Corrected by the Parties

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PCA CASE No 2020-21

In the matter of an arbitration
under the Arbitration Rules of the United Nations
Commission on International Trade Law 1976

and

The Agreement between the Government of the Republic
of India and the Republic of Mozambique for the
Reciprocal Promotion and Protection of Investment
dated 19 February 2009

- between -

PATEL ENGINEERING LIMITED (INDIA)

(Claimant)

- and -

THE REPUBLIC OF MOZAMBIQUE

(Respondent)

The Arbitral Tribunal

Prof Juan Fernández-Armesto (Presiding Arbitrator)
Prof Guido Santiago Tawil (Arbitrator)
Mr Hugo Perezcano Diaz (Arbitrator)

ORAL HEARING
PORTO, PORTUGAL

Saturday, 3 December 2022

Registry
The Permanent Court of Arbitration

A P P E A R A N C E S

The Tribunal:

Presiding Arbitrator:

PROFESSOR JUAN FERNÁNDEZ-ARMESTO

Co-Arbitrators:

PROFESSOR GUIDO SANTIAGO TAWIL
MR HUGO PEREZCANO DIAZ

Administrative Secretary:

MS SOFIA DE SAMPAIO JALLES

Registry, Permanent Court of Arbitration:

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Counsel:

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Messrs CMS Cameron McKenna Nabarro Olswang LLP:

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MR ASHISH PATEL (via video conference)

Expert Witnesses:

PROFESSOR RUI MEDEIROS
MR KIRAN SEQUEIRA
MR PAUL BAEZ
MR DAVID DEARMAN
MR ANDREW COMER (via video conference)
MR DAVID BAXTER (via video conference)
MR GERARD LAPORTE (via video conference)

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MR DANIEL BROWN

Fact Witnesses:

MR LUIS AMANDIO CHAUQUE
MR PAULO FRANCISCO ZUCULA (via video conference)

Expert Witnesses:

MS TERESA F MUENDA
MR JOSE TIAGO DE PINA PATRICIO DE MENDONCA
MR DANIEL FLORES
MR LARRY DYSERT (via video conference)
MR DAVID EHRHARDT (via video conference)
MR MARK LANTERMAN (via video conference)
MR MARK SONGER (via video conference)

I N D E X

(9.30 am, Saturday, 3 December 2022)

DR DANIEL FLORES

PRESIDENT: Good morning to everyone. This is the sixth day in the hearing between Patel Engineering Ltd as Claimant and the Republic of Mozambique as Respondent.

Is there any point of order, Mr Ho?

MR HO: No, not from the Claimant. Thank you, Mr President.

PRESIDENT: And from your side, Mr Brown?

MR BROWN: No points of order. Thank you, Mr President.

PRESIDENT: Very good. So we are here today to examine the expert, Dr Flores. Good morning to you, sir.

DR FLORES: Good morning.

PRESIDENT: Dr Flores, you know the first thing we have to do is take your declaration as expert witness. Would you be kind enough to stand up?

Do you solemnly declare upon your honour and conscience that you will speak the truth, the whole truth and nothing but the truth?

DR FLORES: I do.

PRESIDENT: And that your statement will be in accordance with your sincere belief? **09:28**

DR FLORES: I do.

PRESIDENT: Very good. Mr Brown, would you like to introduce the expert?

MR BROWN: I would. If you will just excuse me for 30 seconds, I need to walk to the end here.

Examination by Respondent

MR BROWN: Dr Flores, good morning.

DR FLORES: Good morning.

MR BROWN: I'm going to ask you just a few quick questions here. Do you have in front of you -- actually, I don't see that you do. I wonder if we could get off the table three of your reports.

My apologies to the Tribunal for the disruption.

Now do you have in front of you your three reports in this matter?

DR FLORES: I do.

MR BROWN: You have a first report here that's dated March 19, 2021?

DR FLORES: Correct.

MR BROWN: And if you could turn to your signature page on that report, that's on page 51 of the report?

09:32

DR FLORES: Yes.

MR BROWN: Is that your signature, Dr Flores?

DR FLORES: Yes, it is.

MR BROWN: And is there anything in your report that you would wish to change?

DR FLORES: No.

MR BROWN: Can I take you to your second report? I believe it's the one that's got a cover page marked RER-9.

DR FLORES: Yes.

MR BROWN: Is that your second report in this matter?

DR FLORES: Correct. 24 November, 2021.

MR BROWN: Thank you very much. And if I could turn you to the signature page of that report, is that your signature in this report?

DR FLORES: Yes, on page 74.

MR BROWN: Thank you. And is there anything you wish to change regarding this report?

DR FLORES: No.

MR BROWN: Then if I may turn you to the third of your reports?

DR FLORES: Yes, I have it.

MR BROWN: Is that report dated the 26th of August 2022?

DR FLORES: Yes, it is.

MR BROWN: And on the signature page of that report, is that your signature?

DR FLORES: Correct. It is.

MR BROWN: On page 23?

DR FLORES: Yes.

MR BROWN: Is there anything regarding your third report that you'd wish to change?

DR FLORES: No.

MR BROWN: Thank you, Mr President.

PRESIDENT: Dr Flores, I think you have a presentation.

DR FLORES: Yes, I do.

PRESIDENT: And it's H-11, and you have the floor.

Presentation.

DR FLORES: Great. Thank you very much, members of the Tribunal. As you know my name is Daniel Flores, and over the next 45 minutes I will be talking to you about my work in this case as summarised in this presentation.

If you go to slide 2, these are the topics I will be covering. I will be focusing more time on number 1 -- 1 to 4, and then I'll go quicker on tabs

5, 6, and 7. Next, we're going to start talking about the fundamental point that we need to understand for valuation and assessment of damages, which is there is no project. That's what I'm going to explain here.

Next.

Now, we are in slide 4. Here you have a summary of some relevant dates. As you know, the concession was awarded to TML in 2013 and what we know is that, as of today, the project as it was envisioned in 2013 has not been built and will not be built.

Let's go to the next slide, 5.

Why it will not be built? Because there is no sufficient demand for this project. Remember, this was a project that was supposed to transport coal by railway, and then export it in a deep sea port or via a deep sea port.

But the problem, as you are aware, I'm sure, is that coal production and consumption are steeply declining in developed countries. In North America, plenty of coal mines have closed down. In Europe, plenty of mines and generation of electricity through coal have closed down.

Why? Because coal is one of the dirtiest ways in which you can produce electricity and, as the years have gone by, more and more people have realised that that's helping warm up the planet. As you know, there's plenty of this in the newspapers so we don't need to spend more time on that. So, the idea of extracting coal which is very abundant and very cheap throughout the earth to heat up our homes and our industries is not sustainable and, because it's not sustainable, people are shifting to other cleaner ways to produce electricity. **09:35**

Natural gas is a much better way to produce electricity, and even better is to go with renewable energy, like solar, wind, and hydroelectricity. That's a trend that's happening worldwide. It started in developed countries, but it is spreading throughout the world. China announced not long ago that they will no longer finance coal-related projects overseas, so any financing that could come from China will not be there.

India, it was just a week or two ago but it happens several times a year, I'm sure you've seen newspapers or in the news when they have these pictures of New Delhi. In the morning there's this big, dense fog and you cannot see anything. That's produced by coal. So sooner or later India will stop and will shift away from coal like everyone else is.

So to invest billions of dollars in coal assets at this point in time is a money losing proposition. We need to keep that in mind.

It is true that in the short term India still uses a lot of coal and at least in the short term it's expected to continue to use coal. However, India -- which, remember, is the main destination of the coal from Mozambique that, according to Versant's assumptions, would be where the coal from Mozambique would be transported to, India is shifting away from importing coal. I even have here two slides from Argus Media, where they show that there is a desire both by companies like CIL, which is coal of India, it's a state-owned company, and also by private companies like Jindal Power, they are looking to end or diminish greatly the import of coals from overseas. That doesn't speak well for a project that would want to spend -- commit billions of dollars for the next 30 years to coal.

Next, number 6. Now, I'm going to give you two examples. Coal mines, existing coal mines in Mozambique. I am choosing these two, Chirodzi, if I am saying it correctly, and Benga in the next slide, because these two are the ones where Versant says that almost two-thirds of the capacity of the project will be taking coal from these two mines.

The first one, Jindal Chirodzi, you can see that here the projections were very optimistic in 2012 when Jindal acquired this mine, and they were expecting that, by 2015, they would be already producing 10 million tons per annum and that that would increase in the next years to 20 million tons per annum.

That did not happen. These ambitious expansion plans have not gone through. They have had a lot of operational issues that have prevented the mine from growing. By the way, I'll get back to this later, but this has nothing to do with oh, if only we had a railway that would allow us to export more. That's not the constraining factor.

If we go to the next one, slide 7, that's the other mine, the Benga. This is even a more stark example. Rio Tinto used to own this mine. They bought it in 2011. I heard some of the witnesses or read the transcript of some of the witnesses referring, oh, we are talking to Rio, meaning Rio Tinto. Well, look at what happened to them. 09:39

They bought in 2011 for almost $4 billion. Just three years later, in what the financial banks were calling one of the most disastrous acquisitions in the history of Rio Tinto, they sold it for just $15 million. This is the kind of return on investment that you get when you invest in coal, an investment of $4 billion, you have to sell it at a huge loss for 50 million.

This was bought by ICVL at a big discount, and also the same thing. They had big plans to expand to 12 million tons per annum. That has not happened. In fact, as we see at the bottom of the slide, today the current capacity of the mine is lower than when they got it from Rio Tinto. So these are the mines that were supposed to be sustaining the railway operation envisioned by Versant.

Next, now, a very important point. The Mozambican coal is not competitive in international arena. Here in slide 8 you have a graph that shows that's the total cost all inclusive of transporting coal to India, and what you can see is that the costs of Australia are very low. Australia has the advantage, it has very big coal mines that are very close, or much closer, to the coastline and they have much better already existing infrastructure. **09:41**

So if you want to transport a ton of coal to India, the cheapest way to do it is to get it from Australia. No wonder then that the biggest exporter of coal is Australia. Bringing coal from any other place in the world to India, which is the biggest consumer or the biggest importer, is much more expensive, and this data which I believe is from around -- yes, it is from 2017, shows that the Mozambican coal was much more expensive.

So the key point here, there's been a lot of argument by Claimant as, well, our railway would have been much cheaper than the one in the north and the one in the south. Even if that's true, that's not the point. The point is are you competitive at an international level, and they are not. You can see the example here that if you were to put their $35 per ton assumed in TML's feasibility study, that still would not allow you to be competitive with Australia.

Next. And that reflects in many things. Everything I'm saying -- I'm not just making it up, it's sustained by any evaluation that you see. For example, in slide number 9 I talk about the Nacala corridor. That's a corridor that has railway plus a deep sea port. You have heard about this. And the interesting thing is that it was not me, it was Mr Sequeira who said that these two projects, Nacala and the project at issue in this arbitration, are -- and these are his words -- are "broadly comparable" because they are performing essentially the same business activity in the same geography.

So he came up with the idea of comparing these two. And, yes, in 2017 there was a transaction involving the Nacala corridor that had a value of $348 million for a 35 per cent equity stake, and that's true, but if you go to the next slide, you can see that things got worse from there.

Vale, which was the owner of the mine, the major owner, impaired its coal assets in Mozambique in 2019 due to technical and operational issues, and it had a huge impairment of $1.7 billion.

Then in January 2021, Mitsui, who had been the one acquiring the interest in just 2017, sold back that same asset, the Nacala corridor stake, for $1, and I believe $1 is because any transaction has to have an amount, so you cannot say sell it by zero, so that's why you put $1.

09:44

So if you go by Mr Sequeira's own point, that there was a comparable asset, the comparable asset price is $1.

Next slide.

Now, another point, you have to look at the economics of transportation, and if you add the third corridor, what that's going to create is going to be a lot of competition. That happened already when the Nacala corridor opened by increasing -- when Nacala was opened, that drove business, cargo, away from the other corridor, the Beira corridor, with the result that then there was price competition and fares went down.

That would only be bigger in a situation in which coal production is not increasing because of international issues and then you're adding more transportation, so by adding more capacity you're going to have more competition. So that's a very important point. It's a bit technical, but I think it's worth understanding.

When you have competition from an existing project with a project that has yet to be built, that's very difficult to build a new project. Why? Because the project that was already built already paid for the capital expenditures, the 2 or the

3 billion dollars. So that's what we call a sunk cost. **09:45**

The one that has not been built yet, the 2 or 3 billion dollars, is not a sunk cost, so when you look at the competitive dynamics that's going to happen if the second one is going to be built, the existing line can make a very real threat. It's like, look, as long as I can cover my variable costs I will outprice you and I will compete you out of the business.

Banks or lenders trying to finance a new project know that, and they will be very sceptical financing that because they say, well, we have the choice of building or not building and incurring the $3 billion or not. They do not, so they can be more aggressive in their pricing. These competitive issues have not been properly considered by Versant.

Next. So the result of all of this is now we can understand why the project has not been built. At some point there's been some suggestions, maybe ITD is incompetent and so on. I think as of now, no one is making that claim any more. ITD is one of the -- is the largest construction company in Thailand that has investments all over the world and has projects all over the world.

09:47

As you can see, this is what's called the work-on-hand document, where they have listed every project they have, how far along they are in competing the project. As you can see, the last data that we have in the record, it's that they have completed very little of that, like 3.51 per cent of the surveys and design and 1.87 per cent of the total amount.

Next slide. So all of this put together is what explains this article from June 2021, that Mozambique's long awaited coal boom might never materialise, and I believe it will never materialise because other companies sold their assets. Vale tried to continue investing, but now Vale has decided to halt all thermal coal mining, and also for international concern about global carbon emissions, and that's why this leads this newspaper article to conclude that the planned rail and project at Macuse seems unlikely to proceed.

Next.

Now, a lot has been made by Claimant in recent months about this Ethos announcement. This is an announcement by someone called -- it's led by a guy called Carlos Santos. He's a Portuguese investor working in the United States, and

09:48

in November 2021 Ethos announced that it was going to have a partnership with Mozambique in which it would invest $400 million. It "would" invest. There's no evidence that that investment has happened and, in fact, I'll show you the reference in the next slide, but the latest news that we have is that there has been a loan agreement signed, actually signed, in the amount of $25 million. That's all we know about an actual commitment. $25 million.

However, in the source it says that that was not project financing; that's a loan that required ITD, the owner or the parent of TML in Thailand, to provide a bank guarantee and to provide a deposit of $5 million and a standing letter of credit.

So when you have someone willing to give you $25 million only if the parent company of the entity you are loaning to is asking for a security deposit and a collateral, that doesn't seem like a big vote of confidence.

So, yes, so you have here -- and also one thing else I wanted to mention also, you see in the highlighted part of this release it says "At no stage did the release, or the statement by Ethos

Asset chairperson Carlos Santos, mention the word coal", and the reason for that is just look at the name of the company. It's called Ethos. It's about what is the ethical, the ethos of this company. They're all for social and corporate responsible investment. So they are investing in all kinds of things and trying to better the world and so on which is a very nice thing, but I think, and in fact this is publicly available, you can just look Carlos Santos on the internet and you will see that he's a big proponent of not investing in things that will create climate change.

So that's why he didn't mention the word coal. He's OK trying to help a project be built that would be a general cargo port that would allow merchandise to arrive and leave Mozambique, but not a coal investment. That's why this article concludes at the bottom saying "The future looks bleak for a port and rail project originally designed to transport coal".

To conclude this section, let's go to slide 15, and I think it's interesting to look at the financial statements of ITD, Italian-Thai Development, which is the company that got the concession and that invested. The more recent ones

09:51

that we have in the record are the ones through June 2022. The ones where we have quoted only came up two days ago but they confirmed the same information that I'm going to explain here.

You can see one of the notes to the financial statements, note 17, talks about this project in particular, and it says at the bottom, "In 2020, the subsidiary's management" -- that means TML -- "has revised its business plan to develop the project by separate into 2 phases. Phase 1 is the development of a general cargo sea port at Macuse which has a shorter construction period and lower investment costs, and phase 2 is the construction of the railway and the deep sea port".

Two points. First, I think yesterday there was some confusion about this point. It's not that phase 1 is the port, phase 2 is the railway. That's not the way it is. Phase 1 is a general cargo sea port; phase 2 would be the deep sea port and the railway. That's the proper comparison, as the new construction is envisioned.

But look at the last sentence. "Management of subsidiary will start phase 2 development when the economics of the project can be justified".

There's no commitment whatsoever of building the deep sea port and the railway. Why? Because today the economics cannot be justified. Perhaps if at some point in the future they could, maybe they would, but they won't.

More importantly, I wanted to draw your attention in the right side of the slide to the independent auditor's report of this financial information. As you know, auditors have different comments they can make. They can just give a blank slate, they can have a qualification, they can have a matter of emphasis.

There was a matter of emphasis regarding this project, and this is what the auditor said. I'm looking at note 17, he says, and then he says well, yeah, they have invested this 2.4 billion -- that's baht, that's the currency of Thailand -- since they got the concession. You can see that in note 17.

They're carrying that -- these are expenses that have been capitalised, they are in the balance sheet of the company -- as if they can be recovered at some point, they can be monetised. That's why they are counted as an asset.

However, the auditor says, "The progress

09:54

of such project under development is dependent on finding the strategic partner in the future as well as the approval for the project finance from the financial institution since the project requires significant amount of investment for the development of such project". So what this is saying is like, yes, I see you are still carrying that in your books but I'm a little bit concerned. That's what the matter of emphasis is. It's kind of, in the soccer card it could be a yellow card, not yet a red card, but it's a yellow card because it's saying you may need to write this off eventually.

So with this, this explains why there's still some news articles that, yes, they haven't abandoned their investment in Mozambique. Why? Because this $2.4 billion that you see here, the exchange rate between the baht and the US dollar is about 35, so that was 70 million US dollars.

So, as of today, ITD is $70 million out of pocket, in the red, so I understand they are trying to do something to try to recoup all the money they have thrown into this investment. Maybe, and hopefully, this general cargo port will be the answer, and maybe that will be NPV positive.

But remember, even if now they succeed in building the general cargo port, if the net present value of this project will be $70 million, that means that overall, considering that they have forward looking $70 million and they have already invested $70 million in the past, the overall experience of ITD in Mozambique will be a big zero, and I think that's an optimistic outcome, recovering all the money that has been put in there. **09:55**

I saw the opening statements via zoom, and Claimants were making the point that the reparation in this case should be to put the Claimant in the position that it would have been if the concession would have been granted to them, at least in the same terms as TML got the concession.

So, to be clear, to put the Claimant in that position would mean the Claimant today would be out of pocket by about $70 million, and at best would have a hope of developing a general cargo port that hopefully will make some money. It would not be swimming in money from a coal export business that is not going to happen.

And with this, I conclude section 1. Now I'm going to go faster for the remainder of the slides. Next slide, please.

As a preliminary point we need to

understand what it is that we are valuing, and what Versant is valuing is a concession, the present value of the concession. I understand that Respondent's position is that there was no obligation to give a concession and that the MOI was void for several reasons, and of course if the MOI is void, the value of it would be zero. **09:57**

If we go to the next slide, 18, Versant puts forward four different valuations, ex ante and ex post, and then at a 100 per cent or at 90 per cent.

Next, we take us to the ex post perspective. To put it simply, the project has not been developed, it no longer exists as it was envisioned, so to try to build that cash flow projection based on a feasibility study that's more than five years old, I don't think that's sound from an economic perspective. As we know, TML has invested negligible amounts compared to everything that would be required and has made no significant progress on that.

Next, for the ex ante perspective, if you do an ex ante analysis, what you have to look at is what was information available as of date of valuation, which is July of 2013 in their analysis.

Well, if you look at the information there, there was no prefeasibility study, so you cannot reach out into the future, the then future, and say, well, someone eventually did a feasibility study four years later or three years later. No, that's not -- you cannot do that. You have to base yourself on the information that was available as of the valuation date, and the only thing we have available with regard to finance numbers as of that day is this document, the famous document C-8, that was submitted by Patel to Mozambique in May 2012. It's the famous spreadsheet that was discussed yesterday. 09:59

To be clear, if that's the only thing that we have to go by, that spreadsheet speaks for the proposition that the net present value of the project was negative.

And yesterday I think there was some confusion about all of these numbers and so on. I think it's fun to look at Excel spreadsheets, but let's be clear. The value of a project does not depend on how you finance it. The financing decision only affects who gets what, the debt holders or the equity holders, but from that spreadsheet you can look at the revenues minus the

10:00

costs and then you do what's called the cash flows to the firm, and the cash flows to the firm is all the money that goes in, capex, to build the project, and all the money that the project would go out, before taking into account interest payments, amortisation of debt and all that.

If you look at this line, the free cash flow to the firm, it's around 7 per cent. What does it mean? That if your discount rate is any higher than 7 per cent, the project is not worth pursuing, and even Versant used a discount rate over 7 per cent, so that should be the end of the story. If you look at the projections that were done as at that time, back then even the project was not profitable.

And there's been an allegation that, well, never mind because this was a very conservative number. It was all like the worst case scenario. That is simply not true, if you look at all the assumptions that were made here, and that's not the worst possible way you could model the cash flows. Starting, for example, with a zero per cent income tax rate for ever, from the beginning until the end of the project, for example, all they would have gotten would have been a tax holiday of five years.

But then you would have to start paying taxes after five years. **10:02**

PRESIDENT: Dr Flores, the secretary tells me you have used 30 minutes by now.

DR FLORES: But I have more time, right?

MS JALLES: It has been 30 minutes of direct in general with the presentation. It was 30 minutes with the presentation of Dr Flores, the direct. Normally it's 30 minutes but I mean --

DR FLORES: I was told I had 45 minutes.

MR BROWN: I'm sorry, Mr President, but I had understood that, when we had talked at that time pre hearing conference, in fact Claimants had asked for 45 minutes for Mr Sequeira and that 45 minutes would be given for Dr Flores as well.

I don't know how much Mr Sequeira used, but we had gone on that. I mean we made the presentation as we were instructed to before Mr Sequeira had given his, so we were under the impression that we had the 45 that had been discussed.

PRESIDENT: Let's go on.

DR FLORES: I'll try to be as efficient as I can.

So we were discussing this, and the point

10:03

was this is not the worst possible scenario. It's assuming 100 percent efficiency, it's assuming zero per cent taxes, and many other assumptions that are not that conservative and worst case.

Slide 21. Then at the very end of this arbitration Claimant asked Ankura to put forward three alternative ranges. I think it was covered quite a lot yesterday so I will not delve into it, just to restate that I disagree that those are any serious valuation efforts from an economic perspective.

Next.

Here is just a summary of the wide array of valuations that the Claimant's experts have presented, and then next, 23, this is the compensation in this case, if it were to be awarded, should be based on non-recoverable costs incurred. That's the only non speculative, reasonable way to look at compensation.

The DCF, it's very speculative, as I will show you in a moment. Now, the only problem that we have here is that the Claimants have not explained how much money did they spend preparing, for example, the preliminary feasibility study, if they have said they have not found any documents.

I find that surprising because, I mean, you are all lawyers, I'm an economic consultant. You all know, with all working projects the first thing you do when you get the project is you put a line in your accounts to identify that project. You need to know whether you are billing hours for Mozambique or for China, right? So that's one thing, that it's surprising that they wouldn't keep that level of proper business management to know where are you spending the money.

So then let's go to the next slide, slide 25. Yes.

This is also an important point. I propose a reasonableness test in my report where I explain, well, we know that the concession was awarded to ITD, the Thai company. ITD is 60 per cent owner of TML, which is the company in Mozambique that supposedly was to develop the project.

So let's see, I mean, if the project is really worth what Versant says, which is like about $563 million, that should be reflected in the share price and the market capitalisation of ITD. It is not. If we were to believe the ex post valuation of Versant, that would mean that at the time I was

10:06

preparing my report that would have presented -- that project alone would constitute 82 per cent of all the value of the entire ITD, the largest construction company in Thailand and one of the largest in Asia.

That doesn't make any sense. In fact, if you were to do that exercise as of today, it would be over 100 percent. So think about that. What that means is that if the value of the shares that ITD has in this project in Mozambique was what Mr Sequeira tells us, this is the only source of wealth for ITD. That does not make any sense.

Then next slide. Then -- I think in the interest of time, let's skip slide 26, slide 27.

Let's go to slide 28.

It's interesting to understand that when you build these megaprojects, and I think we have heard this word used by both parties several times this week, that this is or would be a megaproject, it's very easy to have cost overruns, and this article that we have here, it displays that there's been lots of cost overruns.

What Mr Sequeira said in his report in reply to my observation, he said, well, one of the projects discussed in this article is the building of the opera house in Sydney, that very beautiful building. That had huge cost overruns. But that's not what I was referring to. I was referring specifically to railways, and railways tend to have cost overruns of 45 per cent.

Mr Sequeira has said that, well, that could be avoided by having EPC contracts. The EPC contracts limit all the risks. But that's not true. I'm sure you've been in construction arbitrations where you know that EPC contracts are very carefully drafted documents, and they specify very clearly who carries what risks.

I was in an arbitration recently where the contractor had promised to build foundations up to 4 metres deep, but then they said, well, if it is any deeper than 4 metres, the owner has to pay for that. I didn't know ex ante how deep the foundation would need to be until you actually build it.

So having an EPC contract is not a friar's balm to help eliminate any risk for the owner of the project.

Then I would like to go to slide 30, just to show some sensitivities that I did to the Versant ex post calculation.

He said yesterday that I was doing all I

10:09

could to bring down the value to zero. That's not what I did. What I did is to try what's called to stress test the model. That's what lenders do. Lenders today do not take a feasibility study and say, oh, it's bankable, you want a billion dollars, here's the billion dollars; just I see the document prepared by some engineers, that's it. That's not the way they work.

What the banks will do is say, ok, I saw your model, post sensitivities, let's look at that. I'm not going to go through every line, but just to put one example, the throughput, how much coal would the project carry.

If you go from 30 million tons per annum to 25 million tons per annum, the value completely evaporates. That's the only thing you change in Mr Sequeira's model. That could be very worrisome for a financier, and that would explain why the financier would not want to build this.

Let's look, for example, at cost overruns. If you do a cost overrun of 22 per cent, meaning that the capex would be just 22 per cent more than what's currently in Mr Sequeira's model, there's no value. Remember, if you go back a couple of slides, the average cost overrun in railways projects is

44.7 per cent. So I'm not just saying if it were to cost three times as much as you forecasted then there's no value. No. It's 22 per cent cost overruns, and the EPC agreement will not protect you, it will not insure you against 22 per cent cost overruns. **10:10**

One last final one, discount rate. Look at the last value, the second line from the bottom. Versant assumes a discount rate that starts at 18 per cent. Then it goes down a little bit as you have less leverage of the project -- thank you for the highlight.

It's not that -- you know, we all have been in arbitrations with huge fights about discount rate. One says high, the other one says low. We don't need to have that discussion here because, if you simply go here and you add about 1 or 2 percentage points to his discount rates, there's no value.

So how can this be a reasonable DCF model that will be stressed against anything bad that could happen? That explains, this slide itself explains why there's no financing. First, no banks, no lenders in the developed countries will want to finance this. China will no longer finance this, so

10:12

perhaps you would have someone from somewhere else in the world, but they would look at things like this and will see how flimsy this is, and just by changing something you can really destroy the model very easily. That's why the project hasn't been built, and will not be built.

Next slide.

The same applies to the other valuation, the ex ante valuation. It's done as of July 2013. The only thing we know as of that time is that the only financial projection that had been prepared reveals that the project was not viable for any discount rate higher than 7 per cent, which we are in agreement the discount rate has to be higher than 7 per cent.

Now let's go to slide 35, which has the same analysis, the same stress test of the Versant ex ante valuation, and you can see also how this works. And look at the second line, the tariff per ton. Versant assumes $39 per ton. If you only take $3 out of that -- $3, I'm not talking about halving the tariff, I'm talking about $3 less -- there's no value.

So how would someone have financed this if just -- if you have miscalculated the tariff slightly and by the time you build it due to higher competitive measures, as I was talking about, the tariff would have to be $3 lower, you are out of business, and that's why it wasn't built and it hasn't been built and will not be built. **10:13**

And the same applies to the discount rate at the bottom. You see Mr Sequeira assumes a discount rate of 25 per cent in the first years. It actually just -- that rate with some additional spread in the following years also results in no value.

That's why it is true that DCFs are used in the mining industry and in the transportation industry and they're used everywhere, but you have to treat them with a grain of salt and you have to see whether they really work and they're really reasonable, and whether you can invest billions of dollars and put your client's money at risk in investing things that if things go a little bit worse than modelled, your clients are going to lose all of their money.

OK. So I think in the interests of time I'm just going to -- let's go to slide 37, the Ankura release damages.

This was not really one opinion of a

concrete value using a different method. It's just like a lot of numbers, a lot of ranges, a lot of values and so on. I have a very careful analysis of that in my third report, and in fact yesterday Mr Dearman agreed with some of my corrections, and he modified his analysis. **10:14**

You will see the comments that are in these slides are not reflective of his adjustments yesterday because I have submitted the slides before his presentation.

But I think that's -- I think I'm going to leave this unless the Tribunal has any questions about these release damages, and if we can go briefly to slide 45, just one point on interest rates. If any pre award interest were to be awarded, it would have to be a risk-free rate that takes into account the passing of time, but not commercial risks to which any amount awarded would not have been subject.

And with this, I conclude my presentation. Thank you very much.

PRESIDENT: Thank you, Dr Flores.

Mr Brown, do you have any follow-up questions for the expert?

MR BROWN: No, thank you, Mr President.

PRESIDENT: Very good. I see, Mr Ho, you are ready. **10:15**

MR HO: Thank you, Mr President.

Cross-examination by Claimant

MR HO: Good morning, Dr Flores.

DR FLORES: Good morning.

MR HO: Could we start by looking at your CV? We'll hand that up to you. It's in Core Bundle volume 4, tab 103. For those following electronically, it's QE-1. We'll get it up on the screen for you as well. Hold on.

And if you just turn on in that to internal page 2, I think it's page 3 of the pdf, we can see a summary of your education, and you are, by training, an economist, aren't you?

DR FLORES: Yes, that's correct.

MR HO: You don't have any training or education as an engineer?

DR FLORES: Yes, that's correct.

MR HO: If we move down to your work experience, we can see that you began your career as an academic, and then, from 2004 onwards, you were either at Econ One or Quadrant Economics, is that right?

DR FLORES: Yes, that is correct.

MR HO: During your time at Econ One and Quadrant Economics you've worked as an expert witness on valuation issues, is that right? **10:17**

DR FLORES: Valuation -- economic analysis generally. There are some analyses that we are asked to perform that are not valuation.

MR HO: You've never worked or have experience as a mining engineer, though, do you?

DR FLORES: That is correct.

MR HO: And you don't have any experience running or operating a coal mine?

DR FLORES: That is correct.

MR HO: You've never worked as a commodities broker, or have any experience buying or trading coal?

DR FLORES: That is correct.

MR HO: And you don't have any expertise trading coal futures either, do you?

DR FLORES: That is correct.

MR HO: You've never worked at a consultancy like Wood Mackenzie, which has specific expertise in the coal sector?

DR FLORES: I have not.

MR HO: You've never advised anybody, as a consultant like Wood Mackenzie would do, on demand or trends in the global coal market or on coal prices, have you? **10:18**

DR FLORES: Well, I do analyse trends in the coal market and so on, and I apply them in my work.

MR HO: But has anyone ever hired you in a commercial context, so outside the scope of litigation, to provide consultancy services like Wood Mackenzie would on trends in the global coal market or coal prices?

DR FLORES: No.

MR HO: Has anyone ever instructed you to provide advice on trends in the Mozambique coal market or coal prices in Mozambique? Again, outside of the context of litigation.

DR FLORES: No.

MR HO: As I understand it, in your career as a professional expert, you've only been involved in one case which concerned coal mining, is that right?

DR FLORES: No, I don't think that's right.

MR HO: Which cases have you been involved in as an expert witness that involved coal mining?

DR FLORES: Well, so there's one earlier in my career, which is Churchill Mining. **10:19**

MR HO: Yes, that's the one I'm aware of that involves coal mining. I think if you want to find that, that's at page 11 of the pdf. It might be page 12 internal for you.

DR FLORES: Yes, that's correct.

MR HO: I think in that case you provided an expert opinion. You submitted one report, but I don't think you gave evidence at a hearing.

DR FLORES: That's correct. The case was bifurcated, and it never got to quantum.

MR HO: But other than that case, I'm not aware, having been through your CV, that you've been involved in a case involving coal mining, but is that wrong?

DR FLORES: Yes. I'm trying to find it. Yes, OK. So this CV is as of March 2021.

MR HO: Since then have you --

DR FLORES: Yes, since then I have been -- I am actually still involved in a case in Vietnam that has to do with coal.

MR HO: Right. And what does it have to do with coal? Is it a project similar to this one, or is it about a coal mine?

DR FLORES: No, it's about a project to create a power plant powered by coal. **10:20**

MR HO: I see. So it's actually about the construction of a power plant, is it, rather than a coal mine?

DR FLORES: No. It was not about the construction, it was about the operation of a coal power plant, which would require procuring the coal.

MR HO: I understand. Thank you.

Sorry, just a few more questions about your experience. You don't have any experience working in the construction industry, do you?

DR FLORES: I have done arbitrations involving construction issues.

MR HO: I see. So your only involvement has been as an expert witness. You've not been involved yourself, for example, in the construction of a significant infrastructure project?

DR FLORES: No.

MR HO: Sorry, just one more question.

I think it's also fair to say that, just as you've never worked as a mining engineer, you've never worked in the mining finance sector either, have you?

DR FLORES: That's correct.

MR HO: All right. Can I move on to ask you some questions now about a different topic? **10:22**

Would you agree with me that a feasibility study is a formal technical report that is used by a company to determine whether a proposed project is capable of being developed at a sufficient return to justify the capital and managerial resources that must be committed to the project?

DR FLORES: Are you reading a definition from some document in the record?

MR HO: Just let's see whether you agree with that as a proposition?

DR FLORES: I would probably define it differently, but if you can show me what you're talking about, we can compare.

MR HO: All right. If you want to see the document, it's a document that you've referred to. It's in Core Bundle volume 4, tab 106, so it may be in the volume that you have there.

DR FLORES: I have it.

MR HO: For those of us electronically, it's QE-82, and it's page 4 of that. There should be a heading on page 4, Internal Feasibility Study.

Do you see that?

DR FLORES: Yes.

MR HO: Do you see underneath that there's the first paragraph and in the last sentence it says: "Simply put, the feasibility study is a formal technical report" and so on. **10:23**

Can you see that?

DR FLORES: Yes.

MR HO: Do you agree with that?

DR FLORES: I would qualify it. It's not a difference of opinion but I would say it's a technical and economical report, because feasibility study, as it says in the last part of the sentence, has to provide a sufficient return to justify capital that must be committed to a project, so that requires an economic or financial analysis.

So I would prefer -- I don't strongly disagree with this definition, but I would say it's a formal financial and technical report.

MR HO: I understand.

Now, for billion dollar projects, a feasibility study will routinely cost in the millions if not tens of millions to produce, won't it?

DR FLORES: It would cost millions. I don't know that it would cost tens of millions.

MR HO: Really? You don't think it would cost tens of millions?

DR FLORES: It would depend on the scope of the project for which the feasibility study has been prepared. **10:24**

MR HO: What about for a project costing $3 billion? Would you accept that in that case it's likely to cost in the tens of millions?

DR FLORES: No, because, I will give me my answer, we know for a fact that TML prepared a feasibility study and we don't know exactly how much it costs but we know that everything they have spent from 2013 until today, it's about $70 million, and that includes things other than preparing the feasibility study, so if by tens of millions you're talking about $30, $40, $50 million, I think that would be too high. They seem to have been able to prepare a feasibility study for less than that range.

MR HO: All right. If we look in the Core Bundle, still volume 4 for you, tab 102, for the rest of us it's R-42, page 247, for you it will be internal page 213, Dr Flores, this is the feasibility study which TML produced. Can you see on page 213 that there is a table there, table 29?

DR FLORES: Yes.

MR HO: Can you see that? Can you see in rows 6 and 7, row 6 says "BFS" -- which I understand to be Bankable Feasibility Studies -- surveys, engineering development and design, and then row 7, independent engineer, bankable -- "BFS" which, again, I understand to be bankable feasibility study, and if we add those two numbers together that gets us to about 40 million. **10:25**

DR FLORES: Yes.

MR HO: Does that sound about right to you as the cost of the feasibility study?

DR FLORES: Without seeing more detail I cannot tell you an answer, because this says -- you see the heading of this table says "Non Financial Development Costs Until COD".

I don't know if they have their own definition here of COD.

MR HO: I don't know, but if it's not something you can help us with, that's very fair, Dr Flores. I just wanted to put it to you.

Let's come back to talking about feasibility studies in general.

So, since the whole point of a feasibility study is to determine whether a project is capable of being developed at sufficient returns, in the real world financiers and investors will invariably use a feasibility study as a basis for a DCF analysis, won't they? **10:27**

DR FLORES: Could you repeat the last part of the sentence?

MR HO: Yes. What I'm saying to you is because the whole point of a feasibility study is to determine whether a project can be developed at a sufficient return, in the real world financiers and investors will use a feasibility study as a basis for a DCF analysis, won't they?

DR FLORES: I'm not sure I follow like why the feasibility study as a basis for the DCF. In fact, there may be a DCF in the feasibility study. So I'm not sure the causation -- which comes first, the feasibility study or the DCF?

MR HO: It's probably my fault for the way I'm putting the question.

But would you then agree with me that the inputs for a DCF are routinely taken from feasibility studies because feasibility studies provide you with reliable information that you can use for a DCF analysis?

DR FLORES: I don't know necessarily I would agree with the word "reliable". I would think a feasibility study and a DCF are necessary conditions to obtaining financing, but they are not sufficient conditions.

To put it in other words, I have never seen a feasibility study that says actually we've run a DCF and this is not profitable. The feasibility studies will always show a positive number. However, there's many, many feasibility studies that they are not developed and they don't result in an actual project being built. That's why I say necessary but not sufficient.

MR HO: Yes. I mean it may depend on the quality of the feasibility study, of course. If the feasibility study is produced by reliable consultants, they will invariably produce inputs that are themselves reasonable and reliable.

DR FLORES: Not necessarily. Unlike -- remember before when I was talking about the independent auditor auditing or commenting on the financial statements of a company? That has certain requirements. It has to be an independent. You cannot have anyone at the company saying, yes, my financial statements are great.

However, that's not the case with feasibility studies. You do hire external consultants to do a feasibility study, but they don't have any duty to be independent from the sponsor of the project, and in fact, many feasibility studies are clear that they're relying on assumptions and premises provided by the sponsor of the project.

So if the assumptions by the sponsor are optimistic, the results of the feasibility study will also be optimistic. That's why the bank or the financier will have to come and come with his or her own army of technical and financial people to say do we agree or do we disagree with them.

MR HO: Would you agree with me, though, that there's no incentive for the project owner to present a misleading or unreliable picture to financiers in a feasibility study because that will only dissuade them from providing finance once they've conducted due diligence, as you've just explained they inevitably will?

DR FLORES: What two words did you use at the beginning of the incentive?

MR HO: That there's no incentive.

DR FLORES: Incentive to what?

MR HO: For the project owners to present a misleading or unreliable picture.

DR FLORES: I don't think they would want

10:31

to intentionally be misleading, but without being misleading you can be very optimistic. By nature, people that like to be in this industry of developing like big projects, they are eternal optimists and they're always trying to tell you please invest in my company, it's the best thing since sliced bread was invented. And, yes, they are optimistic. I think they believe what they say, but I don't think everyone will agree with their very optimistic assessments. So it's not about being misleading; it's about understanding the dynamics of the market. The people that are drawn to these kind of businesses, they are marketing ideas.

MR HO: I understand.

Can I ask you some questions now about some of the views in your second report?

Your second report contains your views of the coal industry in Mozambique and demand for Mozambican coal, and that was written on the 24th of November, 2021, wasn't it?

DR FLORES: Correct. Or a few days before.

MR HO: That was, of course, before Russia's invasion of Ukraine, wasn't it?

DR FLORES: Yes.

MR HO: And Russia's invasion of Ukraine has had an enormous effect on the global energy market, hasn't it? **10:32**

DR FLORES: I would say it has created a huge distortion of a temporary effect -- or temporary nature.

MR HO: Well, you say it's of a temporary nature. How do you know that it's going to be of a temporary nature? Surely it depends on how long the conflict goes on for?

DR FLORES: No, it does not.

MR HO: And why is that?

DR FLORES: Because -- look, I'll give you a real life example.

When the invasions happened earlier this year the prices of commodities -- coal, gas -- spiked as they hadn't in many, many years, and I remember reading articles that said, look, this winter is going to be horrible in Europe. There's going to be electricity rationing, and very much the lights in the streets will be dark. I just came from Paris yesterday, and I can tell you Paris is as bright as ever. And what has happened is that after the initial surprise and the initial shock, economic agents adapt, and even though gas from Russia is not coming to Western Europe as much as it was, what's happening not too far from here in southern Portugal, you have LNG terminals. The LNG terminals here, in Spain, in the rest of the Mediterranean, are working overdrive to bring liquefied natural gas from the United States, and that has helped lower the price of natural gas and has helped decrease the need for coal use in energy plants, in power plants. **10:33**

MR HO: Yes, in Western Europe, but not necessarily in Africa or in India or in Asia or in the Middle East, where environmental standards are perhaps lower and the use of cheaper fuel like coal is very much a priority now that Russian coal is not so readily available. And Russian gas.

DR FLORES: But this -- if you want more coal tomorrow and you have a German company that was operating a coal plant and it was supposed to go out of business by the end of this year and now it's being extended by another 12 months or 18 months, yes, that may cause a spike in prices, because then what you may have is that now the Germans are demanding more coal than they would have, and you have the people from, let's say, India still demanding the same amount of coal, so that creates a spike in prices, but that's only a temporary spike.

Remember, even if the decision were to be made today to build this project that the Claimants want to say, in the most optimistic of scenarios you wouldn't have coal being transported at the earliest in five years. Do you really believe that in five years you still will have these lingering effects of the Ukrainian invasion? No. The world will have adapted. **10:35**

MR HO: Are you aware of what the current coal future prices are?

DR FLORES: I wasn't. I read what Mr Sequeira said, that by December 2026 they're expected to be high. I think that's what he said, no?

MR HO: That's right. I think the projection is they will be at something like $160 a ton.

DR FLORES: Yes. And now are you telling me that that would justify putting $3 billion in the ground in Mozambique for coal that would not even be available in December 2026? In fact, it's funny that he uses that source because in other arbitrations that we work on, futures -- that's why he said December 2026 because there's no futures traded after that date, but there are forecasts that

10:36

are more longer term. One that we use very frequently in arbitration is one published by Consensus Economics in London. The latest forecast of them, they show that by 20 -- that by the end of this decade coal prices would be 75 per cent lower than they are today.

So if you own a coal mine today, happy you, because, yes, you can make more money today, but you need to have the mine and the railway operating today. What has been happening this year as a result of the Ukrainian invasion does not change the economics of investing in a project, a 30-year project, for which the first coal will not be available until four, five, six, seven years from today.

A short-term disruption, no financier would use that to make a crazy decision to invest in something that has no future.

MR HO: All I'm putting to you is you say that the market shift is temporary, but if coal future prices four years out from now are $160 a ton, the futures market doesn't seem to suggest that the shift is temporary, does it?

DR FLORES: The futures market tends to be more and more unreliable the further out you go in time. The futures market for one month out, two months out is widely used in the markets. Why? Because there's a lot of people trading and selling futures for two or three months ahead. **10:38**

When you're talking the futures for December 2026, that's like four years from now, those are very thinly traded futures contracts, so it means that the price is not really very revealing, and you can see historically that the very long-term, the three years out future prices have very little predictive ability.

MR HO: In the months following the Russian invasion, do you agree with me that India was dealing with a domestic coal shortage?

DR FLORES: In the months immediately following, yes.

MR HO: And, as a result, there was renewed interest in Mozambican coal in India, wasn't there?

DR FLORES: I'm not aware of that.

MR HO: And are you aware that there was in fact a massive increase in the export to India of Mozambican coal?

DR FLORES: That may well be true but, again, this is a short-term phenomenon, and that

10:39

coal came from existing mines that were under-utilised, but what I have seen no news whatsoever -- and I don't think there is any -- is of now suddenly new mines being developed in Mozambique. That's not happening. So, as I said before, if you have an existing mine, given this temporary disruption that's creating higher prices, then yes, you can take advantage of that, but this renewed interest is not causing suddenly people to want to open new mines in Mozambique that would require a commitment of billions of dollars for decades into the future.

MR HO: And are you aware that, following the invasion, there was a significant increase in production from the very mines which would have been serviced by the project?

DR FLORES: Yes, and that's fully consistent with what I am telling you. In the short term you're going to have existing mines and existing infrastructure that can be used, will be used, but that will not make suddenly financiers want to finance brand new what we call greenfield projects that will not be available for half a decade when all of this will be in the history.

MR HO: But would you agree with me that if, in fact, you're wrong that the market adjustments are not temporary, if in fact, because of the invasion, developing nations choose to build more coal-fired power stations, then the market dynamics will change not just in the short term but in the medium and long term as well?

DR FLORES: So are you asking me to make an assumption? A hypothetical?

MR HO: Yes, I am. Yes, I'm asking you to make a hypothetical.

DR FLORES: So you're asking me to assume that coal will continue to be used for ever at very high prices? Then my answer is yes, coal will be used for ever at very high prices, but that's a circular argument that has no basis in reality.

MR HO: All right. Let's look at some of the detail of the DCF model together.

The first thing I want to talk about with you is the tariffs that are used in the DCF model.

Now, you have suggested that Secretariat's use of the feasibility study's tariff figures is inappropriate because it ignores the downward pressure on transportation tariffs due to competition with existing logistics corridors. Do you remember that?

DR FLORES: Could you refresh my memory by pointing me to the relevant paragraph? **10:41**

MR HO: Well, I'm happy to represent it to you, and then we'll see it.

Let me show you how Secretariat have responded to what you've said. We can see that in paragraph 122 of Secretariat's second report, that's at internal page 54, and for those of us following electronically it's CER-5, page 54 of the pdf.

Do you have paragraph 122 there?

DR FLORES: Yes.

MR HO: And we can see that they say, "Dr Flores states that we ignored downward pressure on transportation tariffs due to competition with existing logistics corridors, which may 'lead to a short-term reduction in tariffs'", and then there's a citation to your report.

"Dr Flores ignores the fact that the rail tariffs for the project are already 47 per cent and 49-72 per cent lower than the rail tariffs for the Sena-Beira corridor and NLC, respectively ... Therefore, we consider that there is very limited risk of downward pressure on tariffs from other corridors in this case. Indeed, we consider the opposite view is more reasonable when compared to the existing corridors".

Now, you've not disputed those figures in your second report, have you? You've not disputed the figures in the second sentence that the rail tariffs are already 47 and 49-72 per cent lower, have you?

DR FLORES: I would need to refresh my recollection. Can I look at my --

MR HO: Yes. I think you'll find it on paragraph 88, internal page 35 for you. And all I'm putting to you is you have not disputed in your second report the figures that we see in the second sentence, have you?

DR FLORES: Well, I want to make sure.

MR HO: OK, yes.

DR FLORES: And you are referring me to which paragraph?

MR HO: Well, I think paragraph 88 is where you respond to this bit of Secretariat's second report, but obviously I leave it to you to tell me if you have disputed these figures somewhere else.

DR FLORES: I was looking at the wrong report, sorry.

MR HO: Don't worry.

DR FLORES: Yes, in paragraph 88 I do think I disagree with his conclusion. **10:44**

MR HO: I'm sorry. All I'm putting to you is that you haven't disputed the figures in the second sentence of Secretariat's second report, paragraph 122. I understand you disagree with the conclusion, and we'll come to that in a moment, but we're just taking it in stages.

You haven't disputed those figures in your second report, have you?

DR FLORES: I don't recall exactly. I mean, I know he's not taking -- if I recall correctly, when he estimates the tariffs for the Beira corridor and the Nacala corridor he is not using numbers from public sources, I believe. I think he's using estimates or he's doing some calculations, and I think I do mention that somewhere in the reports, that he's just making estimates and not actual published numbers.

MR HO: I'm afraid I don't accept that that's right, Dr Flores, but if it matters we'll come back to it.

Let's see what you have disputed. We can see that, as I say, in paragraph 88 of your second report. That's RER-9, page 36 for those following

electronically, and for you it should be page 35. **10:46**
Do you have that?

DR FLORES: Yes.

MR HO: And we can see that the point that you've made is you say "[Secretariat] ignores the fact that if the project would have indeed offered its services at lower prices, competitors would have reacted, resulting in uncertainty on whether the project would have been able to secure the volumes of transported coal assumed by [Secretariat]." Do you see that? And that's the basis on which you dispute what they say.

DR FLORES: Yes.

MR HO: Now, you say "competitors would have reacted", but as we can see from paragraph 88 you've not actually conducted any factual investigations or analysis as to whether competitors would have been able to react and, if so, how, have you?

DR FLORES: I mean I have described that in my presentation, the dynamics of competition and how it works that for an existing operation, you don't even need to be profitable. What you need is to just be able to cover your variable costs.

MR HO: But you haven't attempted to

analyse whether, even if you only cover your variable costs, that would mean the competitors were able to offer a tariff lower than that proposed to be offered by the project in the ex post DCF model, have you? **10:47**

DR FLORES: I don't have a quantitative analysis, but that's a very sound economic principle, that the more competitors you add, the more the forces to depress prices will be, and that's my only point here to make, that that increases the speculative nature of the DCF assumptions.

MR HO: But that only is true if competitors can reduce their rates to the same levels that the new market entrant is proposing, and as we can see from the figures that, as I say, you haven't disputed, there's a considerable degree of headroom, isn't there?

DR FLORES: You just said I haven't disputed. That's to be checked when we review the entirety of the reports.

MR HO: I'm happy for you to do the check now. Where do you think you dispute them?

DR FLORES: I'm happy to look at it. I remember having seen that those were not actual numbers --

MR HO: I see.

DR FLORES: They were estimates.

MR HO: So that's the only basis on which you're disputing them?

DR FLORES: Yes, that the 49 to 72 per cent range, if my recollection is correct, is a calculation that Versant makes. It's not that the owners of these other corridors have come up and said yes, our cost is this much per ton. It's an estimate, not a hard number.

MR HO: All right. We'll come back to that.

Can I move now to look at the operating and maintenance costs that underpin the ex post DCF, and the figures for those costs have come from the feasibility study as updated in July 2017, haven't they?

DR FLORES: Yes.

MR HO: So let's have a look at the feasibility study. You can see that in Core Bundle volume 4, which I think you have. It's at tab 102. What I'd like you to do is can you turn to the first page of the 2015 feasibility study. For those of us in electronic it's R-42, page 20.

DR FLORES: The 2015 is at the back? **10:50**

MR HO: No, it should be about 20 pages in. We've got it on the screen for you so you know what you're looking for.

DR FLORES: Yes.

MR HO: You have that. So the page on the left-hand side for you, what we have on the screen for everyone else, is the covering page of the feasibility study, yes?

DR FLORES: Yes.

MR HO: We can see in the middle that it was prepared by ITD?

DR FLORES: Yes.

MR HO: And then we can see it was prepared in co-operation with three other companies?

DR FLORES: Yes.

MR HO: Now, what do you know about the China Railway Construction Corporation group?

DR FLORES: I don't know what you mean by what do I know.

MR HO: Well, what can you tell me about them?

DR FLORES: It's a Chinese company. I think it's State-owned. It works in construction of railways.

MR HO: Did you know that in 2014 it was **10:50**
the second largest construction engineering company
in the world by revenue?

DR FLORES: I may have seen that data
point. I didn't have it committed to memory.

MR HO: And are you aware of any of the
projects which the China Railway Construction
Corporation group has built?

DR FLORES: I think I have seen that
information. I don't have it committed to memory.

MR HO: Do you remember that they've built
around two-thirds of all the railways in China?

DR FLORES: The same answer as before.

MR HO: All right. And is the fact that
you don't have much of a feel for the China Railway
Construction Group because you don't have very much
expertise in the infrastructure industry?

DR FLORES: I would disagree with the
first part of your answer of I don't have much of a
feel. It's -- what I told you is that I don't have
this data committed to memory. There's only so much
one can have in his head, even if you have a big
head. I don't think that was central to the
preparation of the reports, so that's why I don't
have it now memorised.

MR HO: And what can you tell me about the second company, the China Railway First Survey and Design Institute? **10:52**

DR FLORES: I would tell you the same answers as the first.

MR HO: Which is you don't know anything about them or you can't remember anything about them?

DR FLORES: It's what I told you before, which is I may have seen information about these companies which I do not have committed to memory today.

MR HO: Let me see if I can remind you.

Do you recall that, as at December '15, they had led the design and construction of over 48,000 kilometres of railways in western China?

DR FLORES: No, I did not have that recollection today.

MR HO: All right. Similarly, can I just ask you about the third company? Do you remember anything about them?

DR FLORES: I do not have the specifics about how many kilometres in western or eastern China they had developed. I have not committed that to memory.

MR HO: Do you accept, though, that the feasibility study was prepared with the assistance of some extremely experienced and well known Chinese infrastructure companies? **10:53**

DR FLORES: Yes, I do not dispute that these are well known and experienced railway construction companies.

MR HO: And the whole point of using such well known and experienced companies is to provide banks and lenders comfort that the feasibility study has been prepared properly and accurately?

DR FLORES: Again, we go back to the line of questions from some minutes ago. If you see the cover page, this feasibility study was prepared by Italian-Thai Development Public Company Ltd. ITD. This is the company that prepared the report. They take final responsibility, and when they go to the banks, the bank will say who prepared this? Like, we prepared it. They are the ones that respond for that. And then they say "in co-operation with", so they get assistance from these Chinese companies but that doesn't mean that they take full ownership or full responsibility, or that they have independently arrived at any number that's within this document. It is that they have provided inputs to the company that prepared the feasibility study, which is ITD. **10:54**

MR HO: Yes. But the whole reason why ITD on the very first page identifies the very experienced Chinese companies that have assisted them preparing the report is because they want to give lenders and financiers comfort that the report is based on proper expert analysis. Would you agree?

DR FLORES: It goes back to the answer I gave before about necessary but not sufficient. Of course, it's good to have the co-operation of specialised companies that will provide data, information, and assistance, and, of course, a bank would prefer to receive a feasibility study that has the co-operation of these companies than a feasibility study that does not, but having those names there does not mean that you take this -- like, what, 200, 250 pages, you bind it nicely, you give it to the bankers and the bank says, yes, here's your cheque, $3 billion. It does not mean that. It has never meant that.

MR HO: I think you'd obviously accept that the three Chinese companies that we've just been talking about have far more knowledge than you do about the likely costs of operating and maintaining the project. **10:55**

DR FLORES: Yes. I don't know how to answer that.

MR HO: Why don't you know how to answer that?

DR FLORES: Because I do not know did the level of knowledge that these companies had with the specific issues in Mozambique, did they rely on TML, the subsidiary based in Mozambique, to provide them with certain information. Because they can be very well respected companies, but if their specialisation is building railways in western China, they may make some broad assumptions but they may lack specialised knowledge about the reality in the ground in Mozambique.

I do not know how much studying they did of the on-the-ground reality in Mozambique, and that's why I cannot give you an answer.

MR HO: All I was putting to you was you must accept that those companies have far more knowledge than you do about the likely costs of operating and maintaining the project?

DR FLORES: Again, I don't know how to answer that question.

MR HO: Mr President, we've been going for about an hour and a half now. Is that a convenient moment for a break? **10:57**

PRESIDENT: I was going to propose that, at some convenient stage, we should break.

How long do you still have to go?

MR HO: I would say about an hour. The hope is in total I would be about two hours.

PRESIDENT: Very good. It's now 10.57, so let's come back at 11.15, and of course Dr Flores, you know the rules.

(Short break from 10.57 am to 11.18 am)

PRESIDENT: Very good. We resume the hearing. Mr Ho, you have the floor.

MR HO: Thank you, Mr President.

Just to come back to a point we were on before the break, you remember we were talking about tariffs and you had a recollection at least that Secretariat's exercise of comparing how much lower the project tariffs were with the Sena-Beira and Nacala corridors was based on assumptions about what the Sena-Beira corridor and Nacala corridor were charging. Do you remember that?

DR FLORES: Yes.

MR HO: I just want to show you that they're based on actuals. If we look first of all in your direct presentation at slide 8, you see there you have your diagram which shows the cost of, amongst other things, Mozambique coal, do you see that? **11:19**

DR FLORES: Yes.

MR HO: And the first two elements are the first element in the darkest red is land transport and then the second element is port.

DR FLORES: Yes.

MR HO: So if you add those two together you get $51.

DR FLORES: Yes.

MR HO: That, on my understanding, is the actual tariff charged for the Beira corridor, and that comes I think from the Wood Mackenzie report, so that's an actual figure. Do you have any basis for disagreeing with that?

DR FLORES: If you want to show me, I can confirm. I don't recall one way or the other.

MR HO: But this is a table that you're relying on in your direct presentation and I believe in your reports. You aren't able, though, to confirm to us now that that's an actual figure for Beira?

DR FLORES: This is Wood Mackenzie's

compilation for Mozambique. I assume it has to be an average of different operations because not all the mines are in the same location. **11:20**

MR HO: Well, my understanding is that it's an actual for Beira, but we'll leave it there. Can I show you now for Nacala? If we go to C-88 -- we don't have that, I'm afraid, printed out for you, but you'll be able to see it on the screen -- what this is, Dr Flores, to explain, is this is the annual report for Vale for the fiscal year ended 31 December 2019 that they filed with the SEC. Can you see that?

DR FLORES: Yes.

MR HO: If we turn on -- now, just to explain what I'm going to show you, there isn't in this document a statement that the tariff for Nacala is a particular number. What there is, though, is an explanation of what the total revenue generated from Nacala is and what the total coal throughput is, and if you divide one by the other that inevitably gets you to the tariff.

Would you accept that as a proposition?

DR FLORES: You can show it to me.

MR HO: All right. Let's see, first of all, the total revenue. If we go on in this to page

257, can you see -- yes, if you just stop there. **11:22**

Can you see there's a table which is for December 31, 2019 at the top of the --

DR FLORES: Yes.

MR HO: And can you see underneath that date it says "Nacala Corridor Holdings"?

DR FLORES: Yes.

MR HO: And then if you scroll down in the bottom of that column to the penultimate row, can you see the number 782?

DR FLORES: Yes.

MR HO: And that is 782 million is the net revenue from the Nacala corridor. Do you see that?

DR FLORES: Million US dollars?

MR HO: Yes, I believe so.

DR FLORES: Could we check to be sure?

MR HO: I'm happy to represent that to you, Dr Flores.

DR FLORES: OK.

MR HO: OK. So that is the net revenue. What I'm now going to show you is the total coal throughput and we can see that on page 104.

Again, just to save time, I will represent to you that what is being discussed here is the coal throughput at Nacala.

Can you see there's the column headed "2019", "Year ended December 31, 2019"? **11:23**

DR FLORES: Yes.

MR HO: And then if we scroll down in that column can you see there's a line "Thermal coal and metallurgical coal"?

DR FLORES: Yes.

MR HO: I'm going to, as I say, represent to you that those are the throughput amounts for Nacala. And can you see there's the numbers 4356 and 4427?

DR FLORES: I see but why do you need to represent that to me? Can't we just see it in the document?

MR HO: I'm just trying to save time us flicking through this document, but don't worry about that, Dr Flores. If I'm wrong about that, someone will correct me later.

What I want is to put the proposition to you that if you divide the total revenue figure that we saw a moment ago by the total coal throughput figures, which are here, you will get a tariff of $89 and that's an actual figure that reflects the tariff at Nacala?

DR FLORES: But the revenue was only

revenue for coal? Or also revenue for the iron, pellets, manganese? **11:24**

MR HO: I'm so sorry. I didn't hear all of that.

DR FLORES: Here you're showing volumes of different products. Iron, pellets, manganese, ferrous minerals, coal and base metals.

MR HO: Correct.

DR FLORES: So there are many different products.

MR HO: Correct. And I'm asking you to focus on the lines for thermal coal and metallurgical coal, and I'm representing to you that those volumes come only from Nacala. So if we want to know the throughput for Nacala only, we just add those two numbers together.

What I'm putting to you is this is the exercise which Secretariat has done. They have used these actual numbers in order to calculate a tariff at Nacala and have therefore compared an actual, not an estimate, as you were suggesting you had recalled?

DR FLORES: I'm sorry, but I would calculate these as an estimate. This is not management of the subsidiary in Mozambique saying this is our tariff, this is our average tariff. **11:25**

This is numbers you are pulling from an F20 document, which is a filing for the entirety of Vale.

MR HO: Right. But if these numbers only relate to Nacala, then I think you would accept that they are valid figures? Actuals?

DR FLORES: No, I -- I mean the definition of an estimate is a number that you estimate because you don't have the real figure. When you start dividing things, that's not the actual number.

MR HO: I'm sorry, I don't really understand that as a proposition. If you have two actual numbers and you divide those, you will get an actual output.

If I have the -- if I can tell you what the actual total revenue is and the actual total coal throughput, and I divide revenue by coal throughput, I will get the actual tariff. There's no estimate involved.

DR FLORES: No, you would get an average that we would need to do -- so I would need to see how these numbers have been calculated.

MR HO: All right. Very well.

Let's move on to talk about capex in the ex post DCF model, and that, unfortunately, requires me to try and pronounce Professor Flyvbjerg's name, I think. So far as capital costs are concerned you have relied on some articles written by I think it's Professor Flyvbjerg concerning cost overruns on what he refers to as megaprojects, haven't you? **11:26**

DR FLORES: Yes.

MR HO: And you have in particular highlighted that Professor Flyvbjerg has concluded based on cost overrun estimates for 58 rail projects that the average cost overrun is 44.7 per cent. I think we saw that in your direct this morning.

DR FLORES: Yes.

MR HO: And that data originates from a 2002 study from Professor Flyvbjerg, doesn't it?

DR FLORES: I don't recall the exact year but it is early in the century. We can check the number -- the year if you want.

MR HO: Do you agree with me that Professor Flyvbjerg's data from that 2002 study is limited because, first, it does not contain much, if any, data from private as opposed to public projects?

DR FLORES: I don't recall exactly the split between private and public projects.

MR HO: And do you also accept that it's limited because it doesn't analyse the cost overruns of different kinds of rail projects separately but lumps all rail projects together? **11:28**

DR FLORES: You started your question saying "you also accept" -- I did not.

MR HO: I said "do" you also accept. I'm asking. Do you also accept that Professor Flyvbjerg's data is limited.

DR FLORES: But I did not accept the prior question so when you say "also" you are implying that I accepted the prior question. I did not accept.

MR HO: I'm sorry. You're quite right to pick me up then, Dr Flores.

I am sorry, just to be clear, then, you're not accepting that the data is limited because it's mostly from public projects, not private projects?

DR FLORES: You can read my prior answer.

PRESIDENT: Let's -- Dr Flores, let's try to be --

DR FLORES: It's the answer I gave before.

PRESIDENT: You need to answer. Let's keep the flow going.

DR FLORES: Yes. My answer before was I do not recall the split between private and public sponsored projects. **11:29**

MR HO: Do you also believe that the data is limited, because it includes comparatively few projects outside of Europe and North America?

DR FLORES: The sample did have more projects in Europe and -- Europe and America, yes.

MR HO: Yes, North America. So you accept it's limited because it doesn't have very many projects from outside of those regions?

DR FLORES: That is correct, yes.

MR HO: And do you accept that it reveals in fact very little about the likely cost overrun of a private conventional rail project in Mozambique?

DR FLORES: Conventional as opposed to what?

MR HO: As opposed to high speed rail, rail with tunnels, metro rail?

DR FLORES: Yes, the average, it is what it is. It's based on a number of actual projects, and the conclusion is that most of them experience cost overruns.

MR HO: I'm sorry, I don't think that answered my question.

My question was do you accept that the

data reveals very little about the likely cost overruns of a private conventional rail project in Mozambique?

DR FLORES: First, I'm not sure about that characterisation of "private". I don't know if this is a settled matter that this would be a private project. I understood it was to be a concession where government and the private sector would be co-operating.

MR HO: Well, it's not a project that is majority owned by the government, is it? It's going to be a project that is majority owned by a private individual who will be the Builder Owner Operator. It's not a project like -- well, to use an English example like High Speed Rail 2, which is a government-funded project to build a railway from London to the north of England.

DR FLORES: OK, if you define "private" that way, then fine.

PRESIDENT: But the question, Dr Flores, was the following, whether the sample takes other construction projects which are in developed countries and for sophisticated rail projects, and whether that sample -- or the conclusions from that sample can be extrapolated to conventional rail for mining operations in Mozambique. That is the question of counsel.

DR FLORES: Yes, and I think the answer is yes, it can be extrapolated.

It's true that it's based on a sample that's not identical to the project we want to analyse, but I also am not relying on that figure from the Professor about the 44.7 per cent.

What I'm saying is that you only need a cost overrun of 22 per cent, which is less than half of what he estimates based on his sample, and already the project is worth nothing. That's my point. That generically you see cost overruns in any kind of industries when you build them, and that's universal throughout the world and you don't need -- so if I have done the analysis, you get to the project being NPV worthless. Once you rely on the Professor's 44 per cent estimate then I could see the value of this line of questions, but you don't need that. With a 22 per cent cost overrun, it's already worth nothing.

MR HO: Mr President, the 2002 study was one of those documents that we wanted to add late to the record, and I think what the Tribunal ruled was that we could discuss or ask questions about them but we could only show them if the testimony contradicts what's in them.

I think given where we've got to with Dr Flores not accepting, as I understand it anyway, that private projects are different and not included in the data set, may I please show him that part of the study?

PRESIDENT: Mr Brown, do you have any problem?

MR BROWN: Mr President, I actually do think that the line of questions had explored Dr Flores' answer to this already quite completely, but I don't have any particular problem if the document wants to be shown.

PRESIDENT: Thank you. Thank you, Mr Brown. That's appreciated.

Let's then -- it's H-12. So we incorporate this document as H-12.

MR HO: So it's H-12. You may also have it -- never mind. I thought you might have it electronically already, but you don't.

Oh, you do have a copy there. Thank you. Does everybody -- do you have a copy on your side?

MR BROWN: I do, thank you.

MR HO: OK, good.

Now, Dr Flores, I don't want to go through the whole study with you so I will just represent to you that this is the 2002 study where the figures that you relied on come from, so this is where the 58 rail cases with a cost overspend of 44.7 per cent come from. What I want to show you is what is said on page 5. **11:34**

The pages are in the top right-hand corner. There's a paragraph that begins "Finally". Can you see that?

DR FLORES: Yes, I can see it.

MR HO: And so what Professor Flyvbjerg says is, "Finally, we want to emphasise that although the project sample used in this study is the largest of its kind, it is still too small to allow more than a few sub divisions, if comparative statistical analyses must still be possible. Therefore, in further work on understanding cost underestimation, the sample should be enlarged to better represent different types of projects in different geographical locations. As to project types, data for more private projects would be particularly useful in allowing statistically valid comparisons between public and private sector projects. Such comparisons do not exist today, and nobody knows whether private projects perform better or worse than public ones regarding cost underestimation".

So what I want to put to you is, as Professor Flyvbjerg says, nobody knows whether private projects perform better or worse than public ones, do they?

DR FLORES: This is what this sentence says.

MR HO: So the data in this study which you've relied on is inadequate to tell us anything about the likely cost overruns in private projects, isn't it?

DR FLORES: No, I do not think it is. I mean first, to set the record straight, it's my first time seeing this article, so if you want I can spend a few minutes reading it. I assume you are reading to me from the introduction, so early on in the paper, right? I mean it would be nice to read the entire paper, see what it says.

But what he's saying is that nobody knows whether they're higher or lower, so there is not the presumption that, well, the private projects definitely must be lower. The private projects may be higher. He just says he doesn't know.

MR HO: That's absolutely true, and what I'm putting to you is you are the one that has relied on data from this study. **11:37**

DR FLORES: No, I did not rely on 44.7 per cent. I did not rely on data. I relied on the point, the qualitative point, that when you build something very large, it's very likely that you're going to have cost overruns. I do not care about the 44.7.

What if the study is done and then it shows that, well, for the private sector it's actually 31 per cent cost overrun. That doesn't change my analysis, which is you cannot do a reliable analysis when just a 22 per cent cost overrun in capex destroys the profitability of the project. That's the main point. I don't rely and I don't need to rely on a specific quantification. He is talking in this paragraph that you led me to about statistically significant analysis, right?

MR HO: It's on page 5.

DR FLORES: Yes, page 5. He talks about statistically valid comparisons, so if you want to do numerical assessments, then yes, more information would be always welcome, but the qualitative point that you cannot do a reliable DCF when just a 22 per cent cost overrun kills the project, that I stand with and it's not contradicted with this. **11:38**

MR HO: But you've not referred to any analysis or evidence which shows that cost overruns are likely in private projects, have you? The only thing you relied on was Professor Flyvbjerg, and we've just seen that he doesn't deal with private projects.

DR FLORES: He deals with all projects, I believe. He hasn't done a separate study of private versus public.

MR HO: Dr Flores, let's be fair. He says "as to project types, data for more private projects would be particularly useful", and he says "nobody knows whether private projects" --

DR FLORES: No, no.

MR HO: -- "perform better or worse than public ones".

DR FLORES: Sorry. You didn't read the whole sentence. "The data for more private projects would be particularly useful in allowing statistically valid comparisons". He's not saying that he doesn't have any private; he's saying that to do statistical analysis, rigorous statistical analysis, it could be good to have more of the two types. He's not saying that his sample doesn't contain any private sector projects at all.

MR HO: But I think you'd agree with me that, if the data doesn't contain enough samples to do a statistically rigorous analysis, it's not a very useful data set?

DR FLORES: Statistically valid comparisons, because the idea -- so there's two questions you might want to ask. One question is like, are there cost overruns when you build megaprojects. A different question is, like, is there a difference in the magnitude of the cost overrun between private and public sector. These are two separate research questions.

What I read this paragraph to, without the benefit of having read the entire paper, is that he's saying for the second research question to do a comparative analysis that is statistically significant of difference between private and public, more data would be needed, but that this does not disqualify the point that, overall, cost overruns do happen.

MR HO: I'll maybe just show you one more thing in this document, if I may.

If we turn to page 39 at the very end, can you see that table 1?

DR FLORES: Yes.

MR HO: And do you see in the first row, "Rail", we have the figures that you were referring to. We have the number of cases, 58, and then average cost escalation, 44.7 per cent. Do you see that?

DR FLORES: Yes.

MR HO: That was what was in your report.

If we turn over the page to page 40, we have a breakdown of that row, and it's broken out into Europe, North America, and Other Geographical Areas. Do you see that?

DR FLORES: Yes.

MR HO: And in "Other Geographical Areas" there are only 16 projects.

DR FLORES: Yes.

MR HO: And we don't have any idea if any of those are private projects, do we? It doesn't say from the table here.

DR FLORES: In this table it does not say.

MR HO: And we don't know what type of rail projects they are either, whether they're conventional or metro or high speed and so on?

DR FLORES: It doesn't say.

MR HO: And there's no explanation of where in the world these other 16 projects are in this table, does it? It's just other geographical areas? **11:42**

DR FLORES: In this table it doesn't say.

MR HO: We can also see there's a standard deviation of 49.5, do you see that?

DR FLORES: Where? Yes.

MR HO: Thank you.

So this small data set -- I'm sorry, I think we seem to have lost -- so this small data set contains a very wide range of values, doesn't it, because it has quite a high standard deviation of 49.5?

DR FLORES: It depends how you define it. The standard deviation is slightly higher than for the other ones but also the average is higher. So if we were to look at the standard error, where you divide the average by the standard deviation, I'm not sure it would be particularly more dispersed in relative terms than for North America and for Europe.

MR HO: Do you accept that the fact that the standard deviation is high makes it difficult to extrapolate anything about projects generally when the range of values in a small data set is so large? **11:43**

DR FLORES: I mean in general, when you have a sample, you're always going to have a standard deviation so no, I would not accept that as a general proposition. You do have standard deviations. Then you need to make a comparison to see whether the sample is still -- whether it has a central tendency that's meaningful or it is not.

MR HO: All right. Can we move on now to look at some issues concerning the ex post DCF discount rates together? So we can get rid of that.

Just to put this discussion in context, having calculated all the cash flows over the lifetime of a project, those cash flows are discounted back to the valuation date in order to give a value for the project as at a specific date, aren't they?

DR FLORES: Yes.

MR HO: And in order to do that discounting, which is essentially a mathematical exercise, one needs to have produced a discount rate.

DR FLORES: Yes.

MR HO: And the discount rate is typically made up of a number of components, and I think some of those are in dispute between you and Secretariat, is that fair? **11:44**

DR FLORES: Yes.

MR HO: I think the areas of disagreement are equity risk premium, country risk premium, pre operational risk premium and additional risk premium, so we will look at some of those together.

Can I start with equity risk premium? And just to put the debate in simple terms, it's right, isn't it, that the higher the equity risk premium, the higher the discount rate will be and therefore the smaller the value of the project?

DR FLORES: That is correct.

MR HO: And you've used an equity risk premium of 7.25 per cent, haven't you?

DR FLORES: I don't remember the decimals.

MR HO: If you want help, it's page 81 of your second report, paragraph 226.

DR FLORES: Yes.

MR HO: So let's see where that comes from. If we could go, please, to QE-96, page 2, and that for you, Dr Flores, is Core Bundle volume 4. I think it may be the one in front of you, tab 109.

DR FLORES: No, I don't have 109 here.

PRESIDENT: Give me a second to catch up with you. Yes. Equity risk premium. And you want me now to go to QE-96? **11:46**

MR HO: Do you have it, Mr President?

DR FLORES: Yes, Duff & Phelps.

MR HO: Duff & Phelps, that's right.

PRESIDENT: Very good. I'm with you. Sorry for the --

MR HO: No, no, not at all.

So this is a document prepared by Duff & Phelps, and it provides their guidance on a suitable equity risk premium, doesn't it?

DR FLORES: It's their analysis of equity risk premium.

MR HO: And if we look on the first page, page 2 of the pdf, you can see there that there's Exhibit 3.1, and we can see that's headed ERP guidance as of 31st December 2020.

Do you see that?

DR FLORES: Yes.

MR HO: And then in that exhibit, we can see the 7.25 per cent figure you've used, which is described as "Long-term Historical".

DR FLORES: Yes.

MR HO: And then below that we have "Duff & Phelps Recommended", which is 5.5 per cent.

DR FLORES: Yes. **11:48**

MR HO: So, self-evidently, the 7.25 per cent you've used is not the figure which Duff & Phelps themselves actually recommend, is it?

DR FLORES: That's correct, but to clarify, the equity risk premium has to be added to the risk-free rate, so for a company that has a beta parameter of 1 you would sum the two components, like equity risk premium plus risk-free rate.

Now, it's true I use a higher equity risk premium than the one Duff & Phelps recommend, but they recommend a higher risk-free rate than I recommend, so that's -- you need to do the sum of the two components because I do not use the same risk-free rate that they use. They use a higher one. That's why they recommend a lower equity, otherwise they would be overestimating. I don't know if that was clear or not.

MR HO: I have followed what you were saying, so you and I at least are together.

DR FLORES: Good.

MR HO: If we go over to the next page, we can start to see why --

DR FLORES: Hold on. Just to make sure, you see the sentence that says -- the paragraph below the table there's a sentence that begins with "This". "This recommendation is to be used in conjunction with a normalised risk-free rate of 2.5 per cent implying a base US cost of capital of 8", meaning 5.5 plus 2.5. That's what I was referring to. So you need to look -- the two estimates need to be consistent. **11:49**

MR HO: Yes. I think you use a risk-free rate of 2 per cent.

DR FLORES: Correct.

MR HO: So in total you would be using an equity risk premium of 9.25 per cent, whereas Duff & Phelps would recommend a total equity risk premium of 8 per cent?

DR FLORES: If the beta was one, yes, but if the beta is higher than one or lower than one it would be --

PRESIDENT: Can you speak into the microphone?

DR FLORES: Sorry. Yes, it would depend on -- that would be the only case if the beta parameter was equal to one.

MR HO: Let's see why Duff & Phelps don't use the 7.25 per cent figure. We can see that if we go over to the next page, and can you see two-thirds down the page there's the heading "Realised Historical Stock and Bond Returns"? **11:51**

DR FLORES: Yes.

MR HO: Now, just before we start looking at the detail I just want to confirm with you in broad terms what this is about. So one way to estimate an equity risk premium is by looking at historic stock and bond returns, isn't it?

DR FLORES: Yes.

MR HO: And the actual returns earned on stocks over a long period of time are estimated, and they're compared to the actual returns on a default free security like a government bond?

DR FLORES: In general terms, yes.

MR HO: And then the difference on an annual basis between the two returns is calculated, and that is used as the historical equity risk premium?

DR FLORES: Yes.

MR HO: And it shows you how much more in percentage terms one would need to earn to make it worthwhile to invest in equities as opposed to a risk-free government security?

DR FLORES: Yes.

MR HO: So, against that background, we can just go on, then, to page 4, and we can see there the Exhibit 3.4, and that's headed "Realised Equity Risk Premiums", and that table encapsulates the results of the basic exercise which we've just been discussing over different time periods, doesn't it? **11:52**

DR FLORES: Yes.

MR HO: And if we look at the first column, Length, at the 95 year length period, which is the period between 1926 and 2020, we see in the arithmetic average column the 7.25 per cent figure you've used, yes?

DR FLORES: Yes.

MR HO: So your figure for ERP comes from comparing, in every year from 1926 to 2020, the difference in return between actual stock market returns and US government bonds?

DR FLORES: Yes, and just to clarify why 1926, that's when you have the first point in which you have reliable -- I think it's weekly data continuously since that point until the present. There's these additional rows in the table that go back to 1900 and the 1800s and the 1700s. Those are based on estimates. Those are not -- because the data collection mechanisms were not as good in earlier centuries, so that's why no one uses those. **11:54**

People sometimes want to use shorter periods but, going earlier than 1926, it's good for academic studies but it's not used in any actual valuations.

MR HO: And if we then look further down this page, we see the heading "World War II Interest Rate Bias". Do you see that?

DR FLORES: Yes.

MR HO: Under that it says "Some observers have suggested that the period including the 1940s and the immediate post World War II boom years may have exhibited unusually high average realised return premiums due to the Fed's intervention in the bond markets to control interest rates. We consider the years 1942 through 1951 particularly problematic as they reflected a period of government-imposed stability in US government bond yields. During World War II the US Treasury department (the Treasury) decreed that interest rates had to be kept at artificially low levels in order to reduce government financing costs. This led to the Fed's April 1942 public commitment to maintain interest rates at prescribed levels on US government debt, both long-term and short-term".

So what is being said there that the post-war period the US Treasury deliberately kept the return on US Government debt artificially low, didn't they? **11:55**

DR FLORES: Yes, but the funny thing, if you look at footnote 3, that comes from a study, the United States in the 1940s from a paper The Journal of Economic History from 1992. It's interesting. Everything they say up until the 1940s you could apply to the last ten years. The Federal Reserve in the United States until very recently this year has done exactly that. They have kept interest rates at artificially low levels. So history has a way to repeat itself, and that's why people, including Professor Damodaran, say people do use the historical average because you never know what's going to happen in the future. If you look an average of the last hundred years, chances are you're going to capture things that will happen again in the next hundred years. That's the rationale for using the arithmetic average of historical returns.

You can see in paragraph 228 of my second report Professor Damodaran says "In the standard approach ... historical returns are used".

MR HO: Yes, well, this is a document prepared by Duff & Phelps in 2020, so they're well aware of events since the credit crunch, but they still describe the use of the years 1942 to 1951 as particularly problematic, don't they? **11:56**

DR FLORES: Yes, based on a paper published in 1992.

MR HO: And what it means is, if you use data from that period to calculate equity risk premium, you will end up with an artificially higher ERP because when you minus the returns on government bonds from stock market returns in those years, you're using the artificially low returns which the Treasury created, aren't you?

DR FLORES: But I do not agree that that's an artificial ERP. As I told you, the experience between 2008 and 2021 has been also artificially low returns on government debt, so are we to exclude the last 15 years of data? No. These have been actual events that have happened, and trillions of dollars have been transacted based on those low levels of government interest rates.

So that's my point. It's like at some point interest rates are going to be very high and at some point interest rates are going to be very low. If you want to do a DCF valuation, you have to take into account both possibilities. You cannot eliminate the possibility that the European Central Bank, the Federal Reserve of the US, the Japanese Central Bank -- that at some point they will think that for economic, financial, political reasons interest rates have to be kept low. **11:58**

MR HO: Well, let's just turn over the page. We can see the significance of this point in Exhibit 3.5. Can you see that if you exclude the years 1942 to 1951, the risk premium drops to 6.26 per cent?

DR FLORES: Yes. Mathematically it is correct.

MR HO: And then at the bottom of the page we see the heading "Concluding on an ERP", do you see that?

DR FLORES: Yes.

MR HO: And it says "What is a reasonable estimate of the unconditional or long-term average ERP for the US as of December 31, 2020? Valuation is a forward-looking concept, not an exercise in mechanical application of formulas. Correct valuation methodology requires applying value drivers reflected in today's market pricing. We need to mimic the market. In our experience, you often cannot match current market pricing for equities using the post-1925 historical arithmetic average of one-year realised premiums as the basis for developing discount rates". **11:59**

So would you accept that Duff & Phelps' advice is that valuation analysis -- I'm sorry.

Would you accept that Duff & Phelps' advice is that valuation analysts cannot simply use the long-term historical ERP as you have done?

DR FLORES: That's their opinion, yes. I accept that that's what they opined. That doesn't take away from the fact that many other valuation practitioners, including myself, do apply and they continue to apply the arithmetic historical average of risk premium.

MR HO: In fact, as we see on the last page of this document, we can see there Exhibit 3.7, Duff & Phelps have summarised a number of ways of calculating ERP, haven't they?

DR FLORES: Yes.

MR HO: And one of the ways they rely on is Professor Damodaran's implied ERP, do you see that?

DR FLORES: Yes.

12:00

MR HO: And that is a reference to Professor Damodaran's analysis which Secretariat have relied on but which I understand you suggest is excluded from consideration?

DR FLORES: Yes. Yes. I do not agree with that methodology that he uses.

MR HO: So Duff & Phelps, whose numbers you have relied on, they advocate using Professor Damodaran as a source as well, and I put it to you that you're simply wrong to ignore his analysis.

DR FLORES: You put it to me?

MR HO: Yes.

DR FLORES: What am I to do?

MR HO: Well, to respond if you agree or disagree.

DR FLORES: No, I do not agree with you.

MR HO: All right.

DR FLORES: Do you want me to explain or not?

MR HO: No, that's fine.

Would you accept that using the 7.25 per cent figure which Duff & Phelps calculate is supported by no one, including Duff & Phelps themselves?

DR FLORES: No, I do not accept that. In fact, look at paragraph 228 of my second report. There I have an underlined sentence that Damodaran himself says the historical premiums -- he recognises that in the standard approach they are used, and people use them and continue to use them, so I'm not alone in using the historical arithmetic approach.

MR HO: But Professor Damodaran's view is that historical average premiums are in fact poor predictors of the correct equity risk premium.

DR FLORES: The problem is that no one knows what the correct equity risk premium is. No one knows. And the way he does his implied thing is he does a DCF of the US stock market, and he tries to guess what the dividends that the US stock market would yield, and the capital appreciation under a bunch of assumptions.

Then he discounts that and says, well, that means that the equity risk premium must be 4 per cent or 5 per cent. That academically is an interesting exercise but doesn't have any more grounding because, if you start changing the assumptions he uses in forecasting what the yields in the US stock market will be in the next decade, if you change those assumptions, then his equity risk premium changes.

So that's why I do not think that's a method that can be used.

MR HO: Yes, but what I'm saying to you is that Professor Damodaran does not support the use of historical average premiums, does he? His view is that they are poor predictors of the correct equity risk premium.

DR FLORES: Professor Damodaran recognises that they are used in the marketplace, and I'm trying to replicate not an academic exercise, I'm trying to replicate how real investors in the real world calculate discount rates.

MR HO: I'll just try once more. He recognises that they are used but his view is that they are poor predictors of the correct ERP.

DR FLORES: And I'll say what I said before, that he can say the correct ERP. No one knows the correct ERP. We know what the yield of the ten-year Treasury bond is, you can just go and search on your phones. That's an actual number because there's thousands of people buying and selling US government bonds they tell you exactly with several decimal points what the yield of the Treasuries is, there's no comparable source where you can get the right, the correct equity risk premium. It's an estimate that you use in the capital asset pricing model. It's all estimates.

Just to be clear, this would be a very fruitful discussion, a very necessary discussion, if we were in a case in which the termination of the discount rate was essential to arrive at the right damages number, but if you want -- for the purposes of this hearing and this case --

MR HO: I'm so sorry to interrupt you but we're quite short of time and I think we're now straying outside an answer to my question.

DR FLORES: I would like to finish the sentence -- very briefly.

PRESIDENT: Very briefly.

DR FLORES: I'm willing to concede and accept the equity risk premium that they want because, as I show you in slide 30, it doesn't matter. You don't need to accept the way I usually calculate discount rates. You only need to add a little bit more to Mr Sequeira's discount rate and the value evaporates. That's a key point for the purposes of whether the DCF is reliable here or not.

I don't need to convince you of every single point on the ingredients of the discount rate. You only need to do the sensitivity that if a reasonable investor would have added 1 or 2 per cent points to the discount rate that Mr Sequeira calculates, no value. **12:05**

MR HO: Thank you.

Can we move on now to look at the next element of the discount rate which is in dispute, and that's the country risk premium. In short, that is an additional factor that you add to the discount rate to reflect the risks of investing in a particular country, isn't it?

DR FLORES: Yes, compared to a country like the US or Germany.

MR HO: Yes.

So one of the points of disagreement between you and Secretariat concerns an estimate of the CRP for Mozambique from a report prepared by Professor Fernandez. We can see that at C-299. It's Core Bundle volume 3, tab 74. It should be tab 74, I hope.

Could we have a time check?

MS JALLES: Of course. Claimant has used so far 1 hour and 27 minutes.

MR HO: Thank you.

So do you have that now, Dr Flores?

12:07

DR FLORES: Yes.

PRESIDENT: Can I just say that Professor Fernandez and myself, we are not relatives. It happens. As with Mr Patel and the Claimants, it's a very normal name in Spain.

MR HO: That's very disappointing, Mr President. I was hoping there would be extra credit for us!

So this is a copy of the report and, as we see below the title, it's prepared by Professor Fernandez, who's a professor of Finance at the IESE Business School in Barcelona.

If we just turn on in this report to page 9, it's internal page 9 and page 9 of the pdf, we can see this is not Professor Fernandez' first time preparing a survey report like this on market risk premiums for particular countries, can't we? He's conducted a survey every year since 2020, is that right?

DR FLORES: Yes, and in the interests of disclosure, I'm one of the recipients, or one of the participants in the survey.

MR HO: Right.

So Professor Fernandez has over a decade's worth of experience conducting surveys like this, doesn't he?

DR FLORES: Yes. He does that every year.

MR HO: And I think you, by contrast, have never performed a survey like this, have you?

DR FLORES: No, I haven't.

MR HO: So I think it's fair to say that, between the two of you, Professor Fernandez has far greater experience in conducting surveys like this and analysing the results?

DR FLORES: Yes, because he conducts the survey every year. He sends an email with a series of questions. If I have time, I answer. If I don't have time I don't answer. He's very -- if you delay yourself a week, you are out. You need to respond within a week when he sends it. So yes, he has a nice mailing list. He sends the e-mail. You reply; you don't reply. He has the experience of doing that. More than experience I think he has a very nice mailing list of valuation practitioners.

MR HO: Yes. If we go back to page 2 in the report, you can see that below table 1 --

DR FLORES: Just -- if you go to -- you see he has 15,000 e-mail addresses that he sends and about 1600 people replied, so it's about 1 in 10, more or less. My suggestion to him would be if he would give us a month instead of a week, maybe more people would reply. **12:10**

PRESIDENT: No one would reply because everyone would forget! He knows what he does.

MR HO: Yes. So you can see there that there's table 1 in the middle of the page and below it it says "Table 2 contains the statistics of the MRP used in 2021 for 88 countries. We got answers for 92 countries, but we only report the results for 88 countries with more than 6 answers".

So where Professor Fernandez received less than six answers, he excluded that country from the report on the basis of insufficient data, didn't he?

DR FLORES: Yes.

MR HO: If we go onto the next page at the very bottom, Table 2, at the very bottom we can see Mozambique and he receives ten answers in the 2021 survey, didn't he?

DR FLORES: Yes.

MR HO: Now, you've not referred, in either of your reports, to any academic analysis which suggests that a sample size of ten responses is inadequate for the purposes of a survey about country risk premium, have you?

DR FLORES: I have not. I don't think

12:11
that such an analysis exists, but if you go to the top of the table, you'll see that there's countries like the US -- if you can scroll up a little bit?

MR HO: Yes. Can you scroll up?

DR FLORES: Right. Look at that. US, 1700 people respond. No one would dispute that that is a meaningful, like, number when you have so many people replying. Spain, because his mailing list includes a lot of professors and practitioners in Spain, also has a lot of respondents, but once you start straying away from the biggest countries, then you get very few responses.

And one thing you can see from year to year is that those countries at the bottom of the table appear and disappear because one year you get five responses, it doesn't appear, the other year you get eight responses and then it appears in the table, so clearly you are at a much less reliable sample than when you have hundreds of responses.

MR HO: I think just to be clear, the table is in alphabetical order except for the USA and Spain that we see at the top, so you can see for example that Italy has 65 and Jamaica has 9 and Japan has 29, so it's not a table organised by responses.

DR FLORES: I did not mean bottom of the table -- **12:12**

MR HO: I see. I'm sorry.

DR FLORES: Bottom from more responses to fewer responses.

MR HO: I understand what you mean.

Now, you've not referred to any market practice which suggests that a sample size of ten responses is inadequate for the purposes of a survey about country risk premium either, have you?

DR FLORES: I have -- yes, I have not referred to that because I am not aware that it exists.

MR HO: Now, would you accept that, given the relative experience between yourself, who has never conducted a survey like this, and Professor Fernandez, who has over a decade's worth of experience, the reality is that there's no good reason why Professor Fernandez's assessment of what an adequate sample size is should be ignored in favour of your view?

DR FLORES: Well, yes, I think there are good reasons, and I think his experience in conducting these surveys does not extend necessarily to a good empirical determination or if six is the right number or not. I actually -- I will ask him the next time I talk to him why did he choose six. It's a good question. I would have chosen a higher number, and he does not explain in his annual papers whether he did any economic analysis or statistical analysis to put this boundary of six. **12:13**

I will ask him and when I get this answer I will e-mail it to you.

MR HO: We can see in the table that the average country risk premium for Mozambique is 10.7, and the next column is the median of the responses, and that's a figure of 10.8 per cent. Do you see that?

DR FLORES: Yes.

MR HO: If the median is close to the average, that means the data contains limited outliers, doesn't it?

DR FLORES: Yes.

MR HO: So the majority of the responses are all around the average figure?

DR FLORES: Yes.

MR HO: This, therefore, is a case where the majority of the respondents have selected about the same figure and that increases confidence that it's a reliable and accurate figure, doesn't it?

DR FLORES: No, and I give you a country example. Say that I'm working in arbitration where it's very important to get this number, and I receive the survey and I forward it to ten of my colleagues at Quadrant, and because we all think alike we all say 20 per cent and we are the only ten respondents because nobody else has provided an estimate -- well, let's not say Mozambique, let's say Swaziland, and there's only ten respondents, and the ten respondents are colleagues of mine and we all have said the same number. You're going to get a very well defined with very little variation because we all have said the same number. But that's the danger. **12:15**

When you have very few respondents, you don't know whether there can be some manipulation of the other. Where you have hundreds of respondents, manipulation will be much, much more difficult, so that's why you have to be very careful. The fact that there's not much variation doesn't tell you much.

PRESIDENT: I wonder whether that is so easy because I think the survey must be started by Professor Fernandez, so you would have to get your 20 -- to do the manipulation, you have first to manipulate Professor Fernandez to include the 20 in his database. **12:16**

DR FLORES: No, because there's a sentence at the bottom that says please feel free to forward this to any of your colleagues. So that's -- it is a -- I think it's nice that he does this exercise. It does provide a lot of qualitative comments. There's a line you can type whatever you think about what would be the right number and so on, but it is not a well defined survey in which you get like 20 per cent has to be from academic world, 20 per cent from investment banking, 20 per cent from practitioners like me.

It's not like that. It's an open-ended survey that anyone who replies, within the week -- within the one week -- then that would get included.

PROFESSOR TAWIL: Mr Flores, but you don't have any element to indicate there was manipulation.

DR FLORES: No.

PROFESSOR TAWIL: This is a theoretical projection.

DR FLORES: Absolutely, yes, there is no basis whatsoever, but the possibility of that happening is higher when you have responses of, yes, like six, ten, 15.

PROFESSOR TAWIL: But that could happen with any number in any survey you see. I mean, unless you have 1800 answers or 2,000 answers. But I mean you don't know, reading any survey, I mean if there was a manipulation. **12:17**

DR FLORES: No, correct. I don't know. But, for example, when you have Germany 287 at the very top of what's being displayed now, it would be much harder to provide agreed upon answers than when you have ten, 12, nine.

PROFESSOR TAWIL: Understood.

DR FLORES: But I'm not making any allegation that anyone has manipulated anything.

PROFESSOR TAWIL: Thanks.

MR HO: Thank you. Let's move on to next area of disagreement on discount rate, and that concerns the pre operational risk premium and in particular the duration over which that applies.

So, just to set the scene, Secretariat's position is that a 2 per cent pre operational risk premium to account for things like a delay in construction starting should apply during the construction period, but you say that the 2 per cent pre operational risk premium should apply generally.

Is that fair?

DR FLORES: To be clear, in the first estimation of the discount rate they did not apply any pre operational risk. I did apply it, and then in response Mr Sequeira agreed with me, but only partially. **12:19**

MR HO: That's fine, and I'm just identifying what the current area of disagreement is and, as I understand it, the current area of disagreement is Secretariat say apply it until the project is operational; you say apply it throughout the lifetime of the project. Is that right?

DR FLORES: Correct.

MR HO: And let's see, I think the basis for you suggesting that it should apply throughout the lifetime of the project is a study by Atias and Bancel, and we can see that at QE-55, page 2, or in Core Bundle, volume 4, at tab 104.

DR FLORES: By the way, the basis is not this source that you're showing. Your question said the basis for applying it throughout the life. I'm not basing that on this. I'm basing it on basic economic principles.

MR HO: Well, let's just look, then, at paragraph 220. If you just keep that open, could you look at paragraph 220 of your second report?

DR FLORES: Yes. **12:20**

MR HO: Or actually, so we're clear, let's just pick it up at 219, that's on page 78, I believe.

So in paragraph 219 you say, "Versant" -- that's Secretariat -- "disagrees on how the 2 per cent operational premium should be accounted for in the discount rate. According to Versant, after the project is built, it ceases to be pre operational, hence the premium should be applied to the construction period only".

And then you go to 220, you say: "Versant's methodology is in contrast with the study by Atias and Brancel.

So I had understood you to be saying that Secretariat are wrong in their approach because it is inconsistent with what is suggested by Atias and Brancel. Is that right?

DR FLORES: No, just to be clear. I attach Atias and Bancel to my first report for the proposition that an estimate of pre operational risk is 2 per cent.

Then Versant accepts that source for the 2 per cent. So even though they said, well, that 2 per cent was a credit for the renewal energy industry, here we're not talking about renewable energy, that is true, but he still goes with the 2 per cent, Mr Sequeira, so there is no more dispute about the magnitude of the adjustment. 2 per cent. We are on the same page. But then he says yes, but I'm only going to apply it for the first five years, and then I say no, you have to apply it, as I said in my first report, for the duration of the project.

MR HO: Yes. And the reason for that is because you rely on this study by Atias and Brancel?

DR FLORES: No. No, no, no. I rely on that study for quantifying the magnitude, which is 2 per cent.

MR HO: Right. So, just so we're clear, my understanding is that Secretariat do not accept the 2 per cent from the Atias and Brancel study. They simply say we agree that a 2 per cent pre operational risk premium should be applied, but they're not taking that from the study. They're saying that, because it's to reflect things like construction risks, it only applies until the project is operational.

Now, you are saying -- at least I had understood you to be saying -- that you take the 2 per cent from the Atias and Brancel study and you apply it, as Atias and Brancel suggest, over the lifetime of the project because this is to reflect the risk of a greenfield project.

But have I misunderstood you?

DR FLORES: Yes. Yes. First, if they don't take the 2 per cent from the same source I took it, where are they taking it from? They're not providing any other source that would support 2 per cent than the one I added, which is the Atias and Brancel paper, so they are agreeing with my quantification, which is 2 per cent.

For the second point, I don't need the paper from Atias and Brancel because, let's think about that. Why do we apply a pre operational risk premium to the discount rate? Because we're trying to assess from the point of view of today, the valuation date, what are the risks involved in the cash flows that I have projected for the future.

So let's say it's a 30 year project. Let's look at the risk associated with the cash flow in ten years from now when the project will be operative. I say that I do the DCF projection, and I say I'm going to receive free cash flow from year ten in the amount of $1 million, and I need to assess the value of that $1 million ten years from now into these terms.

What do you think is more risky? If this $1 million that I'm forecasting is for a company that today is in operation? Or whether I'm forecasting a cash flow ten years from now for a company that I'm assuming that ten years from now will be in operation, but today doesn't even exist? Even though I'm making the assumption for ten years from now that the company will be in existence then, the company, it's less certain that the company will make it to year ten. It may never make it to year ten.

That's why the cash flow that I'm projecting for a company that is not operating today has to be higher risk and, hence, higher discount rate. That's where the premium applies to the entire projection, not just the three years when you think that the projects will be built. Otherwise, you would be overestimating the value of cash flows that are more risky, because you didn't even know whether the company will actually be taken to operation stage.

MR HO: So you apply a 2 per cent figure to reflect the fact that the company may never be operational, and that's why it applies over the lifetime of the project? **12:25**

DR FLORES: Exactly.

MR HO: But, ex hypothesi, if the project is forecast to be operational in the model, I don't then understand why you apply a discount rate to assume it won't be.

DR FLORES: Well, because you can make the assumption, but an assumption doesn't give you certainty.

MR HO: Right. And how is this risk not encapsulated by any of the other factors in the discount rate?

DR FLORES: Because these other factors already apply to firms that today are operating.

MR HO: Right. I understand.

So your 2 per cent -- so you do at least rely on the study for the 2 per cent figure, so I think it's probably then just worth us having a look at the study together so we can understand it a bit more.

So do you still have that with you? I think it's behind that tab. Yes. So everyone has it, it's QE-55, Core Bundle volume 4, tab 104.

So let's see what this says, and we can pick it up about halfway down the page. I'm sorry, more like a quarter of the way down the page.

Do you see there's a paragraph which says "In a recent research we asked whether factoring in a specific greenfield risk would be justifiable for projects"? Do you see where I'm reading from, Dr Flores?

DR FLORES: Yes.

MR HO: "Would be justifiable for projects involving the construction of new infrastructure. In order to answer this question we sought to establish whether companies specialising in greenfield projects were perceived as being more risky than companies in the same sector that did not invest in this type of project. If this is the case, and all other things being equal, greenfield companies should have a higher weighted average cost of capital than others. Assuming that investors are diversified and only pay the systematic risk, the beta of greenfield companies should be higher than companies that only replace or upgrade existing assets".

So what the authors were investigating is whether investors view greenfield companies as riskier investments, and their theory was that if they did, then all other things being equal, those greenfield companies should have a higher weighted average cost of capital, is that fair? **12:28**

DR FLORES: Yes.

MR HO: And in essence they wanted to compare the weighted average cost of capital of similar greenfield and non greenfield companies to see if they could identify the difference as a greenfield risk?

DR FLORES: Yes.

MR HO: So let's see how they went about that task.

The report continues, "The only sector in which we were able to identify such firms is the energy sector, and, more specifically, the wind farm and energy transportation segments of the energy sector. Firms in these two segments operate in an environment that is homogeneous from a regulatory point of view, regulated prices, et cetera, and their risks are comparable at most levels, with the exception of the greenfield risk".

So we can see that this study is focused only on companies in the wind farm and energy transportation segments of the energy sector, can't we?

DR FLORES: Yes.

MR HO: Then if we go a little bit further down they explain that they found three wind farm companies and four firms specialising in energy transport. Do you see there's a paragraph "We identified three listed pure players on the wind farm market", and then who those people are, "and four firms active in energy transportation". **12:29**

Do you see?

DR FLORES: Yes.

MR HO: So, in total, their sample size is seven companies?

DR FLORES: Yes.

MR HO: And then if we go to the penultimate paragraph we see it says, "There are a lot of limits to this research and it can only be seen as an initial attempt to measure the greenfield risk. Firstly, our results are based on the study of a very small number of listed pure players. Secondly, the construction risk for wind farms is not necessarily comparable to the construction risk of another infrastructure in another sector. For example, the construction of an oil rig is a very different sort of project from that of developing of a wind farm. Whether this risk premium should be generally applied to all greenfield projects is thus

12:30

a question worth asking. Finally, there is generally always a wide margin of error when estimating the parameters required for computing the cost of capital".

So it's fair to say the authors themselves recognise the study has a lot of limits?

DR FLORES: Yes.

MR HO: Do you agree?

DR FLORES: It's totally fair to say that, yes.

MR HO: And one of the limits of the study is the small sample size. We saw a moment ago in the context of the country risk premium, that you thought a sample size of ten was too small, but here we have an even smaller sample size, don't we?

DR FLORES: Well, it's not mixed concepts. There we were talking about survey responses. Here we're not talking about survey responses. But I agree, yes. This is I think a very ingenious academic research to do something that everyone understands. It's more risky to invest in a project that doesn't exist than a project that exists, everyone knows that, but how to quantify it is a more difficult question to do, so I think I give a lot of credit to these authors for doing that research. They say further research will be needed. Absolutely. I don't think this is the last word that will be written on pre operational risk. But we have to give them credit to that. **12:31**

However, the advantage the Tribunal has here is that these authors conclude 2 per cent. I used 2 per cent and Mr Sequeira agrees to use 2 per cent, so we're on the same page. The only issue is whether it applies for the entire duration of the cash flow projection, or only for the first few years. That's the only issue remaining.

MR HO: I understand but that's why I want to put this to you because we'll be saying something about that in closing.

Now, another limit of this study is that it is based on wind farms and energy transportation. It's not an attempt to study what the risk premium would be for infrastructure projects like railways, is it?

DR FLORES: It is not, absolutely.

MR HO: And we can see from the top of the page that this is a study from September 2009. Can you see that?

DR FLORES: Yes.

MR HO: So a further limit on this study is that it's considered conditions over a decade before the valuation date for the ex post DCF?

DR FLORES: Yes, I agree with everything you are saying, but the point is that the only thing I took from this paper is a figure, 2 per cent, which is not disputed by Mr Sequeira.

MR HO: Yes, but what is disputed is the period over which it applies, and, as I understand it, this project -- this document is suggesting that because there's a greenfield risk, you can apply it over the lifetime of the project.

DR FLORES: No, no. I'm not relying on this paper. This paper agrees with me. But even without this paper, I will continue making the same point. It's undeniable that the cash flow projection in year ten is more risky if today the company doesn't exist.

MR HO: All right. I think we've looked at that sufficiently.

The final point of disagreement on discount rate is whether it's appropriate to add an additional risk premium, either on the basis that we're valuing a small cap company or for illiquidity, and, as I understand it, you are now suggesting that an additional risk premium is appropriate on the basis of illiquidity, is that right?

DR FLORES: To be more precise, it's an additional risk premium to capture everything that's not captured by the capital asset pricing model, which includes illiquidity, it includes size, and it includes also marketing perfections that are not contemplated in a capital asset pricing model.

MR HO: Right. All right. Let's look at an article from Professor Damodaran. That's at C-302. It's in Core Bundle volume 3 at tab 76, so it may be in the bundle that you have there.

76. Now, while we're getting that, Professor Damodaran is a very well known and respected author on financial valuation, isn't he?

DR FLORES: Yes.

MR HO: And on page 1, can you see there's the heading "The Basis" at the bottom of the page? It's sort of by the second hole punch.

DR FLORES: Yes.

MR HO: And here Professor Damodaran identifies the historic rationale for small company premiums, and he says, if we look at the last line in that paragraph, he says: "In summary, looking at returns from 1926 to 2014, the smallest cap stocks (in the lowest decile) earned 4.33 per cent more than the market, after adjusting for risk. This is the strongest (and perhaps) only evidence and it is reproduced in data services that try to estimate historical risk premiums (Ibbotson, Duff & Phelps, et cetera). This historical premium has become the foundation for both valuation and investment practice".

So, in Professor Damodaran's view, the strongest and perhaps only evidence for small cap premium is the historic data, isn't it?

DR FLORES: That's what he writes, yes.

MR HO: And we see on page 2 --

DR FLORES: By the way, I notice that what you have highlighted is the foundation for valuation and investment practice. He's a professor, he's a very well respected academic person. Sometimes he has views that deviate from what actual people do in the actual world, because he's just teaching classes to students. We are trying to value real companies.

MR HO: Yes. Well, let's see if he has a good reason for teaching these things to his students.

If we see at the bottom of page 2 the heading "The problem with the Historical Premium", and in this section Professor Damodaran identifies a **12:37** number of defects with the historic rationale which is said to justify small company premiums, so we'll look at some of those together. The first one on page 3 you can see there's a paragraph 1 and it says "Trend lines and time periods" and what he says is: "Small cap stocks have earned higher returns than large cap stocks between 1928 and 2014 but the premium has been volatile over history, disappearing for decades and reappearing again. While the premium was very strong prior to 1980, it seems to have dissipated since 1981. One reason may be that the small cap premium studies drew attention and investor money to small cap stocks, and in the process led to a repricing of these stocks. Another is that the small cap premium is a side effect of larger macroeconomic variables ... and that the behaviour of those variables has changed since 1980".

Now, you've not suggested, let alone demonstrated in your reports, that Professor Damodaran's analysis of the historic data in this paragraph is wrong, have you?

DR FLORES: No. No, no, I have not.

MR HO: And the data shows that between

1981 and 2014, ie over 30 years, there has been no premium attached to small cap shares? **12:38**

DR FLORES: The way he analyses the data, then there's no -- you wouldn't see a premium. However, other people have done other analyses controlling for other factors, and they do see that the premium continues to exist.

MR HO: Let's look at number 2. That's headed "Microcap, not small cap premium".

It says, "Microcap, not small cap premium" -- are you with me, Dr Flores?

DR FLORES: Yes.

MR HO: "Even over the long time period that provides the strongest support for existence of a small cap premium, one study finds that removing stocks with less than $5 million in market cap causes the small firm effect to vanish. In effect, what you have is microcap premium, isolated in the smallest of stocks, not just small stocks".

What I want to ask you is you again have not suggested, or let alone demonstrated in your reports, that that analysis is wrong, have you?

DR FLORES: No, I have not done that in my report.

MR HO: We'll look at just one more

together. If we go over the page to page 4, can you see at the top there's a paragraph 4, "The January effect". What he says is, "One of the most puzzling aspects of the small cap premium is that almost all of it is earned in one month of the year, January, and removing that month makes it disappear. So what? If your argument for the small cap premium is that small cap stocks are riskier, you now have the onus of explaining why that risk shows up only in the first month of every year". **12:39**

And you have not picked up Professor Damodaran's challenge and explained in your reports why the small cap premium only appears in January, have you?

DR FLORES: No. There's plenty of papers that have rebutted this idea of the January effect. I did not include them in my report.

MR HO: Now if we move on in the document to page 6, you'll see towards the top of the page there's the heading "The illiquidity fig leaf", and what Professor Damodaran is doing here is dealing with the suggestion that the small cap premium can be justified as a proxy for illiquidity, and what he says is "Looking at the data, the only argument left, as I see it, for the use of the small cap premium is as a premium for illiquidity, and even on that basis it fails at one of these four levels". **12:41**

I just want to look at some of those with you. Let's take the second one. What he says is: "If illiquidity is what you are adjusting for in the small cap premium, why is it a constant across companies, buyers and time? Even if your defence is that the small cap premium is an imperfect (but reasonable) measure of the illiquidity premium, it is unreasonable to expect it to be the same for every company. Thus, even if you are valuing just privately owned businesses (where illiquidity is a clear and present danger), that illiquidity should be greater in some businesses than in others and the illiquidity (or small cap) premium should be larger for the former than the latter. Furthermore, the premium you add to the discount rate should be higher in some periods ... than others and for some buyers ... than others ...".

Now, what I want to ask you is you've made no attempt to tailor the small cap premium which you now say is a proxy for an illiquidity premium to the specific business market sector and time period, the subject of the ex post DCF, have you?

DR FLORES: I have not.

MR HO: We'll just look at one more point. The third point: "Even if you can argue that illiquidity is your rationale for the small cap premium and that it is the same across companies, why is it not changing over the time horizon of your valuation ...? In any valuation, you assume through your company's cash flows and growth rates that your company will change over time and it is inconsistent (with your own narrative) to lock in an illiquidity premium into your discount rate that does not change as your company does. Thus, if you are using a 30 per cent expected growth rate on your company, your 'small' company is getting bigger (at least according to your estimates) and presumably more liquid over time. Should your illiquidity premium therefore not follow your own reasoning and decrease over time?" **12:42**

What I just want to ask you is you've not decreased your small cap premium over time, have you?

DR FLORES: I don't call it a small cap premium, but the premium I call additional risk premium, I do not change it over time.

MR HO: Thank you. Just two or three final topics, I think.

DR FLORES: Can I say one just thing about this? **12:43**

MR HO: Yes.

DR FLORES: Can you turn to page 7, because all of this can be shortcircuited very easily. If you can scroll to page 7, please. Look at what it says after the bolded heading. "It is true that the small cap premium is established practice at many appraisal firms, investment banks and companies." And it says "you would think that analysts would reconsider their use of small cap premiums, but there are three powerful forces that keep it in ...".

The discount rates that I calculate when I do arbitration evaluations are not academic discount rates. It is true Professor Damodaran is very against any of these kind of premiums -- you can read the article, you can see his passion, and if you have seen his videos on the internet, he's very passionate when he talks about this issue -- but he's an academic.

What I'm trying to replicate is not an academic, I am not trying to replicate how Professor Damodaran likes to calculate discount rates. I'm trying to replicate what appraisal firms, investment banks and companies do in real life, and that's why I think you need to apply an additional risk premium because it is applied in real life, regardless if there is a January effect or there is no January effect. **12:44**

MR HO: Well, Dr Flores, it's more than that, isn't it? It's not just that he's an academic; he's pointed out reasons why you are mistaken to apply that premium, and, indeed, we can see that in the bit you've highlighted. If you look at paragraph 2, "Inertia". "The strongest force in corporate finance practice is inertia, where much of what companies, investors and analysts do reflects past practice. The same is true in the use of the small cap premium where a generation of analysts has been brought up to believe ... that it is the right adjustment to make. ... That inertia is reinforced in the legal arena ... by the legal system's respect for precedent and general practice. You may view this as harsh, but I believe that you will have an easier time defending the use of a bad, widely used practice of long standing in court than you would arguing for an innovative better practice".

And that is what you're doing, isn't it? You're trying to defend the use of a bad but widely used practice? **12:46**

DR FLORES: Yes.

MR HO: Very well. Let's move on then.

Can I talk to you now about the market capitalisation of a company?

To work out a company's market cap, one takes the total number of shares in a company and multiplies them by the share price of those shares, is that right?

DR FLORES: It would be the shares outstanding, yes.

MR HO: Right, OK, yes. Yes, I see.

So a company's share price is critical to working out market cap, isn't it?

DR FLORES: Yes.

MR HO: Now, I'd like to discuss with you some of the factors which can affect the company's share price. The management --

DR FLORES: But, just, I'm a little bit lost. What are we -- what topic are we talking about now?

MR HO: Well, we're talking just at the moment about what factors affect a company's share price and in turn how that affects market cap.

DR FLORES: But in the context of where in my report?

MR HO: Well, we're talking about that in relation to the cross-check that you rely on for ITD.

DR FLORES: I see.

MR HO: Now, one of the factors which affects a company's share price is the management of the company, isn't it, because the management of a company has a significant impact on the company's attractiveness to investors and, therefore, its share price?

DR FLORES: It -- yes and no, because there's companies with very bad management that markets can expect that the owners of the company will get rid of the bad managers and will put in better managers in a way that the share price today may already be reflecting that things cannot be mismanaged forever.

MR HO: Yes, but equally you can have companies which have very bad management where the expectation in the market is that they won't be replaced, and then the share price will reflect that?

DR FLORES: Yes. I mean, that wouldn't be very efficient, but I mean if the owners of the company want to continue having bad managers forever, so be it. **12:48**

MR HO: The share price of a company will therefore, to an extent, reflect not just the value of the company's assets but the market's assessment of management's ability to exploit those assets profitably, won't it?

DR FLORES: Again, I would not agree with that completely.

In the short term perhaps, but eventually if you go by market fundamentals, investors will normally agree that sooner or later the companies -- a company cannot get mismanaged forever. That's a fundamental belief of efficient markets.

MR HO: Share prices are also affected by investor confidence and sentiment, aren't they?

DR FLORES: Yes.

MR HO: If a particular sector or company is seen as hot or in vogue, shares can trade at elevated levels based on those sentiments?

DR FLORES: I'm sorry?

MR HO: If a particular sector or company is seen as particularly hot or trendy or desirable, then shares can trade at elevated levels based on those sentiments?

DR FLORES: Yes. Again, over the long run the share price should reflect the fundamentals. You can deviate for a while but not forever. **12:49**

MR HO: So shares can be undervalued or overvalued relative to the true market value of the company's assets based on investor sentiments or beliefs about a particular company or industry or sector, can't they?

DR FLORES: Sometimes they can, yes.

MR HO: A company's market cap would also be affected by whether it faced legal or regulatory difficulties as a result of particular assets it owns, couldn't it?

DR FLORES: Potentially it could, yes.

MR HO: So if one or more of a company's businesses were loss-making, that would depress a company's share price perhaps significantly if large losses were being made in some of its businesses?

DR FLORES: Yes, usually the value of a company is the sum of all the businesses it has, and if you have like ten businesses that make a lot of money and ten businesses that make very little money, the market capitalisation would reflect the aggregate of all of those individual valuations.

MR HO: So the market cap wouldn't have

12:51

anything to do necessarily with the -- I mean you can't simply look at the market cap and then work out what the value of profit making assets owned by the company are, because the market cap is being affected potentially by loss-making assets. Would you agree with that?

DR FLORES: I mean potentially, yes, if you have good assets and bad assets, the market cap would be an average of all of those.

MR HO: The market cap of a large company doesn't simply reflect, in a proportional way, the fair market value of a given asset which the company owns, does it?

DR FLORES: No, you cannot derive the value of one single company -- one single business or project from an entire big conglomerate. Yes.

MR HO: A penultimate topic, I think.

Now, in the past ten years --

DR FLORES: By the way --

MR HO: Yes.

DR FLORES: You ask these questions. Does this relate to --

MR HO: Don't relate what they relate to, Dr Flores. You just worry about answering.

DR FLORES: Yes.

MR HO: In the past ten years or so, you have given expert evidence in numerous investor-State arbitrations. Are you able to give us a rough figure on the number of investor-State arbitrations you've given expert evidence in? **12:52**

DR FLORES: In what period?

MR HO: Over the past ten years, let's say. I'm not holding you to it but just roughly.

DR FLORES: I would say it's -- I recently started working on my 100th case and I'd say about two thirds investment cases, one-third commercial cases.

So maybe, yes, about 50 to 60 maybe.

MR HO: And in those 50 to 60 -- again just roughly -- in how many of those arbitrations was the party who was instructing you a State or a State entity as opposed to the investor?

DR FLORES: I think it's almost all of them. Not all of them but almost all of them.

MR HO: Almost. All right.

Let's look now at what you say about the ex ante interest rate. Now, you have proposed a short-term risk-free rate, for example the yield on six month or one year Treasury bills, and Secretariat say US prime plus 2 per cent?

DR FLORES: That's correct. **12:53**

MR HO: A fair summary?

I don't know if you heard this, but in his direct presentation, and just to give the reference for the transcript it's Day 5, page 1159, lines 10-17, we'll get that up on the screen for you now, Dr Flores but let me just read it in the meantime, what Mr Sequeira said was, he said "I should say that if you look at data on awards, if you look at the last five years of awards from 2016 to 2021, of over 90 awards that have been issued, I think only four awards have issued a risk-free rate of interest".

I understand -- but you'll tell me if I'm wrong -- that from a previous case, you may have some familiarity with those statistics, but what I wanted to ask you is whether you have any basis for believing that a risk-free rate has been awarded more commonly by tribunals in the last five or six years?

DR FLORES: I want to be very careful here.

MR HO: Yes.

DR FLORES: Mr Sequeira and I are involved in a highly confidential arbitration so what you

12:55
just said worries me. I don't know what understanding you have but I'm worried, and I don't want to say anything that relates to this other highly confidential arbitration.

MR HO: That's very fair. Then we will just put in it general terms. Are you aware of tribunals awarding a risk-free rate of interest more commonly than Mr Sequeira suggested in his direct presentation yesterday?

DR FLORES: Yes. I don't know exactly how he has come up with this number because, for example, a tribunal awarding interest at the LIBOR rate, that is not the US Treasury rate that I recommend, but LIBOR rate and US Treasury rates are very similar.

So if you were to add the Tribunal to have awarded interest at LIBOR on top of the ones that have awarded one year US Treasury yield, you probably would get a different number than what he mentioned yesterday.

MR HO: Right. And do you believe that if you did that you would find a significant number of awards awarding a risk-free rate, or do you accept that that's actually a very small minority?

DR FLORES: I guess I -- I don't know.

MR HO: Fair enough. You say that one of the reasons why using US prime rate is inappropriate is because some companies can borrow below US prime, and we can see that at paragraph 164 of your second report. That's at page 60, I believe. 61 if you're using the electronic version. **12:56**

And if we just pick up paragraph 164 about four lines down, can you see that you say, "The actual rates at which lenders will lend and borrowers will borrow funds will depend on the risk profiles of the borrower and of the economic activity in which the funds will be employed. For example, a well-established reputable company can finance the purchase of equipment at interest rates significantly below the US prime rate as there is little risk that the company will not be able to repay the loan".

And we see that ends with footnote 258, and if we look at footnote 258 we can see that the evidence you rely on for the suggestion you've made there is QE-87.

Do you see that?

DR FLORES: If this is -- it's one of the documents I rely on.

MR HO: I think it's the document.

I can't see any others referred to in footnote 258. **12:57**

DR FLORES: Well, in this footnote, yes, but I think my arguments about how to calculate pre award interest will be on this footnote.

MR HO: Well, let's look at that document, shall we, QE-87? So for you that will be Core Bundle volume 5, tab 107.

PRESIDENT: Before we do that, can we just clarify, because I have this doubt, are we speaking of pre award interest or post award interest or both?

DR FLORES: Here the discussion is about pre award interest. It applies only to the ex ante valuation in which the date of valuation is July 2013, and then Mr Sequeira says, and I agree with him, if an ex ante valuation were to be used, then it would be reasonable to add interest to that until the current time, so we are talking about pre award interest.

PRESIDENT: Yes. Can we extend the discussion to post award interest, which seems to be a topic which we have discussed very little? Can we extend the whole discussion to post award interest, or would that be a completely different topic?

DR FLORES: I would give this answer. In general I think it's the same idea, that you have to compensate for the passing of time, and that doesn't end on the date the Tribunal issues an award with damages. It ends at the day of payment of such an award. **12:59**

Now, I do recognise that after the award is issued -- so between the date of valuation and the date the Tribunal issues an award, there is no risk. All your coal prices can go higher or can be lower in the last several years. Once you say X dollars, X dollars is X dollars, and it's not affected by whether Mozambique defaulted on its debt five years ago or if there was a big flood in Mozambique.

So all of the risks, lending, borrowing, business risks, do not affect anything that happens until the date of the award. After the date of the award, it's true other risks can appear, so Mr Sequeira in his presentation he says -- right, in slide 33 of his presentation --

PRESIDENT: Let's have a look. Yes.

DR FLORES: You see on the right column when he responds to my Dr Flores column, number 1 he says a damages award is exposed to risks and uncertainty as to whether or when the award will be paid and how much will be collected. **13:00**

I agree that that risk can exist after that point, but using the prime rate is not the answer because the prime rate doesn't reflect anything having to do with how likely Respondent is to comply with the Tribunal's award within 30 days or 60 days or 90 days.

So from a practical perspective and an economic perspective, I usually recommend continuing to apply the same interest rate both for pre and post award interest.

PRESIDENT: Let's -- why don't you finish --

MR HO: I will, Mr President. We can make submissions about that in closing, about the right interest rate, but I won't do that now.

So, just to remind ourselves where we were, Dr Flores, I had shown you paragraph 164 of your report where you were suggesting that well-established reputable companies can finance the purchase of equipment at interest rates significantly below the US prime rate, and that was a reason why Secretariat are wrong to use that.

The document you had referred to in support of that is this one, and that's the one we're going to look at now, just to recap. **13:02**

So this is an article from the website home.loans, isn't it?

DR FLORES: Yes.

MR HO: And that is a consumer finance website?

DR FLORES: Yes.

MR HO: And we can see the article is headed "Prime mortgage. A complete guide", so this is an article for consumers about what prime rate mortgages are?

DR FLORES: Yes.

MR HO: Is home.loans known as a serious academic resource relied upon by valuation professionals?

DR FLORES: No, I don't think it is, but it's just making the very simple point about what prime rate is. I thought it had a very easy -- a very clear definition, and that's why I used it.

MR HO: All right. Let's go over the page, and over the page we can see --

(Discussion off the record).

We can see over the page the bit of the article you rely on. We have the heading "What are the details of the prime rate?" And then there are two paragraphs. I want to read the second. **13:03**

"It's important to note that the prime rate is an index, not a law. It's possible to find a loan or credit card with an interest rate less than the current prime lending rate. Lenders will sometimes offer below prime rate loans to highly qualified customers as a way of generating business. Furthermore, below prime rate loans are relatively common when the loan product in question is secured. This is the case with mortgages, home equity loans, home equity lines of credit, and car loans".

So what is being said here is that loans or credit cards will sometimes be offered to customers as a way of generating business, is that right?

DR FLORES: Yes.

MR HO: And the customers being referred to on this consumer finance website are obviously private individuals, aren't they? All that this is saying is that financial institutions may offer cut rate interest products to attract new consumers?

DR FLORES: Yes, but let's be clear, the prime rate is a consumer rate. It's a US-based rate. We don't have the prime rate in Europe or the prime rate in Japan. We're talking about the US prime rate. And it's the rate -- if you see the percentages where this rate is applied, it's home loans and credit cards. That's where the US prime rate is used for. **13:05**

And the fact is that businesses, most of them, when they negotiate lending, they don't do it by reference to prime, they do it by reference to LIBOR, and that's why it's primarily a consumer rate, and that's what -- yes, it's banks dealing with individuals offering rates.

MR HO: There's no discussion in this article of businesses, let alone large multimillion dollar businesses based outside of the US, being offered below prime lending rates, is there?

DR FLORES: No, business based outside of the US will never be offered any prime rate because it's only for lending purposes within the US.

MR HO: But they're not being offered comparable rates which are below prime, are they?

DR FLORES: Yes, they are.

MR HO: Well, there's no discussion of that in this article, is there?

DR FLORES: No. This article is focusing on US consumers borrowing at the prime rate.

PROFESSOR TAWIL: Sorry, can I make a follow-up question? **13:06**

MR HO: Yes, of course.

PROFESSOR TAWIL: I understand LIBOR is no longer being calculated.

DR FLORES: It's still being calculated but it is true that in the next few months it will be stopped being calculated. I think it's June 2023. But there are replacement rates if you want to do US dollars. There's something called SOFAR, which is the rate that in the US will replace the LIBOR. It's calculated by the Federal Reserve bank of the United States.

PROFESSOR TAWIL: Thanks.

MR HO: Thank you. Final topic, Dr Flores --

PRESIDENT: Because we have been going on for more than an hour and a half, so if you could really make it the last topic.

MR HO: Yes, I will, Mr President. Hopefully we'll be done in the next five minutes.

Now, I think you'd agree with me that CFM is a 20 per cent partner in the TML consortium, which is the consortium carrying out the project, aren't they?

DR FLORES: I'm sorry. You said that

I have agreed with you?

MR HO: I'm asking do you agree with me that that is the case?

DR FLORES: I think it is, yes.

MR HO: And the TML consortium as the entity carrying out, or in your view not carrying out, the project would have the most up-to-date information on the status of the project, wouldn't they?

DR FLORES: That, I do not know. I mean being a minority shareholder doesn't give you as much access to information as when you are management of the company.

MR HO: No, apologies. My first point was that CFM is a 20 per cent partner in the consortium, and what I'm putting to you now is the consortium itself, the whole consortium, they are the people carrying out the project or, in your view, not carrying it out, and they obviously have the most up-to-date information on the status of the project, don't they?

DR FLORES: You're referring to TML?

MR HO: Yes.

DR FLORES: I assume TML -- I assume the management of TML has the more up-to-date information. I do not know for fact, but I assume that's the case. **13:08**

MR HO: And are you aware that, on the 11th of August 2022, Mozambique State television ran a feature where Jose Fonseca, a member of TML's executive committee stated amongst other things that conditions are in place to move ahead with the Chitima-Macuse rail port project?

DR FLORES: I have aware of that source.

MR HO: And are you aware that he also said that the project infrastructure work was a priority because it's linked to a faster financing process? We've already had approval from the Bank of Mozambique, we've already had approval from public entities, and therefore we will move forward with the port operation?

DR FLORES: That, I do not recall that -- those words that you're talking about.

MR HO: Well, Mr President, this is another one of those documents -- oh, it's admitted. My apologies.

Well, in that case, then, perhaps we can just show you that, Dr Flores. I understand it's at C-405, and as if by magic I think a video will now start playing.

PRESIDENT: We had expected that for the final post-hearing, but I'm sure that Dr Flores will love to see the video. **13:09**

MR HO: Something interactive to close with, Mr President. (Pause)

Mr President, one option may be we'll see if they can sort of immediately sort out the problem, but if it looks like it's taking longer we can take the break now and then come back after the break when the video is ready.

PRESIDENT: Yes, let's make a break. Let's make a break, a five-minute break, and let's come back at 13.20.

MR HO: Thank you, Mr President.

(Short break from 1.11 pm to 1.21 pm)

PRESIDENT: Very good. We resume the hearing, and we continue with the projection of the video.

MR HO: Thank you. Just before we play it, Mr President, just so we're clear, this is C-405, this is a video from the Mozambican state television agency. There will be subtitles in English. Those subtitles have been put there by the Claimant. I don't think there's been any dispute about them yet but, if there is, that's where they've come from, and no doubt we'll be told about them in due course. **13:21**

So, play.

(Video played)

MR HO: Dr Flores, what I want to put to you in light of that video is that your comments this morning in your direct presentation that in your view there would never be any project are wrong. Mr Fonseca's comments there show quite clearly that the project is going to move ahead. Would you agree or disagree with that?

DR FLORES: I disagree with your proposal. Can I explain?

MR HO: Yes.

DR FLORES: Yes. What we have is the financial statements of ITD, the -- yes, the Italian-Thai Development, the company in Thailand, that they own a 60 per cent interest in this project, and that's where you have to go for the actual hard-quoted figures, and they tell you how much they have spent, how much they are spending, and in what they are spending.

You saw images there in the video of a train. Just, I assume no one's confused, but so the record is clear, that's not the train in this thing,

13:26

and the railways where they were cutting, those are stock images from other projects. There is no rail, there is no lines, and there's no construction.

They did show images, which I understand to be of an actual port that's being built. That's fully consistent with the financial statements when they say that's been recharacterised and we want to do the general cargo sea port, and they said there's some families being resettled, and the financial statements also talk about those activities.

I understand in recent times they have completed the feasibility -- no, the environmental study for the new port, the general cargo port, that is going forward. And you see in the video they give a date, they are hoping it will be in place by August 2023. That I'm not sure is going to happen or not because we're already in December.

But yes, I do think the general cargo port will become a reality, if not in 2023, maybe in 2024, and we know that there is financing in place for that general cargo port. But we're talking about $25 million. I have seen no evidence whatsoever of financing having been agreed for the entire railway going up to the mines. There's no evidence of that whatsoever, and the financial statements, as I show you in slide 15, show that that will only go forward once the economics justify -- these are the financial statements from June -- as of June 30th of this year, which were published actually in mid August, a few days after that video. **13:27**

So we have financial statements from a publicly traded company in Thailand telling us in mid August, a few days after that video, that the phase 2, the deep sea port and the railway, will happen whenever, and, if you notice, that's fully consistent with the video. The video said, yes, whenever -- we don't have a calendar but we are looking at financing and so on.

I understand that this gentleman shown in the video, yes, his job is at stake, right? If they don't go forward at all, then what's he going to do? He's probably spent there many years, but one thing I wish is, year one is economics, and unless they can come up with 3 billion-dollar in financing, that will never happen. And everything I have told you in my presentation, I do believe that that will not happen. The economics are no longer there.

MR HO: Sorry, Dr Flores, can I clarify just one point? The financial statements that

13:29

you're referring to, I think that's QE-100, they state the position as at 30th of June 2022, don't they?

DR FLORES: Yes, but the auditor's comments are dated August 15.

MR HO: So the statements in the document that you refer to from ITD come from the 30th of June 2022, whereas this video is from August 2022.

DR FLORES: Yes, but remember, in the paragraph to the right in slide 15, that's written by the independent auditor of the company, and she's expressing her view as of August 15. If she had known in the meantime that -- you know in financial statements there's this section called Subsequent Events, things that have happened after the closing of the statements, if she had learned that the billions of dollars had already been secured and the money was flowing and the whole railway was about to get built, she would not have any reason to put the emphasis that she had to put as of August 15.

MR HO: Very well. One moment, Mr President.

I think that's all the questions we have. Thank you very much. Thank you very much for bearing with me, Dr Flores.

DR FLORES: Thank you.

PRESIDENT: Very good. Thank you. Mr Brown?

MR BROWN: Thank you, Mr President. I won't take long, but I do have a few follow-up questions.

PRESIDENT: Of course.

Re-examination by Respondent

MR BROWN: Dr Flores, we spent some time earlier this morning with questions being asked of you about the components of the discount rate. Do you recall that?

DR FLORES: Yes.

MR BROWN: Did any of the questions that you received regarding the discount rate, have those now caused you to change any of your conclusions regarding the discount rate?

DR FLORES: No. No, no.

MR BROWN: I think you also received some questions regarding the capitalisation, the market capitalisation of ITD.

DR FLORES: Yes.

MR BROWN: Let's just get a little context here, if we can for a moment. Can we turn to your slide 25 in your presentation, please, and we'll need the screen for Respondents, please. Just so we have the context, Dr Flores, does slide 25 reflect your reasonableness check using the ITD market capitalisation? **13:31**

DR FLORES: Yes, it does.

MR BROWN: And I think the questions that were asked of you were asked suggesting that perhaps the market capitalisation was affected by maybe negative pressure on the ITD market capitalisation? Do you recall that?

DR FLORES: Yes.

MR BROWN: Can we actually turn to Secretariat's slide 24 for just a moment? If we could blow up the area of the slide that's the last bullet point there that says ITD's market cap consistently decreased since 2015?

DR FLORES: Yes.

MR BROWN: I just want to make sure we get a couple of data points off this slide, please.

First of all, what's the date of the first of the two analyst reports that Mr Sequeira identifies and quotes in this slide?

DR FLORES: That is the 4th of June of 2021.

MR BROWN: And what's the date of the second of the two articles -- or, sorry, analyst reports that Mr Sequeira identifies in this slide? **13:32**

DR FLORES: It's 8th of September 2020.

MR BROWN: What was the date that you used, do you recall, with regard to analysing the market capitalisation of ITD for the purposes of your reasonableness check, Dr Flores?

DR FLORES: I think it was the valuation date that Mr Sequeira uses in his ex post analysis.

MR BROWN: Maybe to help, can I turn you to page 26, internal page 26 of your report, Dr Flores, which is in the record at RER-9?

DR FLORES: Yes.

PROFESSOR TAWIL: Sorry, which report?

MR BROWN: Yes, it's RER-9. Dr Flores' second report.

PROFESSOR TAWIL: The second?

MR BROWN: Yes.

Dr Flores, do you see on this chart where the date from 2020 would exist?

DR FLORES: It would not be here. It would be to the left, because this begins in January, the first business day of January 2021, so 2020 would be to the left.

MR BROWN: And what does this chart reflect, by the way, as it was put together? **13:34**

DR FLORES: This reflects the market capitalisation of ITD during the period around Mr Sequeira's valuation date.

MR BROWN: I think the second date that was reflected in Mr Sequeira's observations about the market capitalisation was June 4, 2021, is that true?

DR FLORES: Yes.

MR BROWN: What actually was happening with the market capitalisation of ITD on June 4, 2021?

DR FLORES: It exploded. I mean you can see we start the year at a capitalisation of about $200 million, and then around May and June 2021, by that time when we get to early June, it has more than doubled, the market capitalisation, from less than $200 million to almost $500 million.

MR BROWN: Mr Sequeira testified yesterday based upon the chart that you have in figure 1 from your second report. Is it true, Dr Flores, that ITD's market cap consistently decreased since 2015?

DR FLORES: No, that's clearly incorrect. In fact, as of the date of the first report he cites of 8 September 2020, the market capitalisation was around $175 million, so it went from $175 million -- it is true that that source, which I added to my report -- by the way, for the purposes of saying, look, people when they analyse ITD, guess how many paragraphs they spent discussing the project Mozambique? Zero paragraphs. The project in Mozambique is not even discussed when people talk about ITD. 13:35

What they did talk what's going on in Thailand, what's going on in Myanmar, what's going on here, there -- no discussion whatsoever of Mozambique. That's the purpose for which I put this report.

Now, QE-78, it is true it says at that moment in time the company had some problems, but those problems were clearly resolved. By the time we get to Mr Sequeira's valuation date, the company that was valued at $175 million had exploded in value to over $400 million.

MR BROWN: I have one other quick topic to do.

I'm going to direct your attention to a document that was handed to you this morning. Claimant's Exhibit 395 entered into the record this morning? **13:36**

DR FLORES: Yes.

MR BROWN: I don't believe we have that document electronically, so I wonder if I could get a bit of co-operation from opposing counsel to redisplay Exhibit C-395, please?

MR HO: No problem. We'll do that now.

MR BROWN: Thank you.

I wonder if you could maybe just display the part just below the abstract of this article, please? Right there is fine, thank you.

First of all, in the abstract, Dr Flores, it says, "This article presents results from the first statistically significant study of cost escalation in transportation infrastructure projects".

Let me pause there.

Were you relying on the statistically significant results of this particular document in drawing any conclusions that you drew in your reports?

DR FLORES: No. The specific numerical numbers, regardless of whether they are statistically significant or not, I did not rely on. I relied on the qualitative discussion that these authors provide. **13:38**

MR BROWN: Let's take a look at one of the qualitative discussions in this particular document. Can we go to the bottom of this same first page?

At the end of the abstract, this document states, "The policy implications are clear. In debates and decision making on whether important transportation infrastructure should be built, those legislators, administrators, investors, media representatives, and members of the public who value honest numbers should not trust the cost estimates and cost-benefit analyses produced by project promoters and their analysts".

Do you see that?

DR FLORES: Yes, I see that.

MR BROWN: Is that consistent with the qualitative information that you were gleaning from Professor Flyvbjerg's work?

DR FLORES: Yes, that's absolutely correct. Remember, the whole point is to stress test any DCF projection you make, and if you take into account what these authors say, you tend to have people that are too optimistic. The costs are low and the revenues are going to be very big, you need to do some correction for that, and that's why

I did in my report where I said look, just a 22 per cent correction on costs eliminates all value. **13:39**

MR BROWN: I have no further questions, Mr President.

PRESIDENT: Is there any further question for you, Mr Ho?

DR FLORES: No, thank you, Mr President.

PRESIDENT: Any question from you? Dr Perezcano, any question? No?

DR DANIEL FLORES and MR KIERAN SEQUEIRA

Questions by the Arbitral Tribunal

PRESIDENT: I have just -- can we come, since we have Mr Sequeira with us -- just remain seated there, if you don't mind, sir -- and that is the question of interest, because the treaty refers when dealing with the expropriation, with the calculation of the expropriation, but I think it's the only place where it deals with interest, it says fair and equitable rate, fair and equitable rate until the date of payment. And my question I think to both of you is whether prime plus 2 in your case, and in your case I think it was the short-term US Treasury rate, where you think that these are for the purposes of this article fair and equitable rates.

So maybe I give -- if this is agreeable to you, Dr Flores -- to Dr Sequeira first the floor and then you can comment on that. Is that OK? **13:41**

DR FLORES: Yes.

PRESIDENT: Please.

MR SEQUEIRA: Thank you. This wording "fair and equitable rate" I would say is not as common a wording I see in most treaties. You typically see "commercial rate", "reasonable commercial rate". I have construed, at least this is my personal interpretation, it to be somewhat similar, what's reasonable, what's commercial is also what is fair and reasonable, so I would view them to be generally intending to achieve the same objective, is to calculate a reasonable commercial rate, and so on that basis I would say that that's the way in which we have come up with the prime rate and the premium over prime is something that is commercial, that is widely available in the market.

And, with your permission, I would like to briefly comment on the pre versus post award interest issue which you brought up as well.

I can do that separately, if you want, but it relates to this issue.

PRESIDENT: Let's -- yes. I do have --

when you say "prime", isn't prime related to a specific bank? So isn't that the prime of Citibank?

MR SEQUEIRA: No --

PRESIDENT: If I want to see LIBOR, there is a web page which gives me the LIBOR rate. How would you calculate the prime rate?

MR SEQUEIRA: So you're right that prime rate can vary from bank to bank, but the rate that is normally used as a benchmark is a rate published by the Wall Street Journal. The Wall Street Journal does public a US prime rate which is usually used as the standard benchmark. It is usually reflective of the broader arrangement of prime rates that are applied by banks across the country. And I would say -- I know there was some discussion about the prime rate applying to consumers. That is not correct. The prime rate is widely used as a benchmark for commercial loans as well.

I ran my own company for a few years. We were benchmarked -- our rate was benchmarked off the prime rate. We paid a premium over prime. So it is used for mortgages as, well, so I agree it is used for consumers, but it's widely used for businesses. Particularly small, mid-sized businesses are benchmarked off of prime.

PRESIDENT: And your proposal was prime plus a premium. You said I think a 2 per cent premium. That was your proposal? **13:43**

MR SEQUEIRA: That is correct. And, again, the 2 per cent premium is based on our judgment and there are some awards that use the same logic, but it's based on the concept that prime rate is available to typically the most creditworthy businesses, so the vast majority of companies, like my company back in the day, did not get prime rate. We paid a premium over prime rate. So it's a judgment as to how much the premium should be.

We have applied 2 per cent. You might think it's 1 per cent or zero or 3, but that is based on our judgment as to what is the reasonable premium over prime that reflects a widely available rate in the market.

PRESIDENT: And the premium would be based on the credit rating of Mozambique?

MR SEQUEIRA: It could, although I would say that if you would apply the credit rating of Mozambique it would be a much higher premium over prime, so that would reflect a more -- prime plus 2 per cent would be a more creditworthy rating than what would be for Mozambique, which is like a CAA on

Moatize or a much higher premium to that.

PRESIDENT: Very good.

Let us clear this up, and then we speak about the other point pre and post.

Dr Flores?

DR FLORES: Yes. Brief points.

One, I agree with Mr Sequeira that this phrasing of a fair and equitable rate, it's not very common in the work we do. For practical purposes what Mr Sequeira has done is to use what he always uses, and what I have done is to do what I always use, right?

So, for practical purposes, having this wording has not changed the way we have calculated interest rates, either of us. So that's the practical purpose or import of that.

Then, as to the point about where prime is used, I do agree that small businesses sometimes do borrow at prime rate, but not businesses when they are talking about hundreds of millions of dollars.

In fact, my company also has a line of credit which we don't use right now based on the prime, but I will tell you we're paying prime -- well, if we were to borrow the rate we will have access to is prime plus zero, and this is a very small company in Washington DC with just 20 employees.

So if you are talking about large international investors, I think they can do better than Quadrant Economics as to interest rates.

So it was basically those two points.

PRESIDENT: Very good. So the pre and post, you wanted to say something?

MR SEQUEIRA: Yes. It's important because I wanted to react in part to what Dr Flores said.

The first question is should you apply the same rate as a pre award interest rate and a post award interest rate, and on that point I would agree that if you're looking the goal is a reasonable commercial rate, I agree with Dr Flores, the clock keeps ticking until you get paid, so it would be the same rate, the same reasonable commercial rate that you would apply, but I don't think the logic applies under Dr Flores as well where he says that a damages award is risk-free until the date the award is issued, and then he agrees that from that point on, from the date of the award, there is some risk because the counterparty is the Respondent, right? So in this case it would be Mozambique.

So under his logic, from the point of the

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date of a damages award, you should be using Respondent's cost of debt, right? Not his risk-free rate. He says you should take the risk-free rate all the way to the date of payment. That would be fundamentally incorrect based on his own logic where you would switch from the date of award to a post-award interest rate that equals the Respondent's cost of debt, which is far higher than the US risk-free rate.

So I just want to point out that inconsistency. We keep it the same throughout, but under his logic you would need to switch, and that would be a much higher rate, much higher than the prime plus 2 per cent that we are proposing across the board.

PRESIDENT: Do you continue agreeing with Dr Sequeira on this point?

DR FLORES: No. So in general, yes, and I think for our practices we've never recommended different interest rates, but what he says, let's be clear, when we talk about the Respondent's cost of borrowing, he's referring to the rate that Mozambique has to pay when they issue sovereign bonds, right?

Now, the rate that Claimant -- that

borrowers ask Mozambique from those borrowings, it's **13:48** because those borrowings are unsecured debt, so as you know, many countries they stop paying bonds and then -- you know Argentina and other countries -- and then good luck getting your money back from the borrowings to the lending in government bonds, right?

Whereas an arbitral award, it's different than a sovereign bond, and neither he nor I have done the research to say, look, this is how much risky -- what's the risk differential between a sovereign bond and a secure award, which is secure by the treaty, by international law, by this convention, that convention, and all the enforcement mechanisms that exist.

So you have to ask, then the question would be, would you rather have, say, a $1 million award, or would you rather have a $1 million sovereign bond? So the risk is different.

So he's not correct to say you would have to apply the Respondent's cost of borrowing.

MR SEQUEIRA: Can I just react to that very quickly? I know we are almost at the end.

PRESIDENT: Yes, of course.

MR SEQUEIRA: That logic -- I usually would not react to that but that's I think **13:50** fundamentally wrong because what he's saying is that it's better to have a damages award in hand than to have a sovereign bond of a country, so, in other words, that same logic is saying that the sovereign bonds are more risky than a damages award against a state.

And in that case states should rather default on their debt first and pay all their damages awards, investor-State awards, where would be -- that would be the logical extension of what he's saying, which I most fundamentally disagree with. The Tribunal can form its own view on this, but that's just fundamentally wrong.

PRESIDENT: I think it's just two ways of viewing the same economic issue, and I don't think there is an answer, a clearcut answer. It's a very interesting question on what is the logic of default interest. Very good.

So I think this finalises our -- I see our court reporter almost falling dead, and our interpreters are on the floor, so we are off the record now.

(The hearing was adjourned at 1.50 pm)