returns are going to be. Indeed in some cases the market  
34 returns and the expectations are negatively correlated,  
35 although in many cases that correlation is not  
36 statistically significant. So Shleifer's message is if you  
37 want to know what people are expecting and thinking look at  
38 the surveys.

39  
40 MR WHEATLEY: We read the paper in different ways. The  
41 message I got was, if you think the surveys say the market  
42 risk premium is high, it's probably going to turn out to be  
43 low.

44  
45 ASSOC PROF PARTINGTON: Yes, it's not a good forecast.

46  
47 MR WHEATLEY: That's right.

1  
2 ASSOC PROF PARTINGTON: That's right. So it depends  
3 whether you are forecasting or whether you want to know  
4 what people expect.  
5  
6 PROF GRAY: Can I just say one quick thing on surveys. In  
7 the AER paper there seemed to be a suggestion that I had  
8 become keen on surveys after the numbers went up. I just  
9 want to clear that up. I think the surveys, the Fernandez  
10 surveys and KPMG and so on are just rubbish and should have  
11 no weight whatsoever.

12  
13 But, if they are to be used - and I accept that the  
14 AER might form a different view about that. If they are to  
15 be used, then we should have recent surveys and we should  
16 certainly take into account what the same survey  
17 respondents are doing in relation to the risk free rate.  
18 My view is it is quite disingenuous and misleading to look  
19 at a survey respondent that says, "I used a 6 per cent MRP  
20 and I applied that to a risk free rate that's materially  
21 above the current government bond yield," and to then say,  
22 "Let's take the 6 per cent MRP evidence and find support  
23 for our regulatory estimate of that," but to ignore the  
24 fact that they are pairing that with a risk free rate  
25 that's well above the current government bond yield. So  
26 they were the caveats about how surveys should be used if  
27 they are going to be used.

28  
29 DR MIRRLEES-BLACK: Any other comments on surveys?

30  
31 MR WHEATLEY: I agree with Stephen.

32  
33 DR MIRRLEES-BLACK: Jim?

34  
35 MR HANCOCK: Yes, look, they are noisy. So are the  
36 movements actually signal or noise? We are not really  
37 sure. Also some question as to exactly what model people  
38 have in mind when they announce the number.

39  
40 MS CIFUENTES: So is that a consensus view?

41  
42 DR MIRRLEES-BLACK: We are finished for the moment on MRP  
43 (indistinct). That finishes the morning session and we  
44 will reconvene at quarter to 2.

45  
46 LUNCHEON ADJOURNMENT  
47

1 MS CIFUENTES: Thank you. Thank you, Jonathan.

2

3 DR MIRRLEES-BLACK: Thank you very much. I hope you are  
4 all rested and had a good lunch. Now we have the after  
5 lunch session which is on the most exciting topic of the  
6 day which is tax. So we also have for this session Martin  
7 Lally, who takes the place of Graham (indistinct). So  
8 Martin is here for the tax component. In terms of the  
9 discussion issues, the first point relates to the word  
10 value of imputation tax credits. In the discussion among  
11 the experts there was not unanimity but a general view  
12 that, while experts didn't agree about the definition of  
13 the value of imputation tax as being defined in the  
14 litigation and the approach which has been proposed by the  
15 AER here, there was an acceptance that this should be the  
16 basis on which we have this discussion. But there was a  
17 dissenting view, and that was Ilan.

18

19 MR SADEH: Was it?

20

21 DR MIRRLEES-BLACK: Yes, indeed. What you have said is you  
22 didn't agree with the AER and you didn't think that it was  
23 a closed issue. So I just wanted to give you the  
24 opportunity to say the extent to which this issue should be  
25 revisited.

26

27 MR SADEH: Thank you. I did think, you know, that our  
28 position - we all had a chance to discuss it. So, in the  
29 interest of getting to a consensus, my personal view is  
30 I do have a view that there is a difference between the  
31 market value, but I think in the interest of understanding  
32 the AER's position on this and wanting to frankly move on  
33 with things, I'm happy to put it to one side. I think  
34 I acknowledged that the Federal Court says that the  
35 existing method isn't the only way of doing things and it  
36 accepts that other methods aren't materially preferable,  
37 and that's fine. That's probably all. I'm happy to just  
38 move on from it because I just don't think it is productive  
39 to waste the AER's time (indistinct).

40

41 DR MIRRLEES-BLACK: Okay. Thank you. We will move on.  
42 The second thing on which there was general acceptance of  
43 but again not unanimity, and that is that in terms of in  
44 the framework the benchmark efficient firm is taken to pay  
45 the statutory tax rate. There's an observation that actual  
46 firms may pay less than the statutory tax rate. So most of  
47 the experts were saying that that's not relevant. In terms

1 of what we should be looking at, what the AER should be  
2 looking at, is that it's a reasonable assumption to assume  
3 that the benchmark firm pays the statutory tax rate. There  
4 are one or two views considering that perhaps there should  
5 be a broader look at the overall tax framework, and that  
6 reflects some stakeholder view that may need to be looked  
7 at. Jim, I think you had (indistinct) in what you have  
8 submitted there were some views that should be looked at.

9

10 MR HANCOCK: Yes, and I suppose what it comes from is sort  
11 of trying to understand why franking credits would be sort  
12 of fully valued or redeemed and then also having read the  
13 correspondence with the ATO which seems to bring into  
14 question the reliability of that data as well. I was  
15 wanting to be sure that what we are seeing measured there  
16 out of the data is consistent with the benchmark of the BEE  
17 and, if it is not, whether some adjustment needs to be made  
18 (indistinct).

19

20 DR MIRRLEES-BLACK: Any other views? Ilan?

21

22 MR SADEH: Look, I think there's a number of different  
23 marginal tax rates for different kinds of entities and  
24 investors. It can be corporate tax rate, personal tax  
25 rate. I think the majority view from our pre-discussion  
26 was that the corporate tax rate is the one that makes the  
27 most sense.

28

29 PROF GRAY: Unless the AER forms a view that a company  
30 that's paying the statutory tax rate is inefficient, then  
31 that's the rate that should be used.

32

33 MR HANCOCK: The rule says that the statutory rate should  
34 be used as well. So my question is not really about  
35 changing the statutory rate, but whether it affects our  
36 interpretation.

37

38 DR MIRRLEES-BLACK: Martin, do you have a view on this?  
39 Should a benchmark efficient entity be paying the statutory  
40 tax rate?

41

42 DR LALLY: Yes, no question about that. But I think the  
43 far more interesting point here is the one that was raised  
44 by Graham during discussions in which he made the very  
45 interesting comment that it would be rather odd to in your  
46 model act as if the firm pays the tax at the full statutory  
47 rate but to estimate its distribution rate for credits from

1 firms out in the marketplace which are paying considerably  
2 less than that. So there's potentially a disjunction  
3 between the tax payment assumption in the AER's model and  
4 the empirical process for estimating the distribution rate.  
5

6 I circulated a note on that attempting to look into  
7 that question. But, from what I can see in that analysis,  
8 I don't think it's possible for us to do anything with it.  
9 So the best I think we can do is estimate distribution  
10 rates in the way we do, inevitably from firms which may not  
11 be paying tax at the full statutory rate, and then couple  
12 that with a company tax payment in the AER's model that is  
13 determined in accordance with the full statutory rate.  
14

15 PROF GRAY: I think we've presented that T will be  
16 30 per cent and we will discuss what implications all of  
17 this has for gamma.  
18

19 DR MIRRLEES-BLACK: Good. So we have some agreement.  
20 Moving on, use of tax statistics. So there are concerns  
21 around the quality of the data and some experts have  
22 different views on this. So I think we can say, well,  
23 Martin, you have particular concerns with the use of the  
24 tax statistics data while others are comfortable that it's  
25 a reasonable method of estimation. So perhaps, Martin, can  
26 I invite you to elaborate on why you are dissatisfied with  
27 it.  
28

29 DR LALLY: Okay. I think there are two distinct issues  
30 here. One of them is whether you use the tax data, the ATO  
31 data, to estimate individually the utilisation rate and  
32 individually the distribution rate. I would be surprised  
33 if anyone now or at any time has thought that you could use  
34 the ATO data to get reliable estimates for either of those  
35 individual parameters because the ATO statistics, as  
36 analysed by Hathaway in particular, show that you get  
37 wildly different estimates from these statistics for the  
38 distributed credits.  
39

40 Because you get wildly different estimates for the  
41 distributed credits depending upon whether you use the FAB  
42 data or the dividends data, you cannot get a reliable  
43 estimate for the distribution rate and you cannot get a  
44 reliable estimate for the utilisation rate. But that  
45 problem does not contaminate estimating gamma from taxes  
46 paid according to the ATO data and credits redeemed from  
47 the ATO data. So it could be argued that, notwithstanding

1 this huge conflict within the ATO data, between FAB and  
2 dividend information, you can still reliably estimate  
3 gamma. So that I think is the primary issue: can you  
4 reliably estimate gamma? So I will then limit my comments  
5 to that question of whether you can reliably estimate  
6 gamma.  
7

8 So I think the comment has been made by many people  
9 surely the Australian tax authorities know how much company  
10 tax they have collected. It seems a no-brainer. And yet  
11 according to the ATO's note, which we received last week,  
12 it's a response to the problems that have been identified  
13 in Neville Hathaway's analysis, it says, "The analysis" -  
14 referring to Hathaway's work, I presume - "does not account  
15 for non-resident companies paying company tax in Australia  
16 which do not generate franking credits."  
17

18 So that raises the question when we are talking about  
19 the company tax payments for the present purposes what are  
20 we talking about: the company tax is collected by the ATO  
21 or the company tax is collected by the ATO that generate  
22 franking credits? In my view, it's clear it's the latter.  
23 It's not company tax payments per se. It's company tax  
24 payments that generate franking credits. I don't know what  
25 Neville Hathaway's view on point number 4 is because he  
26 hasn't had a chance to respond. But the ATO seems to think  
27 that Neville's made a mistake by looking at company tax  
28 payments and failing to deduct out that amount which  
29 doesn't generate franking credits.  
30

31 If Neville has made that mistake then that damages the  
32 credibility of the ATO data as Neville has presented it for  
33 the purposes of estimating gamma in total. If indeed  
34 Neville has made that mistake - and I will not condemn  
35 someone without hearing their defence - but if Neville has  
36 made that mistake, and he has looked at this matter very,  
37 very deeply, we all know that, and could arguably be said  
38 to be the person who's looked at it most deeply of all, if  
39 he's made a mistake like that then I think it should say to  
40 all of us there may be two, three, 20 other mistakes that  
41 have been made here by Neville that we don't know about and  
42 nobody knows about yet. It kind of shakes your confidence.  
43 It shakes my confidence that the ATO thinks Neville has  
44 made such a basic mistake.  
45

46 What I'm also disturbed about when I read this note  
47 is, having claimed in point number 4 that Neville's made

1 this mistake, that they haven't even quantified it or  
2 indeed anything else. Neville has presented detailed  
3 analysis on numbers from the ATO data and he's expressed  
4 his concerns about this huge discrepancy within the data  
5 years ago, he claims, to the ATO. So they have had years  
6 to think about this. And after thinking about it for years  
7 they give us a note that does not have a single number in  
8 it. They can't even say, "Neville, you've overestimated  
9 this number by 5 billion and here's the correct number."  
10 So that's pretty disturbing. So that's the first concern  
11 I have, and that relates fundamentally to what reliance can  
12 we place on the ATO data simply for the purpose of  
13 estimating gamma; not the individual two bits of it, but  
14 the aggregate.

15  
16 The second problem I have with the ATO data is  
17 necessarily you are using exactly the same companies for  
18 estimating the distribution rate as you are for the  
19 utilisation rate by virtue of doing a grand calculation,  
20 and this grand calculation I understand is for all  
21 companies, listed and unlisted. That's fine as far as the  
22 utilisation rates are concerned that you should use all  
23 companies, because it is a market parameter. But it isn't  
24 fine that you should be using all companies, listed and  
25 unlisted, for the distribution rate.

26  
27 So that raises the question which company should you  
28 use for the distribution rate, and I think there is a menu  
29 of possibilities here. The first of them would be if you  
30 want the distribution rate for a particular company just go  
31 and look at that company's financial statements. The  
32 problem with that is the company, knowing that would be  
33 done and that you are estimate of its distribution rate for  
34 regulatory purposes would affect its revenues, would have a  
35 very strong incentive to manipulate its distribution rate.  
36 So I think that rules out using the company itself.

37  
38 The next level would be to pick a collection of  
39 companies that are good comparators. Simon, I think you  
40 made the observation that the natural collection of  
41 comparators would be the very ones that we are using for  
42 estimating gearing and also betas. At the moment there's  
43 only three of those companies. But, if one goes back a  
44 couple of years, the set does expand to five. So that's  
45 the APA Group, DUET, Ausnet Services, Spark Infrastructure  
46 and Envestra, who have changed their name to Australian Gas  
47 Networks.

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In the last week I have actually gone to the financial statements of those five companies to see if I can get their distribution rates from the financial statements. I may be the worst researcher in the world but I cannot find a recent annual report for Australian Gas Networks. I can find something called an annual review, which is everything in an annual report except the financial statements. So that's not very helpful.

Spark Infrastructure, no problem finding financial statements, but if you go to the place where you would expect to find the franking account balance, which is attached to the dividends note, it's not there. There is no disclosure in the financial statements I can find of their franking account balance. The same problem for DUET. No disclosure of the franking account balance.

So you only have two companies left to estimate the distribution rate from this set of five natural comparators: that's Ausnet Services and the APA Group. If I take the last three years, in both cases the franking account balances for these companies have gone down. Over those three years their franking account balances have gone down. That says to you that not only have they distributed all the franking accounts that they have generated from company tax payments over that three-year period but some on top of that. So the distribution rate is 1 or maybe even more than 1. I think conservatively it's 1. So if you are going to use the natural comparators then - there's only two of them - obviously that raises the question of is that a big enough sample. But if you are going to use those comparators the distribution rate estimate is 1. So that's the second possibility.

The third possibility would be to go to all listed companies. If you go to all listed companies, then you've got data from the tax authorities. But the trouble with that data from the tax authorities is it's a distribution rate and therefore it's afflicted by this huge discrepancy that Hathaway has found. So that knocks out listed company data from the ATO. You could get listed company data from the financial statements of listed companies. Because you are interested in the aggregate, you naturally pick on the high value ones. I have done that exercise and it indicates a distribution rate of at least 83 per cent.



1           The last possibility is to take all companies, listed  
2           and unlisted. But, as we know from the analysis that has  
3           been done by many people, there's a big difference between  
4           the distribution rates for listed and unlisted companies.  
5           So you then have to ask yourself which is the better  
6           comparator. Lots of these unlisted companies are sole  
7           traders who have corporatised, presumably to reduce their  
8           tax rate from something in the 40s to 30 per cent. They  
9           are only going to achieve that if they keep their dividends  
10          down and therefore their distribution of credits down. So  
11          they are not going to be very useful for purposes of  
12          looking at our benchmark efficient entity.

13  
14          So across all those five possibilities it seems to me  
15          by default you are only left with one useful and credible  
16          source of information, and that is financial statement data  
17          from high value listed companies and that gives you a  
18          figure of at least 83 per cent. So that's the second  
19          problem with the use of the ATO data which binds you to use  
20          the same set of firms for both the distribution and  
21          utilisation rates.

22  
23          The final problem is as a regulator you need an  
24          estimate of gamma in the cash flows, but you also need an  
25          estimate of the utilisation rate in the market risk  
26          premium. If you are using ATO data for gamma, you  
27          presumably have to use ATO data for the utilisation rate.  
28          Then you are back to the problem that once you start  
29          looking at one of the individual two parameters you have  
30          the huge discrepancy that Neville has identified and which  
31          hasn't been denied by anyone.

32  
33          I think Simon has suggested that you could take the  
34          overall figure for gamma from the ATO data and then,  
35          insofar as it's embodied estimate of the distribution rate  
36          is too low relative to your benchmark efficient entity,  
37          crank up your overall gamma estimate. But before you can  
38          crank it up you have to know what the estimate for the  
39          distribution rate is within the ATO data. And you don't.  
40          There's two numbers. One of them is about 70 per cent and  
41          one is 50, depending upon whether you believe the FAB or  
42          the ATO stuff. Nobody who has looked at this seems to have  
43          a clear view on that. Neville himself in his latest note  
44          says, "I don't know which one is right," and clearly the  
45          ATO is not saying which one of them is right. So I think  
46          that would knock out Simon's suggestion.

47

1 So that leaves you with that third problem. It's not  
2 enough just to estimate gamma from ATO data; you've got to  
3 estimate the utilisation rate. It would be rather odd if  
4 you estimated gamma from the ATO data but you estimated the  
5 utilisation rate by a completely different method. So  
6 there are my three concerns with using ATO data, even to  
7 get an overall estimate of gamma.  
8

9 DR MIRRLEES-BLACK: In our statements Simon and Steve have  
10 expressed particular concern of the ATO data being a  
11 reasonable approach. Simon, do you want to --  
12

13 MR WHEATLEY: We haven't seen this. It's not actually a  
14 note from the ATO. It's a description of discussions  
15 I think with the ATO. Is that right?  
16

17 MR SMITH: It's a description of an email that they sent us  
18 setting out concerns and effectively it sets out --  
19

20 MR WHEATLEY: We don't know what questions were asked.  
21 It's not in a sort of question and answer format. But  
22 (indistinct).  
23

24 MR SMITH: Simon, we set out the email that we set out down  
25 below in attachment 1 to the note. So there is some text  
26 that we set out to the ATO that they responded to.  
27

28 MR WHEATLEY: Right. So the most important concerns  
29 are - because we are aware of Hathaway's concerns now  
30 splitting the data up.  
31

32 MS CIFUENTES: Simon, could you please speak up? Thank  
33 you.  
34

35 MR WHEATLEY: Sorry.  
36

37 DR LALLY: It may be that moving that, that will solve the  
38 problem.  
39

40 MR WHEATLEY: So we acknowledged that there were concerns  
41 with separating the data up to estimate the distribution  
42 rate and the utilisation rate. But Hathaway claimed there  
43 were few problems with the ratio of credits redeemed to  
44 credits created. This note from the ATO raises two issues.  
45 One is that net tax is not the same as tax payable. Both  
46 Steve and myself know that to be true because the ATO makes  
47 that clear on its web site. So we already know that, and

1 we take that into account. We adjust the net tax figure.

2

3 The other issue is number 4, which is that there are  
4 non-resident companies paying company tax that doesn't give  
5 rise to franking credits. As Martin has said, we don't  
6 know whether that's a trivial issue or a major issue. So  
7 it would be nice to get more information on that before we  
8 do anything further.

9

10 DR LALLY: Can I just add, just reading the note, point  
11 number 4, the second sentence of that point number 4 says,  
12 "Although this proportion may appear to be small at first  
13 glance, it adds to the report's inability to reconcile the  
14 imputation system using aggregate data." That, I guess,  
15 could be read two ways, one of which is that it is small,  
16 but it could also be read as, "We, the ATO, suspect it's  
17 small but we are not sure."

18

19 MR WHEATLEY: We don't know. It's too vague. But, given  
20 how valuable these statistics could be, it makes sense to  
21 go back to the ATO and find out more about that number.

22

23 DR LALLY: But could I just emphasise that, even if you do  
24 go back to the ATO and you get a definite answer on that  
25 question, if it is accepted that after all these years of  
26 us poring over all these numbers and all Neville's work,  
27 that he has in fact made that mistake, it's got to shake  
28 your confidence in anyone's interpretations of the ATO data  
29 that there may be all kinds of potential pitfalls and  
30 trapdoors in that data. We appear to have fallen into this  
31 trapdoor. There may be many others that are there we  
32 haven't fallen into yet. We don't know.

33

34 MR SADEH: That applies to every form of data used in the  
35 history of the gamma debate. I think it's unfair to just  
36 pin it on that, because when I take your alternate approach  
37 from my own sense-check perspective you are thinking about  
38 what is gamma for a benchmark efficient entity, and there  
39 are two key features of networks that are relevant to their  
40 tax profile. A vast majority of them are unlisted, and  
41 that's the reality. So when you talk about the  
42 distribution rate, distribution rates are naturally higher  
43 for listed entities, as you said, because they try to  
44 maintain a dividend yield. You talk about short-term. In  
45 theory they can be above 1 because they have held that cash  
46 because they are trying to keep (indistinct). That is not  
47 representative of the average utility.

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The second thing is that networks are capital intensive businesses relative to the normal corporate which is more an operating entity which means again by definition its distribution rate as a matter of logic has to be lower than the average entity because it is constantly reinvesting part of its money into the business because you can't 100 per cent debt fund your --

DR LALLY: But could they be funding it through equity issues rather than through their operating cash flow to some extent?

MR SADEH: Just have a look at how often they make equity calls. Very, very rarely.

DR LALLY: So what you are implying is that the comparator firms we need for this purpose, it's not just enough to take the firms that we have taken, those five, but you could expand it to include other kinds of firms that have big capital expenditures.

MR SADEH: I think it's more relevant because, you know, using listed data for some of the more market based statistics makes sense, but tax has unique profiles which need to take into account the kind of companies that are in the network field.

DR LALLY: But, of these five companies that seem to be comparators, the two for which we can get the distribution rate, the distribution rates are 100 per cent in the last three years. So that seems --

MR SADEH: Number 1, it is a short-term phenomenon. As I said to you, listed entities can masquerade - this is the reality; you don't like to say it, but it's true - they do masquerade to smooth the dividend profile. Some of them have retained cash. Some have got - in the short-term there are a number of reasons why your pay-out ratio can be distorted to your true long-term.

Then, secondly, even on a long-term basis a listed network will have a different form of distribution rate to an unlisted network. When you look at them as a whole, you know, the listed has to be the upper bound.

DR LALLY: So we can certainly deal with one of those

1 problems. I only had time to just look at the data in the  
2 past week for the last three years, but certainly I can  
3 look at the data for the past 10 or 15 years. Your  
4 prediction, Ilan, would be that if we do look at that data  
5 for the past 10, 15 years it will show distribution rates  
6 for these entities for imputation credits that are lowish?

7  
8 MR SADEH: I would have no idea to what extent. But, yes,  
9 absolutely (indistinct).

10  
11 MR WHEATLEY: A lot of these companies didn't pay a lot in  
12 tax and so did not generate a lot of franking credits, but  
13 their distribution rates I think which Steve has looked at  
14 are not 100 per cent. So if they did have higher franking  
15 a bigger balance they would have had difficulty  
16 distributing it.

17  
18 DR LALLY: If you've got some data on this, Stephen, it  
19 would be good to see it. The other point you're making,  
20 Simon, that they didn't pay much tax so naturally their  
21 distribution rates are high. That comes back to this  
22 fundamental problem that Graham raised with us in our  
23 conversation and to which I alluded at the beginning, and  
24 I put my analysis in on that and I'm not sure we can  
25 actually do anything with that.

26  
27 MR SADEH: I would agree with that, and that's why I can't  
28 kind of escape that we need to look at more than the  
29 individual networks for these statistics because again tax  
30 is a highly delicate thing that's a function of which level  
31 of the structure are you looking at; i.e. a lot of the  
32 networks are either partnerships or trusts as opposed to  
33 corporates. It doesn't mean there's not tax being paid; it  
34 just means it's being paid a level above which you are  
35 looking at. So that's why I think you can't rely on the  
36 sample sizes distorted by the very entity structure that  
37 you are using.

38  
39 PROF GRAY: I think maybe if we try to break down the  
40 discussion into component pieces. So the first piece is  
41 the use that can be made of the ATO tax statistics. So  
42 most of the points on this document that's being  
43 distributed around during the week are explanations as to  
44 why there might be a difference between the FAB and the  
45 dividend approaches to the distribution rate. So those  
46 explanations are along the lines of what's been discussed  
47 in various reports over the years. So things like the

1 reporting of the franking account balance and the reporting  
2 of dividends distributed is not something that affects tax  
3 payments at all. The ATO notes here that that's an  
4 information field that's provided for information only and  
5 is not needed for the tax calculation. So that's why  
6 people might take that less seriously, and it seems to be  
7 the explanation for the difference. So that's one point.

8

9 The second point is that the only new information  
10 here, I think, is this idea that foreign companies may be  
11 paying some tax in Australia that hasn't been included.  
12 I think the way we have to deal with that kind of evidence,  
13 as Simon says, is to quantify it. I don't think a vague  
14 statement that this could be an issue is a reason for  
15 abandoning that data. Let's see if it is an issue and, if  
16 so, to quantify it.

17

18 In terms of applying evidence consistently the same  
19 can be said of the equity ownership approach and the 45-day  
20 rule. So we know that the equity ownership approach is an  
21 upward biased estimate because it ignores the fact that  
22 some credits are going to be not redeemed because they run  
23 foul of the 45-day rule. The AER has said, "We think  
24 that's small, so we are not going to take any account of  
25 that." I think the appropriate approach in both cases is  
26 to quantify what the effect might be, see if it is small or  
27 if it is material. So I think that sort of consistency has  
28 to be applied throughout.

29

30 The great advantage I see of the ATO data is that it  
31 enables you to get an estimate of gamma that does not  
32 require a distribution rate. I think the distribution  
33 rate, estimation of that is extremely problematic. That  
34 gives you an estimate that is free from having to estimate  
35 the distribution rate. So that's got to be a big plus in  
36 the ATO data and makes the ATO estimate of gamma certainly  
37 relevant evidence, in my mind. So we will come later on to  
38 the problems with other approaches for estimating the  
39 distribution rate.

40

41 The third point I want to make is that Hathaway has,  
42 as Martin just said, estimated the distribution rate or  
43 rounded the distribution rate to somewhere between 50 and  
44 70 per cent, depending upon which method you use. So if we  
45 are going to pair a distribution rate estimate with a  
46 different approach for utilisation equity ownership, for  
47 example, we need to take one of those estimates.

1 Traditionally, the upper bound of that possible range,  
2 70 per cent, has been used. So that's that. It builds  
3 some conservatism into the estimation of gamma.  
4

5 DR LALLY: But, if I can just chip in, those numbers - 50  
6 and 70 - are for all companies, listed and unlisted. If  
7 you think, for example, the better comparator for the  
8 distribution rate is listed companies you don't want 50 to  
9 70; you want something else.  
10

11 PROF GRAY: I will come to that in a minute when we get to  
12 estimating the distribution rate. If it turns out that,  
13 independent of the tax statistics, a good estimate of the  
14 distribution rate is in the order of 70 per cent, then that  
15 problem goes away. Perhaps we will come to that when we  
16 talk about estimates of the distribution rate going  
17 forward.  
18

19 I agree with the comments that have been made about  
20 how problematic it is to infer something about distribution  
21 rates from individual companies. Maybe if I just give two  
22 examples of why that's the case, and then we will move on  
23 to other things. One example is BHP. So BHP is actually a  
24 pair of companies: so BHP Ltd, which is listed in  
25 Australia, and BHP Plc, that's listed in the UK. BHP has  
26 what they call a dividend equalisation scheme. So most of  
27 the revenues, it turns out, are generated in BHP Ltd. In  
28 order for dividends to be equalised across the two  
29 component pieces BHP Ltd writes a giant dividend cheque to  
30 BHP Plc every year. Over the last two years I think  
31 BHP Ltd has distributed about \$1.5 billion of imputation  
32 credits to BHP Plc in the UK where they are completely  
33 wasted. So that shows up in the data as though BHP Ltd has  
34 distributed 1.5 billion of imputation credits, but it  
35 hasn't. So we have to take that into account. That's  
36 obviously one of the primary reasons behind the shareholder  
37 activism that BHP is confronted with at present.  
38

39 Another example is AGL. So AGL had a major tax case  
40 with the ATO which it was successful in and had a  
41 \$300 million company tax bill overturned. So that showed  
42 up in the franking account balance - when AGL won that  
43 case, the franking account balance declined by \$300 million  
44 because tax that had been paid and had gone into the  
45 franking account balance was then reversed. So if you  
46 start your period where the \$300 million is in that  
47 franking account balance and then all of a sudden it's gone

1 because of that tax litigation it looks as though it's a  
2 distribution to shareholders. So both of those things -  
3 they are just two examples.  
4

5 I think if we are going to use data for individual  
6 companies what we need to do first is to go through really  
7 company by company and sort out any of these sorts of  
8 issues, make adjustments for any of those sorts of issues,  
9 which is very problematic and time consuming. I think, as  
10 we will come to in a minute, there's a much easier way.  
11

12 DR MIRRLEES-BLACK: Does anyone want to add on the use of  
13 tax statistics?  
14

15 MR SADEH: I just really want to reinforce that the tax  
16 statistics should be based on the benchmark efficient  
17 entity, not on an individual. It's not an independent tax  
18 concept.  
19

20 DR LALLY: And what would you see the benchmark firm as  
21 being?  
22

23 MR SADEH: I think we defined it as a corporate entity who  
24 pays the corporate tax rate (indistinct). They have an  
25 average representation of investors which is why, say,  
26 there's listed investors, then there's unlisted investors,  
27 because that leads to an average distribution rate and  
28 average utilisation rate.  
29

30 PROF GRAY: And which operates entirely within Australia.  
31 I think that's important as well.  
32

33 MR SADEH: Yes, that's right.  
34

35 DR LALLY: Anything else? You mentioned earlier about  
36 having a capital expenditure program that was comparable  
37 with the network businesses.  
38

39 MR SADEH: Well, I think it's hard to sit and identify a  
40 whole list of entities that go through that. I'm just  
41 leaving that to be a qualitative fact to kind of make sense  
42 of the data when it comes out. But I don't think you can  
43 filter it.  
44

45 DR MIRRLEES-BLACK: That's helpful saying that the  
46 benchmark efficient (indistinct) and that's the  
47 characteristics. It's another stage to actually find it



1 (indistinct). While we are on tax, Jim, did you have  
2 anything to add?  
3

4 MR HANCOCK: It does seem a bit disappointing that the ATO  
5 hasn't been able to engage with the enquiry sort of in a  
6 bit more of an informative way than they have. In my view  
7 it's worth going back to them and asking them to take it on  
8 as an important issue and tell us if they can actually tell  
9 us what we want to know. Having done that, we may still be  
10 left with a question as to exactly how we relate that to  
11 the idea of a benchmark efficient entity, as you were just  
12 saying. So it may not answer everything, but I would have  
13 hoped the ATO could at least give us that much information.  
14

15 DR LALLY: There may be a cultural issue that's involved  
16 here. I'm a New Zealander rather than an Australian, and  
17 I understand Australians are a bit blunter than New  
18 Zealanders are. I think we are probably closer to the  
19 English, Jonathan, than to Australians. But when you read  
20 number 6, "There is a reporting issue with the FAB label.  
21 The integrity of the label can be considered low." That  
22 sounds to me like a very polite way of saying they have  
23 made a mess and they are pretty embarrassed and, "Please  
24 don't press us on this any further."  
25

26 If you go to the first page, the third paragraph,  
27 "There are certain limitations in relying on taxation data  
28 as an analytical tool in the calculation of imputation  
29 credits." In New Zealand that would be interpreted as,  
30 "Please, don't use our data for what you are doing." So  
31 I don't know how to read this in Australia, but I would  
32 know how to read it in New Zealand.  
33

34 MR SMITH: Martin, can I clarify: the material above the  
35 issues noted by the ATO is (a) our commentary. So that was  
36 our commentary saying there are certain limitations flowing  
37 from what the ATO said. So just to clarify that was AER  
38 staff who noted those limitations in light of the responses  
39 we received.  
40

41 DR MIRRLEES-BLACK: David, did you want to comment?  
42

43 PROF JOHNSTONE: No, it's all been said and it's all been  
44 useful. I have nothing more to add, except the fact that  
45 obviously there's no direct answer, like so often.  
46

47 DR MIRRLEES-BLACK: (Indistinct). So different

1 perspectives here. Martin, I might summarise what you have  
2 said and what you have written. They shouldn't be used  
3 because they are not needed and they shouldn't be used  
4 because we have got some other direct evidence, but there  
5 are ways in which they could be used as an estimate of the  
6 implications of this. Do you want to elaborate on your --

7

8 DR LALLY: Yes, please. Indisputably we are using this  
9 Officer model. Indisputably this model, or at least almost  
10 indisputably this is a model that assumes that national  
11 equity markets are segmented. So Australians can't invest  
12 overseas, and overseas people can't invest here. Of course  
13 that model isn't descriptively accurate. Australians do  
14 invest overseas and foreigners do invest here. But the  
15 model per se assumes that there's no foreign investment.

16

17 Consistent with that assumption of the model that  
18 there is no foreign investment then the utilisation rate is  
19 essentially 1, subject only to 45-day rule stuff. You have  
20 none of the problem of foreigners, who can't at least  
21 notionally use the credits. So that would be my first best  
22 solution, so to speak, that the utilisation rate is 1 and  
23 the distribution rate is at least 0.83. That's a different  
24 issue.

25

26 The view that I'm holding here is clearly a minority  
27 view and may even be a minority of one. Others seem to  
28 feel that, notwithstanding the fact that you are using a  
29 model which assumes that national equity markets are  
30 completely segregated, you should be incorporating into  
31 that model parameter estimates that reflect the empirical  
32 realities. One of those parameters is the utilisation  
33 rate. The empirical reality here is that there are  
34 foreigners who are going to push down that utilisation  
35 rate. I think there are reasonable arguments on both sides  
36 of that. I nevertheless favour the utilisation rate of 1,  
37 but I can see there are reasonable arguments in accordance  
38 with what the AER has done, which is to in its empirical  
39 estimate take account of foreign investors.

40

41 So my second best solution in this area is to say, if  
42 you are going to incorporate foreign investors, you go back  
43 to the model and you ask, "Well, how is the parameter  
44 defined in the model?" Officer is unfortunately not  
45 terribly helpful because he doesn't supply a rigorous  
46 derivation of the model. But rigorous derivations have  
47 been supplied, and those rigorous derivations make it clear

1 - in fact I do not know anyone who disputes that a rigorous  
2 derivation of the model shows that the utilisation rate is  
3 defined as a weighted average of the utilisation rates of  
4 individual investors.

5  
6 There is some debate about what the weights are, but  
7 it looks like the best you can do is market value weights.  
8 Therefore the utilisation rate in the model is defined as  
9 the value weighted average of the utilisation rates of  
10 individual investors. To a pretty reasonable approximation  
11 all Australians can utilise the credits. So far as we can  
12 see, foreigners can't. I'm sure some can. So there will  
13 be some bias in assuming they can't. But let's take that  
14 as a reasonable position. Foreigners can't use them.  
15 Locals can. So necessarily your utilisation rate is the  
16 proportion of Australian equities held by Australians.  
17 That just follows logically.

18  
19 PROF GRAY: Can I just interrupt there. I'm not sure that  
20 that's right. I think that in your model, the Lally-Van  
21 Zijl model, the weighted average is a weight of total  
22 wealth of Australian investors versus the total wealth of  
23 foreign investors, not just the wealth that foreign  
24 investors happened to have invested in Australia.

25  
26 DR LALLY: Well, in that model it just says a weighted  
27 average over investors. It doesn't make any reference to  
28 foreigners or locals. But, since the model assumes that  
29 there are no foreigners because it's a segmented markets  
30 model, then it necessarily has to be a weighted average  
31 just over Australians. That just seems logical.

32  
33 PROF GRAY: Right. So that gets you back to 1.

34  
35 DR LALLY: Yes.

36  
37 PROF GRAY: That doesn't get you to an equity ownership  
38 estimate.

39  
40 DR LALLY: Indeed. That's where the bastardisation of the  
41 model occurs. You've got a model which says there's no  
42 foreign investors, but you are confronted with the  
43 empirical reality that there are. The AER has chosen to  
44 address that by using estimates of the utilisation rate  
45 that reflect the presence of foreign investors. It's  
46 chosen to go down that route.

47

1 PROF GRAY: But just to confirm, though, I think it is  
2 worth making clear, and I think you and I will agree  
3 100 per cent on this, that the AER's approach is not  
4 consistent with any equilibrium model.

5  
6 DR LALLY: Clearly if you have a model which says there are  
7 no foreign investors and you are using an estimate for a  
8 parameter in that model that reflects the existence of  
9 foreign investors there's a mismatch, indisputably. But it  
10 is also true, Stephen, that if you use an estimate of the  
11 utilisation rate which comes from DDO studies, which will  
12 naturally reflect the existence of foreign investors, you  
13 have exactly the same problem.

14  
15 PROF GRAY: I'm not arguing for a moment. I think that  
16 ship has sailed. The Federal Court clearly did not  
17 understand the issue. So that's the end of that. The  
18 point, though, is going to be relevant when we come to how  
19 we go about estimating the two different parameters: the  
20 distribution rate and the utilisation rate. We need to  
21 have some kind of framework for thinking about how they  
22 would be best estimated within the context of what the AER  
23 is doing.

24  
25 I think it's important to recognise that that  
26 framework is not the outcome of a regular economic  
27 equilibrium. It's something that the AER has created and  
28 that's what we are going to use. But it's not an  
29 equilibrium economic outcome, and that's going to be  
30 relevant because it will guide how we go about the  
31 estimation task. So normally the estimation task flows  
32 from the outcome of an economic equilibrium. That's not  
33 the case here.

34  
35 DR LALLY: Indisputably the model says there are no foreign  
36 investors. So what you ought to be doing is estimating the  
37 parameter consistent with that which would lead you to a  
38 utilisation rate of 1. But nobody seems to agree with me  
39 in that minority position and everyone, apart from me,  
40 seems to think you should estimate the utilisation rate by  
41 using methods that reflect the existence of foreign  
42 investors, whether that be by looking at the percentage of  
43 equity that's held by Australians, whether you look at the  
44 redemption rate in the tax statistics or whether you look  
45 at DDO studies. All three of those methods are estimating  
46 a parameter by taking account of the existence of foreign  
47 investors, and then parking that parameter estimate into a

1 model which says there are no foreign investors. I can see  
2 pluses and minuses from doing that. So I'm not faulting  
3 the AER for combining a model which says there are no  
4 foreign investors with a method for estimating a parameter  
5 which is incompatible with it.

6  
7 PROF GRAY: All I'm saying - I think we are in  
8 agreement - is that, given what the AER has done, we can't  
9 appeal to a model to guide us in the estimation task.

10

11 DR LALLY: Yes, I think that's an interesting point. But,  
12 given that they are using a model which says that the  
13 utilisation rate is a weighted average over the utilisation  
14 rates of the individual investors, at that point you have  
15 said nothing about foreigners or locals. But if you then  
16 append to that the statement, "We're going to reflect the  
17 existence of foreigners," then I think that marriage leads  
18 you to a utilisation rate which is a weighted average over  
19 the utilisation rates of Australians and foreigners, and  
20 therefore leads you logically to use ABS type data for  
21 estimating the parameters.

22

23 MR WHEATLEY: Except the average is going to be a wealth  
24 weighted, and so - I mean, once you acknowledge that the  
25 Australian equity market is largely integrated with foreign  
26 markets then gamma is going to be zero, which is the  
27 presumption the Australian Treasury makes and a number of  
28 its research reports in examining the impact of changing  
29 the corporation tax.

30

31 DR LALLY: If you define the utilisation rate to the value  
32 weighted average where the value weights are the value of  
33 all equities held by Australians versus the value of all  
34 equities held everywhere by foreigners of course you will  
35 get zero. But that is a definition for you that belongs in  
36 an international CAPM. What we have got here is a halfway  
37 house. We are combining a model which by its very nature  
38 is segmented markets with --

39

40 MR WHEATLEY: Steve's point is that the halfway house isn't  
41 a model with equilibrium. You are either segmented  
42 or integrated.

43

44 DR LALLY: I agree with you. But Stephen Gray and all  
45 others have been doing this halfway house for the last  
46 50 years. They have taken the Officer model and put into  
47 it parameter estimates that reflect the existence of

1 foreign investors. Everyone has been doing a halfway  
2 house. I'm being the minority, the purest, who has said,  
3 "Look, the model implies this, therefore." But I think  
4 there is a way of dealing with that concern that we can  
5 maybe talk about later. I did mention to Jonathan it's  
6 long been my view that, given that we are in a world in  
7 which markets aren't completely segmented nor are they  
8 completely integrated, models that try to reflect the  
9 messiness that there is some local bias, some people will  
10 invest in Australia for "this is my country", patriotism,  
11 "foreigners, they are different and I don't want to get  
12 involved there", those models for trying to embody  
13 theoretically partial integration are full of messy  
14 parameters you can't estimate. So the only clean models in  
15 this world are complete integration and complete  
16 segmentation.

17  
18 My view is that you should estimate cost of capital  
19 under each of these two extremes and then you as a judgment  
20 call decide where you are going to lie between those two  
21 extremes. When you estimate the model under complete  
22 segmentation your utilisation rate will be 1. When you  
23 estimate the model under complete integration your  
24 utilisation rate will be zero. I think you should take  
25 those two extremes instead of trying to do this halfway  
26 house thing.

27  
28 PROF GRAY: We've been through this, though. This is the  
29 conceptual goalposts approach that the AER considered last  
30 time.

31  
32 DR LALLY: No.

33  
34 PROF GRAY: It's not?

35  
36 DR LALLY: No. The conceptual goalposts was not those two  
37 extremes. It was intended merely to show whether combining  
38 a utilisation rate that had been taken from market evidence  
39 with a segmented markets CAPM gave you a cost of equity  
40 capital that lay outside those two bounds. If it did lie  
41 outside those two bounds it was my proposition that that  
42 result did not make sense. So that exercise I went through  
43 was not one of, "You should calculate these two goalposts  
44 and then put your answer somewhere between them." It was  
45 merely intended to demonstrate that the existing halfway  
46 house approaches were producing results that were not  
47 sensible because they lay outside the goalposts.

1

2 PROF GRAY: To get that left-hand end of, "Here's what the  
3 cost of capital would be in a purely segmented market," so  
4 there gamma is easy, you use a gamma of 1. But then you  
5 would have to re-estimate what would the risk free rate be  
6 if there was no foreign investment.

7

8 DR LALLY: Not necessarily. It depends on your  
9 international CAPM. If your international CAPM is the  
10 Solnik model, the Solnik model says that the cost of  
11 capital for an Australian stock is the Australian risk free  
12 rate plus a world MRP multiplied by a world beta. So in  
13 the Solnik model you are still using the observed risk free  
14 rate for Australia. As in the Sharpe-Lintner, it is an  
15 exogenous parameter. You don't care how it's determined.  
16 It's just an observation. So you don't have to take the  
17 observation and try to adjust it for what the risk free  
18 rate would be like if there were no market integration.

19

20 PROF GRAY: It sounds to me that this is getting steps way  
21 beyond what's going to be --

22

23 DR MIRRLEES-BLACK: I think this proposition we discussed  
24 it briefly in the break, something which maybe we pick up  
25 at the end as to how we deal with that. The question we  
26 are addressing to ourselves now is in particular the equity  
27 ownership statistics and your view about they are not  
28 useful precisely because they (inaudible) model approach  
29 that you have Australian investors, it makes no sense, and  
30 the other --

31

32 DR LALLY: But, just to clarify that, once you do decide to  
33 use local information, the ABS data are the natural way of  
34 estimating the utilisation rate.

35

36 DR MIRRLEES-BLACK: Stephen, your views on equity ownership  
37 data?

38

39 PROF GRAY: I think where we have got to from this  
40 discussion about the models and what comes out of that is  
41 that the equity ownership data is relevant because the AER  
42 has defined it to be relevant. If that's acceptable, then  
43 it is relevant per se because it's been defined to be so.

44

45 DR MIRRLEES-BLACK: Rather than it fits in with the model.

46

47 PROF GRAY: It doesn't fit with any model. But there's no

1 justification for that simple average that comes out of any  
2 model. I think we agree on that.

3  
4 DR LALLY: But the same problem would afflict your  
5 recommendation that we use the redemption rate from the ATO  
6 data.

7  
8 PROF GRAY: Yes.

9  
10 DR LALLY: You agree?

11  
12 PROF GRAY: Yes. It's all silly, isn't it?

13  
14 DR LALLY: Good.

15  
16 PROF GRAY: It's all silly. But it's been proved by the  
17 Federal Court and I think that's the point. So we've got  
18 to estimate something that no-one agrees is the correct  
19 thing using bad data. That is the task before us.

20  
21 DR LALLY: But at least I'm offering an alternative to what  
22 you describe as silliness. I'm saying take the two pure  
23 extremes rather than engage in this mismatching --

24  
25 PROF GRAY: Let me give you my approach. So constrained to  
26 be within this utilisation interpretation of gamma, which  
27 is where we find ourselves, how do we go about estimating  
28 the distribution rate? So we have seen that there are  
29 issues with trying to estimate that with the Tax Office  
30 data, and there are issues trying to estimate that from  
31 individual firms and looking at their franking account  
32 balances and so on. It's very hard to do.

33  
34 I think we are in 100 per cent agreement that the task  
35 is what would be the distribution rate for the benchmark  
36 efficient entity. So what does the benchmark efficient  
37 entity look like? What are the sort of relevant  
38 characteristics so far as the distribution rate is  
39 concerned? One point is that the benchmark efficient  
40 entity operates solely within Australia. So if you have a  
41 company that operates solely within Australia, as paying  
42 corporate tax only within Australia, then I think we agree  
43 that the dividend distribution rate and the credits  
44 distribution rate would be the same thing.

45  
46 DR LALLY: Not necessarily.

47



1 PROF GRAY: So why not?

2

3 DR LALLY: The dividend distribution rate may or may not be  
4 equal to the credit distribution rate. It just depends on  
5 whether the company is paying large dividends or small  
6 dividends. If it pays practically no dividends, its credit  
7 distribution rate is going to be tiny, but not necessarily  
8 the same as its dividend pay-out rate. To get those two  
9 parameters to be the same, Stephen, you also need that  
10 taxable income is the same as profit. The pay-out rate is  
11 defined as dividends over profits; okay? So the profits,  
12 however they are defined in that ratio, have to be the same  
13 as the taxable income. If they are, then those two  
14 parameters, the dividend pay-out rate and the credit  
15 distribution rate, will be the same; but only if taxable  
16 income is the same as whatever that number is you used to  
17 measure the pay-out rate.

18

19 PROF GRAY: Right. Okay. Call it a taxable income pay-out  
20 rate. So if you have a company that earns \$100 pre-tax  
21 profit, pays \$30 of corporate tax, that leaves \$70  
22 available for distribution. If that company then  
23 distributes 70 per cent of that profit, post tax profit, as  
24 a dividend then its credit distribution rate will also be  
25 70 per cent. That's all I'm saying.

26

27 DR LALLY: That's fine.

28

29 PROF GRAY: So that's one characteristic of the benchmark  
30 firm. It comes from operating within Australia. If you  
31 also then tell me what the dividend policy or an  
32 appropriate dividend policy would be for that firm, given  
33 the correspondence between the credit distribution rate, a  
34 dividend distribution rate, if I tell you the dividend  
35 distribution rate then that implies a credit distribution  
36 rate.

37

38 DR LALLY: But where do you get this dividend --

39

40 PROF GRAY: Which I think is an easier task than estimating  
41 the credit distribution rate because we are trying to infer  
42 that from franking account balances or the noisy Tax Office  
43 data. So where could you go to get information about a  
44 dividend distribution rate? So APA has on its shareholder  
45 web site a stated policy to the market that its approach  
46 will be to pay out 60 to 70 per cent of its profits, of its  
47 operating cash flow.

1  
2 DR LALLY: But, Stephen, the 60 to 70 per cent it's  
3 referring to is not dividends relative to taxable income;  
4 it's dividends relative to accounting profits. The  
5 denominator is different.

6  
7 PROF GRAY: You can look at that dividend distribution over  
8 some period and there's quite a deal of stability in that,  
9 over some period. So from year to year there are tiny  
10 adjustments which might mean that it's higher or lower.  
11 But over a period it's quite stable for all of the  
12 benchmark firms. So I'm thinking that a way of more  
13 sensibly estimating the distribution rate is to look at or  
14 to make an assumption, as the case may be, about what would  
15 be a sensible dividend and therefore credit distribution  
16 policy for the benchmark efficient entity.

17  
18 DR LALLY: But you cannot get that policy by looking at the  
19 announcements of a firm when the firm is thinking about  
20 pay-out rate being defined as dividends over accounting  
21 profits. Accounting profits are not taxable income. One  
22 is not even on average the same as the other. They are two  
23 fundamentally different concepts.

24  
25 PROF GRAY: So APA reports that 60 to 70 per cent figure  
26 relative to operating cash flow.

27  
28 DR LALLY: Again, that's not taxable income. It's two  
29 different concepts, Stephen.

30  
31 PROF GRAY: It's not going to be the case that any of these  
32 methods are going to give you a perfect answer. I think  
33 it's a much easier task for the AER to estimate and then to  
34 settle on a number for what do we think would be an  
35 appropriate pay-out rate for the benchmark efficient entity  
36 than to try to infer that from franking account balances  
37 that companies like BHP and AGL or to pick one of the  
38 either 50 or 70 per cent numbers from the Tax Office data.

39  
40 DR MIRRLEES-BLACK: Are you saying that there would be a -  
41 it almost sounds like a matter of judgment.

42  
43 PROF GRAY: Yes, and I think the evidence that can bound  
44 that are information from the firms themselves and what  
45 their approach is. I was just going to address Martin's  
46 point about whether that could lead - if you are getting  
47 that sort of information from the firms themselves,

1 Martin's point is that that could lead to gaming among the  
2 firms to lower their pay-out rates to try to scam the  
3 regulator in relation to gamma. I think that's an  
4 extremely low risk. Maybe we could hear an industry  
5 perspective on how likely it is that a firm would slash its  
6 dividend policy to try to scam a few basis points out of  
7 the regulator on gamma.  
8

9 DR LALLY: My point is that if you got the parameter  
10 estimates solely from that one firm there would be a risk  
11 of them gaming you. But if you are averaging over several  
12 firms it's not a problem. But can I check something here  
13 with you. Given your new proposal for estimating the  
14 distribution rate, it appears you are no longer  
15 recommending use of the ATO data to get the distribution  
16 rate.  
17

18 PROF GRAY: So my approach is the same as with all of the  
19 other parameters. I think we need to set out all of the  
20 relevant evidence. So I think the ATO data is relevant  
21 evidence. I accept your point that if we are going to  
22 marry something with the equity ownership statistics we  
23 need to derive a distribution rate out of that, and the  
24 issues with that would have to be taken into account. But  
25 the great benefit of the ATO data, which I would give  
26 material weight to, is the fact that that provides an  
27 estimate that does not require the separate estimation of a  
28 distribution rate. So that's a big tick in its --  
29

30 DR LALLY: That's fine. But if you choose to estimate the  
31 distribution rate in the way you have just described from a  
32 dividend pay-out rate how then do you get the utilisation  
33 rate? You can't use ATO data.  
34

35 PROF GRAY: No, that will only inform the distribution  
36 rate.  
37

38 DR LALLY: I understand. But how then will you --  
39

40 PROF GRAY: Two methods. One is we can have some reliance  
41 on the equity ownership data. Recognising the sort of  
42 statistical issues and problems with that data and  
43 recognising that it's an upper bounds, at least to the  
44 extent that it doesn't factor in the 45-day rule, we have  
45 to take those into account, but that's relevant evidence  
46 that goes into the pot. Also if that number, that exercise  
47 that I described, comes up with a distribution rate that's

1 close to 70 per cent, then the ATO data will then imply -  
2 given that we have a distribution rate of 70 per cent, that  
3 implies a unique estimate for the utilisation rate, because  
4 we have got gamma and we have got a distribution rate. So  
5 we can reverse engineer.  
6

7 DR LALLY: You have gamma for all companies. But if you  
8 get the distribution rate from just a subset of companies  
9 you can't marry it with the ATO data on all companies.  
10

11 PROF GRAY: You can if it turns out that they are the same.  
12 So if it is 70 per cent from your sample of companies and  
13 the 70 per cent number that Hathaway derives, then if it  
14 turns out that they are both the same then --  
15

16 DR LALLY: That would just be a coincidence then, wouldn't  
17 it? What significance would there be in a coincidence?  
18

19 PROF GRAY: If that's how it turns out, which is I think  
20 how it does.  
21

22 DR LALLY: It would just be a coincidence, because the ATO  
23 data in aggregate is for all companies. You are proposing  
24 getting a distribution rate from just some companies.  
25 Those two don't match. If they did, empirically it would  
26 just be a coincidence.  
27

28 MR WHEATLEY: But you could say, you know, if you've got  
29 two estimates from the ATO data, 50 and 70 per cent, if the  
30 estimate from these firms are 70 per cent, then the  
31 mid-point of 50 and 70 is 60; it's going to be a fairly  
32 small --  
33

34 DR LALLY: Yes, but those two numbers, 50 and 70, are for  
35 all companies.  
36

37 MR WHEATLEY: I understand that.  
38

39 DR LALLY: You can't marry it.  
40

41 MR WHEATLEY: You could take the gamma figure and adjust it  
42 for the difference between the distribution rate for a  
43 benchmark and the two estimates of the average for the  
44 economy as a whole.  
45

46 DR LALLY: That's okay.  
47

1 PROF GRAY: Well said. That's what I was trying to --  
2  
3 DR LALLY: That's okay.  
4  
5 DR MIRRLEES-BLACK: All three concur. Quick, write it  
6 down. Do you want to translate it, Simon?  
7  
8 MS CIFUENTES: That would be useful.  
9  
10 MR WHEATLEY: So the idea is you take the properly adjusted  
11 ATO credits redeemed to credits created estimate, that is  
12 the overall estimate for gamma for the economy as a whole;  
13 you take Steve's estimate of the distribution rate for a  
14 benchmark efficient entity; and then you compare that with  
15 the average of Hathaway's two estimates, which are around  
16 50 per cent and 70 per cent; and then you use any  
17 difference to adjust upwards or downwards the gamma for the  
18 economy as a whole.  
19  
20 DR LALLY: But the result will be two distinct estimates  
21 for gamma, one arising from the 50 per cent figure and one  
22 from the 70 and --  
23  
24 MR WHEATLEY: I'm suggesting just take an average, barring  
25 any other information. My understanding of the AER - first  
26 of all, we are trying to find the right wrong number.  
27  
28 MS CIFUENTES: I think that was well stated.  
29  
30 DR LALLY: Let's just take that suggestion that we take the  
31 50 or 70 from the ATO data on the grounds that one of these  
32 must be right so we will just split the difference. Is it  
33 possible that the truth actually lies outside the bounds  
34 given by the ATO? Remember the last sentence in their note  
35 is, "The integrity of the FAB label can be considered low,"  
36 which seems like a polite way of saying, "This is rubbish."  
37 If the FAB stuff on credits distributed from the ATO was  
38 rubbish, then the 50 and 70 per cent numbers are both  
39 rubbish.  
40  
41 MR SADEH: (Indistinct). Again I think it is a very harsh  
42 way to judge that that data can be totally useless because  
43 of someone's comment like that. To me it's also  
44 (indistinct) that it can't be 100 per cent. It can't  
45 humanly be 1 because if that were the case I would go up to  
46 everyone here and say, "Who wants \$100 bill or a note for  
47 \$100 of franking credits," and no-one would take the

1 franking credits for a number of reasons. We talked about  
2 the 45-day rule. What about things like there is risk in  
3 the tax system, change in the future. You only need to  
4 look in the papers to see what happens --  
5

6 DR LALLY: You are saying for some reason a distribution  
7 rate can't be 1. Why not?  
8

9 MR SADEH: Because people won't value it.  
10

11 DR LALLY: No, we are not talking about values. This is  
12 just a mechanical thing. A company pays a million dollars  
13 in company tax. If it distributes it all by attaching that  
14 to the dividends, why can't it do that? Some companies do  
15 do that. They are attaching all of them. What's stopping  
16 a company from distributing all its imputation credits?  
17 This is just distribution, Ilan, not valuation.  
18

19 MR SADEH: I'm just trying to think of it because I know  
20 there's an accounting (indistinct) that comes up all the  
21 times as companies like this end up having issues with  
22 their retained profit accounting. It becomes higher and  
23 higher over time, distributing franking credits out from  
24 the underlying assets.  
25

26 DR LALLY: Okay. Maybe we can sort that one out later on.  
27

28 MR HANCOCK: Martin, just on that utilisation rate of 1, if  
29 I think about it you have an Australian resident entity and  
30 it's raising money in the capital markets. So for a  
31 domestic investor, if I accept the proposition that  
32 basically every domestic investor can use the franking  
33 credits that are distributed to them so that those  
34 investors value it at 1 or near enough to 1, then the  
35 presence of a foreign investor perhaps doesn't really  
36 matter because the entity is not going to have a different  
37 price for the foreign investor than it has for the domestic  
38 resident investor. So the foreign investor has to accept  
39 the rate of return that is accepted by the domestic  
40 investor.  
41

42 PROF GRAY: You're falling into the trap of thinking in  
43 terms of economic equilibrium models.  
44

45 MR HANCOCK: Can you explain?  
46

47 PROF GRAY: Where there is one price, where this is just a

1 market clearing condition, the market clears and there's a  
2 single price that's market wide. That's not the world that  
3 we are in here. We are in a non-model world where gamma  
4 has been defined to be the (indistinct) not an equilibrium  
5 value.  
6

7 DR LALLY: I think you may have misunderstood. Jim, the  
8 way I interpreted in terms of saying that necessarily the  
9 market value of imputation credits is a utilisation rate of  
10 1 because Australian investors can utilise them and it  
11 doesn't matter that foreign investors can't. Well, if you  
12 take an international CAPM which recognises the existence  
13 of both foreigners and locals and you run through the  
14 mathematics of that it will give you a utilisation rate of  
15 pretty close to zero. That's the mathematics of these  
16 models.  
17

18 So your intuition is telling you something different,  
19 but you give us a model - in the presence of foreign  
20 investors you give me an equilibrium model in which U  
21 equals 1. I'm sure there would be a mistake. It just  
22 doesn't seem feasible. Foreigners, like locals, will  
23 influence the result largely in proportion to their market  
24 value weight. So when an international CAPM with no  
25 restrictions and everyone just chooses an optimal portfolio  
26 without local bias, the market weight of the foreigners  
27 will drown out the Australians and the utilisation rate in  
28 the model will be zero.  
29

30 MR WHEATLEY: Except with imputation credits there will be  
31 a bias. So you're making it sound as though it's  
32 counterfactual. With imputation credits, domestic  
33 investors will hold more domestic assets than they would  
34 otherwise hold.  
35

36 DR LALLY: Yes.  
37

38 MR WHEATLEY: But still gamma would be zero.  
39

40 DR LALLY: Yes, that's a clientele effect. Because the  
41 market pricing doesn't take account of the imputation  
42 credits, they will be driven even more strongly to focus on  
43 Australian --  
44

45 MR WHEATLEY: That's right.  
46

47 DR LALLY: But that's just the dividend clientele effect.

1 That's not a valuation issue. The dividend clientele  
2 effect is magnified by the valuation issue precisely  
3 because they are valued at zero in this international CAPM  
4 that magnifies the dividend clientele effect.  
5

6 PROF JOHNSTONE: It wouldn't be big enough either, would  
7 it, to swamp the wealth weight of the international  
8 investors? I think your point was the utilisation rate  
9 would go to zero if you thought of the world as 1.  
10

11 DR LALLY: Yes. That's what is an international CAPM. The  
12 world is 1.  
13

14 PROF JOHNSTONE: Yes.  
15

16 PROF GRAY: I think we are getting off the track and beside  
17 the point because we are talking about equilibrium asset  
18 priced models --  
19

20 DR MIRRLEES-BLACK: I think you agreed that this is not an  
21 equilibrium concept model and that we are using a different  
22 process to come up with these estimates. Coming up with  
23 these estimates, one approach which we haven't talked about  
24 specifically there is Martin's approach of using the top  
25 20 - a large number of firms and acceptance that -  
26 disagreement that that's appropriate as representing the  
27 benchmark efficient entity. Views on that? Martin, do you  
28 still think that's relevant?  
29

30 DR LALLY: I think your benchmark efficient entity is  
31 something other than listed equity. I think it's a group  
32 of comparator firms. But I'm not sure how far to push  
33 that. The five that we have got or we had up until two  
34 years ago, three of them I can't get data on; the remaining  
35 two, they tell me the distribution rate is 1. Ilan is  
36 suggesting the definition of a benchmark efficient entity  
37 needs to be expanded and you need to take more historical  
38 data. Doing both of those things might give us a different  
39 result. In principle, that is a better approach than  
40 taking all listed equity. But the problem is all listed  
41 equity is definitionally clear enough. The definition of a  
42 benchmark efficient entity that Ilan is suggesting and  
43 others are suggesting, it's pretty woolly at this stage and  
44 it will be subjective. Different people will have  
45 different views. So that's a pragmatic problem. In  
46 principle you do want to choose similar companies, but  
47 pragmatically that's the problem. Which ones are you going



1 to pick?  
2  
3 MR SADEH: That's why I revert to the tax system as a  
4 whole. Do I agree with the concept I thought was being  
5 fleshed out about using the ATO data for the whole of the  
6 (indistinct).  
7  
8 DR MIRRLEES-BLACK: Okay.  
9  
10 DR LALLY: If we can come up with a definition of a  
11 benchmark efficient entity that we all agree on and we run  
12 the numbers and the distribution rate turns out to be 0.7,  
13 so be it. I have only ever promoted using all listed  
14 equity because I thought that was the second best. There  
15 were just problems with trying to define and deal with the  
16 benchmark efficient entity.  
17  
18 DR MIRRLEES-BLACK: So the proposal here is to define a  
19 benchmark efficient entity and probably use some judgment  
20 informed by the evidence from the other sources, and it may  
21 not be an average or be informed by the evidence that you  
22 get from this range of sources. Is there concurrence  
23 around that?  
24  
25 PROF GRAY: Yes, a key component of that definition would  
26 be operating in Australia.  
27  
28 DR MIRRLEES-BLACK: It sounds like we shouldn't come up  
29 with an estimate of what that number is now.  
30  
31 DR LALLY: And it may be that once you impose the  
32 restriction of no foreign operations even one per cent of  
33 your operations being foreign knocks you out. The set of  
34 comparators falls to zero along with all the other criteria  
35 that have to be invoked as well.  
36  
37 PROF GRAY: No, that's too strong. So that would be the  
38 same when we are estimating beta. We say APA is out  
39 because they own some unregulated pipelines.  
40  
41 DR LALLY: Okay. But then you get the subjective problem,  
42 if we won't knock someone out for having 1 per cent foreign  
43 income, at what percentage do we knock them out?  
44  
45 DR MIRRLEES-BLACK: It is a matter of judgment.  
46  
47 DR LALLY: Yes.

1  
2 PROF JOHNSTONE: I think that has been a terrific  
3 discussion and it's really revealed different angles and  
4 the difficulty with all of them and the difficulty of  
5 actually choosing between them. If it was me I would be  
6 plugging in some numbers and looking for a ballpark and  
7 hopefully looking for some agreement and then in the end  
8 working out as a matter of judgment where to call it.  
9 That's all you can do in that situation. One of the  
10 approaches would obviously be the benchmark efficient  
11 entity, as hypothetically defined. But then there's others  
12 as well. Ideally we are talking in a vacuum here because  
13 we don't actually look at the numbers that come from the  
14 different points of view. I think that's going to make a  
15 huge difference.

16  
17 DR LALLY: That's actually good because if people commit  
18 themselves to something in principle and then the numbers  
19 don't favour their client they can't back out then.

20  
21 PROF JOHNSTONE: Yes, sure. Sometimes it's been worked out  
22 in advance, though.

23  
24 MS CIFUENTES: Just a quick question. When we are talking  
25 about looking at the definition of the BEE, the benchmark  
26 efficient entity, and I'm mindful of the fact that a lot of  
27 this discussion has been driven by trying to solve the  
28 gamma and distribution, I'm assuming that if there was a  
29 collective view about a new BEE that it is a benchmark  
30 efficient entity that applies across the whole of the WACC  
31 considerations, across whole of cost of capital; we  
32 wouldn't have different BEEs for different bits of the  
33 formulas.

34  
35 DR LALLY: So long as the exercises are all concerned with  
36 regulated energy network businesses you would be using the  
37 same benchmark efficient entity for all of them. But if  
38 tomorrow you start regulating airports then the benchmark  
39 efficient entities --

40  
41 MS CIFUENTES: No, the question is about internal  
42 consistency of having just one concept of a BEE within this  
43 regulatory framework.

44  
45 DR MIRRLEES-BLACK: I suppose that's to say when you are  
46 looking at beta the question is there are systemic risks,  
47 but are relevant issues for estimating gamma when you have

1 the tax considerations does it matter if they have  
2 different systematic risk or is it the nature of the  
3 investment program, the nature of the Australian - so  
4 potentially you could have different benchmarks.  
5

6 MS CIFUENTES: That's the question I'm asking. Are you  
7 contemplating that there might be different BEEs for  
8 different elements of it?  
9

10 MR SADEH: I wouldn't be. I think it should be the same  
11 benchmark efficient entity struck in a concept applied to  
12 each of the parameters. I think the data that you then use  
13 for assessing those parameters will be different, simply a  
14 case of gearing. For example, gearing is something that  
15 you can use for listed companies because they are not  
16 distorted relative to unlisted companies because they are  
17 generally all bound by the same issue, being credit rating;  
18 whereas tax is something that is distorted by a pay-out  
19 ratio which is different between listed and unlisted. If  
20 the concept is the same, we would apply the data. It would  
21 be different just for gamma.  
22

23 DR LALLY: It's important to emphasise that in the Officer  
24 model the distribution rate is a firm specific parameter.  
25 But for reasons of risk of manipulation you wouldn't want  
26 to take it from that particular firm. You've got to do  
27 some sort of averaging over a set of like firms. It  
28 follows from that that so long as the firms you are looking  
29 at are all regulated energy network businesses, the  
30 benchmark efficient entity would be the same for all.  
31

32 MS CIFUENTES: That they are regulated? Do they need to be  
33 regulated?  
34

35 DR LALLY: That's a good question and it strikes to the  
36 heart of what's the definition of a benchmark efficient  
37 entity. That's a good question. Do they have to be  
38 regulated?  
39

40 MR HANCOCK: In thinking about that BEE we do know we have  
41 got this shift from listed to non-listed, and potentially  
42 that's motivated by the fact that there are cost of capital  
43 advantages through the non-listed path. So we need to try  
44 and pick those up and throw them into the regulatory rate  
45 of return if we are able to do so.  
46

47 DR LALLY: There is certainly nothing in the model which

1 demands that the firms you use as comparators have to be  
2 regulated.

3  
4 PROF GRAY: I think there's a difference. I think that's  
5 the last point as well. I would think that the AER would  
6 write down a single definition for what the BEE is and then  
7 as you go through parameter by parameter there might be a  
8 range of different evidence that's used to inform your  
9 estimation of each parameter.

10  
11 DR LALLY: So certainly for purposes of estimating beta,  
12 because regulation presumably influences beta, the  
13 comparators you use for estimating beta have got to be  
14 regulated. But there's no necessity for it when it comes  
15 to the distribution rate.

16  
17 MR SADEH: Just because that's the best alternative,  
18 I think. Conceptually the BEE is a regulated network. But  
19 as you say then when you go, "Well, in theory I would like  
20 to find the data that best informs gamma representative of  
21 a regulated network, however I can't because it's distorted  
22 for this reason." But the BEE is always a regulated  
23 network because otherwise, as you say, beta and  
24 (indistinct) don't line up to anything.

25  
26 PROF GRAY: That's right. Different elements of the BEE  
27 definition have different implications for each parameter.  
28 So, the distribution rate, it is important that the  
29 comparator firm complies with the BEE definition of  
30 operating within Australia. But that doesn't constrain  
31 your estimation of beta, for example.

32  
33 DR MIRRLEES-BLACK: Do you have any other questions? Any  
34 other points you would like to make?

35  
36 PROF GRAY: Just one very briefly, which is my view is that  
37 the same approach would be applied to all three parameters  
38 that we have discussed today. So gamma would be the same.  
39 Start with the peg in the sand that's at 0.4. What's  
40 changed? What new evidence have we got since the last  
41 time? Is that new evidence all in one direction? Is it  
42 above or below? Is it material enough to move us from  
43 that? That threshold of materiality has to be applied  
44 consistently between the three parameters.

45  
46 DR MIRRLEES-BLACK: Thank you very much. We will break  
47 there. We will reconvene at quarter to 4 for the final

1 session. Thank you.

2

3 SHORT ADJOURNMENT

4

5 DR MIRRLEES-BLACK: Okay. 45 minutes to discuss every  
6 other single issue there is within the rate of return  
7 objective. I think the purpose of this last session is  
8 to - I don't think we should summaries and set out  
9 agreement here. I think it's more useful for everyone to  
10 have the opportunity to raise issues that haven't been  
11 raised so far and which, on reflection, they think should  
12 be raised as issues that should be there for the AER's  
13 consideration. I have got some ideas. But perhaps before  
14 I start I will open the floor up for others to propose  
15 things.

16

17 DR LALLY: Let me be bold enough to take you up on the  
18 offer. I have already raised an issue in our gearing  
19 session that wasn't anything to do with gearing, but it  
20 arose by accident and I think it's an issue worth  
21 considering, that one should seek one's best guess about  
22 individual parameter estimates and then, having put them  
23 into the WACC formula, you come up with a number, then go  
24 through a transparent process for raising that number if  
25 one feels some protection is needed against the problems  
26 arising from estimation errors. So transparency rather  
27 than kind of surreptitiously cranking up the estimates for  
28 individual parameters. So no need to say any more on that.

29

30 The second issue which I think is worth commenting on  
31 is that Australia uses the Officer model rather than the  
32 standard version of the CAPM for the very obvious reason  
33 that Australia has an imputation system and the standard  
34 version of the model was developed in a market, the US,  
35 which didn't have imputation nor has it ever had  
36 imputation. But the standard version of the model assumes  
37 that all sources of personal investment income, which is  
38 interest, dividends, capital gains, they are all taxed at  
39 the same rate, whatever that rate is, for each dividend  
40 investor. That's clearly not the case in Australia because  
41 capital gains are taxed less onerously than ordinary  
42 income.

43

44 One of the reasons why it's taxed less onerously than  
45 ordinary income is that you don't pay capital gains tax  
46 until you sell it. At least that's usually the case in  
47 most regimes. There was an exception to that I know in New

1 Zealand, but in most tax regimes where capital gains are  
2 taxed you pay on realisation. Realisation could be decades  
3 into the future. Every year that you defer realising the  
4 asset and therefore defer paying the tax you are  
5 effectively grinding down the rate.

6  
7 The Officer model doesn't make any allowance for that.  
8 By contrast, the New Zealand regulator, the Commerce  
9 Commission, uses a model that does recognise that capital  
10 gains are taxed differently to ordinary income and, on the  
11 basis that average tax rate on capital gains is much closer  
12 to zero than it is to the ordinary tax rate, assumes that  
13 capital gains are tax free. Whilst I'm not suggesting that  
14 one go that far in Australia, it is possible to modify the  
15 Officer model to incorporate differential taxation on  
16 capital gains and ordinary income, and that has been done.  
17 So the theory is there and also some empirical estimates on  
18 what that tax parameter would be, and it can be material.  
19 If a beta is sufficiently below or above 1 and under other  
20 conditions it could make a material difference. I would  
21 like to chip in with that suggestion as well. That's  
22 probably enough from me.

23  
24 DR MIRRLEES-BLACK: Does anyone have any comments on that?  
25 Just a response on the capital gain, do you have a view  
26 even in a ballpark how material it might be or would you  
27 need to reflect further as to --

28  
29 DR LALLY: If one is not sure it is better to say nothing.  
30 It can be supplied. So it would be better if I supplied it  
31 after this meeting than to conjecture a number and then  
32 suffer the humiliation of having to report how wrong it  
33 was.

34  
35 DR MIRRLEES-BLACK: And a clarification on your suggestion  
36 of making a best estimate of each parameter and at the end  
37 going through a process, are you envisaging something like  
38 what is done in New Zealand?

39  
40 DR LALLY: Exactly.

41  
42 DR MIRRLEES-BLACK: Where there is a process of building up  
43 and then there's a construction of a range and then a  
44 picking of a point in a range; is that your suggestion?

45  
46 DR LALLY: No, you generate a point estimate for WACC using  
47 your best estimates for the individual parameters. You

1 then estimate the standard deviation of the distribution  
2 from which that point estimate has come. You then come to  
3 a view about how far you want to go into the right-hand  
4 tail of that distribution. So if you want to go to the  
5 80th percentile then you are adding something like one  
6 standard deviation to your point estimate of WACC. So if  
7 your point estimate of WACC is 8 per cent and your standard  
8 deviation is 2 per cent then you would be adding something  
9 like one percentage point to your WACC point estimate to  
10 build it up from 8 to 9.

11  
12 MS CONBOY: And those are easily enough found in terms of  
13 the decisions of the New Zealand Commerce Commission in  
14 terms of how they have moved away from that and the  
15 rationale that they have put in.

16  
17 DR LALLY: Yes. There's a lot of material on that issue  
18 available.

19  
20 MS CONBOY: Thank you.

21  
22 DR MIRRLEES-BLACK: Does anybody want to comment on those  
23 proposals?

24  
25 MR WHEATLEY: The pricing model should be tested in front  
26 of the data to find out does it perform better than the  
27 (indistinct).

28  
29 MS CONBOY: The which, sorry?

30  
31 MR WHEATLEY: Any pricing model should be tested.

32  
33 PROF JOHNSTONE: But there hasn't been a lot of success  
34 testing pricing models academically or anyone where else.  
35 Unstable mixed results, different results in different  
36 situations. It's not like we are going to get any truths  
37 emerging.

38  
39 MR WHEATLEY: I think Steve and I referred to a mountain of  
40 evidence that the slope of the empirical security market  
41 line is better than the Sharpe-Lintner CAPM would have  
42 predicted.

43  
44 PROF JOHNSTONE: That sounds like a rejection of one model  
45 in one --

46  
47 MR WHEATLEY: No, but you just said the test of asset

1 pricing models typically produce different results.

2

3 PROF JOHNSTONE: They do, I think.

4

5 MR WHEATLEY: I just provided an example where that is not  
6 the case.

7

8 DR MIRRLEES-BLACK: Can we take a step back. I think the  
9 first factor is I was wondering were there comments  
10 specifically on Martin's proposal. The first one was to go  
11 through an estimation process and then construct ranges  
12 based on estimates of the parameters so that you don't -  
13 you make each estimate conservative, but you are making a  
14 best estimate of each one. Does anybody have any comments  
15 to make on that, particularly if you are familiar with  
16 the New Zealand approach?

17

18 PROF JOHNSTONE: That fits very much with the pragmatic  
19 approach that I think is inevitable, and that is basically  
20 plugging in numbers, trying to do it - aiming for  
21 perfection or hoping it comes up pretty good, basically.  
22 The only way to actually get to the bottom of a lot of  
23 these arguments that we have left this time and time again  
24 today and the other time where we have left the job to be  
25 done and that is let's try it and see. So there's been  
26 different positions put but no outcome numbers attached to  
27 them.

28

29 To me the debate would be a lot more revealing and get  
30 us more quickly to an answer if - and I know experts are  
31 funded by somebody and there's not an infinite budget for  
32 the work, but when a position is put there really should be  
33 some outcome attached to that so that people could see what  
34 the consequence would be rather than just thinking about it  
35 in the abstract. As much as possible that would make the  
36 debate much more revealing and interesting.

37

38 MR SATCHELL: Just in terms of where we are already, the  
39 AER approach of having the 95 per cent confidence interval  
40 on beta over a sort of relatively small range of values on  
41 the equity risk premium and so forth put all together might  
42 well give you a result that's not that much different from  
43 the WACC result. This is a conjecture. It might be  
44 interesting to see whether the existing approach and the  
45 proposed approach by Martin are in fact pretty compatible.  
46 I'm suspecting they are.

47



1 DR MIRRLEES-BLACK: Okay.

2

3 MR HANCOCK: I certainly support the idea of coming up with  
4 best estimates of parameters and calculating and then  
5 thinking about a margin for conservatism, if appropriate.  
6 I suppose the other side of that is if we are thinking  
7 about conservatism at the parameter level then we can also  
8 calculate in that way and actually see what conservatism  
9 margin is being built in from that sort of coming up from  
10 the individual parameters.

11

12 DR MIRRLEES-BLACK: So a measure of agreement. Stephen, do  
13 you have a view on that?

14

15 PROF GRAY: Just a word of caution. You would have to be  
16 careful about what range you put around that. I think what  
17 Martin is suggesting and the New Zealand experience has  
18 been to come up with an estimate of a parameter that you  
19 think is the best estimate and then there would be some  
20 range for estimation error around that. So that first  
21 point of getting the best estimate, that becomes the centre  
22 point for your distribution. Then there's probably a  
23 symmetric distribution around that. That first point  
24 estimate reflects all of the evidence that you think is  
25 relevant to that parameter, and then you pop a range around  
26 that.

27

28 So in relation to beta, for example, you certainly  
29 wouldn't say that the range for beta that I'm going to use  
30 in this analysis is 0.4 to 0.7 for two reasons. Number one  
31 is that's not a statistical confidence interval, a  
32 95 per cent confidence interval. The AER has said that's  
33 their judgment about what the subset of the domestic  
34 comparators tell you.

35

36 Secondly, it doesn't reflect all of the relevant  
37 evidence that will be used to inform the debate. So in  
38 that case it would be 0.7 is - if you are applying this  
39 with the current estimate, 0.7 becomes our centre point for  
40 beta and then there would be some range around that that  
41 would feed into the process that Martin is talking about,  
42 I think.

43

44 DR LALLY: The process, though, that I'm describing is not  
45 a range. It is a standard deviation point; not a range.

46

47 PROF GRAY: My point is only centred around the best point

1 estimate.  
2  
3 MR SATCHELL: But it is not clear 0.7 is the best point  
4 estimate, is it?  
5  
6 PROF GRAY: No, no, no. But whatever you come up with.  
7 Whatever you come up with.  
8  
9 MR SATCHELL: Whatever it is, yes, 0.58.  
10  
11 PROF GRAY: Or 1.3, that becomes the centre point.  
12  
13 MR SATCHELL: Yes, absolutely.  
14  
15 PROF GRAY: For the purposes of this analysis.  
16  
17 PROF JOHNSTONE: The end result is going to be quite wide  
18 because of the multiplicity of elements in the model. You  
19 have a wide range for each parameter and the upper and  
20 lower end result for the deemed rate of return could be  
21 very wide.  
22  
23 DR LALLY: No, it's not a range. It's a standard  
24 deviation. The fact that these things are multiplied  
25 together, so long as the beta and the market risk premium,  
26 that estimation errors are uncorrelated, the effect of that  
27 will be instead of blowing out the standard deviation of  
28 WACC it will be to compress it.  
29  
30 PROF JOHNSTONE: So you take the middle points, you mean?  
31  
32 MR SATCHELL: No, it's just a statistical consequence that  
33 these two under normality are uncorrelated with each other.  
34 So the standard devs aren't additive. They are much less  
35 than additive.  
36  
37 PROF JOHNSTONE: So in the model where you are multiplying  
38 two things by each other or whatever, if you have a  
39 standard deviation which I'm taking to be a range around --  
40  
41 DR LALLY: No, standard deviation, I'm using that term in  
42 the conventional statistical sense --  
43  
44 PROF JOHNSTONE: But you can't plug a standard deviation  
45 into a model. What are you plugging in?  
46  
47 DR LALLY: You get the point estimate for WACC in the usual

1 way. You take a standard deviation for beta, a standard  
2 deviation for MRP and you use the laws of mathematics to  
3 translate those two standard deviations into a standard  
4 deviation for WACC.

5

6 PROF JOHNSTONE: So that's the standard deviation of, say,  
7 A times B, for example?

8

9 DR LALLY: Yes, exactly.

10

11 MR SATCHELL: But the point is that A times B isn't  
12 normally distributed. So to think that you are doing it  
13 plus two standard deviations minus two standard deviations  
14 equals 95 per cent is not appropriate. That's why quite  
15 correctly the New Zealand - I think what they are doing is  
16 they are getting the mean for WACC, they are getting the  
17 standard deviation for WACC and they are simply just saying  
18 the question, "What happens if you are one standard  
19 deviation away?"

20

21 DR LALLY: They are coupling standard deviation and point  
22 estimate with the assumption that the distribution is log  
23 normal rather than normal to ensure that you don't get a  
24 WACC value below zero.

25

26 MR SATCHELL: Sure.

27

28 DR LALLY: So combining log normality, standard deviation  
29 and point estimate you have the whole log normal  
30 distribution.

31

32 MR SATCHELL: You can probably do even better than that,  
33 but that's a research question.

34

35 PROF JOHNSTONE: Basically what you are saying is there's  
36 four or five inputs that feed into the WACC formula. They  
37 have each got a standard deviation attached to their  
38 estimate. That results through the maths of the structure  
39 to a standard deviation for the WACC at the end.

40

41 DR LALLY: Yes.

42

43 MS CONBOY: I follow what you are saying in terms of  
44 calculating each individual parameter taking the standard  
45 deviation around it. The point estimates then give you  
46 your WACC. Then you've got a mathematical method of  
47 getting around that standard deviation of the overall point

1 estimate of the WACC.  
2  
3 DR LALLY: Yes.  
4  
5 MS CONBOY: I understand that component. What I am  
6 struggling a bit with when Stephen was talking about you've  
7 got a certain type of estimation that you are going to do,  
8 but you need to step back and look at different evidence in  
9 front of you.  
10  
11 DR LALLY: Yes.  
12  
13 MS CONBOY: So are you saying that you've gone through the  
14 step that Stephen has articulated and other people have  
15 agreed with?  
16  
17 DR LALLY: Yes.  
18  
19 MS CONBOY: And you have come up through going through that  
20 this is the best comparators, this is a little bit weaker,  
21 a little bit weaker, a little bit weaker, we go through  
22 that exercise.  
23  
24 DR LALLY: Yes.  
25  
26 MS CONBOY: And we come up with that point estimate that  
27 has a standard deviation around it and then you do that  
28 subsequent --  
29  
30 DR LALLY: Yes. In fact to take the MRP as an example,  
31 suppose there are two methods of estimating the MRP, method  
32 1 and method 2, and you choose to put 50 per cent weight on  
33 each of them that will give you the point estimate. Each  
34 of those individual estimation methods has a standard  
35 deviation. If the estimation methods, the errors are  
36 uncorrelated, then again the laws of mathematics will tell  
37 you how to get a standard deviation for that average of the  
38 two. So the standard deviations are, first of all, cranked  
39 out for individual parameters using the individual methods  
40 that you use to estimate that parameter and from there  
41 again the laws of mathematics will give you a standard  
42 deviation on WACC.  
43  
44 PROF JOHNSTONE: There is the potential of garbage in,  
45 garbage out, though, I think in those original estimates,  
46 right?  
47

1 DR LALLY: But at least you are being transparent about it  
2 and people can then say, "I disagree with that estimate for  
3 standard deviation" or this or that. The debate can at  
4 least be focused on things people don't agree on.  
5

6 MS CONBOY: That works when you have an empirically derived  
7 point estimate. What happens when you are using other  
8 types of estimates to inform the direction of the point  
9 estimates? So before when we were talking about perhaps  
10 there was a range, understanding the fact that Stephen says  
11 perhaps you are compounding the error if you are just  
12 taking those three and you are looking at the comparator to  
13 help you within that band, but what role does that sort of  
14 cross-check other type of analysis that you're using as a  
15 cross-check to help with the direction of that point  
16 estimate?  
17

18 DR LALLY: Okay. I think what you would do is suppose you  
19 come up with a point estimate of WACC using your  
20 quantitative methods of 8 per cent and you come up with a  
21 standard deviation for the distribution of 2 per cent and  
22 you say, "I want to be one standard deviation above to give  
23 me protection. That gives me a WACC of 9 per cent." At  
24 that final point you would then say, "Mm-hm, what  
25 qualitative information have I got and what does that  
26 qualitative information suggest to me?" That qualitative  
27 information might say, "A WACC of 9 isn't enough. I should  
28 add something." Then you decide what that will be. That  
29 qualitative information might indicate to you, "I'll take  
30 something off." So what you do is everything I've  
31 described as a process for dealing with the quantitative  
32 information, once you have done that then you can bring in  
33 whatever qualitative information you like and adjust  
34 accordingly.  
35

36 MS CONBOY: But that's for the overall WACC, not for the  
37 individual parameters.  
38

39 DR LALLY: Yes.  
40

41 MS CONBOY: And then would that qualitative assessment also  
42 assist you in determining where you are going and how far  
43 you are going within your standard deviation or are you  
44 using something else?  
45

46 DR LALLY: Potentially it could, but the primary reason for  
47 choosing that margin is a recognition that the consequences

1 of underestimating WACC are more serious in the long-term  
2 than of overestimating, and that is why you would want to  
3 go above the mean of distribution.

4

5 MS CONBOY: Thank you.

6

7 DR MIRRLEES-BLACK: How would investors react to something  
8 like the proposal?

9

10 MR SADEH: Look, I agree with comments before that anything  
11 should be rigorously tested if it is going to be adopted.  
12 But I don't think I know enough about the (indistinct) on  
13 the simple fact, "Well, that's something that has a number  
14 above mean." I'm trying to avoid that temptation, but  
15 I would just say that either for something - I'm not trying  
16 to advocate (indistinct) that results in a higher or lower  
17 number. I'm just trying to look at something that results  
18 in an appropriate number. I think for what we have said  
19 that, given that the current framework is good and given  
20 the proposed changes to the (indistinct) rate of return  
21 guidelines which provide more discretion between all of  
22 that, I think that there's just overall a threshold to find  
23 something needs to be superior rather than just  
24 incrementally smarter, therefore let's change it for the  
25 sake of changing it. There is a cost of investor  
26 confidence. So if all of this can be proven to be more  
27 robust and accurate, great. But, until it is significantly  
28 better, I don't think we should just be constantly  
29 changing.

30

31 DR LALLY: It may be Steve's suggestion here about compare  
32 it with what we are doing at the present time, it may be  
33 that there really isn't any difference, and if that's the  
34 case then stay with what you are doing.

35

36 MR SATCHELL: Just from a methodological perspective, if it  
37 is WACC that you are interested in then that's the  
38 distribution you should be looking at rather than ending up  
39 with a single number and having a whole range of  
40 distributions and all the other components that go into it.

41

42 MR SADEH: From an investor perspective I'm not looking for  
43 a WACC to be a fixed number, if that's what you mean,  
44 because at the end of the day for investors to be able  
45 to - the existing risk profile of the regulatory framework  
46 here is that I can respond to it through my capital  
47 structure. That requires the risk free rates to be

1 separated as elements that I can hedge, that I can deal  
2 with, that I can understand. It wouldn't work if you do it  
3 that way. We have said a few times today that you don't  
4 turn over your whole capital structure every five years.

5

6 PROF GRAY: Just as a general point on that, the reason  
7 that the New Zealand Commerce Commission uses this process  
8 is because it's come to the view that the cost of getting  
9 the number too low is greater than the cost of getting the  
10 number too high. It would be useful, I think, in a  
11 guideline to set out the AER's view about that. So the AER  
12 might come to the view that they think the cost of  
13 misestimation in each direction is equally costly, and  
14 I think that's been implicit in what the AER has done so  
15 far. But just to have a statement at least about what view  
16 the AER has come to on that point would be useful.

17

18 DR MIRRLEES-BLACK: Any views on formally relating CAPM to  
19 differential tax treatment on capital gains or income,  
20 which was a statement of Martin's.

21

22 PROF GRAY: Another tax parameter to estimate.

23

24 PROF JOHNSTONE: Just in that whole statistical process  
25 which strikes me as totally terrific and to do it and find  
26 out what it says and obviously want to see that, but there  
27 would be some dependence between these estimates. I think  
28 a lot of them are coming off similar data and similar  
29 argument models. That would be one problem.

30

31 MR SATCHELL: It's a consequence of a boring bit of  
32 mathematics that the estimate of beta and the estimate of  
33 the equity risk premium are independent. So you do get  
34 some independence. But that's not generically true if the  
35 distribution is different et cetera. But, yes, there is  
36 dependence. Generally there would be dependence.

37

38 DR LALLY: And what helps quite apart from the esoteric  
39 maths is that MRP estimates that are based on 110 years of  
40 data versus beta estimates that are only taken from  
41 the last 10, that fact alone will produce a correlation  
42 that's close to zero.

43

44 MR SATCHELL: Yes.

45

46 DR MIRRLEES-BLACK: Any other comments on tax? No, okay.  
47 That's a proposal. I think we will include it as a

1 suggestion. I think there was a question as to --

2

3 DR LALLY: And there was a third one which I had already  
4 mentioned in the last session and that was that instead of  
5 trying to, as is done at the moment, couple a CAPM that  
6 assumes complete segmentation with parameter estimates that  
7 actually reflect some degree of integration, to come up  
8 with cost of capital estimates under the two extremes -  
9 complete integration, complete segmentation - and then it's  
10 a judgment question of where do you lie between the two.  
11 One of the nice features of that is that if the numbers are  
12 pretty similar under both complete integration and complete  
13 segmentation then it's going to be pretty easy to pick it  
14 up. You don't really care what you choose in the band.

15

16 DR MIRRLEES-BLACK: But what if they are significantly  
17 different and what if the required return for international  
18 investors is significantly below Australian investors,  
19 let's say?

20

21 DR LALLY: If you use an international CAPM there isn't a  
22 cost of capital for both Australians and a cost of capital  
23 for foreigners. There is only one cost of capital. The  
24 same with the Officer complete segmentation. There's only  
25 one cost of capital coming out of each of these models.

26

27 PROF GRAY: It sounds to me like that's something to be  
28 explored in time for the next guideline as opposed to - it  
29 certainly goes beyond an incremental --

30

31 DR MIRRLEES-BLACK: I think that's possibly correct. We  
32 can maybe write some comments on that in the --

33

34 DR LALLY: And another feature of it which may or may not  
35 be the case depends on the parameter estimates. But if you  
36 find that, having found these two extremes of say one of  
37 them is 7 per cent and the other is 8 per cent, if you find  
38 that what you are doing at the moment, which is to couple  
39 the Officer model, which is a segmented markets model, with  
40 parameter estimates for the utilisation rate that are  
41 somewhere between zero and 1, if the result of that  
42 bastardised model is to produce a cost of equity that lies  
43 outside those two extremes, then clearly that doesn't make  
44 sense and that will be a strong signal about a defect in  
45 the current regime.

46

47 PROF GRAY: The only problem is, like, as much debate as



1 there's been about how you go about estimating beta and so  
2 on in the real world, multiply that by 100 for estimating  
3 all of the parameters in each of these theoretical  
4 counterfactual worlds.

5  
6 MR SADEH: I'm quite concerned from an investor side.  
7 I think I said in session 1 the biggest concern that  
8 I would have is that discretion is expanded kind of through  
9 a backdoor discretion about, "We don't really know which  
10 one of these because there are imperfections with every  
11 different technique we use, so let's go through them all  
12 and clump them all on a page and then, AER, you decide  
13 somewhere in that ballpark." That is backdoor discretion  
14 and without a level of objectivity. This is why I keep  
15 going back to there should be a high bar to change  
16 parameters that should by their nature be (indistinct)  
17 stable. I have a very real concern that that could lead to  
18 discretion that isn't in anyone's interest.

19  
20 MR WHEATLEY: I would like to make a point that any  
21 international model should be confronted by the data. So  
22 the model should be tested.

23  
24 DR LALLY: But it is implicit in my suggestion that the  
25 truth is neither an international CAPM nor a segmented  
26 markets one. The truth is somewhere between the extremes.  
27 So any empirical testing which says the international CAPM  
28 is wrong doesn't invalidate the process. What it might  
29 indicate to you is that in choosing between the two  
30 extremes you might tilt more towards the domestic CAPM --

31  
32 MR WHEATLEY: Or go beyond because both may be wrong.

33  
34 DR LALLY: Right, but the truth is somewhere --.

35  
36 MR WHEATLEY: In fact they both probably are wrong.

37  
38 DR LALLY: But the truth is somewhere between the two of  
39 them.

40  
41 MR WHEATLEY: Or beyond the bounds.

42  
43 DR MIRRLEES-BLACK: I think that's for exploring. We can  
44 write some words on that in the joint report. I have a  
45 question which --

46  
47 MS CIFUENTES: Sorry, before we go on to completely

1 different questions, can I just ask a follow-up question,  
2 just something that Stephen has said, at least Stephen and  
3 perhaps some of the others, that the AER should follow the  
4 New Zealand example and state a view on whether we consider  
5 that the risk of underestimating the WACC is higher than  
6 the risk of overestimating. I think you said the AER  
7 hasn't done that, but it seemed implied in the decisions  
8 that we have an equal weighting perhaps. I haven't turned  
9 my mind to that explicitly.

10  
11 I guess the question I've got is how would we go about  
12 informing ourselves of whether past WACCs have been too  
13 high or too low. It is one thing to say, "Okay, we think  
14 there's a risk that the model may actually set the WACC too  
15 low so we are going to adjust it." But how do we know?  
16 What evidence can we look at to say has the WACC that has  
17 been set in the past been either too low or too high?

18  
19 DR MIRRLEES-BLACK: That was my question.

20  
21 MS CIFUENTES: Was it? I'm sorry. I'm channelling. But  
22 there's a utility in actually at some point saying, "Yes,  
23 we considered that the risk of underinvestment is greater,  
24 the impact of underinvestment and therefore the risk is  
25 greater than the impact of overinvestment." But how do we  
26 actually know that the WACCs have been inappropriate? Is  
27 there something that we can consider: large-scale  
28 dissatisfaction from investors, a shortage of capital?

29  
30 DR MIRRLEES-BLACK: So the question is how do you know  
31 whether you have met the rate of return objective or how do  
32 you know whether your decisions have been consistently --

33  
34 MS CIFUENTES: That's part of it. But part of it is  
35 informing us of whether there should be this sort of  
36 adjustment for a level of conservatism or not. They are  
37 sort of separate questions, but they are related.

38  
39 DR LALLY: It may be that you have in fact been allowing  
40 for this but through the parameter estimates. So you might  
41 have found a range on some parameter from 0.4 to 0.7 and  
42 you have chosen the point estimate 0.7. So by doing that  
43 it looks like you have gone above the mid-point, quite  
44 possibly with this purpose in mind.

45  
46 PROF GRAY: No, that's an example where that's not the  
47 case, I think. The AER has been pretty particular about

1 how it's got to the 0.7 figure.

2

3 DR LALLY: I just pulled those numbers out of the air,  
4 Stephen. I wasn't just --

5

6 PROF GRAY: Let me just finish this point. The AER has  
7 stated that it started with a best statistical estimate,  
8 which was 0.5, the last go around, and then they had a  
9 range of 0.4 to 0.7. What led them to end up at 0.7 and  
10 not at the statistical estimate of 0.5 was two things. One  
11 is evidence from international comparators which sat above  
12 the 0.7 bound, and the second was in relation to evidence  
13 from the Black CAPM. So I think it was quite clear that  
14 there wasn't a degree of conservatism that led the AER to  
15 that point. I think the AER's process throughout its  
16 existence has been to find the best unbiased mid-point  
17 estimate for each parameter and plug that in. But I think  
18 that's been what has been done historically. So that's the  
19 historical record.

20

21 Then to answer the question has that approach led to  
22 estimates of being too high or too low, there's no way  
23 of - it's not like after the event there's an announcement  
24 made that this is what the true WACC was and we can compare  
25 that with what was allowed. So it's always going to be,  
26 like, the same task that you confront. There's no  
27 objective, observable required return. All you can do is  
28 to estimate that required return. So I know that's not a  
29 satisfactory answer. But what I warn against is the  
30 approach that I think - David will have his chance next -  
31 is the approach of let's keep reducing the number until  
32 something bad happens. I think that's a very slippery  
33 slope.

34

35 MS CIFUENTES: I agree with that, but isn't the other side  
36 of it is to the extent that we haven't seen any crisis of  
37 capital is that --

38

39 PROF GRAY: No, for the same reason as, you know, I think  
40 the RAB multiples and so on are not really useful evidence.  
41 So when investors are purchasing these assets they have 50  
42 or more year terms in mind. The allowed rate of return for  
43 this particular period is going to go for five years out of  
44 50 or TransGrid is 100 years. So the extent to  
45 which - even if the number were a little bit too low for  
46 the current five-year period, if it were too low in a way  
47 that was likely to cancel out over the 50 years there's not

1 going to be any capital strike. You are only going to get  
2 those sorts of effects if the number is systematically way  
3 below what everyone requires.  
4

5 Martin has written before, the New Zealand Commerce  
6 Commission, about the use of a constant MRP, for example.  
7 So I think the required return on equity since the last  
8 guideline has been quite stable. The AER's allowances have  
9 reduced by two or more per cent for the return on equity  
10 since the last guideline following one for one down the  
11 decline in government bond yields. That in my mind has  
12 resulted in recent decisions having an allowed return on  
13 equity that is too low.  
14

15 But to the extent - and this is Martin's point - that  
16 that is likely to cancel out over 50 years, having constant  
17 market risk premiums likely to understate the required  
18 return on equity when government bond yields are low and  
19 overstate it when government bond yields are high, if you  
20 have a 50-year horizon that's not going to cause a capital  
21 strike. The problem with that is that not all investors  
22 are going to have their money in that stock for the  
23 50 years and not all customers are going to be purchasing  
24 for the 50 years. So you have got that intergenerational  
25 equity issue.  
26

27 MR SADEH: This is where a lot of investors now -  
28 incrementally a lot of the transactions in the market are  
29 unlisted investors, they are superannuation funds, they are  
30 long-term investors. I agree with Stephen when he says  
31 investors can look through short-term issues because it is  
32 a long-term concept for everyone. Therefore the most  
33 important thing is the objectivity around the decisions.  
34 So people can understand when interest rates are low that  
35 WACCs get low and then they get higher as interest rate  
36 cycles change.  
37

38 The bigger danger is that there is a perception of  
39 uncertainty and randomness, if you will, in the framework.  
40 That is something that could lead to bad investment  
41 decisions. You don't want to get to conditions that you  
42 see that happen because, as I said, there's a fair bit of  
43 tolerance, but once you get there it can be quite lethal  
44 because we only need to look in the generation space to see  
45 what market's views of uncertainty around the RET scheme,  
46 around other things have done in terms of investment over  
47 previous years into different forms of generation. It's

1 not something that anybody wants to see happen.

2  
3 MR SATCHELL: If I was thinking about this as a research  
4 question I would be very tempted to look at, say, regulated  
5 companies versus non-regulated companies and then examine  
6 the two groups to see which suffers from low beta bias.  
7 The low beta bias may be explained by, for example, the  
8 regulated companies using their power to push the WACC up  
9 high enough over and above the sort of fair profit level,  
10 if you like, and that would then exhibit itself as a  
11 positive alpha.

12  
13 I'm sure everyone will scream about this, but it seems  
14 to me something that's a statistical question that's worth  
15 looking at. That's purely looking at the share price side  
16 of the argument. There are obviously other issues that you  
17 might want to address to see whether you have got it right  
18 or wrong, and that's a question of what the prices should  
19 be perhaps relative to other countries of similar  
20 economies. Just looking at share prices, at least have an  
21 initial enquiry into the question.

22  
23 MR WHEATLEY: If the regulator is overly generous, it  
24 should affect the price of the required rate of return. So  
25 (indistinct).

26  
27 MR SATCHELL: I was actually looking at not the required  
28 rate of return but the actual rate of return.

29  
30 MR WHEATLEY: But it would have to be a (indistinct).

31  
32 MR SATCHELL: I'm sorry?

33  
34 MR WHEATLEY: If people knew that the regulator was overly  
35 generous it would affect the price up front. It wouldn't  
36 affect the rate of return --

37  
38 MR SATCHELL: It is a question of how markets react to  
39 information. Whatever they do or they don't do, it would  
40 be worth having a look. That's all I'm suggesting.

41  
42 DR LALLY: We know markets are inefficient in some  
43 respects, but all the evidence is that they are not this  
44 dumb.

45  
46 PROF JOHNSTONE: We have to be very careful to distinguish  
47 between ex ante and ex post perspectives. Looking into the

1 further, we are trying to price electricity at the right  
2 price. We can argue about what that is in a moment or  
3 whenever. But we are trying to price it at the right  
4 price. To do that we are invoking this CAPM methodology.  
5 So we are talking in this weird world of CAPM. But then  
6 after the event we have achieved a certain result, and that  
7 result is evident in things like the financial performance  
8 of the entities, how much money they made. It's evident in  
9 their actions, how much more are they investing. It's  
10 evident in things like RAB multiples. These are the after  
11 effects of the regulation from earlier.  
12

13 I remember it was argued the last time we were here  
14 that this financial performance data is irrelevant. That's  
15 obviously a very convenient response, that we can just  
16 ignore the effects of our regulation, because that  
17 financial performance data is the effects of the previous  
18 regulation largely.  
19

20 Secondly, coming back to the issue about which you  
21 weight more, being too generous or not generous enough,  
22 I think the argument that I have heard from engineers is if  
23 the regulator was to be too tough and the industry was to  
24 withhold capital that wouldn't happen overnight. It would  
25 be evident. There would be bleating. These things take  
26 four, eight years to build anyway. There are all sorts of  
27 lags, giving us plenty of time to adapt.  
28

29 We heard today about calling the whole process back  
30 and starting again. That could happen very quickly if  
31 there is evidence that the regulator has been too tough,  
32 and that evidence would come out pretty quickly. There  
33 would be a lot of complaints. We would be hearing a lot  
34 from the asset owners and they would have good evidence of  
35 what they are saying. So I think this danger of being too  
36 tough on the asset owners is way overstated because if that  
37 were to happen it would become evident quickly and it could  
38 be corrected quickly.  
39

40 DR MIRRLEES-BLACK: May I attempt to summarise. Would you  
41 say to judge whether the regulator has got it right or not  
42 there are two aspects. One is you look at the financial  
43 performance.  
44

45 PROF JOHNSTONE: Ex post, yes.  
46

47 DR MIRRLEES-BLACK: And I think we would have to sort of

1 assess quantitatively what that would be.

2

3 PROF JOHNSTONE: Stock prices, profits, cash flows.

4

5 DR MIRRLEES-BLACK: And, secondly, something behavioural in  
6 terms of the way the companies and investors were  
7 responding.

8

9 PROF JOHNSTONE: Yes. Motivations. Because people's  
10 outlooks are evident in their actions. So if there is  
11 gold-plating - and that is a word that doesn't get used  
12 except outside (indistinct) the time - then that's an  
13 indicator that there is a generous rate of return and  
14 people want to get a hold of it.

15

16 DR MIRRLEES-BLACK: (Indistinct) how you would assess  
17 whether the AER has got it right or wrong? Ian, any  
18 views?

19

20 MR SADEH: I think it is hard to - when you are looking at  
21 a question of total success or failures, success or failure  
22 of the overall regime, it's hard to look at ex post  
23 numbers. I really don't agree with that, particularly when  
24 the return on a listed stock. Number one, empirically  
25 listed networks tend to be among the top performers of a  
26 group; and number 2 and probably more relevantly the total  
27 return includes the outcome that they get as a result of  
28 being in the top four, five or so of networks from  
29 out-performance which is not kind of the rate of return.

30

31 So you are actually comparing - in my CAPM as an  
32 investor I have alpha that takes into account the total  
33 risks of all the cash flows, including the operational and  
34 non-systematic, for instance, that isn't reflected in the  
35 rate of return that just takes into account the systematic  
36 risks (indistinct) separate. So you would be judging  
37 something ex post that, if it's working properly, those top  
38 performers should absolutely be generating those incentives  
39 because that's the whole purpose of them.

40

41 DR MIRRLEES-BLACK: Jim, how do we assess whether the  
42 numbers --

43

44 MR HANCOCK: I think it's hard to do. If you think about  
45 sort of looking at recent outcomes on things like stock  
46 prices there are stochastic influences in that and you see  
47 that looking for excess returns periods. They bounce

1 around a lot. So even if you saw sort of surprisingly  
2 strong runs in stock prices it's hard to know what to make  
3 of that.  
4

5 I suppose the other thing that people talk about is  
6 high rates of investment. If I go back to the '90s with  
7 the introduction of competition policy there was a  
8 suggestion that the government-owned entities just never  
9 saw anything they didn't want to build and seemed to be  
10 subject to market discipline and much sort of stricter  
11 about what they built, and what we have seen is that  
12 investment hasn't been very strong in those entities. We  
13 have gone to higher rates of reliability. I think that  
14 contributes to an idea that there has been some what's  
15 sometimes called gold-plating or that perhaps the  
16 regulatory environment has been excessively encouraging of  
17 investment. So to make a conclusion about that you would  
18 actually need to sort of weigh it up against what consumers  
19 are willing to pay for as well.  
20

21 DR MIRRLEES-BLACK: Simon, do you have any views on how we  
22 would measure ex post --  
23

24 MR WHEATLEY: The cost of equity component could be  
25 evaluated by back testing the model that's used or the  
26 method that's used. There are (indistinct) time series of  
27 returns that are pretty reliable that are provided by the  
28 ASX and can be used for that purpose.  
29

30 PROF GRAY: I think you need to look over a long period as  
31 well. So in the last guideline in 2013 allowed returns  
32 were reduced very materially. So looking at what happened  
33 with investment and so on prior to that is not going to  
34 provide useful information on the adequacy of the current  
35 level of returns.  
36

37 PROF JOHNSTONE: What about after that, though?  
38

39 PROF GRAY: Yes, so we have got three years. So that would  
40 be - I'm saying that's too short to get anything  
41 meaningful.  
42

43 PROF JOHNSTONE: Well, it is better than nothing.  
44

45 PROF GRAY: Yes, I agree.  
46

47 PROF JOHNSTONE: We have already said three firms is good



1 enough to measure beta on.

2

3 PROF GRAY: I said the opposite, but that would be the  
4 relevant period that we have available to date.

5

6 PROF JOHNSTONE: And that would be a good thing to look at.

7

8 DR MIRRLEES-BLACK: Cristina, Paula, do you have anything  
9 else you would like to use the last few minutes? I think  
10 we have come a long way today. Thank you very much,  
11 everybody, for your contribution and I look forward to  
12 developing our paper over the coming days. I will be in  
13 touch about that.

14

15 MS CONBOY: Thank you. I would like to say this was very  
16 worth while. I will let you do that, but I just thought  
17 these past two days, from my perspective, particularly not  
18 having gone through the 2013 guideline approach, very  
19 worthwhile and having that benefit of that across the table  
20 discussion. I hope I haven't cut across your closing  
21 remarks.

22

23 MS CIFUENTES: No, I can just go on to next steps. I think  
24 there's been general agreement that both of those second  
25 session of concurrent evidence has been very useful.  
26 I would like to think that it's not just been useful for  
27 the AER Board and the AER team but also for the other  
28 stakeholders that haven't necessarily had the opportunity  
29 to participate in this. I would like to encourage all the  
30 stakeholders to take on board the views that have been  
31 expressed by the experts in formulating your submissions to  
32 the AER through the rate of return guideline process.  
33 I think that would be very useful for us as well. So don't  
34 just assume that where Jonathan and the experts say there's  
35 an agreed position here that you need to be bound by that.  
36 You may have a different view altogether, as may the AER.  
37 So it is important that the other stakeholders do express  
38 their views on this. As I said, this is only just one  
39 input into the process that we are conducting.

40

41 It would also be very useful for the AER to have your  
42 feedback on how you thought this process worked, whether it  
43 actually added value. This has been a very novel process  
44 for us. Some of you were part of the 2013 exercise. Some  
45 weren't. So it would also be useful to get your feedback,  
46 and the stakeholders, on whether this actually has been a  
47 useful process for us.

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So, as with the position, we will be publishing a review but an unproofed version of today's discussion, and that will be on the web site presumably in the next few days. Then the experts will have the opportunity to review that transcript and we will then publish a proofed transcript as soon as possible. There is a consultation period open for submissions on both the discussion papers that were published in advance and on the transcripts, and those submissions are due by 4 May.

So, with that, I think both Paula and I, and I can also speak on behalf of Jim, do thank you. I think that it has actually been very useful, if for no other reason that I think everyone has an appreciation now that even the most informed minds, our experts, have very different views on some of these and that they cannot be reconciled. I think that that's an important starting point as well, that if the most informed and the best minds here cannot necessarily agree, it does point to the difficulty of the exercise.

So thank you all very much for coming, and for those - Martin has already gone - and the trip to Sydney. Thank you very much. Hopefully we will get something sensible and appropriate and reasonably accurate, justified, transparent and objective. Thank you.

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