

why there were information asymmetries between management and investors in US-listed Chinese companies:

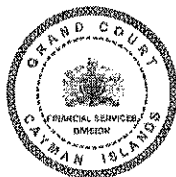
“In sum, responding to a highly regulated and restrictive domestic IPO market, some Chinese firms developed innovative structures and financing approaches to overcome restrictions. Although the innovations have been successful at circumventing the regulations, the resulting Chinese firm US securities market is a unique information environment that encouraged greater information asymmetry than in a strictly domestic market. Also, legal recourse against Chinese firms and their auditors and underwriters is significantly more difficult because of differences in US and Chinese law. Finally, US and Chinese regulatory action in response to the 2011 market collapse sought to strengthen the quality of information available in this market by increasing direct monitoring and possible sanctions against repeat players in the market. Thus, we consider the Chinese firm US securities market to be an ideal setting to examine the role of information asymmetry and legal and regulatory institutions on capital markets.”

(ii). the authors had compared the returns of fraudulent and non-fraudulent US-listed Chinese companies in 2011 and 2012 and found that investors appeared to be unable to distinguish fraudulent companies (i.e. “lemons”) from non-fraudulent companies and that the “spillover effect” (i.e. the depressive effect of the existence of fraudulent firms on the share prices of non-fraudulent firms) appeared to operate in the US market but not the Chinese market. The authors’ charted (at page 53 of their paper) analysed returns to the end of 2014 and suggested that the undervaluation of Chinese companies in the US had not been corrected by that time. It was the authors’ opinion (as Ms Glass had accepted in cross-examination although she said that the authors had not done enough to validate and establish their view) that there was every reason to think that the China Effect persisted beyond 2012 and until the date of publication of Lemons 2 in 2017.

(iii). the authors had concluded that:

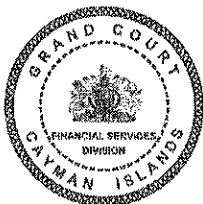
“[T]he problems of assuring property rights, high quality information, and legal recourse that led to the 2011 market failure have not been substantially changed as shown in our analysis. Thus, the US Chinese firm market is likely to remain as a fragile and high risk segment of the US securities market.”

(iv). the second paper was written by Li Xingjian and Li Guangzi and entitled *Study on the Motivations and Premium Sources of Chinese Capital Stock Delisting (Li and Li)*. Li and Li went further and positively established that the China Effect persisted into 2016. This study analysed all of the US-listed Chinese companies which were



taken private between 2010 and 2016, comparing them to a control sample of US-listed Chinese companies which did not go private. Mr Edwards had not been aware of Li and Li at the time of writing Edwards 2, but said in oral evidence that his view was that the China Effect continued up to and including 2016. Ms Glass had not seen the Li and Li before her cross-examination but having been shown extracts from it she accepted that it appeared that Li and Li was one study that purported to show that the effect carried on through 2016.

- (v). in addition to the positive evidence of the more recent studies, it was common ground that the China Effect had existed at least in 2012 and 2013 and no evidence had been put forward to suggest that it came to an end before the Valuation Date.
- (vi). the nature and the scale of the China Effect was illustrated by numerous examples of Chinese companies which had de-listed from US exchanges, and subsequently re-listed or been acquired in trade sales in China or Hong Kong at several times their US de-listing price. Mr Edwards (in Edwards 1, Appendix 6 and Edwards 2, Appendix 5) had identified fourteen Chinese companies which were listed on US exchanges, taken private, and then either re-listed in Hong Kong or China or acquired through trade sales. Mr Edwards concluded that on average for those fourteen companies, the value implied by the acquisition or re-listing was 4.6 times the value implied by the share price on the US exchange prior to the take-private transaction, and 3.7 times higher than the value implied by the take-private price.
- (vii). Mr Edwards had been referred during his cross-examination to a 2014 paper by Carcello and others in which five of the Chinese companies which he had identified were listed as companies against which allegations of fraud had been made. It was suggested that the price differential was due to the fraud allegations and not the market misperceptions involved in the China Effect. The Dissenting Shareholders submitted that Mr Edwards had been right to conclude that in each case the listing had taken place more than fifteen months after the relevant allegations had been made, so that investors had ample time to check whether the allegations were true before, and the companies had time to take remedial measures so that the allegations were no longer operative at the time of, the listing.



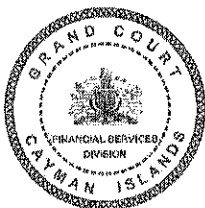
- (g). Mr Edwards had provided a clear summary of his opinion when rejecting the suggestion made by Mr Jones QC during cross-examination that the China Effect could be explained by Chinese markets overvaluing Chinese companies rather than by US markets undervaluing them, so that the price differential on a re-listing in China did not of itself establish that US markets were undervaluing the relevant shares:

“I think it's a strong indicator. I agree that it's not absolutely definitive but I do think it's a strong indicator and I think it's part of a broader set of evidence we have got, academic evidence that suggests that markets in US-listed Chinese firms -- they either say collapsed -- in one case, I think the Beatty and others academic research, we have 75 plus management teams and other insiders privatising their companies and several of those citing undervaluation as one of the motivating factors. Plus we then have the subsequent 2 transactions. So I don't think you would look at any one of those things in isolation and say that it tells you for sure any one thing. But I think you look at it in the round and in aggregate that's a very, very strong set of indicators. At least that's my view.”

- (h). Mr Chan in his evidence had accepted that *“the [US] stock market did not necessarily put proper value on the long-term prospects of the company”* and suggested that US investors might not understand the way in which land holding works in China and therefore might undervalue the Company as a result.

- (i). Ms Glass:

- (i). had accepted that, if the US market was uncertain whether or not the Company was fraudulent, that would mean there was an information asymmetry between the US market and the Buyer Group.
- (ii). had noted that Chinese companies continue to list in the US via IPOs and considered that this was evidence against the existence of the China Effect. However (i) the number of Chinese companies listing in the US fell very sharply in 2011 and stayed low until 2014, when there was only a partial resurgence and (ii) as Mr Edwards had pointed out there were good reasons (he gave five reasons) why a Chinese company might list in the US even if its management recognised that it was likely to be listed at an undervalue, for example because the Company needed to have access to hard currency held outside of China or because there were reputational or branding benefits to be derived from a US listing that could facilitate international expansion.



(iii). had been wrong to suggest that the trend, identified by Mr Edwards, of Chinese companies de-listing from US exchanges reflected a more general trend of companies de-listing from those exchanges. Her own evidence (in Glass 2, figure 3.3) showed that there was no such more general trend from 2011 onwards (the period during which the spill over effect of allegations of fraud had affected Chinese companies).

122. Another indication that neither the Merger Price nor the trading price can be reliable indicators of fair value in the present case was the fact that employees, including Mr Chan, had invested immediately after the merger at a premium of over one hundred per cent. Although Mr Chan had said that some of them did so “*reluctantly*”, the fact was that they all went along with it. The Dissenting Shareholders submitted that it was far more usual for employees to buy shares at a discount to their value rather than a premium. In any event, this was an actual commercial transaction in substantially the same shares, which the Court should not ignore.

123. As regards the Delaware authorities:

- (a). the expert evidence as to Delaware law showed that market prices alone were not treated as establishing or equivalent to fair value. Mr Montejo had said (Montejo 1 at [48]) that “*Delaware Courts have long held that share market prices are not equivalent to fair value*” and Professor Hamermesh had agreed (he said that Delaware courts recognise market value as “*one of the elements to be considered*” but only if the market was “*dependable*” and that “*the market price of shares is not always indicative of fair value*” (Hamermesh 1 at [16]).
- (b). despite Professor Hamermesh’s suggestion in Hamermesh 1 that the traded share price had taken on a more prominent role in the Delaware courts’ approach to appraising fair value in recent years (i) the cases he had relied on (*DFC*, *Dell* and *Aruba Networks* at first instance) were all decided many years after section 238 of the Companies Law was introduced and so were at best of limited relevance to the question before the Court and (ii) the only case in which a Delaware court had held that the market price was equivalent to fair value was *Aruba Networks* at first instance and that had been overturned on this point since the exchange of initial expert reports by the Delaware Supreme Court in the Aruba Supreme Court Opinion. Professor Hamermesh in his reply report had accepted that the Aruba Supreme Court Opinion suggested that the Delaware courts preferred the “*price generated in a reasonable sale process to the market price*” (Hamermesh 2 at [11]). As Mr



Montejo had said in his reply report “now that the Aruba Chancery Opinion has been reversed, there is no Delaware case that I am aware of where the pre-announcement share trading price was found to be equal to fair value” (Montejo 2 at [13]).

(c) as Mr Montejo had also said in his reply report (at [14] and [16]):

“The Delaware Supreme Court, [in the Aruba Supreme Court Opinion] however, has clarified that whether a stock trades in an informationally efficient market is not the right question in determining if share market price is probative of fair value. Rather, the Delaware Supreme Court has explained that, in DFC and Dell, it acknowledged a semi-strong version of the efficient market hypothesis, i.e., that efficient markets value only publicly available information rather than all information. Accordingly, even though a stock may trade in an efficient market, the market share price is not probative of fair value unless it is proven that prior to the announcement of the merger there was no material non-public information withheld from the market.....

The Delaware Supreme Court held that it was an error to rely on market share price in the absence of a trial record established through full adversarial discovery into the market share price's probative value..... Indeed, the Delaware Supreme Court found that the record clearly demonstrated that the acquiring company, HP, was in a better position to value Aruba than the market as a whole...”

The Company's submissions on the China Effect and MNPI issues

124. As regards MNPI, the Company denied that the Company's management was in possession of but the market did not have private information about the Company's future prospects that was material to the Company's value. The Company was not, and it had not been proved that the Company was, in a position as at the Valuation Date to estimate that its 2017 module sales would be 9,000 MW. Even if that was wrong, and the Court concluded that projections properly prepared in December 2016 would have projected 2017 to have been better than the projections for 2017 in the Management Projections prepared in July 2016, and that this was MNPI not available to the market, the Court should (as was decided in *Dell*) not entirely reject reliance on the market trading price (or the Merger Price). The Court should start with the trading price and/or the Merger Price and then ask what the increased price would have been had the MNPI been made public.

125. There is no basis for inferring that the Company expected at the Valuation Date to ship such a hugely increased volume. None of the justifications put forward by Mr Russo provided a basis for such an inference. In particular:



- (a). it was not permissible to conclude, based on the January 2018 press release, that it would have been possible or reasonable for management to have predicted sales of 9,000 MW for 2017 without evidence being produced of the volume and terms of known contractual sales (which evidence Mr Russo could have, but did not, request from the Company).
- (b). the fact that the Company's actual sales for 2016 fitted closely with the Management Projections was not relevant as they had been prepared in July 2016, seven months into the relevant period.
- (c). Mr Russo's reference to "*positive market trends*" was a mischaracterisation of the state of the solar industry at the end of 2016. None of the sources relied on by either industry expert from around the Valuation Date predicted the growth in the solar market which in fact took place in 2017.
- (d). it was clear from a proper reading of the Proxy Statement that the Company's sales were typically conducted through short and medium-term contracts, which would not allow the Company to be able to predict volumes for 2017. Mr Russo had impermissibly twisted the wording in the Proxy Statement to assert that the Company would have visibility of volumes for 2017, but not prices.
- (e). there was no evidence as to the sales contracts that the Company had in place as at 16 December 2016.
- (f). if projections had been produced on 16 December 2016, a prudent estimate would have been sales of 7,220 MW at US\$0.465/W as per the Management Projections. That would have been a 15% increase in sales on actuals in 2016.
- (g). what happened in 2017 was that the sales prices fell unexpectedly, thereby leading to an unexpected increase in sales. Furthermore, the unchallenged evidence was that an increase in sales volumes was always accompanied by a drop in selling prices. Thus, if and to the extent that the Company would have known that likely sales for 2017 were of the magnitude of 9,000 MW, it must follow and the Court should infer that it was likely that it would also be known that this would go hand in hand with significantly lower selling prices.



(h). in these circumstances it was not possible to say that any projections prepared in December 2016 for 2017 would have been likely to have projected a better 2017 than that projected in the July 2016 without also projecting lower selling prices, which had not been done. The January Projections projected sales for 2016 of 7,075 MW at US\$0.505/W and the February Projections projected sales for 2016 of 6,475 MW at US\$0.511/W. The actual sales for 2016 were 6,258 MW at an average selling price of US\$0.51/W, which meant that the February Projections turned out to be reasonably accurate. If the Dissenting Shareholders were correct and the Company could reasonably and accurately have predicted in December 2016 the actual sales of 9,000 MW for 2017 it must follow that the Company should have been able accurately to predict actual selling prices of US\$0.33/W. If that was correct, revenue would have declined and it was not possible to establish whether projections prepared in December 2016 on this basis would have shown better projections for 2017 without taking into account the lower projected selling prices.

126. As regards the China Effect, none of the articles relied on by Mr Edwards and the Dissenting Shareholders had sufficient evidential weight to justify the conclusion that there was an ongoing discount applied to US listed Chinese companies, and certainly not in relation to the Company (indeed Lemons 2 was only a draft paper). The Court should follow Parker J's decision in *Qunar* when he refused to recognise or give weight to the China Effect. As Parker J had said in *Qunar* at [166] "*Articles can be useful background with which to establish matters through witnesses but they are not evidence in themselves.*"

(a). Mr Edwards had relied on a number of academic articles that he said supported the view that investors could not distinguish the 'good' from the 'bad' US-listed Chinese companies and that this resulted in the shares of the 'good' firms also trading at a discount to their true value. He also set out specific examples of US-listed Chinese companies de-listing and then re-listing in China or Hong, or being the subject of a subsequent trade sale, at prices substantially higher than their take-private price. In Edwards 1 he stated that the reason for the differences in prices was that US investors undervalued companies with operations in China because they could not distinguish between fraudulent and non-fraudulent companies. In Edwards 2 he gave a further reason, namely the inability of the investors that may be best placed to assess the value of Chinese firms (i.e. Chinese investors) to participate in US equity markets (he had said that the fact that insiders of many US-listed Chinese companies had paid premiums to the ADS prices to acquire their firms, suggested that the scale of the undervaluation may be significant).



- (b). Ms Glass was right to conclude that the academic studies relied on by Mr Edwards (in Edwards 1) were not corroborative of Mr Edwards' claims. In her view, these studies explained certain elements as to share price movements in 2012 but did not study whether Chinese companies were fairly valued - either before or after 2012 - and were of no assistance to a valuation of the Company in 2016. Her conclusions (in Glass 2) should be accepted and followed by the Court:

- “(a). Mr Edwards’ conclusions are not supported by the academic studies he presents. Although some of these studies find evidence of undervaluation in or around 2012, the authors make no claim that the events of 2012 will persistently result in U.S. investors being unable to reliably value US-listed Chinese companies – which is the view put forward by Mr Edwards.*
- (b). At times, the studies do suggest that in the years immediately surrounding 2012, US-listed Chinese companies might have been undervalued, albeit the order of magnitude of any undervaluation does not approach the levels implied by Mr Edwards’ RE-Mgmt and RE-Russo valuations.*
- (c). The studies on which Mr Edwards relies focus on events in 2010-2012. An update to one of the studies shows that the trends earlier identified have since reversed, as does a comparison of overall returns earned by US-listed Chinese companies relative to returns earned by companies included in the S&P 500.”*

- (c). Ms Glass argued that nothing in the studies suggested that the Company was undervalued by US investors at the Valuation Date or at any other time, that its reputation had been tarnished by fraud or that U.S. investors did not understand the Company. The evidence of Mr Chan contained 1,000 pages of analysts' reports which contained no reference to the shares trading at a discount due to the 'bad lemons' effect. Furthermore, the notion that those who invested in the US markets may not have the same access to information as Chinese investors did not apply to the Company, whose largest shareholders had offices throughout the Asia-Pacific region including China and Hong Kong.

- (d). higher prices in China could be evidence of overvalue in Chinese markets.

Discussion

127. I find that Ms Glass' approach is reasonable and is to be preferred. It seems to me that in principle it is appropriate to give weight to the adjusted market price. But this is subject to the question of whether the adjusted market price is to be taken into account at all when in competition with the Merger Price or whether the latter should be given preference – and to the question of how much



weight is to be attributed to the adjusted market price, assuming it is to be taken into account with the Merger Price. I explain my views on these points below.

128. In my view, the approach to the use of market trading prices in *Dell* and *DFC* (see the quotations from the judgments set out above) is sound and should be followed in this jurisdiction. As Kawaley J said in *Nord Anglia* (at [110]) “*the relevant threshold question pertinent to deciding whether a DCF valuation should be pursued is whether the existence of MNPI and the possibility that the Shares were undervalued by the market justifies looking beyond the Market Price with a view to arriving at a more reliable conclusion as to fair value.*” And as one of the experts in that case said, in a passage approved by Kawaley J, complete reliance on the market price would only be justified if it could be concluded that the market for the company’s shares was both semi-strong efficient and that there was no MNPI. It is interesting to note that Kawaley J used the term “*possibility*”. This raises the question of the appropriate evidential standard.

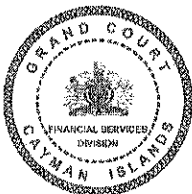
129. In *Shanda CICA*, Martin JA said as follows at [22]:

“In every case, the court’s task will be to assess the utility of the expert evidence to the determination of fair value. Carrying out that task in the context of s238 proceedings is no different in nature from carrying it out in ordinary inter partes litigation. In ordinary litigation, and in s238 proceedings, the court will determine generally, or on an issue by issue basis, whether an expert’s evidence is to be accepted in whole or in part and how conflicts are to be resolved. If necessary, the court is entitled to substitute its own view for that of the experts.”

130. The approach described by Slights V-C in *In Re Petsmart Inc.* 2017 WL 2303599 (quoted by Kawaley J in *Nord Anglia* at [85]) is consistent with the approach that Martin JA considered to be appropriate:

“The petitioner bears a burden of proving the “fair value” of his shares; the respondent bears a burden of proving the “fair value” of the petitioner’s shares; and then the judge as factfinder assumes in effect a third burden to assign to a particular value “as the most reasonable in light of all the relevant evidence and based on considerations of fairness.” The role assigned to the trial judge in this process [is] independently to review “all relevant factors” [a requirement included expressly in the Delaware statute] that may inform the determination of fair value ... is unusual. It is unusual in the sense that the judge is not bound by the positions on fair value espoused by either of the parties. Indeed, the trial court commits error if it simply chooses one party’s position over the other without first assessing the relevant factors on its own.

Yet it cannot be overlooked that the judge’s decision in an appraisal case follows a trial – an honest-to-goodness, adversarial trial – where the parties are [incentivised] to present their best case, grounded in competent evidence, and to subject their adversary’s evidence



to the discerning filter of cross-examination. The trial court then reviews the evidence the parties have placed in the trial record and does its best to “distil the truth.” In this regard, at least the appraisal trial is no different from any other trial. The court’s determination of fair value while based on all relevant factors must still be tethered to the evidence presented at trial. The appraisal statute is not a licence for judicial freestyling beyond the trial record.”

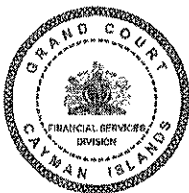
131. As regards the EMH, the Dissenting Shareholders' core proposition is that it could not be assumed that in a given market for a given asset the trading price will approximate fair value, that considerable care has to be used before relying on the trading price and it was wrong to assume that markets get it right all the time. These propositions are unobjectionable but, as a general matter, I am not persuaded that it is inappropriate for the Court to place reliance on the market price where there is sufficient evidence demonstrating that the requirements for a semi- strong version of the efficient market hypothesis are satisfied. Parker J’s comments in *Qunar* (recognising that they are made in part by reference to difference evidence) seem to me to be right:

“The various challenges made to the EMH do not lead me to conclude that the market trading approach is not an appropriate valuation method in this case. I of course take note of the arguments of the eminent economists I was referred to, but that does not lead me to conclude that the NASDAQ was inefficient at the relevant time and that the Company’s share price cannot be relied on in any way, as was suggested.”

132. As I have noted, the Dissenting Shareholders, based on Mr Edwards’s opinion, argued that Ms Glass’ analysis was deficient since she had not done any work that established that at the start of the period she examined the traded market price was equivalent to fair value, and that this undermined her whole approach because all the other work she had done was entirely directional and did not show anything about the absolute level of the Company’s shares (if they had been undervalued at the start of the period they would still be undervalued at the end). Furthermore, since she was seeking to establish that during the period of her analysis of share price movements the conditions for the efficient market hypothesis were satisfied, she should have done an event study.

133. Mr Edwards’s criticism was as follows (see Edwards 2 at [2.14] - [2.18]):

“2.14. In my experience share prices often move directionally in the way that one would expect in response to news flow about the companies themselves, or the sectors or the economies they operate in, even if the shares are mispriced relative to their intrinsic value.



2.15. *[He gave the example of Cisco whose share price rose relative to the market because of analysts and investors updating their expectations to reflect better than expected performance during a period in which many internet and technology firms were considered even by leading advocates of the EMH to have been materially mispriced.] In other words, the fact that a share moves in a direction consistent with news flow does not mean that its price is a reliable indicator of its intrinsic value.*

2.16. *Ms Glass's observations that Trina's ADS price moved directionally in ways consistent with sector and company news at certain times in the two-year period she studied is, therefore, not at all surprising. Importantly, however, Ms Glass's observations do not (and cannot) demonstrate that at any given time the ADS traded at a level consistent with its intrinsic or fair value. For example:*

(1). *Ms Glass has not established that Trina's ADS price reflected its intrinsic value at the start of the period she analyses, so it is not possible to know whether after subsequent price moves it is, or is not, at its intrinsic value;*

(2). *although Ms Glass considers that factors other than fundamental factors may have influenced Trina's ADS price negatively from June 2015, she has not identified the scale of their impact, nor has she established whether this negative impact has been reversed in whole or part by offsetting price moves (which must also be unrelated to fundamental factors) by the Acceptance Date, a point at which she considers that the ADS price does represent Trina's intrinsic or fair value; and*

(3). *Ms Glass's analysis of share price moves is not complete. For instance, although Ms Glass notes that the ADS price moved up almost 12% in response to the offer, and that analysts considered the offer too low, the ADS price fell by almost 20% between the 8th and 15th January 2016. As far as I can tell, this occurred prior to any mention by analysts or other commentators of the factors affecting the share price in the second half of 2016, and was well in excess of any market move over the same period.*

2.17. *Nor has Ms Glass established that the ADS price moves in response to fundamental news flow in the run up to the Acceptance Date are of a scale consistent with the likely impact of that news on the longer-term prospects and underlying value of the company. In other words, the ADS price may be over or under reacting to news, which would not be consistent with an efficient market.*

2.18. *In summary, Ms Glass's qualitative review of moves in Trina's ADS price over a two-year period is neither quantitative nor comprehensive. Ms Glass has not established that Trina's ADS price was consistent with its intrinsic or fair value on the Acceptance Date, or on any other date in the period she has reviewed. This is simply assumed. For the reasons discussed below, I do not consider that assumption a safe one."*



134. Ms Glass' response to these criticisms including her explanation for not preparing an event study were summarised during her cross-examination:

- (a). as regards Mr Edwards' challenge to Ms Glass' analysis and his view that her analysis was insufficient to support her conclusion that the market, traded, price (as adjusted) was a reliable indicator of the intrinsic value of the Company's shares, she said as follows (see the transcript for day 9, pages 17-18 and 20-23):

Q. [Mr Edwards' first criticism is] that you have not established that the ADS price represented intrinsic value at the start of the analysis period. That's right, isn't it?

A. I didn't go back and do a valuation two years prior, that's correct.

Q. Right.

A. So I have assumed that, because the various -- (a) because it was well traded, liquid, (b) because the multiples were in line with the peers and (c) because my analysis of the trends accorded with not the buy/sell/hold, but the comments made by the analysts that, you know, that the intrinsic value or the value of the shares approximated to market trading price.

.....

Q. The second of Mr Edwards' points ... is the point that you express the view that the market price at around the proposal date undervalued Trina and the point he makes from that is that you've not established by your analysis whether, when or how that negative impact of undervaluation was ever reversed and again that's right, isn't it?

A. Well, there again, the way I have noted that the ADS price back at the -- I think it says June here but, in any event, at the proposal date, why I thought it was negative, was influenced by the trends and by the comments of the analysts and, similarly, my conclusion at the acceptance date was influenced by the same things, so I'm not quite sure how I haven't done the same. I appreciate -- and I've always said -- that I cannot say that at either date that market price might not have been out 10, 20, 25 per cent. But I just -- I find it incredible to assume that it was, you know, five/six times or, you know, times.

Q. No one is asking you to assume anything, are they?

A. He is talking scale. So if the scale we are talking about here is, you know, 10 or 15/20 per cent -- then we are in agreement.

Q. What I'm actually asking you to address is whether the market price is a reliable indicator of fair value, okay, Ms Glass? I'm not asking you to address the question whether if the market price is understated that proves fair value is five, six, ten times as much.



Q. *I think what you are saying is that you accept that, on any view, your analysis doesn't show that the market price might not be understated by, was it 10, 15, 20 per cent?*

A. *I would agree with that.... That's why I only give a 40 per cent weighting. I felt we went over this yesterday with the efficient market hypothesis. I totally agree that, you know, it's not an absolute perfect test and it might be out.*

Q. *What's your explanation for why the shares were undervalued at the proposal date?*

A. *I don't have an explanation as to why. It just appeared to me that they were. Why? You know, because – even if you accept the efficient market hypothesis, it does not say every single day is going to be right. It says it might be above or below, so ...*

Q. *But if, in all of this analysis and reading all the analysts' reports, you have not identified a reason then you can't have any confidence that the undervaluation has been reversed later, can you?*

A. *Yes, I can, based on everything I have said."*

(b). as regards the absence of an event study the following exchange took place with Mr Salzedo QC:

“Q. an event study actually would have been the standard and proper way to try to reach a view on the matters you've tried to reach with your graph, wouldn't it?

A. *No, an event study is something that one might do in order to try and prove or disprove the efficient market hypothesis, which is not what I'm trying to do.*

Q. *Well, you are absolutely right, Ms Glass, about what event studies are used for in a sense but what an event study is used for is to prove or disprove it over a given period in relation to a given share or event and so on and what I'm suggesting to you is that's exactly what you've said you've done in your graph but you haven't done it the right way. You are trying to prove that the efficient markets hypothesis holds for this period in relation to the share, aren't you? I know you are not doing it in academic terms but that's the effect of it?*

A. *No, I'm not trying to prove anything about the efficient market hypothesis."*

135. It seems to me that Ms Glass accepted during her cross-examination the limitations of her valuation methodology based on the traded price of the Company's shares. She accepted that her market price valuation was only accurate within a range, and a fairly broad range (“*it's not an absolute[ly] perfect test and it might be out*”). She accepted that the market price might be understated by as much as 20%. She also accepted that in essence she had undertaken a “*trend*



analysis” (see the transcript for day 9, page 20, line 13). But it was because of these limitations that she considered that the weight to be given to her adjusted market price should be discounted and only given a 40% weighting. I note that this explanation for the reduced weighting to be given to the adjusted market price provided during cross-examination was rather different from that set out in her written evidence in Glass 1 at [323], quoted above (which identified the “*key negative arising from the market trading approach*” as being difficulties in accurately accounting for and calculating share price movements between the Acceptance Date and the Valuation Date).

136. Ms Glass also accepted that she had not done an event study but denied that one was necessary as part of the methodology she had adopted or to support her conclusions. I note that she did prepare an event study in *Qunar* (see [119] where Parker J pointed out that an event study looked at trends and events which might have had an effect on the market price) and it was not explained in this case why an event study was appropriate there but not here. Ms Glass denied that she was “*trying to prove anything about the efficient market hypothesis*” but the Company is seeking to rely on her evidence to show that all the tests set out in *Dell* and the requirements for a semi-strong version of the efficient market hypothesis were satisfied in the present case.

137. I consider that the absence of an event study is not determinative and does not wholly undermine the value of Ms Glass’ analysis as to why the adjusted market price should be given significant weight in the determination of the value of the Dissenting Shareholders’ shares. The absence of such a study is consistent with the limited nature of Ms Glass’ analysis, but, in my view, within and subject to these limitations, Ms Glass’ analysis is cogent and reasonable. While she resisted the suggestion that she was addressing herself to issues relating to the efficacy of the efficient market hypothesis, her analysis did consider and apply the assumptions underlying (and indeed she referred to) that hypothesis when coming to a view as to why the market trading price provided strong evidence as to the fair value of the Dissenting Shareholders’ shares. As she said at Glass 1 at [206] – [207]:

“206. Because market prices reflect the impact of supply and demand, including market speculation and noise, a company’s market trading price on any given day might be somewhat higher or lower than intrinsic fair value. Nonetheless, but for unusual market events (such as a market crash), it is generally held that the share price of a well-traded, liquid security that trades on a well-functioning and well-informed stock exchange provides a reasonable approximation of the fair value of the security.

207. My comments are consistent with a recent decision [in Dell] in which it is stated that “[the] Court of Chancery’s analysis ignored the efficient market hypothesis



long endorsed by this Court. It teaches that the price produced by an efficient market is generally a more reliable assessment of fair value than the view of a single analyst, especially an expert witness who caters her valuation to the litigation imperatives of a well-heeled client."

138. So she was seeking to demonstrate that the conditions identified in *Dell* for reliance on the market price were satisfied in this case. While less than clear and not entirely satisfactory (particularly her failure to explain the absence of an events study), I take her answers in cross-examination to be a rebuttal of the proposition that her focus was on testing in a general way the validity of the efficient market hypothesis and to emphasise that she was testing by a trend based analysis the extent to which the Company's market price could be relied on for the purpose of the fair value determination. And in my view her analysis does support the conclusion that the requirements for a semi- strong version of the efficient market hypothesis were satisfied in the present case: see the points made in Glass 1 at [322] set out above. I accept her responses to the criticisms made by Mr Edwards, which as I have said, included an acknowledgement that some of the criticisms were justified as demonstrating the limitations of her approach.

139. In my view, her methodology for assessing the unaffected and adjusted price is reasonable and I reject the Dissenting Shareholders' criticism of her approach.

140. I also consider that it was reasonable to rely on and give weight to analysts' reports. I am not persuaded that the approach and methodology used by the analysts relied on by Ms Glass made them unreliable. The Dissenting Shareholders argued that it was unsatisfactory to rely on analyst reports since they were concerned with predicting market prices and focused on short run market prices rather than intrinsic value. I was persuaded by the Company's submissions on and thorough review of the analysts' reports which showed that they were detailed and comprehensive and that at least in some cases they considered intrinsic value and relied on a DCF valuation. For example, Morningstar (which had been following the Company since July 2015) in its report dated 12 December 2016 carried out a DCF valuation and a detailed comparable company analysis and noted that:

"Morningstar, Inc and its affiliates ... believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stock identifies stocks trading a discount or premium to their intrinsic worth – or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth."



141. I accept the Company's submissions, and Ms Glass' evidence, with respect to reasonableness of the forecast of 2017 PV module sales contained in the Management Projections, subject to one qualification. Mr Russo's analysis, while detailed and based on documents prepared or statements made by the Company, was in my view ultimately speculative and unsubstantiated:

- (a). the Dissenting Shareholders invited the Court to find both (i) that when preparing the Management Projections, the Company's management knew, or should have realised if they had applied their minds to the question, that the best forecast of module sales for 2017 was 9,000 MW and (ii) that 9,000 MW was the appropriate forecast for 2017 module sales for valuation purposes.
- (b). two issues arise in relation to the 2017 PV module sales forecast. First, did the knowledge of and information available to management mean that there was MNPI (such that as at the Valuation Date management were in possession of information which the market did not have which would be material price sensitive information)? Secondly, what forecast should be used for valuation purposes, in particular the DCF valuation? At this stage I need to deal with the first issue. I discuss the second issue below.
- (c). Mr Russo's core conclusion was that the Company's management would have been able to form a reasonably accurate estimate of 2017 sales by the Valuation Date on 16 December 2016 and that such an estimate would have been 9,000 MW. He put forward a number of reasons as to why that *might* have been possible but, in my view, insufficient evidence to demonstrate that it *would have been* or *was likely to have been* possible or that management should have concluded that their own forecast was unreasonable or out of date such that the market needed an update. The documents and other materials needed to make good Mr Russo's conclusions were not in evidence. There is an insufficient documentary foundation for inferring that the Company expected or should have expected at the Valuation Date to ship the substantially increased volume that Mr Russo's forecast projects. None of the justifications put forward by Mr Russo provided a basis for such an inference. It also seems to me that Mr Russo's view that when viewed from the perspective of the Valuation Date at the end of 2016, the likelihood of significant market growth was sufficiently high and predictable so that projections of significantly increased sales were reasonable and required was, on the evidence presented, an overly optimistic view that minimalised the downside risks and uncertainties. As the Company submitted, the sources relied on by both industry experts produced around the Valuation Date did not predict the



growth in the solar market which in fact took place in 2017 (and Ms Glass' analysis of market size, discussed below, supported this view). Nor do I accept that the actual sales figures for 2017 justify Mr Russo's revised forecast. While I do not ignore them (for this purpose I assume that the figures in the Company's press release dated 29 January 2018 were accurate) they are of only limited weight for the purpose of assessing what management at the Valuation Date expected and should reasonably have expected, particularly in circumstances where there are reasonable explanations as to why the actual 2017 sales were unanticipated. The basis of the challenge to the 2017 forecast of module sales was fundamentally one of, or at least heavily dependent on, factual questions. I accept that Mr Russo used his industry expertise to form an expert opinion on what was a reasonable forecast but in my view, for the reasons I have given, he had an insufficient basis for and there were insufficient grounds to justify his forecast. I do not consider that the evidence given by Dr Goffri during his cross-examination affects that conclusion.

- (d). I appreciate that Mr Russo complained about the Company's failure to provide adequate responses to his questions and that the Company failed to bring forward a witness who was directly involved in the preparation of the forecasts. While I regard this as unhelpful and the latter failure as affecting the weight to be given to the Management Projections, I do not consider that I can or should rely on these failures to reach conclusions by inference that the evidence otherwise does not permit me to reach. Furthermore, the preparation of this particular forecast was dependent on a detailed knowledge of the Company's contracts and customer relationships, albeit informed by a view of the prospects for growth in the industry and overall customer demand, and therefore not a matter on which Mr Russo's industry expertise had a significant bearing (as Ms Glass noted during her cross-examination, forecasting was also not a matter for industry expertise). Ms Glass' expertise with respect to the preparation of valuations and the review of forecasts was just as relevant if not more so. In addition, I accept the Company's submission that the evidence does not show that any revised projections (reasonably and properly prepared in December 2016 for 2017 and adopting Mr Russo's sales forecast) would have been likely to have projected a better 2017 than that projected in the Management Projections because of the need to consider and potentially adjust the forecasts to take account of lower selling prices. This does not mean that had management been in possession of information that reasonably justified, or if properly informed management acting reasonably would have concluded that it was necessary to prepare, a revised sales' forecast of the magnitude proposed by Mr Russo that there would be no MNPI just because the prices' forecast also needed



downward adjustment. The increased sales forecast would have been material in itself. But it does strongly suggest that any revised overall forecast would probably not have had a material impact on market expectations.

- (e). the Dissenting Shareholders pointed to the fact that the reduction in the Company's forecast for 2017 PV module sales down to 7,220 MW took place in stages and the timing and reasons for the reduction were unexplained. The latest forecast that showed 9,000 MW for 2017 was the January Forecast dated 22 January 2016. The forecast showing 7,500 MW was dated 2 February 2016. The question arose as to what explained the big change between 22 January and 2 February 2016. Ms Glass was cross-examined on this issue and admitted that she had not been aware of the timing of this change and was unable to comment on the reasons for the precise timing of the change in the forecasts:

“Q. Okay. So that is a fairly significant negative, isn't it, on the reliability of the merger projections – and I know you did all your other work and you agree with the results but in terms of the test you set out at the outset, do you agree it's a pretty significant negative that it turns out that there was a completely unexplained change between 22 January and 2 February?”

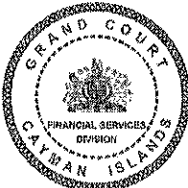
A. All I can answer there is had I been aware of that change, I would have asked a question about it.

Q. Yes.

A. But I can't comment on what I would, if anything, have done without knowing the answer.”

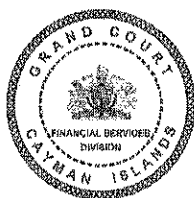
- (f). I accept that the absence of a proper explanation of the *timing* of the amendments is unhelpful and weakens the Company's case, and Ms Glass' opinion, that the reduced forecast in the Management Projections of 2017 PV module sales was reasonable. But these deficiencies do not undermine the credibility or soundness of the Company's explanation or Ms Glass' evidence that the reduction to the forecast needed to be made *at some point* during in the period up to and in any event for the purpose of the Management Projections, and why reliance in July 2016 on the forecast in the Management Projections was ultimately justified and reasonable. These deficiencies also do not, to state the obvious, assist Mr Russo in overcoming the evidential difficulties to which I have referred.

142. The Dissenting Shareholders also asserted that there was *some* MNPI as at the Valuation Date since the Company had not given any updated guidance to the market after quarter 2 of 2016 (the quarter 2 earnings call took place on 23 August 2016) and there had been no further public



disclosure after the Proxy Statement dated 4 November 2016. But the Dissenting Shareholders were unable to identify any specific MNPI of which the market was unaware beyond the 2017 PV modules sales forecast. Ms Glass, who was cross-examined on this issue, noted that the Proxy Statement contained some updated information (including in summary form the key elements of the February Projections and the Management Projections), and noted that the market price she was relying on was that as at 29 July 2016, so that there could in principle be an information deficit in the market by reason of developments since the Company's last disclosure before that date (the quarter 1 guidance) and after that date up to the Valuation Date. She said that she had taken into account the post 29 July 2016 developments she considered to be relevant (since the Company's prospects had in her view declined during that period) when determining the adjusted market price but beyond that she was not aware of any information that contradicted what the market knew on 29 July 2016 or the Valuation Date. Mr Salzedo QC suggested that Ms Glass was being evasive in her answers but I reject that suggestion. During his questions (see the transcript for day 6, pages 67-73) Mr Salzedo was unable to point to anything specific to contradict Ms Glass' responses and in my view she answered his questions clearly and fairly. It seems to me that Ms Glass' evidence should be accepted although I would note that the Proxy Statement only provided the headlines from the February Projections and the Management Projections (covering total revenue, gross profit, EBIT, EBITDA, net income and management Capex forecasts from to 2023). Thus while I accept Ms Glass' evidence that the market was adequately informed as at 29 July 2016 and the Valuation Date, there was clearly detailed financial information which had not been disclosed to the market but which was disclosed to the Buyer Group.

143. I also accept the Company's submissions with respect to the China Effect, both as regards the alleged undervalue resulting from US investors not knowing whether Chinese companies were fraudulent or genuine and that resulting from a general undervaluation in US markets alleged to be shown by the much higher values that investors are said to be prepared to pay when Chinese companies de-list from US exchanges and re-list on Chinese exchanges. With respect to the second basis for the alleged undervaluation, I accept the Company's submission that it has not been established that any higher pricing on a re-listing is the result of an undervaluation by the US markets rather than an overvaluation by (and different conditions operating in) the Chinese markets. With respect to the first, as the Company submitted, the studies relied on by Mr Edwards do not have sufficient evidential weight to justify the conclusion that there was an ongoing discount applied in relation the Company:



- (a). I have carefully read the studies relied on by Mr Edwards, and paid particular attention to Lemons 2 and Li and Li. I have also carefully considered Mr Edwards' evidence, the evidence of Ms Glass and the parties' submissions. While these studies indicate a consensus among a significant number of academic commentators, as Ms Glass accepted, that in the years immediately surrounding 2012 US-listed Chinese companies might have been undervalued, the data they present does not establish to the necessary evidentiary standard that the Company's ADS were as at the Valuation Date undervalued in principle, or undervalued to a measurable extent (and not to the extent implied by Mr Edwards' RE-Mgmt and RE-Russo analyses). To demonstrate such an undervaluation, it would be necessary to do more than rely on a number of articles which address general trends and a wide range of issues, whose status is unsubstantiated (as the Company pointed out Lemons 2 is stated to be a draft and there is no evidence as to whether Li and Li was peer-reviewed) and whose empirical research does not include or closely relate to the Company. As the Company noted, Parker J had, in my view correctly, pointed out in *Qunar* that "*Articles can be useful background with which to establish matters through witnesses but they are not evidence in themselves.*"
- (b). the limited evidential value of these articles for establishing the value of a specific company's shares is demonstrated by the conclusions section of Li and Li. The conclusions section of the paper shows that the authors considered that company specific factors were important in determining the impact of the perceived undervaluation on particular companies and that factors other than such undervaluation affected decisions to de-list:

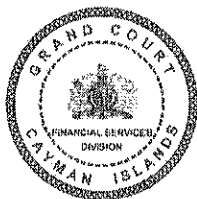
"[They] examined which factors had an impact on the probability of the Chinese Capital Stock delisting and the transaction premium [and] found that unallocated free cash flow, undervalued corporate value, debt-to-equity ratio, asset liquidity and changes in the domestic market environment are important determinants of the possible privatisation of Chinese Capital Stock Companies. Specifically, the companies with greater undervaluation than their peers, with more free cash flows, lower debt utilization, higher asset liquidity, or with more optimized market environment in their registered locations, are more likely to be privatized. In addition, the premium level of privatization transaction depends mainly on the company's free cash flow level, undervalued degree, MOWN and registered market environment. When the privatization company's free cash flow is higher, the underestimation is higher, the MOWN is lower, or the registered market environment is better, the offer premium provided by its privatisation plan is higher.

The research in the present paper has certain policy implications: First, for Chinese companies seeking to go public in the US, the content of this paper provides certain risk warnings. In the US market, Chinese Capital Stock is often regarded as the same type of company, so it is affected by the risk from the Chinese Capital Stock besides of the risks from the entire market. Due to cultural differences and



information barriers, the business models of Chinese companies are mostly not understood and undervalued in the US market. Therefore, Chinese companies seeking US listings should fully understand the US market before making a decision, and be familiar with similar companies and their development in the US market. Second, our results show that undervaluation is an important driver for companies to decide on privatization, so we infer that the decision of Chinese Capital Stock Companies to leave the US market largely depends on its potential opportunities for higher valuations in the Chinese market. So for Chinese Capital Stock companies which are already listed in the US, this PPP strategy (Public-Private-Public) seems to be very attractive. However, this strategy does not necessarily apply to all Chinese Capital Stock Companies. Considering that exiting the US market is only the first step of "returning to China" and considering the time and cost (privatization transaction and backdoor listing cost) of delisting and returning to China and the uncertainty of China's securities regulator's policies. Chinese entrepreneurs need to make rational decisions based on their own company's situation. Third, the results of the present paper show that the optimisation of the domestic market environment has an important impact on the delisting of Chinese Capital Stock Companies. This result means that continuously improving the level of marketization and rule of law in the region is an important way to increase the attractiveness of the Chinese market and maintain the market competitiveness."

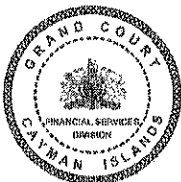
- (c). in my view it is insufficient to rely in substance on only one paper (Li and Li) to substantiate the continuation of the undervaluation to the Valuation Date. It is insufficient to say, as the Dissenting Shareholders did, that no evidence had been put forward to suggest that the asserted undervaluation due to the China Effect came to an end before the Valuation Date (thereby placing the burden of proof on the Company to demonstrate that there was no China Effect as at the Valuation Date). Nor, in my view, were the examples of Chinese companies which had de-listed from US exchanges, and subsequently re-listed or been acquired in trade sales in China or Hong Kong at several times their US de-listing price, sufficient to establish that the reason for the de-listing was a US undervaluation rather than a Chinese overvaluation.
- (d). I appreciate that the Dissenting Shareholders rely on Mr Edwards evidence but his analyses were heavily dependent on the studies, not based on his own research and his conclusion was ultimately qualified. He said that the academic studies (and research presented in them) *suggested* (Mr Edwards said in Edwards 2 at [A3.1]) that the studies "*suggest*" that Chinese companies listed on US stock exchanges as a group had suffered a persistent valuation discount) or showed that there was "*a strong indication*" of a general undervaluation of US listed Chinese companies. During his cross-examination he summed up his views as follows (underlining added):



“Q. It really doesn't tell us anything, does it, that there may be a difference, does it? It doesn't say that the US markets have been undervaluing shares.

A. I think it's a strong indicator. I agree that it's not absolutely definitive but I do think it's a strong indicator and I think it's part of a broader set of evidence we have got, academic evidence that suggests that markets in US-listed Chinese firms - they either say collapsed - in one case, I think the Beatty and others academic research, we have 75 plus management teams and other insiders privatising their companies and several of those citing undervaluation as one of the motivating factors. Plus we then have the subsequent transactions. So I don't think you would look at any one of those things in isolation and say that it tells you for sure any one thing. But I think you look at it in the round and in aggregate that's a very, very strong set of indicators. At least that's my view.”

- (e). I also found persuasive Ms Glass' arguments and analyses as to why, even if there was an operative China Effect at the Valuation Date, there were facts and circumstances relating to the Company which would have neutralised or reduced its effect. I was also persuaded that the Company was right to argue that it could not be treated as or assumed to be one of the companies affected by the undervaluation identified in Li and Li. Li and Li had stated that the average ratio of the P/B (P/E) ratio of the companies that proposed privatisation (and de-listing in the US) compared to the average P/B (P/E) ratio in the US stock market was 0.384 (0.547), which the authors say shows that investors in the US market had lower valuations of the Chinese companies than their US peers. But (as shown in Glass 1) the Company's P/E ratio was 8.6x, which was much higher than the industry average of 4.6x. Furthermore, the Company's P/B ratio was 0.7x, which was only slightly lower than the industry average (0.8x) and in line with the median (0.7x).
- (f). I note that Parker J concluded in *Qunar* that, based on the evidence and studies relied on by the experts in that case, there was no material research (let alone evidence) which suggested that the China Effect identified in 2010-2012 continued in to 2017. I accept, as the Dissenting Shareholders submitted, that the finding of fact in that case is not binding on me and that additional studies, in particular Li and Li, were relied on by Mr Edwards in these proceedings that were not before Parker J. Nonetheless, I consider that Parker J's overall approach and his reticence about placing exclusive or heavy reliance on articles and studies was correct and should be followed. I also note that in *Shanda* I was satisfied that, despite the evidence being finely balanced and the studies relied on representing “to some degree work in progress” that, for the purpose of using share prices in the calculation of beta, there was sufficient evidence to raise material concerns that the data derived during



the relevant period had been subject to exceptional and distorting effects such that it might be unreliable and result in an error in the beta estimate. That was a different case with an earlier valuation date (18 November 2015) and different evidence. The issue was also different. The beta calculation of course involves an assessment and a review of the reliability of general market data and it seems to me that the evidentiary standard is higher and the need to demonstrate a company-specific effect greater when Dissenting Shareholders seek to show that the Company's market price was unreliable and cannot be relied on for the purpose of determining fair value.

144. Accordingly, I reject the Dissenting Shareholders' submission that no reliance can be placed on the adjusted trading price. I also reject the Company's submission that the fair value of the Dissenting Shareholders' shares in this case should be based exclusively on the adjusted trading price. In my view, for the reasons given below, there are good reasons why exclusive weight cannot be justified. But I do consider that significant weight is to be attributed to the adjusted trading price as calculated by Ms Glass. The question then arises as to how much weight. I consider that issue below after reviewing the arguments regarding reliance on and the weight to be given to the Merger Price and the DCF valuations.

Reliance on the Merger Price

The Company's submissions

145. The Company submitted that the Delaware Supreme Court in its opinions in *DFC*, *Dell* and the Aruba Supreme Court Opinion had emphasised the probative value of the agreed deal price and doubted the value of alternative valuation methodologies such as DCF models. That court had overturned appraisal awards of the Court of Chancery for failing to give sufficient weight to the parties' negotiated merger price:

- (a). in *DFC*, the court held that "*economic principles*" indicated that the best evidence of fair value was a deal price resulting from an "*open process, informed by robust information, and easy access to deeper, non-public information, in which many parties with an incentive to make a profit had a chance to bid.*"
- (b). in *Dell*, the court held that where there is "*compelling*" evidence of "*market efficiency, fair play, low barriers to entry, outreach to all logical buyers*" and a well-designed sales



process, the lower court abused its discretion by failing to give the deal price “heavy weight.”

- (c). in *Aruba*, the court directed the lower court to enter a final judgment at a price (US\$19.10 per share) that reflected the deal price less the respondent’s estimate of deal synergies.

146. The Company’s primary case, based on the requirement to determine fair value on the basis of the Hypothetical Transaction Approach, was that the Merger Price exceeded the fair value of the shares. Its secondary case was that, if its primary case was rejected, exclusive regard should be had or substantial weight should be given to the adjusted market price. Its tertiary case was that if both its primary and secondary cases were rejected, the Court should follow the approach of the Delaware Supreme Court and give exclusive or substantial weight to the Merger Price for the following main reasons:

- (a). the Buyer Group held only 5.6% of the shares in the Company, and was therefore not in a position to force through the merger.
- (b). the merger was approved by over 97% of the Company’s shareholders, which was 94.4% of the total shareholders who were independent of the Buyer Group, including a large number of institutional investors.
- (c). the market in the Company’s shares was liquid, it moved with announcements and was followed by analysts, so the share price was itself reflective of fair value and therefore supported the Merger Price being equal to or greater than fair value.
- (d). the merger process, Citi’s Market Check and the work of the Special Committee had been properly conducted so that the Merger Price was the result of an acceptable and proper process.
- (e). the Company had been on the market for a year, during which time the merger proposal had been well publicised and any bidders who wished to have come forward had ample opportunity to do so.
- (f). the proposal had been made on 14 December 2015 at the price of US\$11.60. The last trading day immediately before the proposal was 11 December 2015, when the trading



price was reported to be US\$9.55. There could be no suggestion that the proposal was timed at a particularly bad time for the Company so as to take advantage of a particularly low share price or some large investment that had not yet shown fruit.

147. The Company submitted that the shareholder vote should be relied on in support of the Company's case that the Merger Price should be given substantial weight:

- (a) this was supported by the evidence of Ms Glass. Her opinion was as follows: (Glass 2 at [168] and [170]):

"At the time of the vote, Trina's shareholders included a number of respected institutional investors. In my view, the strength of the shareholder vote, along with the existence of respected institutional investors who owned a substantial stake, further demonstrates the confidence to be placed on the Merger Price."

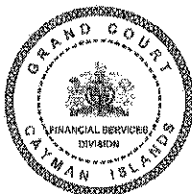
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These shareholders would have been aware of the issues raised in RE1, including the privatization of US-listed Chinese companies and subsequent relistings at higher prices, along with other relevant issues. In my mind, the strength of the shareholder vote, together with the knowledge and experience of [the Company's] larger shareholders (along with many other informed institutional investors), demonstrates that [the Company's] shareholders were not of the view that the Merger Price materially underestimated the fair value of [the Company] ..."

- (b) she rejected Mr Edwards' view. He said as follows (Edwards 2 [3.25] to [3.27]):

"I do not consider that a great deal of comfort can be derived from the fact that a significant proportion of shareholders voted in favour of the transaction. First of all, institutional investors such as mutual funds and index funds tend to vote in favour of the board's recommendation on merger and acquisition related issues... Second, I consider that, if Citi had reached a different conclusion on the value of [the Company], the Special Committee may not have recommended that the Buyer Group's Proposal was accepted. Further, even if the transaction was put to a shareholder vote, the proxy advisory firms' recommendations and the voting decisions of institutional and other investors may have been different had Citi's fairness opinion not materially undervalued [the Company] ..."

- (c) it was fanciful to suggest that those who had invested money would not consider carefully whether to accept the merger price or not. The fact that investors had voted the same way as management recommended did not mean that the investors had not considered carefully whether to accept the offer and had not done their own analysis. It was clear from Mr Edwards' own evidence that investors do not always accept management's recommendations. Furthermore, investors of the type involved in this case would be aware



that if they failed to vote there would be a deemed vote in favour. It was also fanciful to suggest that because they had not positively given instructions they were somehow indifferent as to what happened. It was likely that they would have carefully considered the terms of the proposed merger - two reputable market analysts, Morgan Stanley and Deutsche Bank, who were also significant shareholders, followed the Company closely.

148. The Company also submitted that the merger process and the Citi Market Check were properly conducted. The Company invited the Court to follow the approach taken in Delaware to the review of and weight to be attached to a market check exercise:

- (a). this approach was set out in *Dell, In re Appraisal of Solera, Inc* 2018 WL 3625644 (Del. Ch. July 30, 2018) (*Solera*) and *Blueblade Capital Opportunities, L.P. v. Norcraft Inc.* 2018 WL 3602940 (Del. Ch. July 27, 2018) (*Norcraft*).
- (b). in *Solera*, the Court of Chancery had found that the sale process, “*although not perfect*” supported reliance on the merger price. The court stated that the process was “*open*” and was “*characterised by many objective indicia of reliability*” and noted that the sales process occurred against a backdrop of Solera having “*a deep base of public stockholders, its shares were actively traded...and were covered by numerous analysts, and its debt was closely monitored by rating agencies.*” The facts establishing an efficient market for Solera’s shares “*corroborate[d] that the best evidence of Solera’s fair value was the merger price.*”
- (c). in *Norcraft*, the Court of Chancery took into account the merger price even though the court considered that there were flaws in the company’s deal process. *Norcraft* suggested that after *Dell*, the court’s evaluation of whether a DCF result above the merger price was credible may depend on whether there was, in the court’s view, a reasonable correlation between the delta between the DCF result and the deal price, and whether there were flaws in the sale process.
- (d). Vice Chancellor Slight had, after citing the Delaware Supreme Court’s admonition in *Dell*, that the merger price must be “*considered carefully*”, “*returned to the Merger Price as a ‘reality check,’ before locking in [his] DCF valuation as the last word on fair value*”. He concluded that he was “*satisfied that the \$0.66 per share delta between the Merger price and [his] DCF valuation of Norcraft [was] a product of the identified flaws in Norcraft’s deal process.*” Slight V-C said as follows:



“Mindful of DFC and Dell, I have considered carefully whether the Merger Price [\$25.50 cash per share] (less synergies) reflects the fair value of Norcraft as of the Merger date. For the reasons explained below, I am satisfied it does not.

In this case, the evidence reveals significant flaws in the process leading to the Merger that undermine the reliability of the Merger Price as an indicator of Norcraft's fair value. There was no pre-signing market check; Norcraft and its advisors fixated on Fortune [the buyer group] and never broadened their view to other potential merger partners. As the parties worked to negotiate the Merger agreement, Norcraft's lead negotiator was at least as focused on securing benefits for himself as he was on securing the best price available for Norcraft. And, while the Merger agreement provided for a thirty-five-day post-signing go-shop, that process was rendered ineffective as a price discovery tool by a clutch of deal-protection measures.

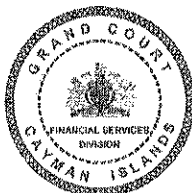
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Having concluded that flaws in the sales process leading to the Merger undermine the reliability of the Merger Price as an indicator of fair value, and that the evidence sub judice does not allow for principled reliance upon the efficient capital markets hypothesis, I have turned to a “traditional valuation methodology,” a discounted cash flow (“DCF”) analysis, to calculate the fair value of Norcraft as of the Merger date. In my view, given the evidence in this record, a DCF-based valuation provides the most reliable means by which to discharge the Court's statutorily mandated function to appraise Norcraft.

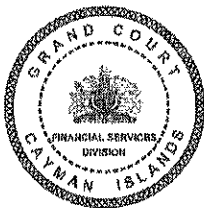
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Insofar as Dell and DFC require that the trial court carefully consider deal price before disregarding it altogether, I have returned to the Merger Price as a “reality check” before locking in my DCF valuation as the last word on fair value. Having done so, I am satisfied that the \$0.66 per share delta between the Merger Price and my DCF valuation of Norcraft is a product of the identified flaws in Norcraft's deal process. Accordingly, I conclude that the fair value of Norcraft as of the Merger date was \$26.16 per share.”

- (e) in the present case, the merger process was properly conducted and was not subject to material flaws which required the Court to ignore or materially discount the Merger Price:
 - (i) the Special Committee was comprised of two independent directors, one of whom was Mr Zhao, who gave evidence. He was an experienced director, who was well aware of his duty to protect the interests of the Company's shareholders and had a history of standing up to Mr Gao where necessary.
 - (ii) the Special Committee was advised by experienced advisors, Citi and K&E.



- (iii). the Company had been on the market for twelve months before the merger was approved.
- (iv). all relevant financial buyers had been approached and it was clear that there had been little real appetite from them to make an offer. Mr Edwards had made no criticism of the list of financial buyers prepared and used by Citi.
- (v). as regards strategic buyers:
 - (A). while the Company's main competitors had not been approached, this had been made clear in the Proxy Statement so that all the shareholders, analysts and proxy advisory firms were aware of it. If strategic buyers had wanted to make a bid, they could have approached the Company and would have been given access to relevant documents. It would have been a breach of duty by the directors for them to have failed to give such access. Mr Zhao had stated under cross-examination that the Special Committee would have been "*thrilled*" if a serious bidder had come forward.
 - (B). as set out in *Dell*, the fact that no strategic buyers make a bid was highly probative evidence that the fair price is less than the Merger Price. Had the fair price been more than, or even equal to the Merger Price it would have been worth a strategic buyer making a bid because of the synergistic benefits it could obtain. It would be equally well placed to predict the future market.
 - (C). this was an answer to Mr Edwards' criticism of the sales process. He had identified other strategic buyers that he said ought to have been approached but as *Dell* made clear, a bid from a strategic buyer is not a *sine qua non* for taking the merger price as probative evidence of fair value. Strategic buyers would have been aware that the Company was on the market and, in view of the synergy gains to be made from acquiring the Company would, had the Merger Price been equal to fair value, have had an incentive to bid. The absence of bidders was probative evidence that the market did not share the same view as Mr Russo as to the industry or have the same view as Mr Edwards as to the appropriate discount rate.



(vi). the Citi Fairness Opinion was properly prepared and set out in full in the Proxy Statement so that it was available to shareholders who had the opportunity to examine it and form their own opinion as to the fair value of the shares in the Company. Mr Edwards' criticism of the Citi Fairness Opinion was unjustified. Ms Glass had (in Glass 2 at [173] - [197]) rejected Mr Edwards' criticisms (which had been set out in Edwards 1, Appendix 4) and only been cross-examined on five points: (a) certain alleged arithmetical errors; (b) Citi's use of and reliance on a SSRP; (c) Citi's cost of debt figure; (d) the fact that Citi had relied on the Management Projections which only contained projections to 2022; and (e) the fact that Citi had failed to value the Company's two different business segments separately. The Company said that as regards (a), the alleged arithmetical errors were immaterial and therefore could be ignored; as regards (b) and (e), these were matters dealt with in Ms Glass' DCF valuation and Ms Glass' evidence, discussed below, demonstrated that Mr Edwards' criticisms were unsound and that Citi's approach was within the range of reasonable opinion and judgment; as regards (c), Ms Glass had said that once again Citi's approach was a matter of judgment and could not be said to represent an error - while she accepted that Citi's 13% cost of debt appeared high, she assumed that it flowed from Citi's assumption of a very high capital structure (70% perpetual debt), which suggested an assumed LBO (leverage buyout) structure, and might have reflected the need for (and implicit cost of) restricted cash, but neither she nor Mr Edwards were in a position properly to understand and therefore criticise Citi's approach without having discussions with them; and as regards (d), Mr Edwards had accepted in cross-examination that the use of an explicit period of six years (ending in 2022) rather than seven years (ending in 2023) was not unreasonable or an error.

(f). while it was correct that one of the proxy firms (Glass Lewis) had advised shareholders not to vote for the merger:

(i). Glass Lewis had noted that the present case was different from other take-private mergers because Mr Gao only had 5.6% of the votes and that they considered the merger and sales process had been full and independent. They had also been satisfied with Citi's analysis and considered that the Company had probably been fairly valued at the Acceptance Date. Their complaint had been that the Merger Price did not reflect a premium for control.

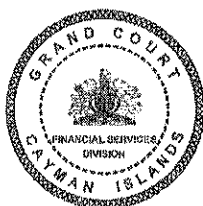


- (ii). the other two proxy advisory firms had advised shareholders to vote in favour and all three firms had reported on the Citi Fairness Opinion without identifying any errors in it.

- (g). Mr Gao's position did not prevent potential bidders making a bid or materially chill the sales process:
 - (i). Mr Edwards had concluded that since the Buyer Group had disclosed that they did not intend to sell their shares to a third party, a third-party bidder would have risked losing Mr Gao, and possibly other members of management, were it to be successful with a bid which would have been a serious disincentive to alternative bidders (the Company would have been a much riskier proposition).

 - (ii). Ms Glass had disagreed with Mr Edwards assessment. In her view, Mr Edwards' argument was a conceptual one that failed to consider quantum. Even if the presence of Mr Gao might have put off bidders bidding above the Merger Price by a few dollars, it would not prevent them from bidding at all, particularly if they had considered the true value of the Company to be at the high end of Mr Edwards valuation range (US\$194); although Mr Gao had disclosed his intention not to sell his shares to a third party, no evidence existed to support the assumption that Mr Gao would not have participated in a deal with other parties, at the right price; and although she did not disagree that Mr Gao was important to the Company or that his potential loss would have been a negative factor, that was true for the CEOs of many companies and if Mr Edwards believed that the impact of his loss would have been material, his valuation could and should have dealt with this by applying a key-person discount. Ms Glass did not expect that the risks surrounding the loss of a strong CEO would be of the magnitude implied by Mr Edwards and she pointed to research published in 2016 which assessed the impact on share value due to the unexpected loss of a CEO (arising from sudden death) and showed both positive and negative share price reactions, with the average negative reaction of 7.4%.

- (h). the existence of so called anti-takeover provisions (that enabled additional shares to be issued by the Company), relied on by Mr Edwards, did and would not chill the sales process since if a higher bid had been made it would have been a breach of duty by the directors to exercise their powers to thwart that bid and any potential bidder would have



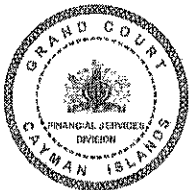
been aware of this and so would not have been deterred from bidding. In addition, Mr Edwards had been wrong to rely on the so called winner's curse. This described a theory that held that in outbidding incumbent management to win a deal, a buyer was likely to overpay for the company because management would presumably have paid more if the company were really worth it. This concern had been rejected in *Dell* and should be rejected by this Court. The likelihood of there being and the effect of a winner's curse could be mitigated through a due diligence process where buyers had access to all necessary information (in *Dell*, Dell had allowed third-party bidders to undertake extensive due diligence thereby diminishing the information asymmetry that might otherwise facilitate a winner's curse). In addition, the winner's curse did not apply to potential strategic buyers. This was because they typically possessed and had access to their own industry-specific expertise and had asset-specific valuations that incorporated synergies.

(i). *Norcraft* was distinguishable from the present case because:

- (i). the informational advantage to the buyer group in *Norcraft* was different because it was largely based upon a particularly complex tax situation, which the buyer had taken months to “navigate”, and which any competing bidder would have had to evaluate and resolve before the go-shop period expired.
- (ii). the merger agreement had “tightened and shortened” the go-shop period, which favoured Fortune (the buyer group) over any competing bidder. This particularly concerned the court because of the complexities of the due diligence process (in particular the tax position mentioned above).
- (iii). the court positively found specific evidence that the financial advisor and the buyer's CEO had devised a strategy to dissuade potential buyers from submitting higher bids.

The Dissenting Shareholders' submissions

149. The Dissenting Shareholders argued that the evidence required to demonstrate that the Merger Price was evidence of fair value was evidence of the process by which it was reached. This evidence was in the hands of the Company or the Buyer Group and if the Company sought to rely on the Merger Price as indicative of fair value, then it was for the Company to satisfy the Court that the process by which it was arrived it was sufficiently fair as to justify such reliance.



In this case the Company had failed to discharge that evidential burden. The relevant evidence demonstrated that the merger process, in particular the Citi Market Check, was not properly conducted so that no reliance could be placed on it as an indicator that the Merger Price reflected or approximated the Company's fair value.

150. The Dissenting Shareholders mounted a robust challenge to the manner in which the Special Committee had acted, to the adequacy of the Citi Market Check and to the reliability of the Fairness Opinion. They also said that the shareholder vote at the EGM and the recommendation to vote in favour of the merger by two proxy firms could not be relied on as evidence that the Merger Price was indicative of fair value.

151. The Dissenting Shareholders invited the Court to follow the Delaware jurisprudence relating to the significance and weight to be attached to the merger price:

- (a). the Delaware law experts agreed that merger price was not presumptively evidence of fair value before the Delaware courts (see *Montejo 1* at [18] and *Hamermesh 1* at [13]) but that it could be evidence of fair value, “so long as the process leading to the transaction is a reliable indicator of value” (*Hamermesh 1* at [12]).
- (b). the Delaware courts expected a company that sought to rely on the merger price to provide detailed factual evidence and substantial disclosure. As Mr *Montejo* said (*Montejo 1* at [36]):

“[I]f the company asserts that merger price is evidence of fair value, it must not only offer sufficient evidence to support this proposition, but also provide fulsome discovery in order to allow the dissenting shareholders, and the Court, to determine if the sales process was robust and free.”

- (c). Mr *Montejo* had explained that in his experience as a specialist in valuation litigation before the Delaware courts, this discovery process usually resulted in the production of tens of thousands of documents and the deposition of a large number of witnesses of fact. In *Aruba*, the company had been required to give full disclosure and detailed deposition as a condition for putting merger price forward as evidence of fair value. However, and by contrast, in this case the Company had only disclosed thirty-two documents in relation to the Citi Market Check and had not produced any witness evidence from any person who was directly involved in it. This fell far short of the evidential standard that the Delaware courts set for companies seeking to rely on merger price and there was no reason why this



Court should accept scanty evidence of the sort that would not begin to pass muster in Delaware.

- (d). furthermore, management buyouts were considered not to be arm's-length transactions and to involve favouritism towards management so that the merger price could not generally be a reliable indication of fair value.
- (e). an adverse inference could and should be drawn from the Company's failure to produce evidence from the financial advisor who had provided a fairness opinion (see *In re Emerging Comm'ns, Inc. S'holders Litig.* 2004 WL 1305745, Del. Ch. May 3, 2004).

152. As regards the work of the Special Committee and the Citi Market Check:

- (a). no reliance could be placed on the Citi Market Check as an indicator that the Merger Price reflected or approximated fair value.
- (b). the evidence established a number of key points:
 - (i). the Buyer Group (through Mr Gao) had privileged access to private information about the Company even before the merger was in contemplation, and Mr Gao expressed an intention to profit personally from that information.
 - (ii). the Special Committee, which was appointed to (among other things) oversee the Citi Market Check process in an independent capacity, was compromised by conflicts of interest.
 - (iii). the Special Committee process was conducted in pursuit of a pre-determined end goal, namely that the sale to the Buyer Group should be approved, rather than with a view to protecting the interests of the Company and its shareholders.
 - (iv). the Special Committee gave the Buyer Group preferential access to private company information, including financial projections.
 - (v). the Citi Market Check process omitted all of the Company's credible competitors from the list of potential bidders to be contacted.



- (vi). potential alternative bidders were put in touch with the Buyer Group, with a view to their joining the Buyer Group rather than bidding against it.
 - (vii). the Special Committee did not offer any real oversight of the Citi Market Check process. In particular, Mr Zhao was not told why any potential bidder declined to bid, and did not ask; the Special Committee did not take any steps to put potential bidders who may have been interested in forming a consortium in touch with each other; and Mr Zhao did not know what effort (if any) Citi made to get a response from the ten potential bidders who did not respond at all.
- (c). the Dissenting Shareholders relied in particular on the following matters and evidence:
- (i). prior to making the merger offer, Mr Gao (and, through him, the Buyer Group) had been party to private information about the Company's performance and its prospects. This was inevitable given his role as the Company's CEO and Chairman. Furthermore, while Mr Gao had not given evidence, it was clear from the documents that had been disclosed that he recognised that his access to private information about the Company gave him an opportunity for personal profit and that he intended to exploit that opportunity. It was also clear that neither Mr Zhao nor the Company's other directors felt able (or were willing) to prevent him from doing so.
 - (ii). there were very close connections between the members of the Special Committee (and the members of the Company's board) and Mr Gao that compromised their independence. Mr Zhao (who gave evidence) and Mr Shao (who did not give evidence) were close to Mr Gao and had joined the Company's board on his personal recommendation. In addition, shortly before his appointment to the Special Committee, Mr Zhao had received a bonus payment of half a million dollars from the Company, which he accepted had made him well-disposed to Mr Gao. Furthermore, as Mr Zhao had accepted during his cross-examination, to his knowledge, no one had ever become a director of the Company without Mr Gao's approval, and that the corporate governance and nominating committee never rejected any of Mr Gao's proposed appointees.
 - (iii). in addition, K&E had not been sufficiently independent to perform their role as legal advisers to the Special Committee properly. They were the usual external counsel



to the Company, and, as such, were accustomed to dealing with senior management. It had not occurred to Mr Zhao at the time of their appointment that it would be preferable to appoint a new and entirely independent firm to advise the Special Committee, and when he later considered the question of whether K&E had a conflict of interest, he only sought advice on that point from K&E itself, and accepted it. This was inappropriate. K&E's written presentations strongly suggested that they assumed that the transaction with the Buyer Group would be and was bound to be approved and that their advice was focused on developing a record that would allow the proxy firms to recommend the merger with the Buyer Group.

- (iv). the Special Committee had failed to ensure that the discussions with the Buyer Group were conducted in accordance with proper and market standard protocols. K&E had advised that the Special Committee should "*Deliver written guidelines to management prohibiting engaging in substantive discussions/negotiations with Bidder regarding the proposed transaction or future employment without Special Committee consent*". However, no such document had been disclosed and the cross-examination of Mr Zhao revealed that he had not paid any serious attention to whether these had been issued and were appropriate. He thought that guidelines had been produced by K&E and given to management but had no recollection of the Special Committee having discussed or approved them. He took the view that they were boilerplate and did not require his or the Special Committee's scrutiny or attention.

- (v). the Special Committee had also failed to ensure that the financial projections on which the Fairness Opinion was to be based and which were critical to negotiating a proper merger price, were properly and independently prepared. There was an obvious risk of a serious conflict of interest if Mr Gao became involved in any way in the preparation of the Management Projections (as a member of the Buyer Group, his interests lay in valuing the Company at as low a value as possible). However, Mr Zhao took no steps to prevent that conflict of interest. The evidence showed that in fact Mr Gao had been involved in and his views had been important in the preparation of the Management Projections:
 - (A). the Dissenting Shareholders referred to an email dated 3 February 2016 from Citi to the Special Committee and others, which provided notes for a



management presentation with the Buyer Group (stated to be on 1 February?). The email referred to key questions from the Buyer Group, which included the question: *How was management forecast generated?* The proposed response prepared by Citi included the following (with my underlining):

“How was management forecast generated?”

- *Management forecasts are based on our performance in the previous year, future market outlook and the management’s own view of the market*
- *Market volatility and other exogenous factors may lead to deviation from our budget*
- *Company will send management projections once approved by the Special Committee*

Gao and management’s view about the market in the next 3 years”

- (B). the Dissenting Shareholders said that the statement that the projections were based on Mr Gao and the management’s views of the market showed that Mr Gao had been influential in the development of the projections. They also relied on Mr Zhao’s evidence. He was asked during cross-examination whether management’s and Mr Gao’s view about the market were essentially the same thing at the time, so that for practical purposes, the management forecasts were Mr Gao’s forecasts. He had responded that *“If they agree, yes.”* The Dissenting Shareholders submitted that this was an admission that the Management Projections were in fact Mr Gao’s projections and this was damning of the Special Committee process and fatal to the Company’s case based on reliance on the Merger Price. The Management Projections were compromised by an obvious conflict of interest, from which the Special Committee process failed to protect shareholders.
- (C). on 13 May 2016, at a meeting of the Company’s board, Mr Gao had informed the board that the Company’s previous CFO had resigned and he had decided that she should be replaced by Merry Xu (*Ms Xu*) (so that, as Mr Zhao had accepted, Ms Xu took charge of overseeing the Company’s finance department, having until then been Mr Gao’s personal strategy assistant). Ms



Xu was also the person who ultimately reviewed and confirmed the Management Projections (this was confirmed by Mr Chan).

- (vi). furthermore, critical elements of the Management Projections were unexplained and suspect and the governance process for verifying and approving them was seriously flawed.
- (vii). the Management Projections had been finalised on 6 July 2016, after several earlier iterations were produced in the same year. Projections had been prepared on 22 January and 2 February 2016. There had been, as I have noted above, a substantial downward revision to the Company's forecast module sales volumes between the January Projections and the February Projections. The downwards adjustment was extraordinary, completely unexplained and highly suspicious. Dr Goffri had wrongly assumed that the change in projections was precipitated by worsening conditions in the second half of 2016. The Company had never sought to provide any other explanation, nor to explain how its own expert witnesses were permitted to proceed on a factual basis that was flawed in a vital respect.
- (viii). the Management Projections were produced by management without any input from Citi or the Special Committee. The Dissenting Shareholders relied on the following exchange between me and Mr Zhao:

“JUSTICE SEGAL: But this is a decision which the special committee takes on 7 July.

A. 7 July, right.

JUSTICE SEGAL: And at that stage Citi hadn't had a chance to review or had Citi had a chance to review the updated --

A. I didn't know what's going on with the Citi's preparatory work but I think the verbal communication we got from Citi is that they are comfortable with delivering the fairness opinion pretty soon. That's the assumption that is sort of the conversation -- the message we got throughout the process.

JUSTICE SEGAL: But can you recall whether at the meeting on 7 July Citi were able to say anything about the projections produced on 6 July. The answer --

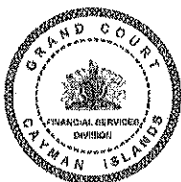


A. *No, I don't recall –*

JUSTICE SEGAL: *It appears to be not because it appears that they were asked to go and check what the implications were of those revised projections.*

A. *I don't recall that part.”*

- (ix). on 7 July 2016, the Buyer Group had rejected the Special Committee’s request for an increase to the Merger Price. The obvious inference, both from the evidence and from the lack of contrary evidence adduced by the Company, was that the rejection of the price increase was the purpose for which the projections were revised.
- (x). on 15 July 2016, Citi emailed Ms Xu to ask which set of projections to use in the valuation which would underpin their Fairness Opinion. Ms Xu had said that Citi should use the Management Projections which had been finalised on 6 July 2016, “*based on best judgment of management*”. It was put to Mr Zhao that Citi should have asked this question of the Special Committee, not Ms Xu. His answer was that Citi had dealt directly with management throughout, and that if Citi had asked him, he would have had no idea how to respond.
- (xi). Mr Zhao’s evidence in chief had been that on 7 July 2016, eight days before Citi were even told which projections to use in their Fairness Opinion, the Special Committee had “*determined to pursue the Proposal at the Merger Price.*” At that stage Mr Zhao “*didn't know what's going on with the Citi's preparatory work*”. To judge from the email exchange of 15 July 2016 (and the lack of any other evidence), “*Citi's preparatory work*” consisted of waiting a week and then asking Ms Xu which projections to use.
- (xii). the Special Committee had failed properly to test whether an alternative to the transaction with the Buyer Group was available and had adopted a process, or permitted the adoption of a process, which favoured the Buyer Group and assumed that the merger with the Buyer Group would proceed. Furthermore, they had failed to consider, as they had been advised by K&E that they must, whether the timing of the merger was appropriate or should be deferred. The inference, which the Court was invited to draw, was that the Special Committee had not approached its task in good faith.



(xiii). the Special Committee had favoured the Buyer Group by providing it with substantial amounts of MNPI before other potential bidders and without adopting a process and timetable that would allow any such bidders to have time to catch-up and review the same materials before a decision was made on whether to accept the offer from the Buyer Group. The Special Committee had failed to ensure that there was a level playing field. And the steps taken had not been properly reflected in the Company's disclosure to shareholders. For example, on 6 February 2016, Mr Zhao had authorised financial projections prepared by the Company's management to be shared with the Buyer Group but the Proxy Statement stated that "*None of the Buyer Group was provided with ... any of these financial projections*". Mr Zhao had accepted during his cross-examination that this statement was false. As a result, a careful reader of the Proxy Statement would have been misled into believing that the basis on which Citi had prepared the Fairness Opinion was independent of the basis on which the Buyer Group had determined its own willingness to pay the Merger Price. In fact, the two processes had been intertwined throughout.

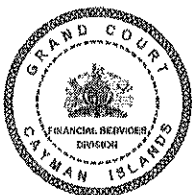
(xiv). on 15 February 2016, in a telephone meeting between Citi and the Special Committee, the Special Committee agreed the List of Buyers which Citi would be instructed to approach in the Citi Market Check. However, and significantly, that list did not include any of the Company's main competitors. The Proxy Statement recorded that Citi considered that the "*main publicly traded peers*" and best comparators to the Company's upstream business were Canadian Solar, Jinko Solar and Motech Industries, while the best comparators to the downstream business were First Solar and SunPower. Of those five companies, only the smallest one, Motech, appeared on the List of Buyers.

(xv). Mr Zhao had accepted that the Special Committee had taken a positive decision to exclude the Company's main competitors from the list of potential buyers, although he was unable to provide a satisfactory explanation. He professed personal ignorance of that decision and said that it had been taken by Mr Shao. He did suggest that these parties could nonetheless have submitted a bid if they wanted to. However, the Dissenting Shareholders submitted that if the Special Committee had really taken seriously its stated aim of canvassing the possibility of an alternative to the merger, the most important step it could and should have taken was proactively to approach companies in the same business which could have benefitted from



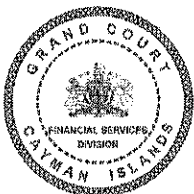
synergies by acquiring the Company and could plausibly have afforded to do so. Without an invitation, any other party would have assumed that it would not have access to the private information that would have been needed to bid. The evidence before the Court suggested that they would have been right to make that assumption, as even those parties who did respond to the invitation never made it as far as receiving access to the data room. The Special Committee's lack of a commitment to do everything possible to test whether there was a better alternative to the merger was also shown by the fact that when Citi reported to the Special Committee on 25 February 2016 that a number of potential bidders had declined to bid, Citi did not state the reasons why those bidders had declined and Mr Zhao did not ask. He said that he did not consider it important to ask what reasons potential bidders had given for declining.

(xvi). on 3 March 2016, Citi had provided a further update on the Citi Market Check. By this time, one potential strategic buyer, Hanwha, had formally expressed interest in bidding and had signed a non-disclosure agreement, and another, Motech, had expressed an intention to do so. Another buyer, IFC, had asked whether there might be an opportunity to form a consortium with strategic buyers. The Dissenting Shareholders submitted that the obvious response would have been to explore whether Hanwha and/or Motech might have been interested in joining such a consortium and to ensure that these interested parties were put in touch with each other. However, Mr Zhao did not do that, and nor, to his knowledge, did Mr Shao or Citi. On 11 March 2016, Citi reported that Motech, previously a potential alternative bidder, had more recently expressed interest in joining the Buyer Group instead. Mr Zhao did not ask Citi what caused Motech to change their mind, even though the conversion of a potential bidder into a potential member of the Buyer Group obviously had serious ramifications for the Special Committee's stated aim of identifying alternative bids. Motech later declined to take part in the bidding process at all; again, Mr Zhao did not ask why. Similarly, an email from Citi dated 15 March 2016 recorded that both Asia Climate Partners and IFC had become interested in joining the Buyer Group rather than in bidding against it. Both were given permission to speak to the Buyer Group (whereas, by contrast, IFC was never directed to contact Motech or Hanwha). Of the twenty-two potential bidders on the List of Buyers, Citi was unable to contact one at all and received no response from



nine. Mr Zhao did not know what effort (if any) Citi made to get a response from those other ten potential bidders.

- (d). the Dissenting Shareholders invited the Court to make the following findings of fact or inferences from the facts with respect to the Citi Market Check process:
- (i). the Special Committee and Citi excluded from the market check the most likely strategic bidders for the Company and did so intentionally.
 - (ii). of the twelve companies that responded to Citi, four of them (one-third) expressed interest, in circumstances where they would have been aware of the price level of the Buyer Group's offer.
 - (iii). it followed that those four must have formed a provisional view that the Merger Price undervalued the Company.
 - (iv). the Special Committee and Citi had failed to inform the interested parties of each other's interest, even though a financial bidder (IFC) had expressly asked whether there was an opportunity to join with strategic bidders.
 - (v). instead, three of the four interested parties were directed to contact the Buyer Group.
 - (vi). the fourth interested party (Hanwha) dropped out on a ground which had nothing to do with price (the stated reason was that the deal was too big).
 - (vii). there was no evidence that Citi took any or proper steps to chase or encourage the ten companies on the list who did not respond at all.
 - (viii). there was no suggestion that any party expressed any view that the price was too high.
 - (ix). in the result, the Citi Market Check provided no comfort that the Merger Price was fair and, if anything, suggested it was too low.
- (e). the Dissenting Shareholders invited the Court to make the following findings of fact or inferences from the facts with respect to the Management Projections:



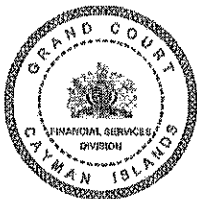
- (i). the inherent risk of bias that existed in relation to the February Projections had not been reduced, but persisted in relation to the Management Projections.
- (ii). the Company had disclosed no documents and adduced no evidence about what triggered the creation of the Management Projections or the process by which they were arrived at. The Company had every opportunity to do so.
- (iii). the proper inference was that the Management Projections were, as the Special Committee minutes suggested, created for the purpose of justifying the Buyer Group's refusal to increase the Merger Price and in any event in the interests of the Buyer Group.
- (iv). Citi, as it admitted in its Fairness Opinion presentation and letter, had taken no, or no sufficient, steps to interrogate or analyse or verify the Management Projections, despite knowing the circumstances set out above.
- (v). the Special Committee had taken no, or no sufficient, steps to oversee or supervise the production of the Management Projections.
- (vi). the proper inference was that the Management Projections understated the Company's prospects as management would have known or fairly estimated them to be.

153. As regards the Fairness Opinion:

- (a). as noted above, the Dissenting Shareholders (based on the evidence of Mr Edwards in Edwards I, Appendix 4) argued that the Fairness Opinion was unreliable. Citi had relied on the Management Projections. But the use of those projections to assess the fair value of the Company was unsupportable, and the Fairness Opinion was therefore fundamentally flawed, because, for the reasons summarised above, the process by which the Management Projections had been prepared and the process of oversight by the Special Committee were compromised by conflicts of interest and those projections materially underestimated the Company's future prospects.



- (b). in addition:
- (i). Citi had made one mechanical and two arithmetic errors. Individually these were substantial errors. The most significant had resulted in Citi understating the Company's enterprise value by US\$1.35 per ADS. However, the other two errors led to overstatements of value, so the net effect of the three errors was that Citi understated the enterprise value of the Company by US\$0.38 per ADS.
 - (ii). Citi had also ignored the Company's projections for 2023. Had they taken that forecast properly into account, their valuation would have been higher by US\$2.27 per ADS.
 - (iii). Citi's implied enterprise valuation of the Company's downstream business had been only US\$600 million. This valuation was implausibly low, because if the downstream business has simply sold all of its assets at book value, settled its debts and ceased operations, the Company would have realised almost US\$1.5 billion. If Citi had assessed the enterprise value of the downstream business at US\$1.5 billion (which entailed the conservative assumption that the future activities of that business would generate zero value), its DCF valuation would have increased by US\$9.19 per ADS and this alone would have taken it materially higher than the Merger Price.
 - (iv). Citi had calculated that the cost of capital for the Company would be between 11.1% and 12.1%, which was significantly higher than Mr Edwards' estimated cost of capital and somewhat higher even than Ms Glass. This was the result of several mistaken assumptions including its unexplained and unjustifiably high assumption that the pre-tax cost of debt would be 13%.
 - (v). Citi had also improperly applied a SSRP.
 - (vi). after correcting for all of these errors outlined above (save for the fundamental error of relying on the Management Projections), Citi's DCF valuation would have indicated a value of between US\$39.93 and US\$63.23 per ADS. Accordingly, had that valuation been properly conducted, it would not have supported the conclusion that the Merger Price was fair.



- (c). Citi had also used a sum of the parts (*SOTP*) valuation, which calculated the value of a business by assessing the value of each segment of the business separately. Using this approach Citi had valued the upstream and downstream segments separately, then combined those values to estimate a value for the Company as a whole. Citi had valued each business segment by calculating the ratio of enterprise value to EBITDA for comparator companies (the *EV/EBITDA multiple*), then applying that ratio to the EBITDA of the relevant business segment to estimate the enterprise value of that segment. But Citi had made two errors. First, it had valued the downstream business at between US\$481 million and US\$588 million. The Dissenting Shareholders argued that for the reasons already explained it was implausible that the enterprise value of the downstream segment was below US\$1.5 billion. Second, the EV/EBITDA multiples that Citi calculated for one of the companies it identified as comparators for the upstream business were too low. Mr Edwards had re-calculated those multiples using publicly available data and found that the multiple for Motech was 6.9x, rather than 4.6x. Correcting for these errors by valuing the downstream business at its shutdown value of US\$1.5 billion and applying the corrected multiples re-calculated by Mr Edwards to the upstream business, Citi's SOTP valuation yielded a value of US\$22.57 per ADS, rather than the value of US\$9.70 that Citi reported. Such a corrected valuation could not have supported the conclusion that the Merger Price was fair.
- (d). furthermore, Citi's independence had been compromised because it had a financial incentive to ensure that the merger completed. It was to be paid in the event that the merger went ahead (and presumably was paid) US\$500,000.
- (e). the Company's failure to produce evidence from Citi to support the Fairness Opinion supplied a further reason not to treat the Fairness Opinion as supporting the use of the Merger Price as a measure of fair value. That position was *a fortiori* when serious questions were raised about the Citi process as they had been in this case.

154. The favourable recommendations given by the two proxy firms were made against the backdrop of the Citi Fairness Opinion. Had Citi instead concluded, as it should have done, that the Company's fair value per ADS was several times the Merger Price, it cannot be assumed that ISS and Egan-Jones would still have recommended that shareholders vote for the Merger. In fact, the Dissenting Shareholders submitted, it was far more likely that in those circumstances all three proxy firms would have recommended that shareholders vote against the merger.



155. As regards the shareholder vote at the EGM:

- (a). if Citi had concluded that the Merger Price was not a fair price (as they should have done) then was unlikely that shareholders would have supported the merger.
- (b). the holders of 40.6% of shares in the Company took no action and were deemed to have given management their proxy. Only 57.2% of shares were voted by their owners in favour of the merger. While Mr Edwards had acknowledged that it was possible that such shareholders had thought carefully about the merger proposal and had decided to rely on the operation of the deeming provision, it was equally possible, as Mr Edwards had rightly said, that those shareholders may not have formed a view about the merger and/or may not have been paying much attention to it.
- (c). institutional investors generally follow board recommendations when voting on mergers and acquisitions. They may have various motivations for doing so independently of any assessment of intrinsic value. Intrinsic value was a long-term concept and the investment time horizons of many shareholders may well be of much shorter duration. Mr Edwards had been challenged on this point but had maintained his view that institutional investors were likely to have simply followed management's recommendation to vote for the merger.

Discussion

When the merger price can be relied on in determining fair value

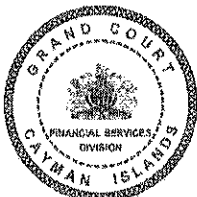
156. In my view, the merger price can be evidence of fair value where the transaction process was properly conducted so as to ensure that the market was adequately tested and there is sufficient evidence that market conditions were such as to facilitate an arm's length transaction with all potentially interested parties. The summary given in *Dell*, and referred to by the Company, seems to me to be a good one with some minor modification - where there is sufficient evidence of "market efficiency, fair play, low barriers to entry, outreach to all logical buyers" and a well-designed sales process, the merger price should be given weight in the fair value determination. The precise weight will depend on the evidence as to how good and robust the process was, whether there were any market inefficiencies or problems that limited the participation of interested parties or other difficulties that affected the company's ability to find a purchaser at



the best price and the weight to be given to the other valuation methodologies. I accept that in a strong case where the evidence demonstrates that the factors identified in *Dell* were satisfied then it can be appropriate to give the merger price “heavy weight.” But I do not accept the Dissenting Shareholders' argument that there is an enhanced burden on the Company to provide additional (“fulsome”) discovery on this issue. As with other issues in the fair value determination, the Company needs to produce sufficient evidence to show that the conditions justifying reliance on the merger price were satisfied. If the Company decides to limit its documentary discovery and not to produce as witnesses those who were directly involved in the transaction process or the production of management projections, then it risks failing to satisfy the evidential burden. This approach seems to me to be consistent with the approach adopted by Kawaley J in *Nord Anglia* and Parker J in *Qunar*.

In the present case, there are a number of factors that support reliance on the Merger Price

157. In this case, there are a number of significant factors that support reliance on the Merger Price. I accept the Company’s submissions with respect to the significance of and weight to be given to the fact that the Buyer Group held only 5.6% of the shares in the Company and was therefore not in a position to force through the merger; that the merger was approved by over 97% of the Company’s shareholders, which was 94.4% of the total shareholders who were independent of the Buyer Group, including a large number of institutional investors; that the evidence shows that the market in the Company’s shares was liquid, moved with announcements and was followed by analysts and that the Buyer Group’s proposal was not timed at a particularly bad time for the Company so as to take advantage of a particularly low share price or some large investment that had not yet shown fruit. I do not accept the Dissenting Shareholders submission that the Court should discount and give little or no weight to the support for the merger resulting from the (active or passive) votes from the significant number of large and independent institutional investors. There is no direct or sufficient evidence that such shareholders blindly and unthinkingly followed and relied on the director’s recommendation and the Fairness Opinion and failed to consider themselves whether the Merger Price was reasonable (I find Mr Edwards' evidence on this issue to be speculative and of limited value). It seems to me implausible that they would not have raised their objections or voted against the merger had they concluded that the true value of the Company’s shares was substantially greater than Merger Price (and within the range of either RE-Russo or RE-Mgmt). This does not mean that the fair value cannot be above the Merger Price (or within that range) but the fact that the major institutional shareholders did not find the Merger



Price to be unacceptable weighs in favour of the conclusion that it was within the range of reasonable prices and can be given weight in assessing fair value.

158. I also accept that weight can be given to the fact that the Company had been on the market for a year, during which time the merger proposal had been well publicised allowing bidders an opportunity to come forward. However, I do not accept that this fact is sufficient on its own to overcome and outweigh the concerns I have, discussed below, regarding the adequacy of the process for marketing the Company and soliciting interest and offers from interested parties.

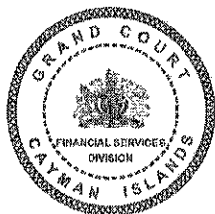
The Dissenting Shareholders' challenge to and factors against reliance on the Merger Price

159. I now come to and must consider each of the factors relied on by the Dissenting Shareholders in support of their case that no or only reduced weight should be given to the Merger Price.

The manner in which the Special Committee acted and the Citi Market Check

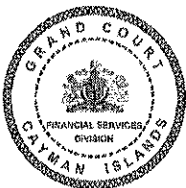
160. In my view, the Dissenting Shareholders' criticisms of the performance by the Special Committee of its role were largely unjustified although there some of their criticisms were justified and establish grounds for concern.

161. I found Mr Zhao to be an unsatisfactory witness. He only had a limited knowledge or recollection of key matters and gave the impression that he did not apply his own mind to what action was required as part of a proper process to ensure that potential competing bidders were encouraged and given an adequate opportunity to participate. I accept the Dissenting Shareholders' criticism of Mr Zhao which I have summarised above (but subject to my comments below). He appears to have failed carefully to review the treatment of strategic buyers or test in any way the adequacy of the steps proposed and taken by Citi to obtain competing interest and bids and was content to leave all important decisions to Mr Shao. Mr Shao of course did not give evidence so that the Court has not had the benefit of evidence from the active and engaged member of the Special Committee and his explanations as to why the Special Committee acted in the manner that it did. This was certainly unhelpful but more than that it makes it much more difficult for the Company to rebut the challenges made by the Dissenting Shareholders and show that the work of the Special Committee was adequate.



162. The Company did produce copies of board minutes establishing the Special Committee and its powers and terms of reference together with the minutes of the meetings of the Special Committee, copies of the presentations made to the Special Committee by Citi and K&E and email correspondence between the Special Committee and Citi. The first meeting of the Special Committee was on 11 January 2016 and the last meeting was on 1 August 2016. The documents are helpful in giving an account of the Special Committee's decision making but there are some significant gaps, in particular in relation to the Special Committee's thinking with respect to the selection of the parties to approach, the assessment of the progress and outcome of the Citi Market Check process and the adequacy of the Merger Price. In the early stages, the Special Committee met once a week but there is a considerable gap between the meeting on 8 April and the next meeting on 27 May 2016 (the meeting on 21 April 2016 was cancelled because of "limited updates") and the subsequent meeting on 24 June 2016. While it appears that by 8 April 2016 activity in the Citi Market Check process was slowing down important discussions were continuing with the Buyer Group over price and the length of time between meetings has not been fully explained.
163. The reasons and justifications for Citi's decision (and advice) and the Special Committee's approach to the selection of parties to approach, in particular which strategic buyers should be contacted, remains unclear:
- (a). the list of 22 parties to contact was first presented to the Special Committee at the Special Committee meeting on 15 February 2016 and the minutes of that meeting record that these included five international and seven domestic strategic buyers, and that "after discussions" the Special Committee decided to instruct Citi to contact the parties on the list. But there is no record of why Citi considered this to be adequate and why the Company's major competitors were not included. There is no record of any questions that the Special Committee asked to test the adequacy of the list.
 - (b). but the Proxy Statement (dated 4 November 2016) does provide an account of the Special Committee's thinking not found in the minutes:

"The board of directors of the Company did not independently determine to initiate a process for the sale of the Company. The special committee was formed on December 13, 2015, in response to the receipt of the Proposal Letter on December 12, 2015. The special committee noted that the Buyer Group, who collectively owned approximately 5.6% of the total outstanding Shares as of December 13, 2015, had entered into the Consortium Agreement on July 31, 2016 pursuant to which they



were committed to supporting the Buyer Group's proposal only. Taking these considerations into account and the significant disruption to the operations of the Company that a broad pre-signing market check may cause, including the potential risk of competitive harm to the Company if strategic buyers conducted due diligence but a transaction did not occur, and the increased risk of leaks, which could create instability among the Company's employees as well as its customers and vendors, the special committee decided to reach out to a limited number of the most likely potential buyers to assess their interest in an alternative transaction and remain open to any additional competing bids otherwise received. In total, Citi contacted 10 potential financial buyers and 12 potential strategic buyers on behalf of the special committee. Since the Company's receipt of the proposal letter on December 12, 2015, the Company has not received any actionable offer from any third party for (a) a merger or consolidation of the Company with another company, (b) the sale or transfer of all or substantially all of the Company's assets or (c) the purchase of all or a substantial portion of the Shares that would enable such person to exercise control of or significant influence over the Company. The special committee also took into account that, prior to the receipt of shareholder approval of the merger agreement, the plan of merger, and the transactions contemplated thereby, including the merger, the Company can terminate the merger agreement in order to enter into an acquisition agreement with respect to a Superior Proposal... subject to the payment of a termination fee to the extent provided in the merger agreement. In this regard, the special committee recognized that it has flexibility under the merger agreement to respond to an alternative transaction proposed by a third party that is or is reasonably likely to result in a Superior Proposal, including the ability to provide information to and engage in discussions and negotiations with such party (and, if such proposal is a Superior Proposal, recommend such proposal to the Company's shareholders)."

[underlining added]

- (c). it is unclear how this passage came to be included in the Proxy Statement, how and when the Special Committee approved it and whether if this was the Special Committee's view it was held in February and was based on any advice. During his cross-examination and after being shown a copy of this passage, Mr Zhao had no recollection of the passage or the Special Committee having formed the views set out therein. All he could say was that maybe Mr Shao held these views. He also said that it did not occur to him to consider or ask whether the Company's major competitors should be included and approached.
- (d). the Dissenting Shareholders, in reliance on the evidence and opinion of Mr Edwards, argued that whatever the reasons were for excluding the Company's main competitors, the effect of the decision was to exclude from the Citi Market Check exercise the very companies which were most likely actually to have submitted a competing bid. They submitted that without an invitation, any other party would have assumed that it would not have access to the private information that would have been needed to bid.



- (e). two points therefore arise. First, does the evidence show that the Special Committee acted properly and *bona fide* pursuant to a strategy for maximising the chances of obtaining a competing bid? Secondly, does the evidence show that the failure to include the Company's main competitors in the List of Buyers show that potentially serious interested parties were excluded from the process?
- (f). in my view, the explanation in the Proxy Statement provides a rational basis for carefully managing approaches to and by significant competitors but not for excluding them completely. Furthermore, as I have said, the absence of contemporary documents recording the Special Committee's deliberations (and advice to the Special Committee) on such an important topic raise serious doubts in my mind as to whether the Proxy Statement explanation was an *ex post facto* rationalisation for the Special Committee's approach. Furthermore, Mr Zhao's evidence indicated a complete failure by one of two members of the Special Committee to turn his mind to this important issue. There is also no contemporary or other assessment of the likely interest which the Company's main competitors would have shown in the Company or an analysis of the risks associated with the policy adopted by the Special Committee and Citi. It seems to me that on this point the evidence strongly suggests that the Special Committee failed to deal with the treatment of major competitors with the requisite care. It appears that Citi proposed or at least endorsed the approach (I note the concerns raised by the Dissenting Shareholders that Citi's financial interest in the merger successfully completing compromised the independence of their advice but note that first they were also entitled to a substantial additional incentive fee if the ultimate merger price was more than 5% above the Buyer Group's offer, so they had a material incentive to find another higher offer and also that these terms were probably consistent with market practice for these types of engagement). On this issue, to demonstrate the integrity of the decision making process, the Special Committee should at least have requested written advice from Citi and K&E. But I do not think that the evidence goes so far as to show that serious competitors were deliberately excluded to protect the Buyer Group and so as to prevent any serious competing bid from emerging. I am not prepared to infer that Citi were acting improperly or otherwise than *bona fide* (without the relevant personnel giving evidence and being cross-examined).
- (g). however, the evidence as to the impact of the exclusion of the main competitors is sketchy and speculative and in conflict. In my view, the Dissenting Shareholders' overstate the



adverse impact of the failure to include competitors on the Citi Market Check process. I do not consider that it has been shown that such competitors were shut out from and prevented from participating in the process or from coming forward to express their interest had they desired to do so. It seems to me likely that had these competitors had a real interest in making a bid, they would have had sufficient information about the fact that the Company was on the market to allow them to contact the Company or Citi and express their interest (the fact that it had been on the market for some time supports this view). Accordingly, I do not regard the process as having had the clear effect of shutting out major competitors and of precluding a significant section of potential bidders from expressing their interest. While some doubts remain about whether major competitors would have come forward had they been included in the List of Buyers and approached, they are not so great as to undermine substantially the effectiveness of the process overall.

164. I do not consider that the Dissenting Shareholders' other criticisms of the way in which the Special Committee and Citi conducted the Citi Market Check demonstrate a fundamental failure properly to engage with interested parties or to take the opportunity to bring interested parties together so as to improve the chances of there being a competitive bid. I reject the Dissenting Shareholders' argument that the evidence showed that the purpose of the Special Committee process was not to encourage any competing bids. The Dissenting Shareholders criticised Citi for failing, when reporting to the Special Committee that potential bidders had declined to bid, to state the reasons why and the Special Committee for failing to ask what reasons potential bidders had given for declining. They gave as an example the update provided by Citi on 25 February 2016. But Citi had generally passed on to the Special Committee what they had been told by interested parties and given brief reasons for their withdrawal from the process. I accept that the evidence suggests that the Special Committee was not pro-active on this issue and did not discuss whether anything could be done to improve the prospects of a competitive bid but there is insufficient evidence that any steps could have been taken to secure another bid. The reasons given for withdrawal, even if brief, seem credible. The Dissenting Shareholders criticised Citi and the Special Committee for failing to put IFC in contact with Hanwha or Motech and for being prepared too readily to accede to requests from interested parties to be put in touch with the Buyer Group. I accept that the failure to do so does raise an issue as to whether more could have been done with the interest that was expressed to generate a consortium that might make a competing bid but once again there is insufficient evidence that Hanwha or Motech needed finance or were sufficiently interested or otherwise prepared to work with IFC or that any such steps would have resulted in a bid or even a realistic chance of a competing bid. Hanwha had made it clear that



they did not want to engage in the size of transaction involved in making a bid for the Company so that they were unlikely to have been prepared to participate in a consortium or joint bid. Motech had indicated an interest in joining rather than competing with the Buyer Group (and then declined to follow-up on discussions with the Buyer Group) so once again there is no evidence that they would have found funding from IFC or a joint bid with others of interest.

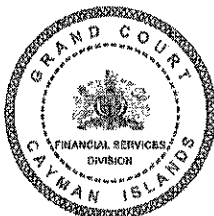
165. The question also arises as to whether the Special Committee properly satisfied itself that the Merger Price was adequate. The Special Committee initially formed the view, based on Citi's preliminary presentation on its Fairness Analysis at the meeting on 25 March 2016, that a price increase was required. However, D&P had written on 22 April 2016 explaining why the Buyer Group was not prepared to increase its offer. But the Special Committee did not give up and pressed its request that the Buyer Group reconsider its position on price, and at the 24 June 2016 meeting it was still asking Citi to follow-up with the Buyer Group. By 7 July 2016, the Buyer Group had formally refused to discuss further a price increase and the Special Committee appeared to want a further analysis prepared as to the adequacy of the Merger Price. The minutes record that *"On the price increase the Special Committee instructed Citi to follow up with the Company to better understand the latest financial model, including any adjustments in the underlying assumptions and projections."* The result of that request is never explicitly addressed in the minutes. At the next meeting on 15 July 2016 there is no discussion of this point. On 15 July 2016, Citi emailed Ms Xu to ask which set of projections to use in the valuation which would underpin their Fairness Opinion. Ms Xu said that Citi should use the Management Projections which had been finalised on 6 July 2016. At the 1 August 2016 meeting, Citi presented its Fairness Analysis and, as noted above, the Special Committee, *"after discussing and considering ... the presentations made by K&E and Citi including the [fairness] opinion of Citi"* decided to proceed with the merger at the Merger Price. Citi's DCF valuation in the Fairness Analysis produced a valuation range between US\$8.59 and US\$14.14 and the Fairness Analysis included a number of other valuation methodologies which produced a valuation above the Merger Price. Both the Fairness Analysis and the Fairness Opinion make it clear that Citi did not verify the reasonableness of the assumptions on which the Management Projections were based and there is no evidence of Citi providing feedback to the Special Committee on whether it had carried out its instructions and what the result of its work had been. Nor is there a record of Citi or the Special Committee testing the adequacy of the reasons given by the Buyer Group. In these circumstances, the Dissenting Shareholders criticised the Special Committee for having failed to discharge its duty to scrutinise the reasons given by the Buyer Group for refusing to increase the Merger Price and submitted that had it performed that duty diligently and in good faith, it would have realised



that those reasons were not well-founded. The Dissenting Shareholders also argued that Citi's work review of the Management Projections for the purpose of the Fairness Opinion was clearly inadequate. They say that to judge from the email exchange of 15 July 2016 (and the lack of any other evidence), Citi's preparatory work simply consisted of waiting a week and then asking Ms Xu which projections to use. In my view, these criticisms are unjustified. I do not consider that the Special Committee behaved unreasonably in ultimately accepting the Buyer Group's decision and the reasons they gave. The evidence shows that the Special Committee did press their demand for a price increase and the reasons given by the Buyer Group, as ultimately summarised in the Special Committee minutes of 7 July 2016, were not, despite the Dissenting Shareholders' challenges, without foundation. It is also not established that Citi failed to do the work required in reviewing the Management Projections to enable them to prepare their DCF valuation and complete the Fairness Analysis and Fairness Opinion. It is consistent with the email of 15 July 2016, which asked for confirmation of which projections to use, that Citi had been reviewing the Management Projections from the date they were approved (6 July 2016) and had sufficient time to complete their work before the 1 August meeting (and there was, as I discuss below, email traffic from Citi showing that they had been reviewing the various forecasts as they had been developed and produced). In my view, it is likely that the Special Committee regarded Citi's Fairness Analysis as responding to its instructions and assumed that Citi had undertaken the necessary review of the assumptions and projections in the Management Projections (for understanding but not verification purposes) as the Fairness Analysis included a DCF valuation based on the Management Projections. The adequacy of the Merger Price was discussed during the 1 August 2016 meeting and the Special Committee relied on Citi's Fairness Analysis in reaching the conclusion that in all the circumstances the Merger Price was acceptable and the merger should be approved. It seems to me that this was a reasonable approach for the Special Committee to adopt.

The reliability of the Fairness Opinion

166. The Dissenting Shareholders argued that there were serious flaws in the Fairness Opinion which resulted in it materially undervaluing their shares. It could not be relied on to support the view that the Merger Price represented fair value. Furthermore, by relying on the Fairness Analysis (and the Fairness Opinion) the Special Committee was misled into concluding that the Merger Price was adequate and into recommending the merger. Had the Fairness Analysis and Fairness Opinion been properly prepared and reflected a valuation methodology consistent with Mr



Edward's approach, the merger would not have been approved by the Special Committee or the Company's shareholders at the EGM.

167. A number of the criticisms of the Fairness Analysis and the Fairness Opinion reflect key differences of approach between the Dissenting Shareholders (and Mr Edwards) on the one hand and the Company (and Ms Glass) on the other to the correct inputs into the DCF valuation. This also applies to the Dissenting Shareholders' challenge based on the unreliability of the Management Projections. As a result, the Dissenting Shareholders' challenge to the Fairness Analysis and the Fairness Opinion overlap with their challenge to Ms Glass' DCF valuation and therefore cover a number of the disputes between the valuation experts which I discuss below. To the extent that the Dissenting Shareholders can show that the Fairness Analysis and the Fairness Opinion were unreliable and unreasonable, in particular that Citi's DCF valuation was based on unreliable inputs or a flawed methodology, they will succeed in showing that the Fairness Analysis and the Fairness Opinion cannot be used to justify the Merger Price. To the extent that they can also show that the Special Committee and the Company's shareholders relied on, and that their decision to agree to the Merger Price was substantially influenced by and based on, the Fairness Analysis and the Fairness Opinion, they will be able to show that the support of the Special Committee and those shareholders also cannot be relied on to support reliance on the Merger Price in the fair value determination.
168. The first point to note is that I found persuasive Ms Glass' methodological point. She considered that it was not possible reliably and safely to challenge and criticise Citi's valuations without having access to Citi's underlying model, which neither she nor Mr Edwards had (because the Company was unable to provide access). She accepted that certain adjustments made by Citi appeared unusual but in her opinion that did not imply that Citi's analysis was in error. She said that she had difficulty following adjustments made in some of Mr Edwards' analyses, since they too appeared unusual, but since she had access to Mr Edwards' underlying models she was able to understand his thinking and approach. She suspected that access to Citi's financial models would similarly have resolved many of the issues noted by Mr Edwards. In any event, she considered that since Citi's financial model was not available, nothing could be gained by trying to determine what Citi may or may not have done based solely on a hard-copy printout of the analysis. It seems to me that this is a good point. Without access to Citi's model or evidence from Citi there is a serious risk that challenges to Citi's methodology and conclusions will be based on speculation.

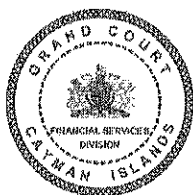


169. Second, is Mr Edwards' opinion that Citi's DCF analysis reflected an implausibly low value for the Company's downstream segment:

(a). Citi had prepared its valuation on a consolidated basis without preparing a separate valuation for the upstream and downstream segments. Mr Edwards considered that this resulted in an understatement of fair value by US\$3.97 per ADS. Mr Edwards reached this conclusion by performing separate DCF analyses for the upstream and downstream segments using Citi's overall 11.6% WACC and 3% terminal growth. This resulted in a fair value for the downstream segment of US\$1.1 billion. Mr Edwards then calculated the enterprise book value for the downstream segment to be US\$1.484 billion and concluded that since the fair value of the downstream segment could not be lower than book value, Citi's DCF analysis needed to be increased by US\$384 million (US\$1.484 billion less US\$1.1 billion), which translated to US\$3.97 per ADS. Ms Glass considered that this approach was illegitimate. Mr Edwards had separately valued the upstream and downstream segments using Citi's overall WACC and overall discount rate, which *assumed* that Citi was of the view that the upstream and downstream segments had the same risk and growth potential. There was no evidence to indicate or even suggest that Citi held such a view. It was possible that if Citi had elected to value the two business segments separately, it would have used a lower WACC for the downstream segment. As a result, Mr Edwards had assumed and not established that Citi had materially undervalued the downstream business. Furthermore, Mr Edwards had failed to bring into account the debt of US\$112 million owed by the downstream segment to the upstream segment, which had to be considered when separately valuing business segments. This removed at least US\$1.17 per ADS of the alleged US\$3.97 error in Citi's analysis.

(b). Ms Glass tested the proposition that Citi's methodology resulted in an unreasonably low value for the Company's downstream segment. She concluded that it did not. She did not attempt to separate Citi's analysis into upstream and downstream valuations, since, as I have noted, she felt unable to second guess what Citi might have done. But she separated her own valuation into two parts and this resulted in a fair value slightly higher than book value for the downstream segment (and slightly lower than book value for the upstream segment).

(c). Mr Edwards was asked about this during his cross-examination:



“Q. I think what Ms Glass says is that you shouldn't assume that they have underestimated the value of the downstream business simply because they have done a single discount rate and indeed she herself has done a single discount rate and she says that if you split it up, she can justify the downstream value because it's roughly about book value, which is what she would expect.

A. That's just not what happens in the Citigroup valuation. So what Citigroup actually did when calculating DCF, was to apply, in essence, the same discount rate or in fact the same discount rate to both sets of cash flows. Therefore, their DCF answer does actually include an amount from the downstream cash flows that is materially below book value. And that number is very consistent with what they conclude on a sum of the parts basis. That leads me to suspect that they don't see it - or didn't in their calculations view it as a business - they didn't notice even that was significantly below book value.”

[underlining added]

(d). I prefer Ms Glass' approach and analysis on this issue. I am not satisfied that Mr Edwards' challenge *reliably* establishes that Citi's valuation was based on and included a material undervaluation of the downstream business and for that reason was unreliable. I would add that, as I explain below, I have also concluded that Citi's (and Ms Glass') methodology for valuing the downstream segment was not unreasonable and impermissible. It was one reasonable approach to adopt although not the only reasonable approach.

170. As regards the cost of debt issue:

(a). Mr Edwards said that Citi had assumed that the Company's pre-tax cost of debt was 13% but had not explained how it arrived at this figure. The figure was significantly higher than the interest rates of 5.5% and 6.2% that were assumed in the Management Projections, the interest rate of 4.9% that was the average long term interest rate that the Company reported paying on its debt in its 2015 financial statements and the interest rate of around 4.9% that he estimated that the Company would have been paying on its USD denominated debt around the Valuation Date. He considered that the interest rate that the Company was paying on its loans was a good estimate of the Company's cost of debt. Adopting a pre-tax cost of debt based on the interest rate that the Company was actually paying reduced the post-tax cost of debt from 9.8% (as assumed by Citi) to 4.2%.

(b). Ms Glass considered that Citi's approach was a matter of judgment and that even if Citi's assumed cost of debt was high, which she accepted it was, it could not be said to represent



an error which undermined the reliability of the Fairness Opinion. It was possible that 13% was justifiable and that there was a good reason for Citi's use of that figure. She assumed that it flowed from Citi's assumption of a very high capital structure (70% perpetual debt), which suggested an assumed LBO (leverage buyout) structure, and might have reflected the need for (and implicit cost of) restricted cash. Since it might be justified and the overall result of Citi's DCF valuation appeared to her to be reasonable, she was not prepared to say that Citi had made an error, let alone a serious one. And neither she nor Mr Edwards were in a position properly to understand and therefore criticise Citi's approach without having discussions with them.

(c) in my view, the figure used by Citi is hard to justify. As I note below, Ms Glass' view for the purpose of her DCF valuation is that 5.5% (4.6% after tax) is the appropriate figure. In view of the figures used by Mr Edwards and Ms Glass, 13% seems very high. But I accept Ms Glass' view that it is not possible, and only speculation, to form a view as to whether a review of Citi's model would show that the high cost of debt figure was based on justifiable assumptions and did not, when the model is viewed in the round, result in a material undervaluation.

171. In my view the use of an explicit period of six years (ending in 2022) rather than seven years (ending in 2023) was not unreasonable or a serious error. Mr Edwards had accepted this in cross-examination and in my view it is one of a number of reasonable approaches that did not undermine the reliability of the Fairness Opinion.

172. I also do not accept Mr Edwards criticism based on Citi's application of a SSRP. As I explain below, this seems to me to be a reasonable approach to adopt in this case.

173. Nor do I accept that Citi made serious errors in preparing its SOTP valuation. Mr Edwards relied on two key errors (see paragraph 153(c) above). I have already rejected Mr Edwards' argument with respect to the first error. As regards the second error, in my view Ms Glass analysis showed that Citi's approach was not unreasonable or in error (see Glass 2 at [188] – [196]). She noted that Citi's EV/EBITDA multiples were lower than those calculated by Mr Edwards for two reasons: first, Mr Edwards' analysis contained an error, since he miscalculated the EV for two of the three companies and secondly he relied on analyst forecasts provided by Capital IQ and Bloomberg (these data providers reported different forecasts and therefore Mr Edwards used the average of the two) whereas Citi had relied on different forecasts provided by Factset (a third



data provider). She tested whether Citi's approach was unreliable by preparing an analysis based on the average of the sources relied on by both Citi and Mr Edwards – she considered that based on the information available to her and given the nature of the information (a future estimate), none of the three sources could be said to be right or wrong. This analysis produced an EBITDA median multiple of 5.5x, which was higher than the 5.1x reported by Citi. Ms Glass made two points. First that the difference resulted from the selection of sources and the basis on which the forecasts had been prepared – had reliance been placed only on Factset, or had trailing twelve month multiples been used the resulting BV/EBITDA multiples would have been lower than those reported by Citi. Second, that even if Citi had used the higher median multiple of 5.5x the Company's fair value per ADS would only have increased slightly, to a range of US\$6.37 to US\$13.42. In her view this change was unlikely to have had any impact on Citi's Fairness Opinion. Ms Glass also accepted that the implied fair value for the downstream segment in Citi's SOTP valuation was low, but she considered that the implied fair value for the upstream segment was high so that on balance, the consolidated value was supportable. While Ms Glass had relied on other occasions on averaging of differing sources, and on this occasion she discounted the result of her averaging analysis, it does seem to me that she established that Citi's approach with respect to its SOTP valuation was not clearly wrong or unreasonable.

174. In addition, to test whether Citi's DCF valuation was within a reasonable range, Ms Glass re-ran Citi's analysis using her own model. She performed a DCF analysis based on the Management Projections and applied Citi's discount rate of 11.6%, its terminal growth rate of 3%, and Citi's valuation date of 30 September 2016 which resulted in a fair value of US\$10.98 per ADS, which was very close to US\$11.00 per ADS which was the fair value determined by Citi. As a result, she had no concerns about any alleged errors in Citi's DCF analysis
175. In my view, Ms Glass analysis and evidence shows that it is not possible to conclude that the Fairness Opinion was subject to errors, of a methodological or arithmetical kind, that made it unreliable and unreasonable. Nor do I consider Citi's financial interest in the merger successfully completing is sufficient to preclude reliance on the Fairness Opinion by the Special Committee. This does, as I have said, raise a concern about the independence of their advice but in my view it does not fundamentally undermine such independence so as prevent reliance on their advice and the Fairness Opinion being reasonable. I also do not consider that the evidence shows that K&E were unable or failed to provide independent and reliable advice. While instructing an entirely unconnected law firm might have been preferable, and assisted in demonstrating that independent legal advice was being obtained, I do not consider that the failure to do so shows



that K&E were an inappropriate or improper choice. They are a well-respected and major international law firm who can be expected to conduct this type of assignment with the requisite independence, professionalism and care. I reject the Dissenting Shareholders' submission that K&E's presentations show that K&E gave its advice on the assumption that the transaction with the Buyer Group was bound to close and failed to address and advise the Special Committee of the need to consider how to obtain competing bids. While some of the drafting in K&E documents was open to misinterpretation and could have been better worded (particularly the references to the need to develop a record for the proxy firms), there is no evidence that K&E's advice was framed with a view to promoting the Buyer Group transaction.

The recommendations to vote in favour of the merger by two proxy firms

176. In my view, the views of proxy firms are relevant and I accept the Company's submissions on this issue. It appears that the proxy firms performed their own analysis and this supported their respective recommendations. They may have taken a different view if the Fairness Opinion had taken a different view on the fairness of the Merger Price but whether they would have done so and precisely what they would have concluded is speculation.

The impact of Mr Gao

177. As I have noted, Mr Edwards concluded that any potential bidder would have been reluctant to bid for the Company against Mr Gao's Buyer Group. He said that although the winner's curse problem was not usually considered to apply to strategic buyers to the same extent as it did to financial buyers (as strategic buyers may have industry knowledge that reduces the importance of incumbent management and may also have scope to realise additional value through synergies), it still applied in the present case. This was because Mr Gao was particularly influential in the Company and the solar sector in China. I accept that Mr Gao's position *may* have chilled interest and made it more difficult for bidders to succeed in competition with the Buyer Group. Ms Glass accepted that the presence of Mr Gao *might* have put off bidders and that the risks surrounding the loss of a strong CEO could have affected the interest of bidders or the price they were prepared to pay. But there is no evidence that it did. The failure to obtain a competing bid might have been the result of this factor but it could have been the result of others (I consider that the Delaware jurisprudence on this issue is sound). I do not think it right to infer from the absence of bids that Mr Gao's position was the, or a substantial reason for the lack of interest. Ms Glass considered that interested parties would not have been prevented from bidding



at all and the adverse impact of the loss of Mr Gao for those who did bid (without Mr Gao) would be modest and manageable. Based on research relating to the unexpected loss of a CEO the discount that might be applied to share value would be under 10%. Ms Glass' approach seems to me to be reasonable and realistic. In my view, Mr Edwards' concerns were reasonable but overstated. On balance, it seems to me right to say that Mr Gao's position created a material risk – that is one than cannot be ignored as too remote - that the merger process would fail to produce an independent competing bid because other bidders would have found it difficult to compete with the Buyer Group or would have needed to discount their bid because of the impact of losing Mr Gao. But I do not consider that the evidence supports the conclusion that this is the reason for the absence of a competing bid or that the risk prevents reliance on the Merger Price.

Other conflicts of interest issues

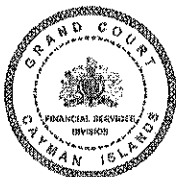
178. I consider that, as the Dissenting Shareholders submitted, the connections between the members of the Special Committee and Mr Gao referred to by the Dissenting Shareholders raise concerns as to the members' independence and their willingness to act adversely to Mr Gao and aggressively and proactively seek out competing bidders. Mr Zhao's oral evidence did not remove or ameliorate these concerns.
179. Furthermore, the written and documentary evidence together with Mr Zhao's oral evidence raises serious concerns as to whether the Special Committee took sufficient steps to ensure that the discussions between the Buyer Group and the Company's management were properly restricted or supervised to ensure that management were not being improperly influenced by Mr Gao, that information flows were appropriate and monitored and that the Buyer Group was being treated at all times in a manner appropriate to a competitive bidder.
180. These concerns extend to the process for approving the Management Projections. The Company has failed to produce evidence that demonstrates that the Special Committee was aware of the detail of the process by which the Management Projections were prepared or exercised any or adequate oversight of the process so as to satisfy themselves that it was being properly conducted. While the minutes of the Special Committee meetings show that there was some discussion of the Management Projections, they do not show that the Special Committee paid attention to their preparation or approved them. The 3 April 2016 email from Citi to the Special Committee said that Buyer Group was told that the "*Company will send management projections once approved by the Special Committee.*" But the minutes do not record any detailed review of the Management



Projections or such approval. In addition, I accept that the Special Committee failed to ensure that procedures were in place to manage Mr Gao's conflict of interest. Mr Zhao said that he did not know whether Mr Gao had any involvement in the oversight or preparation of the Management Projections. As the Dissenting Shareholders submitted, the evidence showed that it was Ms Xu (who had previously been Mr Gao's personal strategy assistant) who ultimately reviewed and confirmed the Management Projections (and this was confirmed by Mr Chan), although, as I discuss below, it appears that others were directly involved in the detailed preparation work. Furthermore, in the present case, the evidence is unclear as to the nature and extent of Citi's discussions with management regarding the Management Projections. In his cross-examination, Mr Chan agreed that the minutes of the 29 January 2016 board meeting indicated that there were discussions between 22 January and 2 February 2016 between Citi and the Company about the projections but as the Dissenting Shareholders pointed out no document had been disclosed about what the content of those discussions might have been (save, as I note below, some emails which were in the data room) and Mr Chan was unable to give any evidence about them. Furthermore, there is evidence to suggest that Citi considered that at least in some areas the views of management on which the projections were to be based had been discussed with and were shared by Mr Gao (see the email dated 3 February 2016 from Citi).

Conclusions

181. For the reasons I have given, I consider that the performance of the Special Committee was deficient in a number of material respects. These deficiencies affected the governance and effectiveness of the merger process and weaken the Company's argument that the process ensured that all interested parties were given a full and fair opportunity to come forward and that full value offers from competing bidders could have been made in fair competition with the Buyer Group. There were weaknesses in the Citi Market Check process with respect to the involvement of the Company's main competitors; the Special Committee could and should have done more to ensure the independence and separation of the team preparing the Management Projections from Mr Gao's influence and Mr Gao's position may have had chilled the interest of some potential bidders and reduced the chance of bidders being prepared to make full value bids (without a Mr Gao discount) in competition with the Buyer Group. But, as I have said, there are a number of significant factors that support reliance on the Merger Price. The problems with the merger process which I have found to exist need to be taken into account when deciding what weight to give the Merger Price in the Court's fair value determination. They are not sufficient to, and do not, preclude any reliance on the Merger Price. I consider that the Court of Chancery's approach



in *Norcraft* was right, namely that the court can take into account the merger price even though it considered that there were flaws in the company's deal process. I discuss below the precise weight to be attached to the Merger Price and the appropriate weight to be given to the adjusted share price and the preferred DCF valuation.

Reliance on and use of a DCF Valuation and management projections

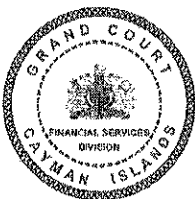
Reliance on a DCF valuation

182. The Company argued, as I have noted, that there are serious inherent dangers in using a DCF valuation. They say that this issue arose, and was considered, by the Delaware Supreme Court in *Dell*:

"Although widely considered the best tool for valuing companies when there is no credible market information and no market check, DCF valuations involve many inputs—all subject to disagreement by well-compensated and highly credentialed experts—and even slight differences in these inputs can produce large valuation gaps. Here, management's projections alone involved more than 1,100 inputs, and the experts' fair value determinations (which also included several novel tax issues discussed below) landed on different planets.... The DCF method is easily manipulated for litigation purposes. Seemingly minor adjustments to inputs can grossly inflate or deflate the valuation output. It is a methodology that is unfortunately vulnerable to partisan manipulation."

183. I accept that these are real risks. But they do not justify a refusal to consider and in an appropriate case to give substantial weight to a DCF valuation. In my view the correct response to these concerns and the correct approach was summarised by Kawaley J in *Nord Anglia* as follows:

"83. Dell helpfully warns trial judges that their legal training does not really equip them to resolve valuation disputes between valuation experts whose estimates are based on the DCF approach and are far apart. Where market indicators such as share or transaction prices are reliable indicators of the intrinsic value of the shares these ultimately straightforward indicators should not be ignored in favour of far more esoteric financial estimates. It is noteworthy however that the gap between the merger price and the dissenters' DCF valuation was a stunning \$23 billion in Dell. The company had a "deep public float" with more than 5% of its shares trading each week. There was no controlling shareholder ... [and]... the merger process was found to be "robust." Yet the Delaware Supreme Court did not direct the Court of Chancery to simply apply the transaction price; the matter was remitted for reconsideration in light of the following critical findings (paragraph 37):



"Given that we have concluded that the trial court's key reasons for disregarding the market data were erroneous, and given the obvious lack of credibility of the petitioners' DCF model—as well as legitimate questions about the reliability of the projections upon which all of the various DCF

analyses are based- these factors suggest strong reliance upon the deal price and farless weight, if any, on the DCF analyses."

84. The position under Delaware law post-Dell appears to me to be that even when the market price (either based on an efficient market or a robust sale process) is a good indicator of the intrinsic value of a company's shares, a DCF valuation will at least be taken into account if the relevant management projections about future cash flows are themselves reliable."

[underlining added]

184. Kawaley J also noted (at [148]) that my judgment in *Shanda* and the Court of Appeal's judgment in *Shanda CICA* showed that a DCF valuation could be relied on even if the reliability of management projections were disputed in significant respects.

185. In my view, as I have explained above, the Court is entitled, and required, to have regard to and to take into account and compare (with a suitable weighting depending on the facts of the case) all appropriate valuations based on accepted valuation methodologies. As Kawaley J said, even where market prices "(either based on an efficient market or a robust sale process) are a good indicator of the intrinsic value of a company's shares, a DCF valuation will at least be taken into account if the relevant management projections about future cash flows are themselves reliable."

The approach to the review of management projections

186. The proper approach to deciding when management projections are sufficiently reliable to support a DCF valuation was recently discussed at length in both *Qunar* (see in particular [177] – [269]) and *Nord Anglia* (see in particular [140] – [160]). I find Parker J's discussion at [179] – [182] of the approach to be followed persuasive and helpful and note in particular the following comments:

"179. I accept the Dissenters' argument that the court should not defer to projections of future performance of the Company simply because they have been made by those within the business at the relevant time. Where there are legitimate concerns that projections are unreliable, the court, with the assistance of expert evidence and all relevant information available to it, should be able to determine whether those projections are reasonable.

180. However, an important part of the analysis is what view the senior management of the Company came to and on what basis. They will ordinarily be in the best position to make reliable projections because it is they who have experience of running the



actual business. In addition, country, sector and competitor knowledge will also be critical to the assumptions made in the forecasts. Ordinarily, absent a good reason to do so, one would not second guess the Management Projections. They are, after all, subjected to external scrutiny by market analysts on an ongoing basis and one might reasonably expect some contemporaneous challenge or public comment if that had come to light.

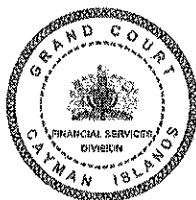
181. *If nevertheless it can be shown that they are obviously wrong, careless, or tainted by an improper purpose (biased), that is a different matter and the court would revise them.*
182. *It is important to bear in mind that they are being challenged in litigation, ex post facto, through expert evidence. Neither expert is experienced in the OTA market in China, nor the Company's specific business or strategy at the relevant time. An expert coming to a different view in this context is not a sufficient reason to make adjustments to the projections. The Company was making projections from real time information and knowledge. Here the analysis is to a large extent second hand, made some time later and involves second guessing judgments that were made at the time. It seems to me that I would need persuasive evidence to find that the projections made were flawed and to substitute my own opinion (or that of the expert's) for that of the management at the Company and therefore adjust them in the ways Mr Osborne and the Dissenters require."*

187. I also note the following commentary on Parker J's analysis provided by Kawaley J:

"150. This valuable judicial commentary does not suggest a fundamentally different approach to that adopted by Segal J in Shanda Games. But Parker J's observations do add an important gloss. If management projections are generally reliable, the Court should be cautious about allowing expert witnesses to effectively substitute their uninformed judgments about the company's future business prospects for the judgments of those with intimate inside business knowledge. The degree of caution, to my mind, will usually depend on whether the disputed adjustments are indeed primarily dependent on questions of insider business judgment, rather than matters which are really questions of common sense or expert valuation methodology. However, Re Qunar also provides helpful guidance as to how to approach the issue of whether or not management projections are suitable in general terms as a basis for a DCF valuation analysis. Earlier in his judgment, Parker J made the following critical assessment of the way in which the management projections had been prepared:

"112. Mr Zhu, the Company's former CFO, was responsible for preparing the Management Projections. I found him to be an intelligent and straightforward witness. He had experience in accountancy and banking. I formed the view that he understood the Company's business in depth, from which he was able to prepare the projections and he defended them on a reasonable basis under cross examination.

....."



151. *The approach Parker J effectively adopted to the threshold question of the general reliability test was to find that management projections can potentially be used as the basis for a DCF valuation where they have been prepared in good faith by a competent management team which understands the business and is capable of making informed judgments about future performance.*

....

153. *But, it bears repeating, this does not exclude the need in the context of a judicial appraisal proceeding to test the accuracy of the estimates and make appropriate adjustments with a view to determining the most realistic forecast of the Company's future performance. Accepting management forecasts as sufficiently reliable for use in a DCF valuation does not mean that the Court cannot limit the weight to be given to the resultant valuation depending on the degree of reliability the Court can properly place on the estimates in question."*

188. Accordingly, while each case depends on its facts and there are no rigid rules to be mechanically applied, the approach to be followed can be summarised as follows:

- (a). the Court's task is to determine the most realistic forecast of the Company's future performance for the purpose of the DCF valuation. As I said in *Shanda*, the Court is aiming to find projections that are reasonable and reliable in the circumstances (a case in which I was prepared to require adjustments to be made to the management projections).
- (b). the starting point is the general reliability test - have the management projections been prepared in good faith by a competent management team which understands the business and is capable of making informed judgments about future performance?
- (c). if the management projections satisfy this test, in the absence of some contemporaneous challenge to management's projections suggesting some serious failure in management's general approach to the preparation of projections, the Court must consider whether they have been shown to be obviously wrong, careless or tainted by an improper purpose (such as bias). There needs to be serious and material doubts as to the reasonableness and reliability of such projections.
- (d). this is because the Court should be cautious about allowing expert witnesses to substitute their judgments about the company's future business prospects for the judgments of those with intimate inside business knowledge – although the level of caution will depend on and vary with the issue in question and challenges made. Where



the disputed adjustments are primarily dependent on questions of insider business judgment then the Court will be slow to displace management's assessment and forecasts. Where the issues in dispute involve questions of expert valuation methodology, then the Court may be less deferential to management's approach.

- (e). where there are competing valuation methodologies, the Court may give reduced weight to a DCF valuation based on management projections if it has serious concerns as to the reasonableness and reliability of those projections (either generally or in material respects).
- (f). where the Court is considering particular items to be included in the DCF valuation (relating to a particular input in the DCF valuation based on an item in or aspect of a forecast) the Court can limit the weight to be attached to the item derived from the management projections if there are serious and material doubts as to the reasonableness and reliability of that item or aspect.
- (g). management projections produced for the purpose of or in connection with the merger rather than being produced in the ordinary course of the company's operations, will need to be carefully scrutinised to ensure that they have not been influenced by, and constructed so as to facilitate, the merger.

The Management Projections

189. Do the Management Projections satisfy the general reliability test?

- (a). in the present case, as I have explained, there is limited evidence concerning the process by which the Management Projections were prepared, which is in stark contrast with both *Qunar* and *Nord Anglia*.
- (b). the Company did provide a brief explanation of the process by which the Management Projections were prepared and a confirmation that those involved in their preparation had an in-depth knowledge of its business in its answers to questions raised by Mr Edwards and Ms Glass. In Harneys' letter to Ms Glass dated 23 October 2018, they summarised the Company's position as follows:



“As previously advised the Management Forecast was prepared by the Budget and Planning Department. Those who work in the Budget and Planning Department range in experience and seniority and as a result both junior and senior members of staff were involved in the preparation of the forecasts. However, all those involved had an in-depth knowledge of the business, including strategic targets and operational plans.

The Management Forecast adopts a similar model to that previously used by the Company in connection with its strategic targets and operational plans whilst incorporating market research.”

- (c). furthermore, additional relevant documents (including the Company’s financial model) were placed in the data room (including email exchanges with Citi in which Citi referenced discussions concerning and raised questions in relation to the various projections) some of which were provided by the Company in response to information requests from Mr Russo.
- (d) there was also evidence, as I have noted, that it was Ms Xu (who had previously been Mr Gao’s personal strategy assistant) who ultimately reviewed and confirmed the Management Projections.
- (e). but the Company chose not to arrange for Ms Xu or anyone else directly involved in the preparation and approval of the Management Projections to give evidence. The written witness evidence filed by the Company did not address the preparation of the Management Projections and neither Mr Zhao nor Mr Chan were able during their cross-examination to provide useful further evidence. It was therefore not possible to deal adequately with the circumstances surrounding the preparation of the Management Projections in cross-examination.
- (c). in both *Qunar* and *Nord Anglia* those directly involved in the preparation of the projections gave evidence. In *Qunar*, the person who had prepared the management projections gave evidence as to the manner in which the projections were prepared (see [187] and [195]). And in *Nord Anglia*, evidence was given by the person who oversaw the preparation of the projections (see [152]).
- (d). nonetheless, the Management Projections were reviewed by the experts and in particular Ms Glass gave evidence that in her view (save for limited exceptions) they were in the round reasonable. In Glass 1 she explained the manner in which she had tested the adequacy of the data and explanations supporting and the reasonableness of the forecasts contained in the Management Projections and her conclusions were as follows:



“92. I found both positive and negative issues relating to the preparation of the Projections. On the positive side:

- a) Based on information provided by Trina, I understand that all individuals involved in the preparation of the Merger Projections had an in-depth knowledge of Trina's business, including strategic targets and operational plans. Moreover, the model used to prepare the Projections was the same as the one previously used by Trina for operational or strategic purposes. Finally, the Projections were reviewed and confirmed by the CFO and Trina's department heads.
- b) The Projections were supported by a detailed model, that included separate projections for both upstream and downstream operations (including the build-to-operate and build-to-sell segments), together with consolidated results. In addition, the projection model (DR 1293 or the Model) and other spreadsheets provided by Trina incorporated all key revenue/cost drivers, including volume, market share, market growth, average pricing, margins, capital expenditures and operating expenses for both upstream and downstream operations, along with additional detail on the downstream operations, including analyses or assumptions relating to installed capacity, full load hours, and grid network continuity. In addition, the Model included balance sheets (consolidated and by business segment), along with all assumptions underlying working capital, project asset and PPE continuity, and intercompany adjustments.
- c) The Projections were consistent with public earnings guidance for the first quarter of 2016
- d) The Merger Projections were publicly disclosed in formal SEC filings, which adds to the credibility of the Projections and the process that led to their creation.
- e) Based on information provided by Trina to FTI Consulting, I understand that Trina prepared the Projections after considering many factors, including historical results, management experience, industry trends and drivers relating to demand and supply, costs and pricing, Trina's competitive position, other market participants, and broad economic trends, all combined with an amalgam of perspectives and inputs from supervisors from each of Trina's functional areas, including marketing, finance, operations and human resources.

93 On the negative side, Trina's approach to estimating assumptions was largely judgmental, and it was sometimes difficult to assess how the factors noted above had led Trina to conclude on a given assumption. That does not imply one cannot rely on the Projections; it simply means more work is necessary to ensure that the underlying assumptions used by Trina are reasonable.

94 This issue concerns Mr Russo, since Trina did not develop its assumptions on the basis of averages drawn from multiple industry sources. I agree that Trina's approach is judgmental. However, in my experience, judgmental approaches are often used by management, particularly in industries where future results are highly speculative, as is the case for Trina. Although the



use of multiple industry sources and complex formulae might provide the appearance of improved accuracy, the added complexity often does nothing to improve actual accuracy. Indeed, using a judgmental approach, Trina management projected actual results for 2016 with reasonable accuracy.

95 *In contrast, reports from two well-respected Industry Experts have been filed in this matter, and both rely on averages developed from multiple industry sources. Yet the two experts reach widely differing views. For example, in 2017, projected volume ranges from 5,728 MW (Goffri) to 9,000 MW (Russo), and by 2022, projected volumes range from 10,756 MW (Goffri) to 22,700 MW (Russo). As we can see, more complex approaches do not necessarily yield better results."*

[underlining added]

- (e). Ms Glass also reviewed the reasonableness of the assumptions made in the Management Projections. She said (see Glass 1 at [96] and [97]) that she performed a comprehensive review of the projection model and conducted detailed analyses of the assumptions and projected results for each business segment (upstream and downstream, including both build-to-sell and build-to-operate segments), investigating each key assumption underlying the projections (market size, market share, volumes, average selling prices, installed capacity, full load hours/capacity factors, gross margins, operating expenses, and capital expenditures.). In each case, she then compared the assumptions used in the Management Projections with the following factors: actual results for 2016; historical results and trends; prior projections; the reports prepared by the industry experts; available market data; a comparison to industry peers and whether any revisions were required. She concluded that with the exception of PV module pricing, the assumptions for the projections of the upstream operations were reasonable (although two assumptions appeared to be potentially optimistic (namely market size and market share) and that the assumptions for projections of the downstream operations were also reasonable but for a minor adjustment necessary to update foreign exchange rates, and subject to what she referred to "*as a few minor pluses and minuses.*" These were, as discussed further below, that revenue assumptions for project sales were probably at or toward the high end of a reasonable range; that power sales revenue appeared reasonable, albeit potentially on the low end and that margins for power sales appeared to be on the high side (based on peer comparisons).
- (f). Ms Glass identified the six main circumstances in which she considered adjustments to management projections to be reasonable and acceptable (see Glass 2 at [340] – [343]).



They were changes in circumstances (between the time the projections were prepared and the Valuation Date); lack of care (for example because limited time, effort or care has been devoted to the projections – she considered that nothing suggested that this issue impacted the Management Projections); lack of knowledge (for example where the projections are prepared by someone other than management – she saw no reason to conclude that this situation applied to the Management Projections); errors or inconsistencies (her analysis of the Management Projections did not reveal any errors or inconsistencies of any consequence); valuation issues and bias. She concluded as follows:

“342 If a valuator finds a disproportionate number of assumptions to be on either the low side or the high side (whether due to bias or some other reason), then the projections should not be relied upon without adjustments. On the other hand, if the valuator finds some assumptions to be on the low side and others on the high side – which was the case for the Trina Projections – then the valuator can follow one of two alternatives:

- a) The valuator could adjust for all differences – that is, increase those assumptions that appear too low, and decrease those that appear too high;*
- b) The valuator could make no adjustments, recognizing that the lows offset the highs, and management is in the best position to estimate the future results of the company.*

343 My preference, and the approach taken for Trina, is the second alternative. Therefore, having found both pluses and minuses, I made no adjustments to the Projections, other than to update for changes in exchange rates and pricing as between the time the Projections were prepared and the Valuation Date.”

- (g). the Dissenting Shareholders challenged Ms Glass’ approach. They submitted that Ms Glass should have investigated the ‘*pluses and minuses*’ which she identified in the Management Projections (and if it was her view that a valuer should not substitute their views for the views of management, it was entirely unclear why she took it upon herself to do that in respect of module average selling prices (an adjustment which served to reduce her valuation)). They argued that in a case like the present, where the Court had ordered industry expert evidence to be adduced, it made no sense to defer to management. That was especially the case where, as here, the management projections were not produced independently of the Buyer Group. Instead, Mr Edwards had been right to say that it was a matter for the Court to determine what are the most appropriate assumptions to make on the various industry expert issues.



(h). in my view, for the reasons given by Ms Glass relating to the process by which the Management Projections were prepared (and leaving aside for now the results of her reasonableness review), the Management Projections satisfy the general reliability test (subject to the Dissenting Shareholders' allegations of bias which I discuss below). The financial model and supporting documents placed in the data room together with the further explanations and documents produced in response to questions from the experts are sufficient to show that the Management Projections were prepared by parties with the requisite knowledge, expertise and experience, by reference to a properly constructed and comprehensive model (which was the same as the model used previously for operational and strategic purposes and therefore the model was not constructed for the purpose of the merger) and after a review of and on the basis of a sufficient range of data. However, in a number of respects, they are weak and insufficiently substantiated. As Ms Glass acknowledged, the Company often failed to provide a clear explanation of or identify with precision the data it relied on to show its reasoning and support and justify its conclusions (as was the case in relation to the forecast of market size, where the Company acknowledged that it had not produced any calculations or work linking the forecasts referenced to the results utilised by the Company – as to which, see further below). While the forecasts were justified as being based on management's judgment (expertise and experience), the failure, again as acknowledged by Ms Glass, to provide clear explanations of the analysis and reasoning for inputs and forecasts means that the Management Projections themselves are often insufficiently substantiated and further work is needed to demonstrate the reasonableness and reliability of the projections (and to test the underlying assumptions). This weakness is compounded by the Company's failure to adduce additional evidence to explain the basis for key elements of the Management Projections, which evidence would have been capable of being tested by cross-examination. These deficiencies and weakness taken together mean that only reduced weight is to be given to the Management Projections themselves (before being supported by separate and independent testing and validation by the Company's experts) where they are challenged by cogent expert evidence on issues that are not particularly within the knowledge and expertise of management.

(i). where these issues in dispute relate to questions which are not Company specific but industry wide, where expertise of the industry as a whole is of particular relevance and importance, then the opinions of the industry experts are to be given substantial weight. But I do not consider, as the Dissenting Shareholders submit, that the industry experts'



evidence should automatically be preferred to that of management. Where those involved in preparing the Management Projections are to be treated as having an in-depth knowledge of the Company's business (and the Company has so asserted and it has not been shown to be wrong), they are to be taken as having a sufficient knowledge of the industry within which the Company operates to justify giving substantial weight to their views on industry issues. Whether their views are to be preferred to those of the industry experts depends on the issue in question and the cogency and evidence supporting the industry experts' analysis.

- (i). the Dissenting Shareholders, as I have noted, also argued, and invited the Court to infer, that at least in one respect the Management Projections were not prepared in good faith and were manipulated so as to reduce the Company's projected performance and thereby support the Buyer Group's offer and the Merger Price. They also submit that because the Management Projections were not produced independently of the Buyer Group and were subject to and tainted by the influence of Mr Gao, they should not be relied on or given significantly reduced weight.

- (k). the Dissenting Shareholders, as noted above, argued that the reduction in the forecast of projected 2017 module sales was made to assist the Buyer Group. They say that since the Management Projections incorporating the reduced forecast had been finalised on 6th July and the Buyer Group had finally rejected the Special Committee's request for an increase to the Merger Price on 7 July, the obvious inference, both from the evidence and from the lack of contrary evidence adduced by the Company, was that the purpose for which the projections were revised was to provide support for the Buyer Group's refusal to increase the Merger Price. Even though I accept that the Company failed to adduce evidence which explained the timing of and management's contemporaneous thinking with respect to the reduced forecast, I do not accept the submission that the Court should infer that the revision to and reduction in the forecast was done to in bad faith and for an improper purpose, to assist the Buyer Group. Such a conclusion does not fit the facts as they have been established. As the Dissenting Shareholders pointed out, the substantial reduction in projected 2017 module sales (down to 7,500 MW) was included in the February Projections of 2 February 2016 (the forecast in the January projections dated 22 January 2016 was 9,000 MW). The Management Projections on 6 July included an additional but much smaller reduction down to 7,220 MW. But the Special Committee only initially formed the view that a price increase should be sought after the substantial reduction in



the February projections. As I have noted above, the Special Committee formed that view based on Citi's preliminary presentation on its fairness analysis at the meeting on 25 March. The reduction to the forecast therefore appears to have first been made well before any question arose as to the need for an increased offer from the Buyer Group and to have been unconnected with the need to justify a refusal by the Buyer Group to offer more. Ms Glass confirmed during her cross-examination that she could see no basis for a connection between the reduced forecast and a desire to assist the Buyer Group. And while Dr Goffri during his cross-examination had said that he had originally assumed that the forecast reduction was the justifiable result of developments in the second half of 2016 (namely falling prices and more regulatory uncertainty affecting 2017) and that during the period 22 January and 2 February 2016 prices were still high, he also considered that prospects were progressively changing and there were already some issues and concerns because it was known by then that the incentives in China (the feed-in tariffs) would reduce by mid-year. So there is evidence that supports the view that there could have been good reasons related to the state of and uncertainty in the market that justified such a revision. As the Dissenting Shareholders accepted, both Mr Russo and Dr Goffri agreed that there was already an oversupply of PV modules in the market around the Valuation Date.

- (1). the Dissenting Shareholders also argued that the Management Projections were to be treated as Mr Gao's projections and that Mr Zhao had admitted as much during his cross-examination. They also asserted that the Management Projections were compromised because of their reliance on the views of, influence of and input from Mr Gao and the Special Committee's failure properly to manage Mr Gao's involvement and the conflict of interest to which he was subject. I do not accept that Mr Zhao made such an admission or that he truly considered the Management Projections to be distorted by Mr Gao's influence. The email dated 3 February 2016 from Citi to the Special Committee relied on by the Dissenting Shareholders stated that the "*management forecasts [were] based on [the Company's] performance in the previous year, future market outlook and the management's own view of the market Gao and management's view about the market in the next 3 years." (underlining added). Mr Zhao was asked during cross-examination whether management's and Mr Gao's view about the market were essentially the same at the time and he responded by saying that "*If they agree, yes.*" So he simply accepted that to the extent that they agreed, they obviously held the same views. But the Dissenting Shareholders wished to go beyond this and say, and infer, that the fact that views were the same meant that there was only one set of views, that management's views were not their own and that*



they had adopted and uncritically accepted Mr Gao's views. Mr Zhao did not accept that and I do not consider that the evidence allows the Court to make that inference.

- (m). as I have explained above, I do have concerns resulting from the Special Committee's failure to ensure and satisfy itself that there was a suitable level of independence injected into the process for preparing and reviewing the Management Projections. I have concluded that the Special Committee could and should have done more to ensure the independence and separation of the team preparing the Management Projections from Mr Gao's influence. These concerns relate to governance – whether enough was done to ensure and demonstrate that the Management Projections were prepared independently. They put a question mark over the Management Projections. In my view, they justify the Court being cautious before accepting the forecasts in the Management Projections unless they are independently supported by the expert evidence. But I do not consider that the evidence shows that the Management Projections were not *bona fide* or were biased because they were deliberately and uncritically based on Mr Gao's views and constructed with a view to assisting Mr Gao and the Buyer Group. If one stands back and considers the bigger picture, it is not surprising that Mr Gao's views were regarded as relevant and even important in view of his role in the business. That is not the issue. The problem arises because the Company has not produced any evidence to show that the management team preparing the forecasts were able to and did form their own independent view or that in view of the conflict arising from Mr Gao being a member of the Buyer Group, there was (and the Special Committee ensured that there was) an independent testing and review of the forecasts to ensure that they were independent and fair and reasonable. The evidence of Mr Zhao suggested a complete failure by the Special Committee to focus on this issue. In my view, the resulting uncertainty goes to the weight to be attached to the Management Projections in the face of a particular challenges by the experts. It does justify the Court in concluding that there is sufficient evidence of bias and manipulation to support a finding of bias and a decision that the Management Projections should be ignored and given no weight on any issue in dispute.

The DCF calculation in this case – the disputes between the industry experts

The issues in dispute

190. As I have already noted, there are a number of disputes between the industry experts and the valuation experts and in order to reach a conclusion of the most appropriate DCF valuation to be used in the present case it is necessary to take a view as to whose approach is to be preferred. I



propose to review each issue in dispute by reference to the parties' submissions on that issue and then explain my conclusions.

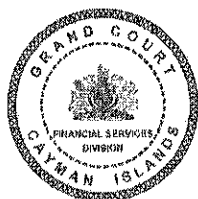
Upstream business - the projected size of the market for the overall PV module industry.

191. The Company, Dr Goffri and Mr Russo had each prepared projections of PV module industry market growth. Their different projections were as follows (in GW):

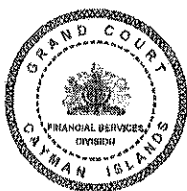
	2016	2017	2018	2019	2020	2021	2022	2023
Trina	66,000	67,000	78,000	85,000	90,000	95,000	100,000	105,000
Goffri	69,179	61,077	62,946	67,122	72,383	82,050	89,629	-
Russo	66,000	72,033	79,022	86,319	96,591	100,151	118,634	133,244

192. The Company submitted that the industry expert evidence demonstrated that there was material uncertainty surrounding the forecasting of market size and that as Ms Glass had concluded there was nothing unreasonable about the Company's predicted market size. Ms Glass' conclusion was right. Based on information and expectations as at the Valuation Date, Mr Russo's market size estimates were not reasonable, surpassed even his sources' expectations and should be rejected:

- (a). Ms Glass said that she understood that the Company had estimated market size after considering a number of industry sources, along with management's experience in the industry and their views as to industry and economic trends. Its size estimate for 2016 was 66 GW increasing to 105 GW in 2023.
- (b). Dr Goffri had projected market size considering five sources. His estimate of future market size equalled the average of the five sources for 2016 to 2020, and the average of two sources (essentially a low and a high case) in 2021. Only one of his 2021 sources continued its forecast for 2022, and the other projection for that year was out of line with all remaining sources. Accordingly, Dr Goffri based his 2022 estimate on the 2021 figure plus growth of 9.2%, which equalled the cumulative average growth rate for all sources for 2018 to 2021 (the period when growth was projected to be more stable). This resulted in a starting projection of 69.179 GW for 2016, projected market size of 61.077 GW for 2017 and of 89.629 GW in 2022. Ms Glass considered that the approach used by Dr Goffri was reasonable, although she found his conclusion to be on the low side.



- (c). Mr Russo had considered nine different data sources and, in each case, calculated the annual growth in market size and the average annual growth. He then started with the Company's market size estimate for 2016 (66 GW) and applied his average annual growth to that amount, resulting in a projected market size of 72.03 GW in 2017, rising to 133.24 GW in 2023.
- (d). Ms Glass had criticised Mr Russo's approach:
- (i). first for inconsistency - the average 2016 market size estimated by the data sources used by Mr Russo was 64.1 GW, which was lower than the Company's 2016 estimate (66 GW). Since Mr Russo believed that the Company's market size estimates were insupportable, and since his analysis purported to be based on and reflect an average of industry sources, he should have started his projections with the figure arising from the industry sources, namely a market size of 64.1 GW and then should have applied the average annual growth to that lower starting point.
 - (ii). secondly, significant differences between Mr Russo and the Company only arose in 2022 and 2023, at which time Mr Russo's average growth figures reflected the views of only a few market participants, and these views appeared to be at odds with the other sources.
- (e). Ms Glass had then done her own analysis. To estimate the market size, she re-ran Dr Goffri's analysis but also included the data sources used by Mr Russo – and she re-ran Mr Russo's analysis (adjusting for the errors in his approach which she had identified) but included the data sources used by Dr Goffri. She then combined the results and produced an average of the two analyses. She used all of the sources used by Dr Goffri except for one source which she considered to be old and redundant and all of Mr Russo's data sources, except for one (International Energy Agency - *IEA*) which she excluded because Mr Russo had not provided a document to support the IEA data and because Dr Goffri had used another IEA estimate, which had differed significantly from that used by Mr Russo. This approach resulted in a starting estimate for 2016 of 65.8 GW; of 67.1 GW for 2017; 71.8 GW for 2018; 76.3 GW for 2019; 84.2 GW for 2020; 91.9 GW for 2021; 101.0 GW for 2022 and 112.2 GW for 2023. On the basis of her review of the estimates produced by the Company, Dr Goffri and Mr Russo, Ms Glass concluded that projecting future market size involved difficult and substantial elements of judgment (as was shown by the widely-

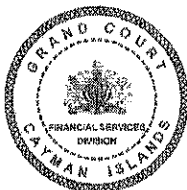


differing estimates derived by the industry experts) and that since her estimates were close to the Company's estimates, the Company's estimates were reasonable (if slightly high) and could be relied on. They were generally in line with, if not slightly higher than, the average market size determined using the data from Dr Goffri and Mr Russo's industry sources.

- (f). due to the significant fall in selling prices in 2017 the actual size of the market for 2017 was in fact 98,000 MW, much higher than any of the predictions used by the experts. This demonstrated the uncertainty in making any projections, even one year ahead (and why constructing a DCF was so problematic in the present case). The fact that the reports around November and December 2016 and in January 2017 were more pessimistic than those produced earlier was to be taken as reflecting the relatively pessimistic industry outlook as at the Valuation Date, which outlook had moved significantly from the first half of 2016.

193. The Dissenting Shareholders submitted that Mr Russo's estimates were reasonable and more reliable:

- (a). as Mr Russo had explained, (see Russo 1 at 148 to 198) the global solar PV market grew very rapidly between 2011 and 2016, with annual installations more than tripling over the period. That strong global growth was reflected in many of the Company's key markets and as at the Valuation Date growth was forecast to remain strong in key regions as a result of supportive policies and the declining cost of solar panels.
- (b). Mr Russo had derived his estimate by averaging the forecast growth rates from a significant number of industry sources, plus one investment bank (Credit Suisse) for each year to 2023 and by applying that average growth rate to the Company's own estimate of the size of the market in 2016. This was a reasonable approach to adopt. Mr Russo had justified his selection of sources including the use of the Credit Suisse forecast and explained that while "*banks in general are less preferable*" Credit Suisse, along with Lazard, tended to produce better reports on the solar industry than other banks (including Goldman Sachs).
- (c). while Dr Goffri's market size estimate purported to rely on five sources (two industry sources, and three investment bank sources, including two Goldman Sachs' forecasts) in



fact, there were only four sources, because the two purportedly separate Goldman Sachs forecasts were taken from the same paper and were, for each year aside from 2016 and 2017, exactly the same forecast (and Dr Goffri accepted during his cross-examination that this meant that the Goldman Sachs source was improperly double-counted and the effect was to depress his estimate of market size). Mr Russo was also right to challenge Dr Goffri's heavy reliance on banking reports, rather than the research of industry experts, as a fundamental data source when analysing energy assets. This was unusual and Goldman Sachs, in particular, had a very poor record of estimating solar PV installations. The result of making the changes that Dr Goffri ultimately accepted he should have made resulted in total projected installations reaching the same level as Mr Russo's projection by 2022.

- (d). Dr Goffri's choice and use of sources was flawed. He had omitted to take into account a number of sources for no good reason. He had been aware of all seven of the industry sources which Mr Russo had cited, had failed to criticise them in Goffri 2 and was unable to provide a satisfactory reason for not using them. In addition, one of Dr Goffri's two industry sources was the IEA and Dr Goffri accepted that the IEA has consistently underestimated the growth of solar generation.
- (e). the Management Projections relied on an even narrower, and equally inappropriate, range of data. They relied on just one forecast, produced by IHS, one of the sources Mr Russo used and among the most pessimistic of those sources. Its estimates were lower than those of three other sources that the Company had considered but chosen not to rely on.
- (f). Ms Glass' explanation of her own analysis was misleading. When preparing her summary and adjustments to Mr Russo's analysis she had not identified and used the average growth rate as established by the relevant sources. Instead, she identified and used the average growth for 2017-2020 as shown by Mr Russo's sources but thereafter had just assumed and applied as the forecast average growth rate for 2021-2023 the average growth rate for 2020 (10.3%). This was much lower than the average growth rate of Mr Russo's sources. Had Ms Glass used Mr Russo's approach, she would have calculated a market size forecast for 2023 of 129.4 GW, which is substantially higher than the Management Projections and not much lower than Mr Russo's actual projection. Ms Glass' justification for adopting her approach, namely that "*growth projections typically decline over time*" was insupportable.



194. In my view:

- (a). as Mr Russo noted in Russo 2, both he and Dr Goffri adopted a similar methodology for estimating market size by evaluating contemporaneous sources to determine a view of the number of MW expected to be installed globally each year.
- (b). however, as I have noted, their approaches to the selection of sources differed significantly and they each had a different view as to the market's prospect in the Company's main markets. Dr Goffri was relatively pessimistic (providing forecasts that were generally considerably lower than the Company's forecasts in the Management Projections). He predicted a global decrease in shipments in 2017 and a prolonged depression in sales based on his conclusion that these main markets would experience declines in and a flattening of demand (citing China, Japan, US and Europe as markets where solar PV demand faced reductions in incentives and policy changes that were expected to create headwind for solar PV market growth). Mr Russo was relatively optimistic – he accepted that there were headwinds for solar energy, but concluded based on his review of the sources he selected that the “*tailwinds of improved economics would counter any headwinds*” and overall PV demand would continue to grow.
- (c). Ms Glass sought to reconcile the different use of sources by Dr Goffri and Mr Russo by combining their sources and producing an average of their analyses. Before producing the average, she made a number of adjustments to their respective calculations. She used this analysis to test the reasonableness of the forecasts in the Management Projections. As regards Dr Goffri, since most of his sources did not provide forecasts for 2012, 2022 and 2023 she extended these to cover those years based on the final projection year plus growth equal to the cumulative average growth rate projected by the relevant data provider (thereby following Dr Goffri's own approach). She then calculated the average market size for all sources, resulting in a projected market size of 66.8 GW in 2017, increasing to 112.3 GW in 2023. As regards Mr Russo, for 2021 to 2023, for which periods only a few of his sources provided forecasts, she assumed a growth rate of 10.3%, which equalled the average growth for 2020 as estimated by all data sources and then calculated market size based on the opening market size of 65.8 GW (the average for all sources used in the analysis), plus average market growth each year. This resulted in an estimated market size growing from 67.3 GW in 2017 to 112.2 GW in 2023.

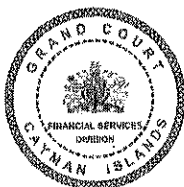


- (d). Ms Glass' use of the average growth rate for 2020 as the assumed growth rate for 2021-23 was criticised by the Dissenting Shareholders. Mr Russo had used four sources for 2021 (BNEF minus 15%, Canadian Solar 6%, the IEA 7% and Green Tech, 17% - Mr Russo said that he used the low IEA forecast despite the fact that some observers had criticised the IEA for consistently underestimating the growth of renewable energy – resulting in an average of 4%). He used three sources for 2022 (BNEF 38%, Canadian Solar 11% and the IEA 7% - resulting in an average of 18%). He had used two sources for 2023 (BNEF 18% and the IEA 7% resulting in an average of 12%). Ms Glass had not used the IEA forecast so that for 2021 she only had four sources, for 2022 two sources and for 2023 she had only one source. Ms Glass considered that it was unsafe to rely on such a limited data set for these years and considered that her approach, which was based on a sufficiently large data set for 2020 and reasonable assumptions about the potential for changes in growth in the following three years, was more reliable.
- (e). in my view the reliability of the Management Projections themselves on this issue, before further testing by reference to independent forecasts and sources, was open to serious doubt. In his first data request letter dated 29 January 2018, Mr Russo had requested “*any supporting documentation or calculations related to [Management Projections]*”. In response he was provided with a table headed “*Underlying calculations/estimates showing the components (by year) for Trina's global market size and market share*”, which listed the Company's forecast of the global market size, of the Company's market share and of module shipments for 2014 -2023. This contained two notes. First, a statement as to sources: “*comprehensive consideration of IHS, GTM, RTS and BNEF*”. Second, as to the market share forecast: “*based on global market size forecast, Trina's market share is 1% increase year by year since 2015.*” In his second data request letter dated 5 April 2018, Mr Russo requested further particulars. He asked for specific citations to any documents or supporting information relating to the four sources identified by the Company, a detailed description of how the studies justified the forecasts and “*any calculations or work linking the forecasts referenced to the results utilised by [the Company]*.” The Company's attorneys (Harneys) responded on 4 May 2018, and said that the “*documents relating to IHS have been uploaded to the Data Room The specific citations that are referenced as “GTM, RTS and BNEF” are Greentech Media, RTS Corporation and Bloomberg, respectively. The Company confirms that it did not make any specific reference to the GTM, RTS and BNEF sources” (underlining added). Harneys also said that “*there [were] no calculations or work linking the forecasts referenced to the results utilised by the**



Company.” Accordingly, the first note which referred to management having undertaken a “*comprehensive*” review of four sources turned out to be wrong and misleading. Reliance was placed on only one source. I find that the failure correctly to explain the basis for the forecast indicates an inadequate process for reviewing and understanding the way in which the forecast had been constructed (I am prepared to assume that the mis-description was not deliberate but only careless but it does give rise to concerns). I also find that the reliance on a single source, even recognising that the management team had their own views based on their experience in the Company’s business, demonstrated that the Management Projections on their own were insufficiently supported by reliable evidence.

- (f). so the extent to which the Management Projections can be relied on and the extent to which it is necessary and justifiable to adjust the market size forecast in the Management Projections depends on whether Ms Glass’ analysis is reasonable and appropriate and whether Mr Russo’s view is reasonable and more reliable. In my view, for the reasons explained below, I consider that Ms Glass’ view is reasonable, appropriate and to be preferred. I say appropriate in this sense. I do not consider that Ms Glass, in undertaking her analysis, was improperly seeking to offer an opinion on an industry issue on which she had no relevant or insufficient expertise or that Mr Russo’s industry expertise was such that her analysis could not challenge them. Ms Glass relied on the differing views of both industry experts and then proposed a methodology for evaluating the differing views so as to find a reasonable forecast and then comparing the outcome with the Management Projections, to test their reasonableness. I regard this exercise as well within her competence and her analysis as being of assistance to and capable of being relied on by the Court.
- (g). the differences of view between the industry experts on this issue, and the reliability of Ms Glass’ exercise to test the reasonableness of the Management Projections by seeking to find a half-way house between and reconcile the different approaches of Mr Russo and Dr Goffri, represent to some extent a battle of the sources. The proper market share forecast depends on which combination of sources is used. The selection of sources needs to be informed by a decision as to which approach to general market trends (Mr Russo’s relative optimism or Dr Goffri’s relative caution and pessimism) is to be preferred, the reasonableness of the methodology used by the experts and the need to take account of their widely differing views. Ms Glass agreed with Mr Russo on the first two points



(market trends and methodology) but not on the other points. I find her reasoning to be convincing and accept her conclusions (see Glass I at [F8]).

- (h). on the market trends point, while I found Mr Russo's analysis on this issue to be well argued and detailed, I concluded that he was too readily prepared to favour the upside and most optimistic view and failed to take a properly prudent and balanced view.
- (i). on the methodology point, Mr Russo had criticised Dr Goffri for using too narrow a range of sources, for using projections from sources that were redundant (using two Goldman Sachs estimates that were in some cases identical), atypical for this type of analysis (relying on investment banks for detailed industry insight) or unavailable at the time of valuation and for omitting one significant data source (PV Insights). In my view, it is reasonable to assume that the reports published shortly after the Valuation Date, on which Dr Goffri and Ms Glass relied, were based on data known as at the Valuation Date. I also consider that the evidence does not show that investment bank sources were less reliable than other sources. I further consider that Ms Glass' methodology and approach were a reasonable way of responding to and avoiding Mr Russo's other criticisms (I note that Ms Glass accepted that Dr Goffri could be criticised for reliance on too narrow a range of sources).
- (j). in my view it was reasonable and appropriate in the circumstances, to prepare the market share forecast by reliance on all the sources used by Mr Russo and Dr Goffri save where there was a good reason for excluding a particular source. It seems to me to be appropriate to exclude the first and older Goldman Sachs 2016 forecast relied on by Dr Goffri. While I consider that it is arguable that the IEA forecast used by Mr Russo should have been included, since Mr Russo regarded it as a low outlier and its inclusion does not appear to have a material effect, I am prepared to exclude it as Ms Glass did, at least for the years to 2021.
- (k). in my view Ms Glass is right to say that Mr Russo should have started his analysis with the 2016 figure arising from the industry sources, rather than the figure in the Management Projections, which as a general matter he refused to accept. The average 2016 market size estimated by the data sources used by Mr Russo was 64.1 GW (and this was lower than the Company's 2016 estimate of 66 GW). Since Mr Russo considered that the Company's market size estimates were unsupportable, and since his analysis purports to reflect an average of industry sources, his choice of the Company's higher 2016 figure appears to be



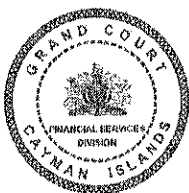
unjustifiable and inconsistent (and risks a charge of opportunism, by using figures that support a higher valuation).

(l). as regards Ms Glass' analysis of the forecasts for 2021, 2022 and 2023, Ms Glass exclusion of the IEA forecast relied on by Mr Russo meant that for 2021 she had four sources (BNEF minus 15.4, Canadian Solar 6.1%, Green Tech 17.2 and IEA October 2016 2.2%); for 2022 she had two sources (BNEF 37.8% - Mr Russo had rounded this up to 38% - and Canadian Solar 10.7 – Mr Russo had rounded this up to 11%) and for 2023 only one source (BNEF 18%). Including Mr Russo's IEA forecast gives five sources for 2021, three sources for 2022 and two sources for 2023. The average growth rate for 2021 then becomes 3.42% (compared with Ms Glass' 10.3%); for 2022, 18.5 % (compared with Ms Glass' 10.3%) and for 2023, 12.35% (compared with Ms Glass' 10.3%). I can see that adding Mr Russo's IEA forecast as a further source weakens the argument that the limited number of sources for those years justifies using an assumed a growth rate based on the average growth for 2020. But, since there were ten sources available and used for 2020 (and the previous forecast years), it seems to me that the argument based on limited sources for 2021, 2022 and 2023 still holds good, particularly for 2022 and 2023, and that Ms Glass' methodology is a reasonable one. The wide range of forecasts demonstrates the wide range of views held by well-informed parties and the significant level of uncertainty about the level and timing of market growth. In addition, the BNEF forecasts were significantly higher and on occasions out of line with the others so that reliance on a small data set which included it could properly be considered to be risky.

(m). it also seems to me that Ms Glass' approach to and conclusions concerning Dr Goffri's analysis are reasonable.

(n). the result of Ms Glass' analysis, which produced an average of the adjusted average forecasts of Mr Russo and Dr Goffri was as follows:

	2016	2017	2018	2019	2020	2021	2022	2023
Average market size	65.8	67.1	71.8	76.3	84.2	91.9	101.0	112.2
Market size per Management Projections	66.0	67.0	78.0	85.0	90.0	95.0	100.0	105.0



- (o). the comparison between Mr Russo's original market size forecast and the forecast in the Management Projections is as follows:

	2016	2017	2018	2019	2020	2021	2022	2023
Russo	66.0	72.0	79.0	86.3	96.6	100.2	118.6	133.2
Management Projections	66.0	67.0	78.0	85.0	90.0	95.0	100.0	105.0
Russo using forecast Average for 2016	64.1	69.9	76.7	83.8	93.8	97.2	115.2	129.4

- (p). the Company's average annual growth rate was as follows: 2021, 5.55%; 2022, 5.26% and 2023, 5%;

- (q). Dr Goffri's unadjusted forecasts were as follows:

2016	2017	2018	2019	2020	2021	2022	2023
69,179	61,077	62,946	67,122	72,383	82,050	89,629	

- (r). Dr Goffri's forecasts as adjusted pursuant to Ms Glass' methodology were as follows

2016	2017	2018	2019	2020	2021	2022	2023
65.8	66.8	71.9	76.2	84.3	90.9	101.7	112.3

- (s). the result is that the adjusted average market size is lower than the Management Projections for 2021 but higher in 2022 and 2023. The adjusted average market size is considerably lower than Mr Russo's original forecast for each of these years, and his forecast adjusted to use the industry average forecast for 2016 rather than the 2016 forecast in the Management Projections but only slightly lower than Mr Russo's forecasts as adjusted by Ms Glass' methodology (see below):



Russo as adjusted by Glass

2016	2017	2018	2019	2020	2021	2022	2023
65.8	67.3	71.8	76.5	84.0	93.0	100.2	112.2

And the forecasts in the Management Projections were higher than these adjusted forecasts for 2021, almost identical for 2022, but lower for 2023.

- (t). in these circumstances, it seems to me that after the testing of the Management Projections and the forecasts made by Mr Russo and Dr Goffri for reasonableness and reliability in the manner suggested and undertaken by Ms Glass, and after testing the reliability of her methodology, the right and appropriate conclusion is that there is an insufficient basis to disturb or change the market size forecast in the Management Projections (I note that Ms Glass wrongly assumed that the Company reached its forecast of estimated market size after considering a number of industry sources but this does not affect the usefulness and validity of her methodology for testing the reasonableness of the various market size forecasts). I take into account the fact that on this issue the Management Projections were, as I have noted, inadequately explained or supported by independent data and sources. But this problem has been resolved by the evidence and analysis of the industry experts, as analysed and explained by Ms Glass. They have provided the requisite further testing by reference to independent forecasts and sources. I also recognise and give weight to the industry expertise of Mr Russo but I am not persuaded that his analysis and forecasts reliably demonstrate that the forecasts in the Management Projections, when tested against suitable criteria, are clearly or likely to be wrong or unreasonable. Projecting market size as at the Valuation Date was clearly an uncertain and less than straightforward task. The industry experts showed that there was and they relied on widely differing data derived from third party sources. In these circumstances, the selection of sources was critical to their conclusions and forecasts. They each used their experience and expertise to select the sources that they considered to be most reliable. The Court must assess the basis for their differing selections and methodologies as best it can and then form a view as to reasonableness and reliability of their different approaches and conclusions and weigh these against the Management Projections. In my view, on balance, the evidence does not show that the Management Projections should or can reliably be displaced by the alternative forecasts of the industry experts.



Upstream business - the Company's projected future market share and sales of PV modules.

195. In order to determine the Company's revenue (and also, therefore, its valuation), what ultimately mattered was the volume of modules, in megawatt terms, that the Company sells. Mr Russo, Dr Goffri and the Company's management each made projections of what those volumes would be in each year of the forecast period. They each approached this issue first (as explained above) by projecting the global market size and then by projecting the share of the market which the Company will have. The Company's sales volume was the product of those two numbers.
196. The Company's actual market share for 2014 to 2016, and its own projections as to its market share for 2017 to 2023, were as follows:

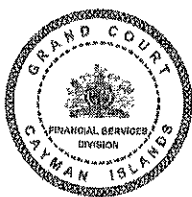
2014A	2015A	2016A	2017	2018	2019	2020	2021	2022	2023
8.7%	9.9%	9.5%	10.8%	11.9%	13.2%	14.7%	16.1%	17.3%	18.3%

197. The Company did not directly project its own market share. Instead, it projected its own PV module sales volume, and the market share amounts set out above were implied based on this volume and the Company's projections for total market size.
198. Dr Goffri's estimate of market share were as follows:

2016A	2017	2018	2019	2020	2021	2022	2023
9.5%	9.4%	9.5%	10%	10.5%	11%	12%	

199. Mr Russo's estimate of the Company's market share were as follows:

2016A	2017	2018	2019	2020	2021	2022	2023
9.5%	12.5%	13.7%	15.3%	17.1%	18.6%	20.0%	21.3%



200. The Company submitted that Mr Russo's projected increase from a market share of 9.5% (2016 actuals) to 21.3% was unsustainable and not a prudent (or reasonable) projection.
201. I have summarised Mr Russo's methodology above. The Company noted that he forecast a 30% increase in the Company's market share from 2016 to 2017 by applying the 9,000 MW figure (the Company's actual shipments) not to actual 2017 market size, which was 98,000 MW, but to an estimated market size of 71,730 MW obtained from contemporaneous sources. The Company's actual 2017 market share was in fact 9.18% (a drop from 2016). Mr Russo had reached his figure of 12.5% by inappropriately combining actual sales volumes with market size. Mr Russo then went on to apply the same growth rates to his 12.5% which the Company had applied to its estimated starting point of 10.8%. From Mr Russo's evidence it appeared that he might have impermissibly relied on the assumption that the Company would benefit from a merger, yet he made no adjustment to the increased expenditure that would be required in his projections, even were such a merger capable of being taken into account.
202. Dr Goffri's view can be summarised as follows:

"Using Trina Solar's assumptions for shipments, the company's market share would increase from 9% in 2016 to 20% in 2022. I believe it is highly unlikely that Trina Solar could have doubled its market share in this 6-year period. As shown in the Competition and Market Share section, market shares of the top 5 module manufacturers have remained relatively consistent over the past 5 years. While I agree that some consolidation may be in order, a doubling of market share appears highly unlikely as Trina Solar has held a consistent market share of 9-12% for the period 2013 to 2016 and projected to 2019E."

203. Ms Glass noted that Mr Russo's 9,000 MW starting point had been justified by reference to two sources - the January Projections which projected 2017 sales at 9,000 MW and hindsight data as to the Company's actual 2017 sales, namely the Company's press release in January 2018, which reported actual sales in the order of 9,000 MW. In her view, Mr Russo's reliance on the January Projections was akin to relying on hindsight, since the only support for relying on these projections was a comparison with hindsight data. Put another way, absent knowledge of the actual 2017 results, it would be wholly unreasonable to presume that the Company would have expected 2017 volume to approximate 9,000 MW. Mr Russo had claimed that, had the Company prepared projections at or around the Valuation Date, it would have been reasonable to expect 2017 volumes to be 9,000 MW - approximately 43% higher than 2016 actual results. In Ms Glass' view, Mr Russo's position was untenable. She found it highly unlikely that reasonable buyers or sellers would have expected sales to increase to such a degree, especially given events transpiring in 2016. She concluded that:



“Based solely on judgment, I find [the Company’s] average projected average annual market share increase to be high, especially in light of the Company’s historical market share, which was relatively constant over the three years prior to the Valuation Date. As a result, I have concluded that [the Company’s] market share estimates are likely on the high side, but I have nonetheless accepted these estimates for purposes of the Valuation.”

204. The Company submitted that Mr Russo had cherry-picked from the available inputs to raise his projected market share and that the Court should follow Ms Glass’ approach and accept the Company’s market share projections.
205. The Dissenting Shareholders submitted that there was agreement on the market share growth rate since Mr Russo had adopted the Company’s projections. Accordingly, the points of dispute were as to the appropriate estimate of global market size and the appropriate initial level of sales for the Company to which the relevant growth rate should be applied. They argued that Mr Russo’s approach (his estimate of market size and his use of 9,000 MW for sales in 2017) was to be preferred.
206. For the reasons I have already given, I reject the Dissenting Shareholders’ submission that Mr Russo was justified in using the figure of 9,000 MW for sales in 2017. I do not consider that Mr Russo was justified in using the 9,000 MW starting point for his market share forecast. For the reasons given by Ms Glass and Dr Goffri, I prefer the market share forecasts in the Management Projections.

Upstream business - the Company’s projected PV module selling prices.

207. The Company’s management and the industry experts agreed that, as at the Valuation Date, module prices had fallen and were expected to continue to fall. However, Mr Russo’s projections were more optimistic than both the Management Projections and Dr Goffri’s projections.
208. The Management Projections and Mr Russo’s projections were as follows:

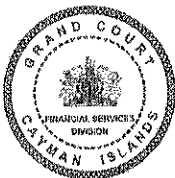
	2017	2018	2019	2020	2021	2022	2023
Russo estimated average	0.47	0.44	0.41	0.39	0.37	0.35	0.33
Trina’s management projected	0.47	0.43	0.39	0.36	0.34	0.31	0.29
Difference (%)	1%	3%	6%	8%	10%	12%	14%



209. The Company's projections were based on a judgmental assessment. From 2017 to 2021, the Company projected that prices would decline by US\$0.045, US\$0.040, US\$0.035, US\$0.030 and US\$0.025 per watt, respectively, each year. Thus the price decline was reduced by US\$0.005 each year. In percentage terms, this approach resulted in a price decline that slowed over time. In 2021, the Company moved to a fixed percentage decline, such that prices in 2022 and 2023 were assumed to decline by 7% each year, which approximated the percentage decline expected at the time (i.e., 6.9% in 2021). As a result of moving to a fixed percentage decline, the price decline in dollars per watt slowed over time (from US\$0.025/w to US\$0.023/w to US\$0.022/w).
210. Dr Goffri relied on average prices from three sources. None of these sources reported prices throughout the entire forecast period. Therefore, he extrapolated prices for years beyond the projection period based on the average price decline of each source. Dr Goffri then averaged the three prices for each industry source, resulting in his estimate of average future selling prices.
211. Mr Russo relied on average prices drawn from six sources. He first calculated an annual percentage price decline for each source. He then calculated the average price decline for the six sources, which decline was then applied to the Company's actual average selling price in 2016.
212. Dr Goffri had a number of concerns with Mr Russo's analysis. He said as follows (Goffri 2 at [9], page 33):

"I believe Mr. Russo's methodology, liberty with extrapolating data, outdated sources, source selection, price premium claims, and reliance on limited sources beyond 2020 resulted in a flawed forecast analysis. Mr. Russo also fails to capture the price dynamics and volatility that occurred in the market in 2016, where ASPs declined 33% from around \$0.55/W in January 2016 to around \$0.37/W in December 2016, as shown in Figure 9-1. 24 While this information was published in December of 2016, in August 2016 PV Insights data showed a drop in module prices from around \$0.55/W in January 2016 to around \$0.45/W in August 2016, indicating the market was experiencing significant downward price pressure. They further show an expected additional price decline to around \$0.42/W by December 2016, which turned out to be more severe in the December report".

213. In particular, as can be seen, Dr Goffri considered that the data on which Mr Russo relied was out of date. Two of the studies relied on were prepared in 2015, while two others were prepared in the early part of 2016. Furthermore, one of the two remaining sources (SEMI) did not project a price but instead projected costs, which Mr Russo then translated into price estimates using various assumptions. The remaining source (IRENA) did not provide price projections throughout the period. Instead it provided a projection range for 2015 and 2025. Mr Russo used



the midpoint of the projections for 2015 and 2025, and prices for remaining years were estimated by Mr Russo using linear extrapolation.

214. Ms Glass prepared her own analysis. She agreed in principle with Mr Russo's approach but agreed with Dr Goffri's criticism based on the staleness of some the sources (considering the significant changes in the marketplace in the latter half of 2016 – during the latter two quarters of 2016, the Company's average selling price declined by about 35%, almost three times the declines experienced in the first half of the year). Given the staleness of the four data sources used by Mr Russo she did not consider them in her analysis. She also agreed with Dr Goffri that it was inappropriate to rely on the SEMI analysis. She used five sources, being the three sources relied on by Dr Goffri; the IRENA data adjusted to incorporate the actual missing numbers set out in the IRENA document which Dr Goffri had obtained (as opposed to Mr Russo's extrapolations) and an additional source she located and regarded as reliable. The IRENA source gave projections for 2017-2023, while three of the sources gave projections from 2017-2020 and one source gave projections only for 2017-2018. She identified the price decline projected by each source and produced an average price decline of 14.5% in 2017, reducing to 6.8% in 2020. To estimate prices for the Company she began with the Company's actual price in 2016 (US\$0.510/w), and then applied the average annual price declines, resulting in a price of US\$0.349 by 2020. Only IRENA gave projections for the remaining three years but Ms Glass considered that full reliance on its projections was inappropriate and too risky because the decline projected by IRENA was lower than that projected by other sources in all years. However, she considered that it was appropriate to assume a constant price decline for 2021-2023 based on the trend identified by IRENA, which presumed that, in 2021 to 2023, the price decline would be constant (which was the same assumption as that made by the Company). Ms Glass therefore assumed a constant price decline using the 2020 average for all data sources (6.8%), applied to the 2020 price, resulting in price projections for the remaining three years. She noted that in the Management Projections the Company's estimated prices were higher in all years, albeit the difference declined over time. She concluded that her analysis indicated that the prices projected in the Management Projections were on the high side, which was to be expected, given that they were prepared in July 2016, prior to the significant price declines that arose in the latter half of the year. She considered that had the Management Projections been prepared at the Valuation Date, rather than in July 2016, they probably would have used lower pricing; so she revised the Management Projections to reflect the estimated prices she had calculated. She also noted that the Management Projections reflected an average selling price of US\$0.465 for 2017, which was higher than the actual average price for quarter 3-16 (US\$0.455). Both industry experts had

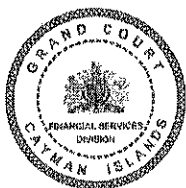


agreed that the average price of modules had fallen and would continue to fall, and she agreed. Her decision to use slightly lower pricing was driven not only by her analysis of market pricing, but also by her observation that the Company's 2017 projected pricing was higher than the actual price obtained in quarter 4-16.

215. The Company noted that all the information on which the various forecasts were based was derived from third party sources, which varied widely, so that the conclusion reached ultimately depended on how the sources were mixed and matched. Any resulting figure would be based on considerable uncertainty, thereby demonstrating the difficulties inherent in relying on DCF analyses constructed by experts appointed by parties to litigation. Furthermore, it was important to recognise that the issue of selling prices was not separate from projected sales volume. The two were not separately determinable because pricing drives volume. If the actuals of 9,000 MW for 2017 were to be taken as reasonably foreseeable in December 2016 then it was necessary to assume that actual selling prices could be estimated with a similar degree of accuracy. It was the fall in selling prices that had caused the increase in sales volumes. Subject to these points, the Company supported Ms Glass' approach.

216. The Dissenting Shareholders argued that Mr Russo's approach was to be preferred:

- (a). his approach was to be preferred to the Management Projections, because the source data for the Management Projections and the basis upon which they had been calculated was opaque. Mr Russo's inference, based on the data with which he was provided, was that the projections were based on price forecasts purchased from PV Insights, a Taiwan-based solar research firm. However, the Management Projections' prices were between 6% and 12% lower each year than the PV Insights forecasts, without apparent explanation. The Company had responded to Mr Russo's request for clarification by denying that the Management Projections were based on the PV Insights forecasts at all, but did not identify the source(s) from which or the methods by which they were derived. The Management Projections were also materially lower than the contemporaneous forecasts to which Mr Russo referred.
- (b). his approach was also to be preferred to Dr Goffri's approach. Dr Goffri used a technique of linear extrapolation, which involved assuming that average selling prices would decline at a constant rate over the forecast period. But, as he accepted, his forecasts for 2021 and 2022 were entirely based on extrapolation, because none of the sources on which he relied



extended beyond 2020. Furthermore, he forecast that the Company's revenue in 2022 would be lower than its actual revenue in 2015, and substantially lower than its actual revenue in 2016. This demonstrated that his forecasts were unreliable. As Mr Russo had noted (in Russo 2 at [175]): "[Dr Goffri's approach ignored data he had in his possession that would have allowed him to avoid a methodology that led to prices well below contemporaneous sources, as well as below [the Management Projections]]".

- (c). Ms Glass' estimate should be rejected, because the assumption of a linear rate of decline was inappropriate. She justified this approach on the basis that it was consistent with Dr Goffri's evidence and the Management Projections. But during her cross-examination she had been taken to passages in both Mr Russo's and Dr Goffri's reports that were inconsistent with her projection of a constant linear decline since they said that the rate of decline in module prices was expected to slow. Furthermore, she did not have the necessary industry expertise to second guess the industry experts, as she has done by rejecting both of their (and the Company's) forecasts.

217. My assessment of the evidence and conclusions on this issue can be summarised as follows:

- (a). once again, this is an issue which is heavily dependent on the selection of data contained in third party sources. Once again, this is an issue where the Management Projections were inadequately explained or supported by independent data and sources. But the evidence of Dr Goffri and Mr Russo, as reviewed and analysed by Ms Glass, provides the basis for testing their reasonableness.
- (b). there appear to be problems with the approach of both Mr Russo and Dr Goffri. In my view, Dr Goffri's challenges to Mr Russo's methodology, as explained and supported by Ms Glass (see Glass 1 at [F45]), were persuasive. These challenges were not adequately dealt with in Russo 2 or elsewhere. This resulted in five of Mr Russo's six sources being treated as unreliable (four on the basis of being stale and one on the basis that price estimates were only derived by applying assumptions to costs data). That left the underlying data for the IRENA forecast, located by Dr Goffri, which could be relied on. I am also persuaded by Mr Russo's challenge to Dr Goffri's methodology to the extent that it was based on extrapolation. His three main challenges were set out in Russo 2 at [2.9]. The first was extrapolation. As Ms Glass accepted, Dr Goffri relied too heavily on the extrapolation of the source projections. I consider that a preferable approach, as suggested



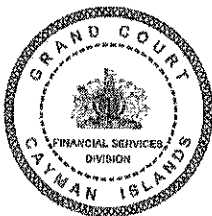
by Ms Glass, is to use only data for those years when the price was projected directly by the industry source. Mr Russo's second challenge was that the Goldman Sachs' report was not available (and it was not or could not be assumed to be based on data available) at the Valuation Date. But I accept, as noted above, Ms Glass' view that it is permissible to use and rely on the Goldman Sachs' data. Thirdly, Mr Russo considered that it was wrong to use a linear decline rate that would never slow down - Dr Goffri had accepted that over time "*module prices...would decrease but at a slower rate*" and that "*gross margins would stabilize*" so that his approach was inconsistent with this view and resulted in lower prices. This does suggest that adopting a linear rate of decline fails fully to accommodate this aspect of the data.

- (c). if these challenges are accepted, then one is left with the direct projections without extrapolation contained in three of Dr Goffri's sources, namely Goldman Sachs, PV Insights (which Dr Goffri considered to be particularly reliable) and the Department of Energy plus Mr Russo's IRENA data. Two issues then arise. First, there are relatively few sources to rely on. Secondly, only one of these sources includes projections for 2021-2023 (IRENA).
- (d). Ms Glass sought to deal with the first of these concerns by adding another source for 2017-2020, namely SunShot (which she said was a respectable source being part of the US Department of Energy's Solar Energy Technologies Office which drew on a wide range of other sources all of which were dated in the latter part of 2016, and included three industry sources on which Mr Russo relied when estimating market size - BNEF, GreenTech Media Research and IHS Research and two investment banks). The forecast price declines were relatively high (the fourth highest out of five in 2018 and the fourth highest out of four in 2019 and 2020). She sought to deal with the second concern by assuming a constant price decline using the 2020 average for all data sources (6.8%), resulting in price projections for the remaining three years. Since the price declines projected by IRENA were lower than that projected by other sources in all years she considered that it was unsafe to rely on its projections for 2021-2023. She noted that IRENA had presumed that, in 2021 to 2023, the price decline would be constant, as had the Management Projections, and that this provided some support for the use of linear rate of decline for this period. Ms Glass started with the actual price in 2016 (US\$0.510/w) and then applied the average annual price declines she calculated using all her sources. This resulted in a price of US\$0.349 by 2020. Thereafter she applied the constant price decline using the 2020 average for all data



sources of 6.8%. The result was the price declines were less than those projected in the Management Projections – the Management Projections were higher in all years, albeit the difference declines over time.

- (e). in my view Ms Glass, in her evaluation and analysis of the evidence of Dr Goffri and Mr Russo, adopted a reasonable methodology. I do not accept, with one possible exception, the Dissenting Shareholders' criticism that Ms Glass was inappropriately offering evidence on matters beyond her expertise and improperly seeking to challenge Mr Russo's industry expertise based on her own different an inadequate expertise. She provided an evaluation of the industry experts' evidence and sought to use it for the purpose of testing the reasonableness of the Management Projections. She based her departure from Mr Russo's approach on Dr Goffri's evidence and criticisms and her departure from Dr Goffri's approach on Mr Russo's evidence and criticisms of Dr Goffri. Her evaluation is of assistance to the Court in forming its own view on the industry experts' evidence and weighing that evidence against the Management Projections. I was concerned however, at her use of and reliance on a data source that had not been used or commented on by either of the industry experts. This concern was reinforced by the fact that, as I have noted, her additional source included relatively high price declines. But on balance I am satisfied that Ms Glass' analysis and support for the reasonableness of the forecasts in the Management Projections remains good. Even if average selling prices are calculated using the four sources which meet the reliability test applied by Ms Glass (which as I have said seems to me to be reasonable) but excluding Ms Glass's new source, SunShot, and using only the IRENA forecast for 2021-2023, the average selling price (on my calculations) for each year is still below Mr Russo's forecast for each year (and is even lower if the average 4.5% reduction for 2021-2023 forecast by SunShot is used as a constant rate for that period). Furthermore, it is below the Management Projections for 2017 (0.447 compared with 0.465) and 2018 (0.412 compared with 0.425) and almost identical with the Management Projections in 2019 (0.398 as compared with 0.390). Excluding the SunShot data does therefore suggest that the forecast in the Management Projections might have been too low for 2020-2023 but in my view the various alternative methodologies establish a range of potentially reasonable approaches and forecasts but do not demonstrate that the Management Projections were clearly or likely to have been in error.



Upstream business - the Company's projected expenses for R&D

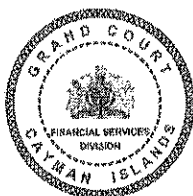
218. The Company projected R&D expenses at 2% of upstream revenue. Ms Glass noted that (i) this figure was slightly higher than history would suggest and that over the period she had reviewed, R&D expenses averaged 1.6% of revenue and, in 2016, R&D expenses approximated 1.5% of revenue and (ii) that Dr Goffri had supported the Company's forecast increase in R&D expenses, noting that for the Company to remain competitive and maintain its market position, it would need to invest more heavily than it had historically in R&D.

219. During his cross-examination, Dr Goffri had explained the basis of his analysis as follows (he had referred to the Company as a "technology follower"):

"I think what was happening in the industry is that ... the tier 1 leaders [including the Company] ... since they were incepted, ... were focusing on scale and they were focusing on quality and bankability and they did not innovate the technology. That [was] the case until about 2013/2014.... technology was not a big focus for them. They kept on gaining scale, reducing costs and growing. Around that timeframe they had no levers any more. They reached economies of scale, getting more economies of scale would not do them a lot of benefit. Then they started innovating or focusing more on technology. Also these companies matured a bit more at that point and they had money to set aside for R and D. So they started spending more and more on R and D from that time period until now... So they are now investing in technology. It's not groundbreaking technology; it's technology that is improving and [it] ... changes moving forward, they would all make it together... ...With regard to R and D, they have increased their budget. I think they kind of doubled it from 2014 to 2016. I think it was from about 22 to 40 something million. This is hindsight but everybody was kind of doing this but in order to maintain their R and D with their peers the following year, the following year the companies were -- their peers were at 50 or \$80 million. So there was more doubling. So the trends in R and D were going up. I think that was normal for everybody and probably still normal today."

220. Mr Russo disagreed with Dr Goffri's opinion that the Company would need to increase its R&D spending to 2% of revenue since he considered that the Company would probably be able to maintain its strong position in the market with the technology that it was successfully developing at current R&D expenditure levels (as of 2016).

221. Ms Glass was satisfied that the Company's forecast for aggregate total upstream operating expenses including for R&D was reasonable. She noted that expenses for 2017 were projected at 10.3% of sales, which was lower than historical averages, but in line with the most recent three-year period. She considered that over time, total operating expenses were expected to decline to 9.3% of sales, which was to be expected given increasing sales.



222. The Company submitted that Dr Goffri's approach was reasonable and provided convincing evidence in support of the Company's projected 2% spend on R&D. Ms Glass' opinion provided further support. The Company was predicting an increase in market share and it was unrealistic to suppose that the Company could achieve this without investing in R&D so as to become a "technology leader" rather than a "technology follower" as it had been historically.
223. The Dissenting Shareholders argued that Ms Glass' analysis was affected by a formula error in the Management Projections spreadsheet, which had led the Company and Ms Glass to incorrectly state that the Company had spent US\$47m on research and development in 2014. The correct figure was US\$22m, as the Company's 20-F US Securities and Exchange Commission filing stated. This was consistent with Mr Russo's view that the Company would not need to increase its R&D spending above 2016 levels in order to maintain its strong position in the market. During her cross-examination Ms Glass accepted that the 2014 figure needed to be corrected but said that this did not change her view. The Dissenting Shareholders submitted that this was further evidence of Ms Glass' unwillingness to make concessions which she knew were justified and demonstrated that her analysis was flawed and should not be accepted.
224. I find Mr Russo's challenge to the Management Projections to be speculative and unpersuasive. As Ms Glass noted, Mr Russo did not deal with this issue in Russo 1. In Russo 2 he identified a number of reasons why Dr Goffri' support of the Management Projections were flawed and concluded as follows (Russo 2 at [205]): "*the Company would likely be able to maintain its strong position in the market with the technology it is successfully developing at current R&D expenditure levels (as of 2016)*" (underlining added). In my view, the R&D expense projection in the Management Projections of 2% of upstream revenue has not been shown to be unreasonable. Comparison with historic R&D expenses together with Dr Goffri's evidence that in this fast changing and competitive sector the Company would need to increase its historic R&D spend indicate to me that the approach taken in the Management Projections is reasonable.

Upstream business - the Company's projected Capex

225. Capex refers to the annual cost of property, plant and equipment. The Company originally projected capital expenditures using a model including estimates of the additional capacity required each year for each component (silicon, cells, wafer and modules) and the estimated cost of new investment per watt. These assumptions led to the estimated cost of new capacity, to which the Company added refurbishment costs (the cost to replace or update existing equipment).



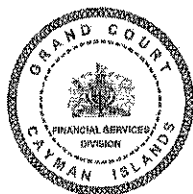
The Company's original Capex forecasts were prepared in early 2016, at a time when projected PV sales volumes were higher. By July 2016, when the Management Projections were produced, the Company had reduced its sales volume forecasts given revised expectations, at which point it also reduced its Capex forecasts for 2016 and 2017.

226. The various projections for Capex (\$M) are summarised below (starting with the Company's two projections)

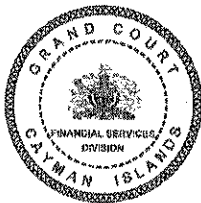
	2016	2017	2018	2019	2020	2021	2022	2023
Old projections	322	334	367	372	384			
Management Projections	250	300	360	370	380	390	400	410
Actual	268							
Per Russo A		174	333	336	361	375	387	400
Per Russo B		444	308	393	556	406	829	770
Per Goffri 9.1%	297	306	358	399	434			

227. Dr Goffri projected capital expenditures based on 9.1% of sales, which was slightly higher than the average percentage implied by the Company's projections (8.1%). The 9.1% assumption was derived following an analysis of industry peers (he concluded that the Company's peer group was expected to spend 10.1% of revenues on Capex). He summarised his conclusions in Goffri 1 (at [6.2.1] at page 36) as follows:

"However, the Trina Solar Management Case shows Trina Solar's CAPEX as a percent of revenue shrinking from around 8.9% in 2017 to 7.4% in 2023 averaging 8.1% between 2016 to 2022. According to Capital IQ, from 2011 to 2015 Trina Solar's CAPEX expenditures as a percentage of revenue were on average 14.4%. During the same period its peer group consisting of Trina Solar, JinkoSolar, Canadian Solar, JA Holdings, Yingli, and Hanwha spent 12.9% on CAPEX as a percentage of revenue. Taking the most recent 5 years of data available from Capital IQ (2013-2017), Trina Solar's peer group is expected to spend 10.1% of revenue on CAPEX. While Trina Solar Management Case is within a margin of appreciation of what might be accepted as reasonable, I believe that a better estimate for CAPEX expressed as a percent of revenue should be 9.1% across all forecast period years, which is around \$430m/year and 1% higher than the Trina Solar Management Case numbers and in line with industry peers. This value assumes Trina Solar will be expanding its third-party manufacturing beyond its historical values and more than its peers. While ASPs are variable and could be higher or lower impacting the overall percentage, the CAPEX is fixed for the nameplate capacity built making the relationship not completely direct. However, if the volumes increase beyond the built capacity additional CAPEX investments will need to be made which would be more in line with a percentage of revenue as guideline. In other words, if the volume doubles the CAPEX investment will also double as a rough estimate."



228. As I have already noted, Mr Russo prepared his own Capex projections. He considered that there were four main inputs to be used in estimating capital expenditures. First, the quantity of annual module sales. Mr Russo used his own estimate of module sales (calculated as explained above). Secondly, the proportion of manufacturing of module components that were made in-house versus the proportion that were sourced from original equipment manufacturers (*OEMs*). Mr Russo used the assumed shares in the Management Projections. Thirdly, investment per watt of new production capacity. Once again, Mr Russo used the Company's forecast in the Management Projections. To calculate capital expenditures, the sales volume and in-house production shares must be combined to estimate the additional capacity needed to be added each year for each component type. This is then multiplied by investment per watt to determine annual capital expenditures. Fourthly, for a complete estimate of capital expenditure, a company must also capture the amount of investment required for refurbishing and updating existing facilities (*refurbishment Capex*). In 2016 refurbishment Capex represented 14% of the Company's capital expenditures and although, according to Mr Russo, the rationale for doing so was unclear, the Management Projections increased that percentage to 29% for 2018 and 2019 and 28.5% for 2020. This assumption doubled the refurbishment Capex share, greatly increasing the overall capital expenditures. Mr Russo believed that a more reasonable methodology was to calculate the annual costs based on the installed manufacturing base, rather than the volume of manufacturing capacity added in any particular year.
229. Mr Russo set out two sets of Capex estimates:
- (a). the first (Russo A in the table above) involved an adjustment of the Management Projections to reflect the lower projected sales volumes. He thought that it was not enough only to lower the Capex forecast for 2016 and 2017. He reduced the Capex for the subsequent years of the forecast. For 2017 to 2020, he re-ran the Management Projections while substituting the new, lower, sales figures. For 2021 to 2023, he assumed that the OEM share for each component remained the percentage estimated by Company for 2020 and that the investment per watt for each component type decreased annually at the same rate of decrease as 2019 to 2020. He also applied an adjustment to reflect his preferred approach to refurbishment capex.
 - (b). the second (Russo B in the above table) was derived from his sales volume estimates combined with his preferred approach to refurbishment Capex.



230. Mr Edwards also reviewed and formed his own view on Capex. He said that it was not clear how the downward Capex adjustment made in the Management Projections had been calculated as the 2016 to 2020 values were hard-coded. However, he considered that the change in the Capex forecast was probably due to the change in assumed sales volumes. However, he also considered that the Company had failed to adjust down its growth Capex forecast (the first three elements of the Capex calculation identified by Mr Russo) between the January Projections and the Management Projections, as they should have done in order to reflect their downward adjustment to sales volumes (from 9,000 MW to 7,220 MW). He therefore made adjustments to the Management Projection of Capex.
231. Ms Glass considered that the Capex forecasts in the Management Projections were reasonable. As regards Dr Goffri's view, she had no concerns with Dr Goffri's approach and methodology but concluded that she saw no reason to adjust the Management Projections since the Capex forecasts were supported by a reasonably detailed analysis (although she acknowledged that the actual results for 2016 did suggest the Company's original estimates might have been on the low side). She tested the reasonableness of the Management Projections relative to Mr Russo's suggested approach by comparing actual capital expenditures in 2016 (US\$268 million) to those projected by the Company (US\$250 million) and to the revised projections that Mr Russo claimed that the Company should have used (US\$197 million). Viewed in that light, the Company's assumptions appeared to be more reasonable (as nearer to the actual figure). When she considered the position in 2017 she noted that the Company's projected sales volumes were to increase by 968 MW, which was higher than the increase in 2016 (562 MW) while it projected Capex was to increase from US\$250 million (2016 actual) to US\$300 million (2017), higher than the increased Capex assumed in the January Projections. This increase seemed to her to be appropriate. In contrast, Mr Russo's suggested approach resulted in a 2017 Capex forecast of US\$174 million, which was lower than the amounts projected by Mr Russo for 2016 (US\$197), the amounts projected for 2016 by the Company (US\$250 million) and the actual 2016 expenditures (US\$268 million), despite higher expected sales. In her view, Mr Russo's estimates were not supportable.
232. Mr Edwards considered (see Edwards 1[A12.12] – [A12.19]), as I have noted, that the Company had failed to adjust down its growth Capex forecast between the January 2016 projections and the July 2016 projections, as they should have done in order to reflect their downward adjustment to sales volumes (from 9,000 MW to 7,220 MW). He therefore made certain adjustments to the Management Projection of Capex. Ms Glass accepted that Mr Edwards' approach in making these adjustments to growth Capex was reasonable.



233. The Company argued that the Court should follow Ms Glass' approach and accept the Company's Capex estimates.
234. The Dissenting Shareholders argued that Mr Russo's approach was correct and that his Capex forecast, using his own sales forecast, should be accepted. Ms Glass' evidence should be rejected – she had once again preferred the Company's forecast and approach and rejected the views of the industry experts, a judgment that she did not have the necessary expertise to make. Dr Goffri's approach was also to be rejected. His approach was different from that of the Company and Mr Russo and was what the Dissenting Shareholders referred to as a top-down approach. He had calculated capital expenditure as a percentage of revenue for the Company historically and, as a check, for comparator businesses. This approach was deficient in principle because the premise that capital expenditure was tied to revenues in a particular way is unsound. Capital expenditure was linked to production volume, but it was not linked to sales price, which was a component of revenue and could move independently of production volume.
235. In my view the forecast in the Management Projections should be accepted, subject to making the adjustments proposed by Mr Edwards to adjust down the growth Capex. Dr Goffri's analysis, which did not appear to me to be unreasonable or based on a flawed methodology, suggested a higher level of Capex. But this needed to be balanced against Mr Russo's lower A forecast (I do not accept Mr Russo's B forecast since it is based on his own sales volume projections which I have rejected) and the results of Ms Glass' analysis confirming the reasonableness of the Management Projections. I give some limited weight to Mr Russo's A forecast but generally find Ms Glass' view that this was out of line with other indicators convincing. The forecasting of Capex at the Company level – as opposed to identifying trends in the industry as a whole - also appears to me to be an issue which does not particularly require or depend on industry expertise such that the views of the industry experts should be given much greater weight than those of Ms Glass. I note that the Directions Order (the terms of which are set out above) did not identify Capex as one of the issues to be addressed by the industry experts (production costs and trends were covered and appears to be the basis in the order for dealing with Capex). But it seems to me that the Company did not provide an adequate response to Mr Edwards' challenge on the growth Capex forecast and Ms Glass even in her written evidence was unable to and did not seriously resist Mr Edward's analysis (see Glass 2 at [351] – [354]). This is one area where I do not consider that Ms Glass' general balancing out approach justifies ignoring the need for a justified correction.



Upstream business - depreciation

236. Mr Edwards argued that depreciation in the Management Projections was understated due to an error. Mr Edwards examined historical expenditures incurred 14 years prior to the Valuation Date and concluded that the Company's approach resulted in understating depreciation expense.
237. Ms Glass reviewed the Company's depreciation estimates relative to their historical financial statements and found that, if anything, depreciation expense was too high, not too low, as claimed by Mr Edwards. She considered that Mr Edwards' adjustments are unnecessary.
238. Neither Ms Glass nor Mr Edwards were cross-examined in relation to depreciation.
239. The Company submitted that there was no reason to alter the Company's depreciation estimates in the Management Projections. I agree.

Downstream business – power sales

240. As I have explained, an important concept used in the assessment and forecasting of sales is the capacity factor. This is the amount of energy generated in a year divided by the total generation that could be provided assuming continuous operation over a full year (8,760 hours). A high capacity factor indicates high utilisation levels of installed generating capability whilst a low capacity factor indicates that a plant is running below its capability for a large part of the time. Higher capacity factors are more desirable, particularly for renewable generators like solar facilities that have no incremental costs associated with energy production, because they indicate increased production of sellable electricity for the same level of capital investment. A related concept is the estimated number of full load hours (generation hours), being the annual number of hours during which a project would need to operate at full power to produce the energy generated in the year. Full load hours equal the capacity factor multiplied by 8,760 hours (the total number of hours in a year). I have already referred to LCOE. The LCOE may be thought of as the breakeven cost of energy from an energy generating resource – the average level of compensation for energy required over a generator's lifespan that will allow it to recover its costs. The calculation of LCOE takes into account capital costs, operation and management costs, fuel costs, and the performance in terms of energy generation of the resource.



241. The forecast of power sales in the Management Projections began with installed capacity, which equals the average capacity (in MW) assumed to be connected to the grid (producing electricity) each year. The Company then assumed that projects would generate electricity for an average of 1,200 hours each year. The installed capacity multiplied by the annual hours (and divided by 1,000) results in annual electricity generated (in GW hours). The annual generation is then multiplied by the price (expressed in \$/kWhr), resulting in revenue for the year. Finally, the gross profit equals revenue multiplied by the gross margin, which was assumed to be 59% in all years. Over the seven-year period, growth in revenue and gross profit was nominal because of price declines and sales of the former build-to-operate projects, which arise due to the Company's decision to exit this business and result in lower volume growth (since a portion of the projects producing power in 2016 were to be sold by 2019).
242. The Company calculated the installed capacity based on the average of grid-connected projects at the beginning and end of each year. The installed capacity at the end of each year was, in turn, based on the opening capacity, plus capacity added to the grid, which (but for a minor adjustment in 2017) was assumed to equal internal PV module sales (i.e., sales from the upstream operations to the downstream operations) less capacity sold each year, which equals the build-to-operate and build-to-sell project sales.
243. The Company's assumption of full load hours of 1,200 per year approximated to a capacity factor of 13.7% ($1,200 \div 8,760$). As a result, total annual energy generation was based on the assumed installed capacity multiplied by 1,200 hours. 1,200 hours is the Company's expectation of full load hours considering its mix of projects, along with other issues such as grid-connection restrictions.
- 244 Mr Russo's views can be summarised as follows:
- (a). he considered that in 2016 the prospects for growth in both limbs of the Company's downstream business (which was still nascent, the Company having only entered that market in 2013) were very positive. The Company's own reported margins on downstream business were high (as were those of other companies involved in the downstream solar PV business) and it was well-positioned in many of the world's fastest growing solar markets. Capital costs for utility-scale solar PV installations fell dramatically between 2011 and 2016 and costs were likely to continue to decline, albeit at a lower rate. Operating expenses for solar PV plants were also low. The median cost of financing (debt) for



comparable downstream businesses had fallen from 2.6% in 2010 to 1.5% in 2016 and the global trend in the adoption of subsidy and incentive policies for solar energy supported the conclusion that the solar industry in general and the downstream industry in particular had strong long-term prospects. Furthermore, from 2011 to 2016 there was a significant decrease in the LCOE of solar PV (with some analyses finding a global decline as high as 57% over that period) with the decline in emerging markets (which were target markets for the Company) being even more pronounced. As of 2016, the LCOE for solar PV was lower than that for many conventional energy generating technologies, and was rapidly decreasing whilst the LCOEs for many other technologies remained relatively stable. Mr Russo considered that, as at the Valuation Date, he expected solar PV system costs to continue to decline, albeit at a less rapid rate than in the 2011 – 2016 period.

- (b). he also noted that in 2016, the downstream segment was still in an early stage of development, but the segment had already experienced rapid growth and the Company promoted its long-term promise. While the Company had begun developing projects in 2009, it had only strategically entered the market in 2013. However, within the first three years of downstream operations, the Company had already installed over 1 GW of capacity and in 2014 the Company acquired a minority stake in Shuntai Leasing which was a strategic play that the Company said would “enable [it] to expand its financing channels and better support [its] downstream business as well as [its] module business.” The Company had also indicated an interest in further developing the downstream line of business, which he considered to be a reasonable strategy given the high margins they and some of their peers had realised.
- (c). but he once again encountered unanswered data requests and unclarified assumptions. For example, the Management Projections for future sales volume and cost of sales were not supported by any documentation, formulae or references. Their estimates for average sales prices of solar plants and electricity prices were also not supported with sources. All of these important assumptions were hard-coded into the Management Projections and when he requested further information he received no response. Given the lack of historical patterns and not having access to the Company’s regional sales and investment strategies, he considered that estimating a more reasonable set of projections was difficult. However, he was of the view that the Company had understated both volume and margins. In view of the investment into and performance of the downstream segment, and the strong prospects he had identified, he found it implausible that the Company would invest so



much if it truly thought the business would deliver minimal margins while tying up significant resources.

- (d). he increased the Company's estimates of annual installed capacity based on his earlier market size estimates. For example, in 2017, Mr Russo's estimate of market size was 7.5% higher than the Company's estimate. Therefore, Mr Russo estimated installed capacity based on the Company estimate, plus 7.5%.
- (e). he considered that the Company's 13.7% capacity factor estimate was low compared to known capacity factors as of 2016, even those in the least desirable solar locations. He therefore conducted a study of contemporaneous sources of capacity factors in the major regions in which the Company was expected to build power plants and sell power. He noted that globally the capacity factors for installed solar PV modules increased from 10.2% in 2011 to 12.4% in 2016. This improvement was driven by technological improvements, in particular the increased adoption of tracking technology that moves modules in response to the conditions so as to better capture the available solar radiation. A report prepared by the International Energy Agency had found that the use of tracking can increase capacity factors by between 25% and 45%, depending on the type of tracking system used. Based on the articles and sources he examined, (in particular an article by Gang He and Daniel M. Kammen and another by Han and others) he found that most regions had average capacity factors in the mid-20 percent range and concluded that the Company's implied 2016 capacity factor of only 13.7% meant that it had developed some of its first projects in transmission constrained areas and expected that they would build in less constrained areas in the period 2017 -2023, particularly since the Chinese government provided significant incentives for better siting of power plants. One contemporaneous study he relied on cited capacity factors between 15% and 20% in Northwest China. Mr Russo concluded that that the Company's capacity factor will increase to 17.5% by the end of the projection period, resulting in an increase in full load hours to 1,533 (as compared with the Company's 1,200 hours). He said that *"ultimately [he] selected a capacity factor of 17.5% by 2023 for [the company], allowing for the averaging of new project capacity factors well over 20% with projects [the Company] may still install at lower capacity factors."*
- (f). he based his projections of project sales volume on the Company's own projections but revised them upwards to reflect the fact that he estimated the total market size as being



higher than the Company's estimates (e.g. if Mr Russo increased the Company's estimate of its market size by 7.5%, he also increased project sales volume by 7.5%). Mr Russo's estimate of the market size followed his analysis for the upstream segment and assumed that both the upstream and downstream segments would grow at the same rate.

(g). he also revised the Company's projected sales prices. He accepted the Company's cost per watt projection but assumed a higher gross margin, which led to a higher price. The higher gross margin arose from Mr Russo's assumed higher capacity factors.

245. Dr Goffri considered that Mr Russo had overstated the applicable capacity factors. He noted that while one of the articles relied on by Mr Russo stated that most capacity factors were in the mid-20 per cent range, in fact utility scale solar PV capacity factors were generally in the mid to high 10 per cent range with the residential and commercial systems in the low to mid 10 per cent range. Furthermore, Mr Russo, and the sources on which he had relied, had failed to adopt a portfolio approach. When considering the capacity factor for a portfolio of solar PV systems the orientation of all systems on the portfolio level had to be considered. Including non-optimal system orientation due to non-ideal project locations in the Company's portfolio of projects was necessary when considering the overall capacity factor of that portfolio. The systems modelled and considered by Mr. Russo were due south, but systems are developed with a range of orientations dependent on changes in site conditions. By looking at a range of orientations, systems can have a capacity factor that is lower than the optimal generation by as much as 7.9%. In addition, capacity factors were inherent for specific technology and did not change over time or with changes in module efficiency and performance but rather with location. In his opinion, without details regarding the location of all the built and proposed systems as well as site specific information, the Company's capacity factor estimates on a portfolio basis were to be considered to be appropriate, especially given the movement of the Chinese solar market towards more distributed systems where optimal orientation is harder to achieve (generally fixed-tilt roof mounted systems), closer to the load centres, where transmission congestion issues are less of a concern.

246. Ms Glass considered that the Management Projections for project sales revenue were reasonable and should be accepted. She had concluded that the Company's revenue projections for project sales were in line with her own analysis of upstream sales and thus in line with overall market growth and pricing and in line with the January Projections and the February Projections. Projected volume for 2016 (350 MW) was considerably lower in Management Projections than



in the earlier projections (691.8 MW), which was consistent with trends in the upstream segment and industry conditions, and the actual results for the downstream operations were lower than amounts forecast in the Management Projections so that the revisions made in 2016 appeared reasonable, if not on the high side. Ms Glass did not agree with Mr Russo's view of capacity factors. She noted that neither of the articles and sources relied on by Mr Russo dealt with actual data. The Gang He and Daniel M. Kammen study reported simulated data rather than actual data while the Han and others study referred to the researchers' analysis and models showing what "could" happen, implying that the researchers had estimated a conditional capacity factor, that is the factor that could arise if certain steps were taken (in addition Mr Russo had only provided the abstract of this study, as opposed to the full study so that it was unclear whether the 15%-to-20% range was actual, hypothetical, conditional or something else). To assess the reasonableness of the assumptions made for 2017 to 2023 by Mr Russo (15.9% to 17.5%) and the Company (13.7%), Ms Glass did her own research and considered nine sources including some provided by Dr Goffri and Mr Russo, the January Projections and February Projections and a detailed projection prepared by Deutsche Bank. These revealed a minimum capacity factor of 10.7%; a maximum of 17.1% and an average of 13.9%. She concluded that the Company's assumption of 1,200 hours was reasonable, having regard to the above sources and the fact that this was consistent with the assumption used in the January Projections and February Projections, although she thought it was potentially toward the low end of a reasonable range. She also considered that the capacity factors put forward by Mr Russo were too high.

247. The Company submitted that:

- (a). as Ms Glass had opined, the Company's estimates in the Management Projections should be accepted as reasonable and the most prudent.
- (b). Mr Russo's projections of project sales revenue (volumes) should be rejected. These were based on Mr Russo's estimate of the total market size and followed his analysis for the upstream segment. The Company argued, as explained above, that Mr Russo's estimates of market size were unreasonable and unjustifiable.
- (c). Mr Russo's projections of project sales prices should also be rejected. The Company relied on Ms Glass' opinion that Mr Russo's analysis supporting higher capacity factors was flawed and should be rejected. Furthermore, his capacity assumptions assumed the use of



trackers without considering the increased costs and curtailment issues raised thereby. Dr Goffri gave evidence that there would be increased costs.

248. The Dissenting Shareholders submitted that:

- (a). they noted that Dr Goffri had qualified his opinion because he did not have details of the location of all the built and proposed systems as well as site specific information. During his cross examination he was unable to explain why he had not asked for those details and accepted that he should have done so:

“Q. Did you ask the company for details of the location of their built and proposed systems?”

A. I did not.

Q. Why not?

A. Again these numbers were in line with the average numbers in China and they seemed appropriate. On a portfolio basis they seemed appropriate.

Q. Given your view that those details are very important to this question, it would have been better if you had asked, wouldn't it?

A. Yes, if there [were] more details about where projects are likely to be developed in the future, we could get a better assessment of capacity factors.”

- (b). the He and Kammen study of 2015, which found that on average across China capacity factors for utility-scale installations were 19.4%, and for residential and commercial distributed installations were 14.3% and 15.2% respectively, suggested that the capacity factors which Mr Russo had forecast the Company would achieve in 2023 were in fact achievable in 2015. Dr Goffri had asserted that this study assumed that every solar installation in China would have tracking technology installed but he was unable to identify any basis for that assertion in the study and agreed that that would be an “extraordinary” thing for the authors of the study to omit. Mr Russo had been taken to the He and Kammen study during his cross-examination and noted that the authors referred to “stationary solar technology”. If, as Mr Russo thought likely, that meant that the authors had calculated their capacity factors for non-tracking systems, then it would follow that his estimates based on that study were conservative given that tracker use in China is likely to increase significantly. Dr Goffri accepted during his cross-examination that as at the Valuation Date a reasonable forecaster would have anticipated that the Company’s



capacity factors would increase, but was unwilling or unable to say by how much. He also accepted that, if capacity factors were to increase, it would be appropriate to make an upward adjustment to the Company's gross margin forecast for power sales.

- (c). Ms Glass had accepted during her cross-examination that of all the sources she considered, the only sources that actually made a projection of capacity factors (either for the Company or more generally) after 2016 were the Management Projections. She had gone on to explain that she had assumed that capacity factors in future would not be materially higher than they had been historically, and that she had relied on Dr Goffri's report in making that assumption (albeit it confirmed her own expectations). But Ms Glass was forced to accept that she did not have any independent expertise as to what capacity factors might be in future. She was taken to passages in Mr Russo's reports and in the transcript of Dr Goffri's oral evidence and she accepted the unanimous view of the industry experts that the use of tracking technology was likely to increase in China and accepted that, if trackers were to be used more often by the Company, "*you might end up with a higher capacity factor*" Ultimately, she also accepted that the Management Projections of capacity factors was unreasonably low:

"Q. You have given your evidence on that very clearly and at the moment I just want to get a straight answer to the first part of the question, which is now I've shown you the evidence of both experts, do you accept that 13.7 flat is actually below a reasonable forecast for capacity factors up to 2023?"

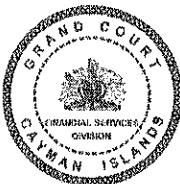
A. It looks like it could be, yes.

Q. Is that "Yes, it could be" or "Yes, it is"?

A. So, yes, but how much below, I can't say, maybe that's a better answer."

- (d). while Ms Glass was not willing to say whether or not it followed that Mr Russo's forecast of 17.5% capacity factors by 2023 was reasonable, his forecast should be preferred since as a matter of common sense the conclusion plainly does follow and/or the issue was one of industry expertise as to which the evidence of the industry experts should be the primary guide, and the evidence of Mr Russo should be preferred. Therefore, the Court should find that the most reasonable forecast was that the Company's capacity factors would increase, not remain flat, and that they would increase as projected by Mr Russo to 17.5% by 2023.

249. I find this to be a difficult issue. The competing analyses are detailed, based in part on empirical data collected in third party studies whose assumptions were unclear and contested, there is an



admitted lack of historical patterns, there is an absence of important data (for example, the location of all the Company's built and proposed solar PV systems and site specific information, the orientation of its portfolio of solar PV systems and regional sales and investment strategies) and explanations from the Company together with speculation about how anticipated market trends (for example relating to the increased use of trackers) would impact the Company. While it appears that the capacity factor estimate in the Management Projections (13.7%) was probably below a reasonable forecast, (as Ms Glass accepted during her cross examination), it is unclear what, and in my view the evidence does not establish what, a reliable and reasonable higher estimate should be (and therefore what alternative estimate the Court can properly use). While I consider the information gaps to be regrettable, the Court can only reach a decision based on the evidence adduced (I do not consider that I can or should draw adverse inferences on this issue from the Company's failure to produce further information in response to Mr Russo's requests). In my view, on balance, I find Dr Goffri's evidence as supported by Ms Glass' reasonableness tests, to be preferable to Mr Russo's analysis and Ms Glass' analysis and explanations be convincing. I therefore conclude that the forecast in the Management Projections should be accepted.

Downstream business – project sales

250. The Company submitted that the Court should accept the evidence of Ms Glass and rely on the Management Projections. Ms Glass concluded that the Company's assumptions were reasonable overall. She considered that project sales revenue assumptions were likely to be at or towards the high end of a reasonable range, since they were consistent with the market size and growth estimates used in the upstream segment which she found to be on the high side. She also found that the Company's estimate for project sales margins of 10% was reasonable (or at least not significantly understated), noting that the 10% margin was in line with historical data (10.3% in 2015) and was consistent with the assumptions made in the January Projections and the February Projections. She was also critical of Mr Russo's approach. His revised margins were considerably higher than those projected by the Company and he had supported his analysis by reference to the margins earned by First Solar (a US-based competitor of the Company whose primary downstream business is plant sales) and comments made by the Company as to its projected margins. Mr Russo had pointed to the Company's April 2016 press release in which it stated that:

"The gross margin expansion in 2015 was primarily due to a greater reduction in manufacturing costs compared with the general decline in ASP, as well as increased sales



of overseas downstream solar projects and EPC services, which produce higher margins than module sales.”

She said that Mr Russo appeared not to have noticed that the Company’s comments to the press did not align with the Company’s financial records. The Company reported an actual gross margin on project sales of 10.3% in 2015, which was lower than margins on module sales and in line with the 10% margin used in the Management Projections. Management had specifically referred to increased sales of overseas downstream solar projects, not increased margins on all sales (as interpreted by Mr Russo), and overseas projects would command higher prices and therefore (presumably) higher margins than solar projects in China. Mr Russo had assumed that, in 2023, the Company’s capacity factor would increase to 17.5%, and that this increase would cause project sales margins to increase to 26.1%. He justified his assumptions by comparing the Company to First Solar, which had a considerably higher capacity factor in the mid-20 % range. In her view, the analysis was contradictory and unsupportable considering that Mr Russo’s entire analysis was based on the presumption that higher capacity factors lead to higher margins; and First Solar’s capacity factor would be considerably higher than the Company since the vast majority of its solar projects were constructed in the Western US (California, Nevada, Arizona and New Mexico), whereas the vast majority of the Company’s projects were located in China (with a few in Europe, India and Japan).

251. The Dissenting Shareholders argued that Mr Russo had produced an alternative and more realistic estimate for plant sales volumes and the margins on plant sales. The Company and Dr Goffri relied on their own estimates of global solar market size and each of these was an underestimate. Mr Russo’s estimate for plant sales volumes was derived from the Management Projections, but adjusted to correct their underestimation of the size of the market. Mr Russo’s projections of margins was based on (i) forecast power prices, for which Mr Russo adopted the Company’s forecasts, and (ii) the volume of electricity that plants sold by the Company would produce, for which he relied on his own estimate of capacity factors. He assumed that half of the benefit of higher capacity factors would accrue to the seller (the Company) and half to the buyer. The 10% margin assumed in the Management Projections had, as noted above, not been explained: it was hard-coded into the projections and Mr Russo’s requests for further information were not answered. The unexplained assumption was inconsistent with the Company’s own past comments on its downstream margins (in its April 2016 announcement of 2015 results, it had acknowledged that its margins on downstream plant sales were higher than its margins on module sales, which were themselves higher than 10%) and its previous investment in the downstream business. The Company’s assumption of a flat 10% margin was also surprising in light of the



historic margins achieved by First Solar whose margins, over the period from 2012 to 2016, ranged between 37% and 24%. Ms Glass had wrongly criticised Mr Russo's comparison to First Solar. The premise of that criticism was that First Solar's projects were mainly constructed in the Western US, where capacity factors (and therefore margins) are likely to be higher than in China. However, Mr Russo expressly acknowledged that First Solar has a "*significantly different regional mix*" and was "*highly concentrated in US sales*" and had not suggested that the Company's margins would be as high as First Solar's margins. It was a matter of industry expertise to assess how much higher one might expect First Solar's margins would be, and this was an assessment which Mr Russo was well-placed to make, and Ms Glass was not.

252. Mr Russo's analysis on this point is seriously undermined by the fact that I have already rejected his forecasts of market size and capacity factors. I am not satisfied that his analysis demonstrates that the Management Projections on this point are unreasonable. Furthermore, once again, I find that the Management Projections are supported by Ms Glass' reasonableness tests and analysis.

The DCF calculation in this case – the disputes between the valuation experts

Cash flow forecasts

253. There are three sources available to the valuation experts and the Court from which to derive cash flow forecasts: Mr Russo's report, Dr Goffri's report and the Management Projections. Mr Edwards and Ms Glass adopted very different approaches to these three forecasts.

Mr Edwards' approach

254. Mr Edwards commented on the three cash flow forecasts but did not express an opinion as to which forecast was most reliable. He took the view, and was advised, that doing so fell outside the scope of his remit and report. During his cross-examination he explained his position as follows:

"..... what I've done is consistent with my instructions, which is to calculate the value that is based on the views of the industry analysts, and whether those forecasts are or are not reliable, I didn't consider part of my task, so that's correct."

255. Mr Jones QC challenged the correctness of this approach and suggested that Mr Edwards had failed to provide an expert opinion as to the fair value of the Company's shares. Mr Edwards responded as follows:



“Q. But you are aware that what the court wanted was an expert view as to the fair value of the shares?”

A. Yes, I am.

Q. But you haven't come up with what, in your opinion, is the fair value of the shares?”

A. Well, I'll say it again, my Lord: I think I have but it's a fair value that is contingent on the court's view of the expert evidence that came before the valuation expert evidence. So if I had, for example, taken my own view as to what the industry experts were saying and provided a single number, that wouldn't allow the court to know what the number was -- if, for instance, your Lordship decided that Dr Goffri's evidence was more compelling or Mr Russo's evidence was more compelling, the court wouldn't have an answer in those circumstances either.”

256. Consistently with his adopted approach, Mr Edwards considered all three forecasts and calculated three DCF valuations, one based on each forecast. I summarise his approach and the adjustments he made below.

257. Mr Edwards compared the key assumptions in the three sets of forecasts and concluded that the three forecasts were quite different. Mr Russo considered that the Company's prospects as at December 2016 were materially better than the prospects reflected in the Management Projections. Dr Goffri considered that the Company's prospects as at that date were materially worse than the prospects as reflected in the Management Projections. He also concluded that while Mr Russo and Dr Goffri's analyses set out the key value drivers for the solar module sector, they did not cover all the items necessary to calculate the detailed cash flow forecasts which he needed in order to prepare his DCF valuations. As a consequence, he made additional assumptions where necessary to supplement these forecasts. For example, Mr Russo and Dr Goffri did not forecast selling expenses for the upstream segment or operating expenses for the downstream segment so in order to produce detailed cash flow forecasts based on the Russo and Goffri forecasts, he made additional assumptions where necessary to supplement these forecasts albeit that in general, he adopted the assumptions (or approaches) used in the Management Projections.

258. He also made certain adjustments to the Management Projections. The purpose of these adjustments was to reflect more recent financial information that was available as at the Valuation Date and adopt a more detailed approach to forecasting certain costs and expenditures. The aggregate impact of these adjustments was small: in sum, they increased the valuation of the Company by US\$0.55 per ADS, or around 1% of Mr Edwards' total valuation.



259. Mr Edwards' approach with respect to the upstream segment can be summarised as follows:

- (a). as regards upstream segment revenue, this was calculated in the Management Projections as the product of module sales volumes, and the price per unit and Mr Edwards followed the same approach. Mr Russo and Dr Goffri forecast module sales volumes and prices and Mr Edwards adopted these in his RE-Goffri and RE-Russo valuations. He adopted the revenue projections from the Management Projections in his RE-Mgmt valuation.
- (b). a portion of upstream segment revenue relates to sales to the downstream segment (*Internal Module Sales*) and this revenue was calculated using the same approach.
- (c). the upstream segment cost of goods sold (*COGS*) was calculated in the Management Projections by reference to an assumed gross profit margin. Mr Edwards used the same approach and made the following assumptions with respect to the gross margin:
 - (i). the gross profit margin in the Management Projections was projected to decrease from 15.8% in 2017, to 15.0% in 2019, and remain constant thereafter. He adopted this assumption in RE-Mgmt.
 - (ii). he adopted the same assumption in RE-Russo since Mr Russo had decided to follow the Management Projections.
 - (iii). Dr Goffri had forecasted the gross margin to decrease from 16.4% in 2017 to 15.0% in 2021, and remain around that level thereafter and so Mr Edwards adopted this assumption in RE-Goffri.
- (d). the upstream segment operating expenses were calculated in the Management Projections as the sum of selling expenses; general and administrative (*G&A*) expenses; G&A headquarter expenses and R&D expenses. Selling and R&D expenses were forecast as a percentage of upstream segment revenues (four and two percent, respectively), while both types of G&A expense were forecast based on an assumed growth rate which ranged between three and five percent. Mr Edwards adopted these assumptions in RE-Mgmt. But Mr Russo and Dr Goffri did not consider selling expenses or either type of G&A expense and, therefore, he adopted the assumptions in the Management Projections for the RE-Goffri and RE-Russo valuations. In contrast, Mr Russo and Dr Goffri did comment on



R&D expenses. Mr Russo had concluded that the Company was likely be able to maintain its strong position in the market with the technology it was successfully developing at current R&D expenditure levels (as of 2016) and so he assumed in RE-Russo that the R&D expense grew from its 2016 level in line with inflation. But Dr Goffri had not provided his own forecast of R&D expenses but considered that the assumptions in the Management Projections were reasonable. Accordingly, Mr Edwards adopted these in RE-Goffri.

- (e). as regards Capex, and as noted above, Mr Edwards said that the Company had lowered its sales volume forecast between preparing the January Projections and the Management Projections and then lowered its Capex forecast, but it was not clear to him how the revised Capex had been calculated. Based on the detailed approach set out in the January Projections, he considered that the adjusted Capex was inconsistent with its revised sales volumes. He considered that the Capex included in the Management Projections for 2018 and 2019 was too high. Accordingly, in RE-Mgmt, he adopted a different upstream Capex forecast, which was based on the approach set out in the January Projections. His amended forecast was 40% lower than the Management Projections from 2020 onwards. Mr Russo had forecast Capex based on the approach in the Capex forecast in the January Projections and his forecast of sales volumes, with an amended approach to calculating refurbishment Capex from 2017 to 2023. Accordingly, Mr Edwards adopted Mr Russo's Capex forecast in RE-Russo. Dr Goffri did not forecast Capex explicitly but he considered that a better estimate for Capex expressed as a percent of revenue should be 9.1% across all forecast period years, as being closer in line with industry peers. Accordingly, Mr Edwards adopted this assumption to forecast Capex in RE-Goffri.
- (f). as regards depreciation, Mr Edwards said that Capex and depreciation were related because expenditure on property and equipment was typically depreciated over the useful life of the asset so that a higher level of Capex will increase depreciation over the useful life of the asset, all else being equal. He noted that in the Management Projections depreciation was hard coded from 2016 to 2020, and was then calculated based on Capex from 2021 onwards. Having reviewed the formula used in the Management Projections to calculate depreciation from 2021 onwards he considered that there was an error that had resulted in depreciation being understated in this period. Accordingly, in RE-Mgmt he calculated depreciation using his corrected depreciation formula from 2017 onwards. In this way, the depreciation forecast in RE-Mgmt was consistent with his amended Capex forecast. Since Mr Russo and Dr Goffri did not forecast depreciation he calculated depreciation implicit

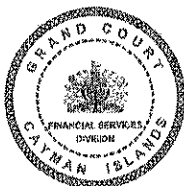


in the Russo and Goffri forecasts using their respective Capex forecasts and his corrected depreciation formula.

- (g). Mr Russo and Dr Goffri did not forecast net working capital, so Mr Edwards adopted the approach in the Management Projections to forecast net working capital from 2017 to 2023.

260. Mr Edwards' approach with respect to the downstream segment can be summarised as follows:

- (a). the downstream segment earns revenue from selling PV plants it has built, and from selling electricity generated by completed plants in the period between connection to the grid and sale. The Management Projections and the forecasts prepared by Mr Russo and Dr Goffri all forecast revenues generated from the sale of PV plants, and the electricity generated from completed plants based on the Company's flow and stock of plants in each year. The Management Projections assumed that plant stock and flows were related and, specifically, that the plant stock at the end of each year (termed "*Connected grid capacity at end of year*", stated in MW) was equal to (i) the plant stock at the end of the prior year (in MW); plus (ii) power plants connected to the electricity grid in the year (*Capacity Added*) in MW less (iii) connected power plants sold in the year (*Capacity Sold*, also in MW). Mr Russo and Dr Goffri each forecast the average plant stock and Capacity Sold in each year of the explicit forecast period and Mr Edwards calculated the Capacity Added implicit in their forecasts based on the capacity relationship just described. All three forecasts also assumed that electricity generated in a given year was based on the average plant stock in that year.
- (b). the Company's build-to-operate and build-to-sell plants, as I have noted, generate electricity between the date that they are completed and the date that they are sold. In the Management Projections, forecast electricity generation revenue each year was calculated as the product of (i) average plant stock in the year (in MW); (ii) generation (or operating) time (in hours), which was assumed to be 1,200 hours per year; and (iii) electricity price, which was forecast to decrease from US\$0.12 per kilowatt hour (*kWh*) in 2016 to US\$0.07 per kWh in 2023. Mr Edwards calculated electricity generation revenue in his valuations using the same approach but made the following assumptions. First, he used the average plant stock forecasts in each of the three valuations; secondly, in RE-Mgmt, he relied on the 1,200 operating hours assumption. He also adopted this assumption in RE-Goffri as Dr Goffri considered this assumption to be reasonable but since Mr Russo had forecast



operating hours to increase from 1,367 hours in 2016 to 1,533 hours in 2023 he adopted Mr Russo's own assumption in RE-Russo.

- (c). plant sales revenue was calculated in the Management Projections as the product of (i) Capacity Sold, and (ii) the plant sales price per unit of capacity. Mr Edwards calculated plant sales revenue using the same approach. The Management Projections contain sales price forecasts for the build-to-sell plants from 2016 to 2023 and for the build-to-operate plants from 2016 to 2019. Mr Edwards adopted these sales price forecasts in RE-Mgmt. and in RE-Goffri, as Dr Goffri used these prices to forecast revenues. Mr Russo had prepared his own forecast of the build-to-sell sales price, and assumed that the build-to-operate sales price was the same as in the Management Projections, and Mr Edwards adopted these assumptions in RE-Russo.
- (d). project investment was calculated in the Management Projections by reference to (i) the unit investment cost, and (ii) Capacity Added. It was calculated separately in a given year (a) for projects started in the previous year and completed in the current year, as the product of the unit investment cost in the prior year, the plant stock that was unconnected to the grid at the end of the prior year, and the proportion of costs outstanding from the prior year; for (b) projects started and completed in the current year, as the product of the unit investment cost in the current year, the Capacity Added in the current year and (c) projects started but not completed in the current year, as the product of the unit investment in the current year, the unconnected plant stock in the current year, and the proportion of costs incurred in the current year. The Management Projections assumed that for projects started, but not completed in a year, 70% of the costs were incurred in the start year (and so 30% of the costs are outstanding and incurred in the following year). Mr Edwards adopted the approach in the Management Projections to calculate project investment in his valuations. The Management Projections also assumed that the unit investment costs decreased from USD 1.16 per watt in 2016 to USD 0.78 per watt in 2023, based on the annual growth rate in the average plant sales price. He adopted this forecast in RE-Mgmt. However, Mr Russo and Dr Goffri did not forecast the unit investment cost. He calculated the unit investment cost in RE-Russo and RE-Goffri as the sum of (i) the non-module unit investment costs implicit in the Management Projections (which he calculated as the difference between the unit investment cost and Internal Module Sales price each year and (ii) the module sales price forecast by Mr Russo and Dr Goffri, adjusted to reflect a lower price for internal sales



consistent with the difference in the internal and external sales prices set out in the Management Projections.

- (e). electricity COGS was calculated in the Management Projections by reference to (i) electricity generation revenue, and (ii) an assumed gross profit margin. Mr Edwards used the same approach and made the following assumptions with respect to the gross margin:
- (i). in the Management Projections, the Company assumed that the gross profit margin decreased from 60% in 2016 to 59% in 2017, and remained constant thereafter. Mr Edwards adopted this assumption in RE-Mgmt.
 - (ii). Mr Russo forecast the gross profit margin to increase from 60% in 2016 to 67.9% in 2023. Mr Edwards adopted this assumption in RE-Russo. Dr Goffri had not forecast the gross profit margin and, therefore, Mr Edwards adopted in RE-Goffri the gross profit margin in the Management Projections.
- (f). plant sales COGS was calculated in the Management Projections as the product of (i) Capacity Sold, and (ii) the unit plant sales COGS. Unit plant sales COGS was hard coded in the Management Projections from 2016 to 2019 and was calculated from 2020 by reference to the average sales price and a gross profit margin of 10%. Mr Edwards considered that unit plant sales COGS should be based on the actual cost of building the plant (the project investment) and as a consequence, in RE-Mgmt he calculated plant sales COGS based on the unit cost of project investment and management's assumed relationship between the stock and flow of plants. Mr Russo did not explicitly forecast his own unit plant sales COGS, and instead relied on the assumption in the Management Projections. Dr Goffri did not carry out his own calculation of unit plant sales COGS either, and relied instead on the plant sales margin implicit in the Management Projections. As Mr Edwards considered that COGS in the Management Projections should be linked explicitly to expenditure incurred investing in new plants, he considered that Mr Russo's and Dr Goffri's forecasts should be adjusted in this manner too. But the adjustment had very little impact on cash flows as it only affected profits calculated for the purpose of estimating tax.
- (g). in the Management Projections, operating expenses were calculated as the sum of (i) selling expenses, (ii) G&A expenses, and (iii) G&A headquarter expenses. Selling



expenses were forecast as a percentage of total plant sale revenue, while both types of G&A expenses were forecast based on an assumed annual growth rate. Mr Russo and Dr Goffri did not forecast downstream operating expenses and therefore Mr Edwards adopted the Management Projections' assumptions to calculate these costs in his cash flow forecasts.

- (h). the Management Projections contain forecasts of the Company's downstream balance sheet items, including net working capital items. These forecasts were calculated by reference to underlying assumptions, such as the number of turnover days for accounts receivable. Mr Russo and Dr Goffri did not forecast net working capital. Therefore, for his three valuations Mr Edwards have adopted the approach in the Management Projections to forecast net working capital from 2017 to 2023.

261. As I explained in the Note of Ruling, in my view there has been an unfortunate failure to coordinate the expert evidence to be given by the industry experts and the valuers. The industry experts were supposed to opine on matters relevant to fair value. The valuers were supposed to opine upon fair value. The industry experts were to provide input for use by the valuers on issues that required special expertise concerning the solar energy industry. I anticipated that the industry experts would focus on industry level issues and provide opinions in general terms on how the Company's business and performance would be affected thereby. The valuers would then use that evidence to inform their valuations and translate it into their financial forecasts. This would have resulted in two valuations (and where necessary adjusted forecasts) from two expert valuers, using all the information available to them. Instead, the industry experts have produced their own Company level financial forecasts and we have had a proliferation of forecasts and valuations, which has added considerably to the complexity of the valuation process. I of course accept that even had the approach I have outlined been followed, each valuer might reasonably have concluded on particular issues that in the face of disagreement between the industry experts they, the valuer, were unable to form their own view of industry issues and would need to produce alternative valuations based on different industry related assumptions representing the different views of the industry experts.

262. But the approach I would have expected to be followed was not taken. In these circumstances, I regard both Ms Glass' and Mr. Edwards' approach to have been reasonable and I consider that I should, as I have already explained above, consider the evidence and opinion of each expert on each issue in dispute and then form a view as to whether to accept the forecast and figures in the



Management Projections or adjust them in accordance with the views of one or more of the experts. I do not, in the circumstances, accept the Company's criticism of Mr. Edwards' approach. In the face of substantial disagreement between the industry experts including significantly different Company level financial forecasts, he has chosen not to offer his own view on these disputes but has produced parallel DCF valuations adopting the different approach of the industry experts (and that taken in the Management Projections) – supplemented by his own opinion on valuation issues where the industry experts did not offer a view. I consider that as a valuation expert he could legitimately have offered a view and prepared his own valuation based on the material put in evidence, as Ms Glass has done. It would then have been for the Court to decide on an issue by issue basis whether his views were reasonable and supported by the evidence, giving due weight to the particular expertise of the industry experts on issues particularly within their own domain and expertise. But he did not do this, based on the legal advice he received, and I do not consider it right to say that his opinions do not constitute valuation evidence on which the Court can rely. For these reasons, and as I have explained at various points above, I also consider that Ms Glass' approach was legitimate.

Single or consolidated WACC

263. The valuation experts disagreed as to the WACC that should be adopted in a DCF valuation of the Company and as to whether it was appropriate to use one consolidated WACC for the whole business or whether a separate WACC should be calculated for the upstream and the downstream segment.

- (a) Mr Edwards calculated a separate WACC of 8% for the upstream segment and of 7.5% for the downstream segment.
- (b). Ms Glass calculated a consolidated WACC of 10.8%. For the purposes of comparison against Mr Edwards' separate WACCs, she noted that her WACC could be separated into 11.7% for the upstream segment and 9.7% for the downstream segment, although that was not her preferred approach. She considered that a consolidated approach was preferable since it provided a more reliable basis for the discount rate. Mr Edwards had assumed that the Company's beta could be used to develop a discount rate solely for the upstream segment, but she was of the view that his approach resulted in underestimating the beta and the WACC for both business segments. But apart from issues relating to beta, she was not opposed to assessing a separate fair value for the two segments, albeit



that if that was done the discount rates and growth rates must, by necessity, be assessed on a judgmental basis.

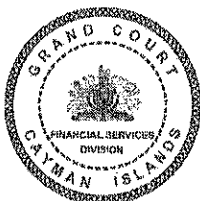
- (c). the large majority (72%) of the difference between Ms Glass' valuation and Mr Edwards' valuation based on RE-Mgmt (the closest comparator to Ms Glass' valuation), was a result of Ms Glass applying a higher WACC than Mr Edwards. This difference was equivalent to US\$31.50 per ADS.

264. Mr Edwards considered that it would not be appropriate to use the CAPM model to calculate the WACC of the downstream business, because there was no reliable basis upon which to calculate a beta for that segment. He did not consider that he could use a direct beta as the downstream segment historically comprised only a small part of the Company's business and therefore the Company's own beta would not reflect the risks of the downstream segment. He could not use an indirect beta because there were no listed companies with comparable downstream operations. His WACC of 7.5% for the downstream segment was, he said, the Company's central estimate of the WACC applicable to its downstream projects in earning calls throughout 2015, and was consistent with the views of those analysts who stated a WACC for the downstream segment specifically. However, Mr Edwards was satisfied that the Company's beta could be used to develop a discount rate for the upstream segment and that CAPM was appropriate to calculate the cost of equity for the upstream business. This was because the Company derived between 93.9% and 99% of its revenues from its upstream segment between 2013 and 2015.

265. The Company submitted that Ms Glass' approach, and the use of a consolidated WACC, was to be preferred. This was because first, the Company's beta (at least for the two years prior to the Acceptance Date) had inherently included both the upstream and downstream segments and secondly because Mr Edwards' attempt to calculate the downstream segment's WACC without using CAPM was unsatisfactory. The Company also noted that during his cross-examination, Mr Edwards' position was that he did not consider that valuing the upstream and downstream segments on a combined basis was inherently wrong.

266. Ms Glass criticised Mr Edwards' methodology in calculating the downstream discount rate:

- (a). she considered that the reference rates on which Mr Edwards relied understated the risks associated with the downstream segment. The reference points used by Mr Edwards reflected discount rates applicable either to single solar projects (rates sourced from the



Company) or to the Company's former build-to-operate segment (rates sourced from analysts). In addition, the rate that Mr Edwards sourced from Morgan Stanley ignored the 20% discount that Morgan Stanley believed was necessary to reflect risks relating to subsidies in China, whereas the rate sourced from CCBIS was outdated and therefore did not reflect these higher risks.

- (b). she considered that although Mr Edwards recognised the differing risks of the upstream and downstream operations, he had failed to distinguish between and take into account the different risks applicable to three elements of the downstream operations, namely risks relating to a single solar project; the Company's build-to-operate operations and the Company's build-to-sell operations.

267. Ms Glass considered that, since the value of the downstream segment probably accounted for about one-third of the Company's trading price during the two-year period over which beta was calculated, the Company's beta did not capture the upstream segment only. She gave six reasons in support of her view:

- (a). Mr Edwards was wrong to base his view on the relative quantum of revenue of the upstream segment. Beta was not based on revenue. Beta equals the covariance between a company's share returns and returns for a market index. A company's share returns were driven by its share price, which in turn was driven by a company's fair value, of which revenue was only one element.
- (b). if Mr Edwards was of the view that the Company's share price was to be given no weight for valuation purposes how could any reliance be placed on beta, since beta was a function of a company's share price.
- (c). she considered that the fair value of the downstream segment at the Valuation Date and during the period over which beta was calculated would have approximated book value. Even that approach was not accepted, book value at least provided a guide to the fair value of the downstream segment (and that was the position Mr Edwards took when reviewing Citi's valuation). Accordingly, instead of focusing on revenue, the correct approach was to focus on book value.



- (d). Mr Edwards relied on the Company's two-year beta as at 11 December 2015, which captured the 2014 and 2015 fiscal years. Ms Glass considered the book value of the downstream segment in those years and, assuming (without the relevant information for 2013) that its book value at the end of 2013 was relatively nominal (she assumed 2% above) then, on average, the downstream segment would have accounted for about one-third of the Company's share value over the period during which Mr Edwards calculated beta (Dec 2013 to Dec 2015).
- (f). Mr Edwards' reliance on the revenues of the downstream segment was inappropriate. In the early years (2014 and 2015), the downstream segment generated low revenue, since most of the projects were under construction or not yet connected to the grid. However, the low revenue did not mean that it had no value, that it was ignored by the market, or that it did not contribute to the Company's share price and therefore its beta.
268. The Dissenting Shareholders submitted that Mr Edwards' reason for calculating separate WACCs for the upstream and downstream segments was that the two businesses faced different risks and have different dynamics. Ms Glass agreed that the two segments face different risks and she was not opposed to assessing a separate value for each segment, however she never explained in her reports why a consolidated approach provided a more reliable basis for the discount rate. Nor did she explain how her single discount rate balanced the differing risks of the two segments and their relative sizes over time, or why she considered it appropriate to apply to the downstream business a beta calculated over a period in which there was very little downstream activity.
269. Ms Glass had been wrong to criticise Mr Edwards' methodology:
- (a). she had been wrong to argue that because the Company was pivoting its downstream business from a build- to-operate to a build-to-sell model, it followed that historic estimates of WACC for the downstream business understated the risks it will face in future. The two segments faced similar risks: in each case the Company builds and (for a period) operates solar plants, and when a build-to-sell plant is sold, the price paid will in principle reflect the transfer of the risk associated with its continuing operation to the buyer (i.e. the sale is risk-neutral).
- (b). she was also wrong to suggest that the downstream business as a whole was riskier than an individual solar project. The downstream business was a project business, and so by



definition could not be riskier than the sum of the projects it builds and owns. All but one of the series of risks which Ms Glass said the downstream business would face but an individual solar project would not would be faced by an individual project, and the last was a cash flow issue which should be incorporated in the cash flow projections and not accounted for in the WACC. Moreover, the Company's downstream risk was diversified by its investment in multiple solar projects.

270. I find Ms Glass' criticisms of Mr Edwards' approach convincing. In my view, Mr Edwards' calculation of a separate WACC for the downstream segment introduces an increased level of uncertainty and speculation and that the consolidated WACC for the whole of the Company's business is more reliable and is to be preferred.

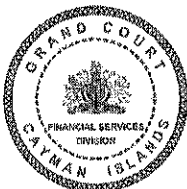
Cost of equity – the CAPM model

271. In the CAPM model, the cost of equity is the sum of:

- (a) the risk-free rate (the return that an investor would expect from an asset bearing no risk).
- (b) the MRP (the additional return over the risk-free rate that investors require for investing in risky assets).
- (c) the equity beta (a measure of a company's risk relative to the risk borne by the market overall).
- (d) the CRP (the additional risk that investors may require to invest in China as against the most highly developed economies).
- (e) if applicable the SSRP (which represents a further return that investors may require to invest in small companies).

272. As I have noted, Mr Edwards calculated the cost of equity for the upstream business using this method.

MRP



273. I start with a discussion of the MRP since the experts consider that the approach taken to calculation of the MRP had a significant impact on the approach taken to the calculation of the risk free rate. As I have noted, Mr Edwards calculated the MRP as 5% while Ms Glass considered it to be 6%. Both experts relied on a range of data sources to calculate the premium that equity has in fact earned over the risk-free rate historically.
274. Ms Glass considered that her rate was consistent with all valuations she conducted or reviewed in 2016 and was relatively consistent for companies within the US for at least five years prior to the Valuation Date. She considered:
- (a). the historical MRP and noted that the Duff & Phelps 2016 Valuation Handbook reported a 6.9% historical risk premium representing an *arithmetic* average calculated for the year 1926 to 2016, based on the 20 year US risk free rate.
 - (b). the supply-side MRP, based on data reported in the Duff & Phelps 2016 Valuation Handbook, the supply-side ERP, calculated on an *arithmetic* basis, was 6.03%. This figure was based on a 20 year US risk-free rate.
 - (c). the MRP recommended by Duff & Phelps – using a 20-year spot rate the rate increased to 6.59%.
 - (d). various other rates in the low 5% to high 6% range.
 - (e). survey evidence, including an internal document prepared by KPMG's which shows the big four accounting firms used an MRP of 6%.
275. Mr Edwards considered four main sources and methodologies:
- (a). the historical MRP – he relied on Professor Damodaran's analysis based on the S&P's excess return over a 10 year US government bond which has an MRP of 4.62% in 2016 calculated on a geometric basis or 6.24% calculated on an arithmetic basis.
 - (b). the supply-side MRP – he relied on Duff & Phelps 2017 Valuation Handbook's calculation of a long term supply-side MRP over 20-year US government bonds of 3.99% on a geometric basis or 5.97% on an arithmetic basis. Mr Edwards adjusted this calculation to



be based on a 10 year MRP at 4.89% on a geometric basis and 6.87% on an arithmetic basis.

- (c). forward looking MRP – he relied on Professor Damodaran and calculated an implied MRP over 10 year US government bonds of between 4.4% and 6.1% in December 2016 using 5 calculating methods.
- (d). survey evidence – he relied on a survey performed by Mr Pablo Fernandez published in May 2016 which suggested an ERP of 5.3% for the USA and a survey by Professor Graham and Professor Harvey published in 2018 showing that US CFOs adopted an MRP of around 4% over 10 year US government bonds.

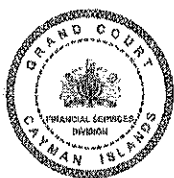
276. However, the key difference between them was not in the data but in their approach to it. Mr Edwards used figures that had been calculated from the geometric mean of historical returns to derive his MRP, whereas Ms Glass used figures derived from the arithmetic mean. The arithmetic mean is the average of single-year returns over a period, whereas the geometric mean is the average compounded annual return over the period of analysis (from the beginning to the end of the period).

277. The Company submitted that the arithmetic calculation was to be preferred because it captured the volatility during the intervening period when investing in equities, which volatility was not captured anywhere else. Furthermore, the preponderance of evidence suggested that Ms Glass' ERP was a better ERP than Mr Edwards' approach:

- (a). Ms Glass noted that Mr Edwards believed it to be necessary to use the geometric mean to be consistent with the compound nature of discounting and that he had supported this view with a quotation from Damodaran:

“Arithmetic averages will be yield [sic] higher risk premiums than geometric averages, but using these arithmetic average premiums to obtain discount rates, which are then compounded over time, seems internally inconsistent.”

- (b). she disagreed with these views, as did many others including academics. She did so and supported the use of the arithmetic average for two key reasons. First, it provided the best estimate of future expected value even when returns were compounded. Secondly, it better



captured the volatility (risk) of returns and, therefore, was a more appropriate estimate of ERP.

- (c). Ms Glass's challenge to Mr Edwards and the basis for her view can best be seen in the following passage from Glass 2 ([217] – [220]):

"217. Mr Edwards provides an example to explain why he believes a geometric average is the preferred return. He assumes that an investor purchases a stock for \$1.00, and holds it for two years. During year 1, the stock price increases by 25% to \$1.25. In year 2, the price declines by 20% to \$1.00. Since the investor started with \$1.00 and ended with \$1.00, the investor's net return is 0%, which also equals the geometric average. In contrast, the arithmetic average for this example would equal the simple average of the year 1 return and the year 2 return, or 2.5%.

218. I do not disagree with that example – but it ignores risk. It assumes we know what will happen in the future. However, if we knew what would happen in the future, there would be no risk and no need for an equity risk premium. The appropriate rate in such a case would be the risk-free rate.

219. Let us recast Mr Edwards' simple example, but add uncertainty to the mix. We buy a stock for \$1 and we know we can expect either a gain of 25% or a loss of 20%, but we do not know which will arise. We know, however, that we have four possible outcomes.... We might gain 25% in year 1 and then lose 20% in year 2 (Mr Edwards' scenario), in which case we will have \$1 at the end of year 2. Alternatively, we might lose 20% in year 1 and then gain 25% in year 2, whereupon we will again have \$1 at the end of year 2. The third possibility is that we gain 25% in both year 1 and year 2, resulting in a stock price of \$1.56 (\$1.5625 to be precise). Finally, we might lose 20% in both years, resulting in a stock price of \$0.64 at the end of year 2.

220. The average of these four possibilities is \$1.050625, which equals what is referred to in statistics as the "expected value" of our future share price (i.e., the average of all expected possibilities). We would have arrived at this share price had we used the arithmetic average of 2.5% to estimate our returns – that is $\$1.00 \times (1.025) \times (1.025) = 1.050625$. Thus, as I stated above, the arithmetic average provides the best estimate of future expected value even when returns are compounded."

278. The Dissenting Shareholders argued that Mr Edwards was correct to prefer the geometric mean:

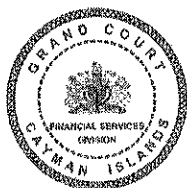
- (a). the geometric mean captured the compounding effect of returns over time, whereas the arithmetic mean does not. The examples in Edwards 2, Figure 5-2 illustrated the point.
- (b). Mr Edwards' approach was supported by academic and industry sources including McKinsey and Professor Damodaran. As the latter explained, since the discount rate of which the MRP forms part is itself compounded over time when performing a DCF



valuation, it would be internally inconsistent to use the arithmetic mean to calculate the MRP.

- (c). as was demonstrated by the figures in Glass 2, Table 6.4, the geometric mean for the sources considered by the valuation experts was generally lower than the arithmetic mean, and gave results that were generally consistent with (indeed, below) Mr Edwards' 5% MRP and inconsistent with Ms Glass' 6% MRP. The arithmetic means were closer to Ms Glass' 6% MRP. Ms Glass accepted that arithmetic averages will yield higher premiums than geometric averages 99.9% of the time.
- (d). Ms Glass' stated reason for preferring the arithmetic to the geometric mean (the geometric mean does not account for the risk of uncertainty in cash flow) was unsustainable:
 - (i). the calculation of the MRP did not involve uncertain cash flows: it was a calculation applied to a single, certain, historic series of returns.
 - (ii). the risk of uncertainty in future cash flows was captured by the discount rate, which was compounded year after year such that the present value of future dollars decreases.
 - (iii). MRP was measured over a long period in order to iron out short-term volatility so that using the arithmetic average for that same purpose would be redundant.
 - (iv). for the purposes of working out what the past returns on a historic investment in fact were, volatility was irrelevant, and the appropriate measure was therefore the geometric mean.
 - (v). the actual (geometrically compounded) return on an investment in a risky asset was a consequence of the volatility of those returns. To purport to account for that volatility by using an arithmetic average, which overstates the investor's actual compounded returns, was double-counting.

279. The Dissenting Shareholders also submitted that there was academic support for Mr Edwards' 5% MRP including Pratt and Grabowski, who concluded that the long-term average MRP was "in the range of 3.5% to 6.0%" and Professor Bradford Cornell, who concluded that a reasonable

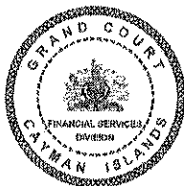


estimate of the MRP is “no more than 5.50%”. Ms Glass had suggested that six major accounting firms in North America use a 6% MRP but in her reports she did not refer to any document, referring instead to informal discussions with colleagues and peers at those firms. In re-examination, she was taken to a very late disclosed KPMG internal document. The very late disclosure of this document amounted to deliberate withholding of it and in view of this and the lack of information about the provenance of the document, no weight should be given to it.

280. This dispute raises a theoretical and contested issue of some refinement and difficulty. There are clearly different views in the professional literature. Both an arithmetic and geometric mean have support from serious and respectable sources. For example, Duff & Phelps appear to have a preference for arithmetic averages while Professor Damodaran (as noted above and see Edwards 2 at [5.16]) takes a principled position in favour of using geometric average premiums for valuations. There is also support for a *via media*. McKinsey recommends calculating the premium using a method that combines arithmetic and geometric averages derived from data covering long periods (as Mr. Edwards pointed out in Edwards 2 at [5.22] McKinsey suggests an arithmetic average of 10-year compound returns, converting this back into an annual differential and concludes that “we believe a range of around 5% is appropriate”). In my view, the use of both the arithmetic and geometric mean is acceptable and the overall assessments of the MRP by both Ms Glass’ and Mr. Edwards are cogent, well supported by reference to reliable third party sources and reasonable. While I can see the strength of the argument that the use of the geometric mean is more consistent with the underlying methodology of a DCF valuation (and the view that over longer time horizons, when returns become more serially correlated, it is preferable to use the geometric mean, in the circumstances, I consider that the right result is to split the difference between Ms Glass’ and Mr. Edwards’ estimate and adopt a MRP of 5.5%.

Risk-free rate

281. Mr Edwards used a risk-free rate equal to the ten-year US Treasury yield as at the Valuation Date (2.6%) while Ms Glass used a risk-free rate equal to the twenty-year yield on the same instrument: (2.9%). Both experts agreed that the chosen risk-free rate must, as a matter of logic, be consistent with the estimate of MRP.
282. The Company noted that Ms Glass (as we will shortly see) assessed the ERP by considering a number of sources, most of which were based on premiums over the twenty-year risk-free rate and so used a twenty-year risk free rate to ensure consistency with the market ERP. She

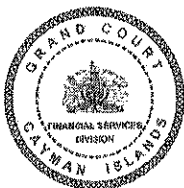


considered that as long as there was consistency with the ERP, whether a ten or twenty-year period was used was not material.

283. The Dissenting Shareholders said that Mr Edwards considered that the 10-year yield was preferable to the 20-year yield as a measure of the risk-free rate because ten-year bonds are more liquid than longer-term bonds and therefore more accurately represent the yield that investors require on riskless assets. This view was supported by the McKinsey textbook (Valuation, 6th ed. at page 275) and Ms Glass had accepted during her cross-examination that it was as reasonable to use the 10-year yield as the 20-year yield.
284. I consider that once again both approaches are reasonable and that I should recognise this by splitting the difference between Ms Glass' and Mr. Edwards' estimate. I shall therefore adopt a risk-free rate of 2.75%.

CRP

285. Mr Edwards calculated a country risk premium of 0.6% while Ms Glass' figure was 1.33%. There were two reasons for this difference. First, the two valuation experts used different source data. They each rely on CRP estimates produced by Professor Damodaran, but Ms Glass used Professor Damodaran's July 2016 estimate, whereas Mr Edwards used Professor Damodaran's January 2017 estimate. Secondly, Mr Edwards divided Professor Damodaran's estimate of CRP for China in half to calculate the CRP applicable to the Company while Ms Glass applied the China CRP in full.
286. Professor Damodaran provided estimates of the CRP for many countries and updated them twice a year, in January and July. Both Ms Glass and Mr Edwards used the average country risk rating for China. Ms Glass used those for 31 July 2016, Mr Edwards used 31 January 2017. In addition, Mr Edwards applied a 50% discount. In her oral evidence Ms Glass accepted that it was unfair to criticise Mr Edwards for using the 31 January 2017 edition and was prepared to proceed on the basis of that edition.
287. Mr Edwards halved the China CRP because more than half of the Company's sales were made to the low-risk markets of the US, Japan and Europe (in 2015, 34.7% of sales by revenue were to the US, 10.9% were to Europe and 11.4% were to Japan (as against 28.5% to China)). Europe and the US would not normally have any CRP at all, and Japan had a lower CRP than China



(being 0.65% on Professor Damodaran's January 2017 figures). It followed that those particular sales were subject to lower country-specific risks (the CRP for the US and Europe was zero, and the CRP for Japan was markedly lower than that of China), and that the Company's overall country risk was reduced by diversification.

288. Ms Glass did not support Mr Edwards' 50% discount. She said that Mr Edwards had correctly noted that only a minority of the Company's upstream revenues were derived from sales in China, and more than half of upstream sales were to the US, Japan, and Europe. But this observation understated the risks associated with upstream sales for the following main reasons:

- (a). many of the countries with which the Company traded were not without country risk of their own, a risk not reflected by Mr Edwards. If sales only to those countries for which a country risk premium was not normally applied (the United Kingdom, the US and Germany), were considered the relevant percentage was only 40% based on 2015 data. More importantly, the CRP was used to develop the WACC, which was applied to future projections, not historical data – and the likelihood was that the Company's future sales will be less focused on Europe and other traditional markets, and more focused on new/emerging markets, which will carry risk premiums equal to or higher than those premiums applicable to China. Her assumptions regarding the level of future sales arising from emerging markets was supported by comments made in the Company's 2015 Annual Report, comments made in the Joint Report of the industry experts, and the fact that the Management Projections assumed an almost-doubling of the Company's market share, the majority of which would need to come from new, emerging markets.
- (b). while sales to the US or Europe were not directly subject to risks captured by the country risk premium, the Company was nonetheless subject to greater risks than the risks faced by its competitors based in the US or Europe, including volume and pricing risks relating to duties and tariffs, which were imposed on the Company because it is based in China. This issue was not considered by Mr Edwards in arriving at his 50% discount.
- (c). the majority of the Company's production facilities and solar plants, and its management team, were based in China. Thus, although 40% of the Company's sales were derived from lower-risk markets (and probably much less than 40% in the future), the vast majority of the Company's facilities (and thus its costs, profits and cash flows) related to China, which issue was also not considered by Mr Edwards in deriving his 50% discount.

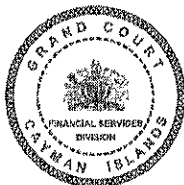


- (d). as the Company submitted, it was important to remember, when comparing Ms Glass' evidence with Mr Edwards' evidence, that Ms Glass was calculating a CRP for the whole business, whereas Mr Edwards' CRP was limited to the upstream segment only – and the downstream segment was heavily focused on China and was likely to be so for the foreseeable future.

289. The Dissenting Shareholders submitted that Mr Edwards was correct and Ms Glass' criticisms were unfounded. Her assertion that the Company will in future make a higher proportion of its sales to risky emerging markets offsetting the risk-reducing effects of sales to the US, Europe and Japan was not supported by the evidence she relied on. The Company's 2015 Form 20-F referred to the risk of declining sales in Europe but that reference was made in a risk warning and was not a prediction of what was likely to happen, and it contemplated that declining demand in Europe may be offset by increasing demand in regions including the US. In addition, the industry experts' Joint Memorandum referred to the prospects for the Indian solar market and Ms Glass had highlighted Mr Russo's comment that "*it was reasonable to anticipate strong growth in the Indian market*". However, Mr Russo (rightly) expected strong growth in the Company's sales globally: there was no suggestion that India's share of those sales would increase substantially. Furthermore, Ms Glass had simply asserted that if the Company's market share almost doubled, the majority of its new sales would need to come from emerging markets but there was no proper basis for that assertion and no basis to expect that the Company's share of sales to risky markets would increase.

290. The Company submitted that Ms Glass' approach was to be preferred.

291. I consider that, as both experts ultimately agreed, the average country risk rating for China as shown in Professor Damodaran's 31 January 2017 edition should be used. This was closest to the Valuation Date and can be assumed to be based on data available as at that date. It seems to me that Mr Edwards 50% reduction is somewhat crude and unsupportable. It is based just on sales data (as Ms Glass pointed out, selecting a CRP without regard for the location of the Company's production facilities, solar plants and management is too narrow an approach and fails adequately to take account of the risks associated with that connection) and historical sales data (although the information regarding the location of future sales was not entirely clear, I accept Ms Glass' view that there was sufficient evidence of potentially significant growth into emerging markets, particularly India and that Mr Edwards' approach gave insufficient weight to those risks). The Company's connections with China strongly suggest that the country risk rating for China should



be given substantial and possibly exclusive weight in calculating the CRP. On balance, I find Ms Glass' approach and her decision not to make an adjustment to the country risk rating for China to be reasonable. While I can see that Mr Edwards' argument that there should be *some* adjustment by reference to other connecting factors with other countries with different risk ratings has some force, as I have said, I find his 50% reduction to be unreasonable and an assessment of an alternative reduction by me would be based on speculation on my part and could not justify a departure from Ms Glass' generally reasonable approach.

SSRP

292. Ms Glass included a SSRP to capture the additional risks of smaller companies. When a size premium is included, it is typically based on a company's relative market capitalisation and the relevant size premiums provided for in the Duff & Phelps Valuation Handbook. Ms Glass used a size premium of 2.04%.
293. Mr Edwards considered that it was not appropriate to include a SSRP because the original study identifying the SSRP had considered that there was no theoretical basis for its existence and studies using post-1981 data did not find statistically significant evidence that it exists.
294. Ms Glass included a SSRP for four main reasons:
- (a). in her experience, the inclusion of a size premium was consistent with industry practice, for virtually all investments excluding infrastructure assets.
 - (b). size, along with growth, risk and margins, were commonly referred to as the key drivers of public company trading multiples and trading prices. All else being equal, lower size was believed to lead to lower multiples and lower pricing.
 - (c). although the academic community debated the issue, size was viewed as a risk factor by the professional community.
 - (d). size premiums were accepted by the legal community. She referred to my judgment in *Shanda* and the approach taken in Delaware relying on the following dicta:



- (i). in *Orchard Enterprise* (2012) Justice Shrine stated that “A size premium is an accepted part of CAPM because there is evidence in empirical returns that investors demand a premium for the extra risk of smaller companies.”
- (ii). in *Just Care* (2012), Justice Parsons noted that “In addition to the equity risk premium, an equity size premium generally is added to the company’s cost of equity in the valuation of smaller companies to account for the higher rate of return demanded by investors to compensate for the greater risk associated with small company equity.”

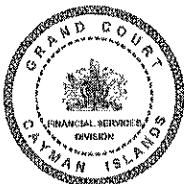
295. Ms Glass noted that academic support for the inclusion or exclusion of a size premium was mixed and that various papers had been published that supported or rejected the use of a SSRP. In general, those who argue against the use of a SSRP claim, and provide studies to show, that market data does not support the theory. In contrast, those who argue for the SSRP claim, and provide studies to show, that market data does support the theory (and in Glass 2 she referred to various studies to this effect which she considered to be more reliable than those referred to in Glass 1).

296. The Company submitted that Ms Glass’ evidence was to be preferred. It seemed to be intuitively correct. But regardless of any academic issue, the preponderance of the evidence was that it was used widely. If the DCF methodology were to be used by a valuer advising a buyer of shares it was overwhelmingly likely that a size premium would be applied in accordance with the Duff & Phelps Valuation Handbook. Furthermore, the Court should follow the approach adopted by Parker J in this Court in *Qunar* in which the learned judge accepted that a size premium should be applied. He said as follows (at [14.14]):

“Notwithstanding these submissions and the debate back and forth on this issue, I have concluded that on balance it is appropriate to factor in a size premium of 1.0% as suggested by Ms Glass. I have done so primarily because I accept Ms Glass’ opinion that it is widespread industry practice and that professional valuations routinely accept the use of size premiums. Her view, based on valuation principles, is that risk adjusted returns for the Company over time would be larger than the CAPM would predict without a size premium and that the size premium recommended by D&P for the Company is reasonable.

I also note that a size premium was applied in Shanda, in principle, as a common ground between the experts.”

297. The Dissenting Shareholders supported Mr Edwards approach and submitted that there was little evidence or academic support for a SSRP after 1981. One study by Alquist et al found no



evidence for a SSRP in the period 1984 to 2017 in any of twenty-four markets (and indeed found more evidence to support a negative size premium than a positive one). While some others posited that the SSRP disappeared once investors became aware of it, following the publication of the 1981 paper that first identified it. Professor Damodaran also opposed to the use of a SSRP in valuations. In an area in which the professional community took different views, his views were to be given serious weight.

298. The Dissenting Shareholders criticised Ms Glass' approach on the following basis:

- (a). the basis for her assertion that the inclusion of a size premium was consistent with industry practice was her own experience but she does not cite any independent evidence as to what industry practice in fact is.
- (b). Mr Edwards did cite such evidence, and it showed that industry practice is not to include any SSRP. A study of four hundred CFOs in North American firms found that two-thirds made no adjustments for size, and other surveys were to similar effect. Also, notably, none of the analysts who covered the Company in 2015 or 2016 applied a size premium.
- (c). Ms Glass had argued that lower size was believed to lead to lower multiples and lower pricing and that size was viewed as a risk factor by the professional community. But the relevant question was whether smaller companies faced higher risks even after their higher betas are taken into account. Ms Glass had referred to a D&P study to support her application of a SSRP to the Company but during cross-examination she confirmed that she did not know whether D&P had adjusted their returns for beta. She had been taken to the authors' description of their methodology which made clear that they did not adjust for beta.
- (d). her references to the Delaware (and Cayman) case law did not support her evidence on valuation issues and was not a matter of valuation expertise.

299. The Dissenting Shareholders also submitted that even if, contrary to their primary submission, it was appropriate to apply a SSRP to some very small companies, the Company was too large to do so. The Alquist et al study found that, *"to the extent that there is a premium for small stocks, it does indeed appear to be concentrated among the tiniest 5% of firms"*, corresponding to a market capitalisation of US\$4.5 million or less and McKinsey had suggested that the cut-off point



for the applicability of the SSRP was, at most, a market capitalisation of US\$500 million. Ms Glass' own valuation assigned the Company an equity value of US\$994 million and so on this basis a SSRP should not be applied.

300. In my view, Ms Glass' approach on this issue is to be preferred. First, I consider that it is appropriate to apply a SSRP. While I do not treat his decision as binding and have taken into account the different evidence relied on by the Dissenting Shareholders in this case, I agree with the conclusions and approach taken by Parker J in *Qunar*. I am not satisfied that the more recent studies, in particular the Alquist et al study, are sufficient to justify omitting a SSRP. I note that Kawaley J in *Nord Anglia* concluded that the case for a SSRP had not been made out (see [206]), but his view was based on expert evidence adduced in that case. He said that the company's expert had made no real attempt during cross examination to persuade the Court that a SSRP was required in that case. The position here, in view of Ms Glass' evidence, is very different. Secondly, I accept Ms Glass' application of the SSRP methodology as set out in the Valuation Handbook to this case (see Glass 1 [164] – [167]). She identified a choice between treating the Company as coming within decile 8 (based on the Company's market capitalisation as at 29 July 2016) and deciles 6-8 (based on the Company falling into the low-cap category). Under the first approach, she treated the Company as having had a market capitalisation of US\$762.8 million which resulted in a premium of 2.04%. Under the second approach a premium of 1.70% would be applied. She decided to adopt the first approach since it *"more appropriately captured the Company's size, as opposed to using the broader categories [and in] addition, in [her]experience, use of the specific decile [was] the more common approach."* This seems to me to be a reasonable approach.

Beta

301. Beta seeks to measure the relative market risk that a particular company has compared to the overall market. It is produced by analysing a particular company's stock returns relative to the stock returns of the overall market. A beta of 1 indicates that the security is a similar risk to the market. A higher value indicates higher volatility relative to the market. A lower value indicates lower volatility relative to the market. The issue is whether, if the market rises or falls, the shares of the company rise or fall at a greater or lesser amount than the market overall.

302. As I have noted, Mr Edwards calculated a beta that applied to the upstream segment only. Ms Glass calculated a beta that applied to whole of the Company's business. Following the experts'



joint meeting, Mr Edwards revised his beta upwards and Ms Glass revised her beta downwards. As a result, Ms Glass used an unlevered beta of 0.975 (levered beta of 1.79), whereas Mr Edwards used an unlevered beta of 0.86 (levered beta of 1.72).

303. Apart from the different approaches as to which business segment beta should be applied to, there was a difference of view as to whether to apply a Blume and/or Vašíček adjustment. When a Blume adjustment is applied, a company's beta is based on its actual beta multiplied by two-thirds, plus a hypothetical beta of 1 multiplied by one third.
304. Mr Edwards applied a Blume adjustment to his equity betas. He said that the Blume adjustment (at [A17.15] of Glass 1):

"is needed to account for the observation that the equity betas of firms tend to converge towards unity over time. As a result, historical measurements of beta that are less than one are likely to understate a company's beta in future periods, and historical measurements of beta that are greater than one are likely to overstate a company's beta in future periods. The Blume adjustment corrected for this bias by adjusting observed betas towards one. Blume adjustments are regularly made by financial data providers when calculating beta. For example, Bloomberg automatically applies a Blume adjustment to its calculated betas."

305. Mr Edwards explained the Vašíček adjustment as follows (see Glass 2 [A9.8] – [A9.19]):

"Marshal Blume identified two potential categories of explanation for this observation: "fundamental factors", and "statistical factors".

Fundamental factors capture the possibility that:

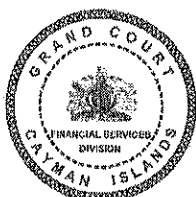
(1) existing projects may become less risky over time; and

(2) new projects may have less extreme risk characteristics than existing projects.

Statistical factors capture the possibility that very high or very low betas could be the result of estimation error. For example, there are two reasons why a beta measurement could be very high. First, the 'true' beta could be very high and be accurately measured. Second, the beta could be inaccurately measured, and the 'true' beta could be either lower or higher. However, extremely high betas are much more unlikely to occur than lower betas. Therefore, in this second case, it is more likely that the 'true' beta is lower, but inaccurately measured, rather than higher, but inaccurately measured.

As a consequence, the 'true' beta, given a very high observation, is likely to be lower than the observed value.

.....



The Blume adjustment is not the only way that the factors discussed above can be adjusted for. Another less commonly used adjustment is the Vašíček adjustment, which specifically addresses statistical factors.

The Vašíček adjustment is more complicated than the Blume adjustment but its overall effect is the same; it reduces high betas and increases low betas.

I note that the major financial data providers adopt either the Blume or Vašíček adjustment as standard. For example, Bloomberg and Thomson Reuters present Blume adjusted betas, and Capital IQ presents Vašíček adjusted betas.

For completeness, I have recalculated my beta using the Vašíček adjustment rather than the Blume adjustment..... Had I adopted the Vašíček adjustment rather than the Blume adjustment, my beta would have been 1.69 rather than 1.72. That is, the two adjustments have very similar effects.”

306. During his cross-examination, Mr Edwards summarised his position by explaining that the Blume adjustment was predicated on two points.

“The first is that, over time, companies with very high or very low betas will see their betas move towards 1. I don't think it assumes that they go to exactly 1. It just assumes that, over time, those with very high numbers tend to move towards 1. It's also predicated on the observation or the statistical analysis that suggests that very high or very low betas are likely to be subject to measurement error, so statistical error, and it corrects for those two things. In this case, Trina's observed beta is quite a lot higher than 1. When I've looked at the observed betas of many of the industry peers -- I think I looked at about 17 or 16 -- they were spread over a relatively wide range and that suggested to me that there was a decent chance that, in fact, there is quite a lot of measurement error or statistical error in the calculation of beta and that's why I felt that for a very high beta in this case it was appropriate to apply a Blume adjustment.”

307. Ms Glass in Glass 2 considered the effect of and justification for using the Blume adjustment (she did not discuss the Vašíček adjustment, because Mr Edwards had not referred to it in Edwards 1). She noted (at [249] - [252]) that:

“249. Both Mr Edwards and I calculated Trina's two-year weekly beta using a similar approach. However, Mr Edwards then applied a “Blume adjustment” to the beta, which results in reducing the beta – which, in turn, reduces the discount rate and increases the DCF value.

250. When a Blume adjustment is applied, a company's beta is based on its actual beta multiplied by two-thirds, plus a hypothetical beta of 1.0 multiplied by one third. Thus, if a company's unadjusted beta is 1.5, its Blume-adjusted beta will be 1.33, as shown below:

$$1.5 \times 2/3 + 1.0 \times 1/3 = 1.33$$



251 *Mr Edwards states that Blume adjustments are “regularly made by financial data providers when calculating beta. For example, Bloomberg automatically applies a Blume adjustment to its calculated betas.”*

252. *In my view, that comment misstates matters. Below, I provide an excerpt from a screenshot of a Bloomberg beta. As shown, Bloomberg provides both a raw beta and an adjusted beta, along with various other statistics (all of which relate to the raw beta). It is then up to the user to select the data he or she wishes to use.”*

308. She considered that the application of a Blume adjustment was not justified. She noted that Mr Edwards had provided no academic studies or similar data to support his claim that all equity betas will converge to one over time. She said that in her experience, the Blume adjustment was rarely applied in company valuations. It was only used in the valuation of a high-risk, new or relatively immature company that had not yet experienced profitability. Over time, one would expect the risks of such a company slowly to decline (as the company matured, attained profitability, and gained a foothold in its markets). She explained her position as follows (in Glass 2 at [256] – [260]):

“Most DCF analyses presume that by the end of the projection period, a company will have reached a “steady state”, at which point risks will be lower. For that reason, some practitioners (excluding me) use the Blume adjustment to capture the fact that the historical risks reflected in the beta of a young, high-risk company will decline over time – as will the company’s beta.

While I support the concept of potential risk reduction over time, particularly in the case of an immature company (which is not descriptive of Trina), I do not support the belief that all betas ultimately revert to one – nor is that assumption logical. To accept that adjustment, one would need to believe that, over time, virtually all companies will have a beta of one, meaning they will all have equivalent risk. Companies in very high-risk industries (bio- pharma, technology, oil & gas drilling, etc.) will be no more risky than companies in low-risk industries (consumer staples, regulated utilities, healthcare, etc.). The only high-risk or low-risk companies will be those in new industries that have not yet had a chance to “converge toward one” (such as Bitcoin). In my view, that underlying assumption is illogical. Instead, it makes considerably more sense to assume that the beta of a relatively young company will, over time, revert to the average for its industry.

This point is also made in a recent case involving Golden Telecom, in which the Court states:

“In my view, no reliable literature or evidence was presented to show that the beta of a telecom company like Golden, which operates in a risky market, will revert to 1.0. Instead, it makes more sense that companies in emerging markets will become more like their industry peers in more mature markets.”

Ultimately, the Court gave a two-thirds weighting to Golden’s historical raw beta and a one third weighting to the industry beta.

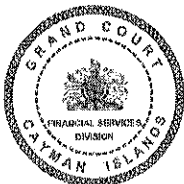


In contrast, Trina is a relatively mature company – indeed, it is a leader in its industry, and its beta is already below most of its peers. Thus, I relied solely on Trina’s own beta, and did not apply an arbitrary 1/3 adjustment – nor did I assume that Trina’s beta would revert to the industry average over time (had I done so, my beta estimate would have been higher).”

309. The Company submitted that Ms Glass’s approach was to be preferred. The Blume adjustment presupposes that all companies converge to a beta of 1, which could be correct only in very limited circumstances and not in the present case. It might be appropriate for valuing a conglomerate with business in various industries. Some industries (and companies therein) will always have volatility that departs (be it higher or lower) from the volatility of the overall market. There are several industries where the observed beta is greater than or less than 1. The observed beta for the solar industry is clearly in excess of 1. Making the Blume adjustment could not be justified here. As regards the Vašíček adjustment, Ms Glass was right to say that this was used for young immature companies whose beta was likely to be high, but would be expected to revert to the industry average over time. The adjustment was not applicable to the Company – it was not a young company. It had existed for over 12 years at the Valuation Date and its beta was already lower than the industry average since it was one of the more mature companies in the sector.

310. The Dissenting Shareholders submitted that Mr Edwards’ approach was to be preferred:

- (a). Ms Glass measured the Company’s beta over both a five-year and a two-year period, whereas Mr Edwards measured it over a two-year period only. The five-year calculation was inappropriate, given the fast-changing nature of the solar PV industry and the Company’s business model. Ms Glass had accepted after her discussion with Mr Edwards that she should give less weight to the five-year figure but in fact she should have given it no weight.
- (b). the betas of thirteen comparator companies decreased by an average of 17% between the Offer Date and the Valuation Date and it was reasonable to assume that, but for the merger offer, the Company’s beta would also have fallen over that period. Mr Edwards applied a downward adjustment to account for this but Ms Glass had only reduced her estimate of beta by half the average decline of the Company’s peers.
- (c). Mr Edwards was right, for the reasons he gave, to apply a Blume adjustment to account for the empirical observation that betas tend to converge towards 1 over time.



- (d). Ms Glass had argued that it was preferable to assume that a company's beta will revert to the average for that company's particular industry rather than to 1; but that was what the Vašíček adjustment achieved. And as Mr Edwards explained, the Company's Vašíček - adjusted beta was similar to the Company's Blume-adjusted beta.
- (e). of the three major financial data providers (Bloomberg, CapitalIQ and Thomson Reuters), Bloomberg applied a Blume adjustment to the betas it reports on its headline company description pages, CapitalIQ applied a Vašíček adjustment by default, and Thomson Reuters offered a Blume-adjusted beta as an option.
- (f). Ms Glass had measured the Company's beta over a period ending on the Acceptance Date while Mr Edwards' measurement period ended on the Offer Date. Mr Edwards' approach was preferable, because between the Offer Date and the Acceptance Date it was likely that the Company's share price will have been affected by the market's knowledge of the merger offer.

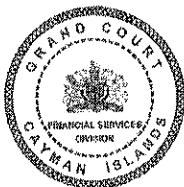
311. Two main points and differences arise:

- (a). *the Blume and Vašíček adjustments*: Mr Edwards noted that the overall effect of the Blume and Vašíček adjustments is to reduce high betas and increase low betas. As he said during his cross examination, he considered the underlying principle to be that "*companies with very high or very low betas will see their betas move towards 1.*" It is not clear to me whether Mr Edwards was arguing that a Blume or Vašíček adjustment is required or justified in every case because of the proposition, which he supported, that all equity betas will always converge to one over time. Ms Glass rejected that proposition and I accept her view and reasoning (see in particular Glass 2 at [257] which is quoted above). I note that neither Parker J in *Qunar* (see [328]) nor Kawaley J in *Nord Anglia* (see [203]) applied a Blume adjustment. But Mr Edwards did also justify the application of the Blume adjustment in this case by reference to the particular position of the Company. This was because he had concluded that the Company's observed beta was high (it was considerably higher than 1) and because he considered that there was evidence from his review of the observed betas of the Company's peers that there was a risk of error that justified the use of the adjustments. His review showed that the peer betas were spread over a relatively wide range and he concluded that this meant that there was a material risk ("*a decent chance*") of measurement error or statistical error in the calculation of the Company's high



beta. Ms Glass, in contrast, considered that the Company's beta was not high, at least as a relative matter. She regarded the underlying principle to be that the (high) beta of a relatively young company will, over time, revert to the average for its industry, so that the industry average was an important benchmark. She noted that the Company's beta was already below most of its peers and this was demonstrated in table in Appendix J1 and J2 of Glass 1. The Company's two-year unlevered weekly beta on the Offer Date (which is the measure supported by the Dissenting Shareholders) was 1.36, 0.94 on the Acceptance Date and 0.78 on the Valuation Date. The Offer Date beta was 68% of the average (and below all but one) of the Company's peers; the Acceptance Date beta was 55% of the average (and below all but one) of the Company's peers and the Valuation Date beta was 49% of the average (and below all) of the Company's peers. On the Offer Date the Company's peers had two year unlevered weekly betas of 0.99, 1.55, 1.59, 2.43 and 2.42. This data seems to me to show that the Company's beta was not sufficiently high, either as absolute number (compared to 1) or relatively, as compared to its peers, to justify the use of the Blume and Vašíček adjustments. In my view, they can be justified where there is a need to neutralise the (extremely) high (or low) estimated beta and there is no such need in the present case. There would, as an example, be such a need, as Ms Glass argued, in cases of relatively young companies. Nor am I satisfied that Mr Edwards' argument based on the spread of peer betas was sufficient to justify the use of the Blume or Vašíček adjustments. It seems to me that Ms Glass' approach on this point is to be preferred and was reasonable.

- (b). *two or five year betas*: I also consider that Ms Glass's balanced approach to dealing with the different durations of the beta data was reasonable. She balanced the two and five year betas by taking an average of the two. Her unlevered beta of 1.13 was the average of her two-year weekly beta (end of week) (0.94) and her five-year monthly beta (end of month) (1.33). She concluded that "*faced with two betas – one that appeared to me as high (1.33) and one that appeared to me as low (0.94), I considered the average of the two (1.13). I also observed that a beta of 1.13 approximated 73% of both the peer average five-year beta and two-year beta at the Valuation Date, which appears reasonable given historical trends.*" I do not accept the Dissenting Shareholders' argument that the beta should have been based exclusively on the two-year data.



Cost of Debt

312. Mr Edwards used a pre-tax cost of debt of 4.9% for the upstream segment (and 4.2% after tax). This was equal to the average interest rate that the Company was paying across all of its long-term debt as at the Valuation Date and consistent with statements by the Company's management near the Valuation Date. Ms Glass calculated a higher figure of 5.5% (4.6% after tax), which she applied to the Company as a whole.
313. Both Ms Glass (and Mr Edwards) adopted a debt-to-equity ratio of 1:1. Ms Glass considered that her 50% consolidated debt ratio represented a mix of a lower upstream ratio (35%) and a higher downstream ratio (65%). However, although Ms Glass considered the 50:50 ratio to be appropriate if the enterprise value was based on the forecasts and assumptions used by her, and Mr Edwards, in RE-Goffri, she said that it could not apply if Mr Edwards' RE-Mgmt and RE-Russo were used since the Company could not have raised 50% debt based on the enterprise values resulting those valuations. She said that Mr Edwards had provided no support for his implicit assumption that the Company could have assumed debt in the order of 2.0x (RE-Mgmt) or 6.5x (RE-Russo) existing levels and, in her view, these implicit assumptions were insupportable.
314. The Dissenting Shareholders supported Mr Edwards's analysis and submitted that his 4.9% was to be preferred although in their closing submissions they only made one point. They submitted that the main reason for the difference between Ms Glass and Mr Edwards was because the Company borrows in both RMB and USD, and Ms Glass had included the RMB cost of borrowing in her calculations. They argued that since both Ms Glass and Mr Edwards applied their WACC to USD-denominated cash flows, their discount rates (including cost of debt) should also be denominated in USD. In my view, the Dissenting Shareholders are right on this point.
315. I consider that Ms Glass' approach is reasonable and to be preferred. I find nothing wrong or unreasonable with her analysis (see Glass 1 [176] to [183]). Since I have concluded that the WACC should be calculated on a consolidated basis as Ms Glass proposed, I also consider that it is preferable to use her cost of debt calculated on the same basis. I note the Dissenting Shareholders' reliance on Ms Glass's answers during her cross examination in which she said that "*in theory*" the cost of debt to be used in the WACC in this case should be the US dollar cost of debt. But I do not take that as an acceptance that her analysis in Glass 1 was fundamentally flawed because she had regard to the RMB cost of debt. Nor do I accept that where a company

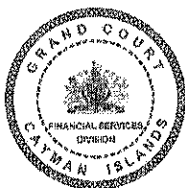


borrowings in USD and other currencies it can be right just to ignore the higher cost of the non-USD debt for these purposes and apply the cost of the USD debt across total borrowings. Therefore, I shall adopt a pre-tax cost of debt for the whole Company on a consolidated basis of 5.5% (and 4.6% after tax).

Terminal value – terminal growth rate and terminal cash flows

Terminal growth rate

316. The terminal growth rate is the expected growth rate of cash flows into perpetuity. Typically, the company's position in the market is assumed to have stabilised by the terminal period and the company is expected to grow in line with industry growth thereafter. The terminal growth rate, therefore, reflects both the expected growth in cash flows of the company being valued and the long term growth prospects of the industry.
317. Both Ms Glass and Mr Edwards estimated terminal value using a perpetual growth model although Ms Glass (i) also used a market approach to evaluate the overall reasonableness of the assumptions she had made to assess the terminal value and (ii) Mr Edwards produced three different terminal growth rates by reference to the three different cash flows and valuation models of the Company, Mr Russo and Dr Goffri.
318. Ms Glass used a rate of 3.5% (after initially, before her meeting with Mr Edwards having decided to use a rate of 3%), which was the same as the rate used by Mr Edwards for his calculation based on the Management Projections (RE-Mgmt). She considered that the perpetual growth rate was most appropriately based on inflation (at the low end) to inflation plus a percentage of long-term real GDP growth (at the high end). Her methodology can be summarised as follows. She considered GDP growth for current mature economies in the order of 1.5% to 2.5%, together with various long-term estimates for China. She considered perpetual growth rate at the end of 2023 to be in range of 2% to 4%, and originally took 3% as the mid-point (but, as I have said, subsequently adjusted this up to 3.5%).
319. In RE-Russo, Mr Edwards adopted a terminal growth rate of 5%. This was because (i) Mr Russo's forecast for long-term growth in the solar industry implied that the solar industry would grow faster than GDP in the long term, and (ii) the weighted average long-term nominal growth rate forecast by the OECD for the Company's five main markets (the US, China, Japan, India and the



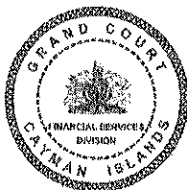
United Kingdom) was 4.3%. As Mr Edwards explained (see Edwards 1 [A15.12]) it was appropriate to use nominal rather than real growth forecasts because he used nominal USD cash flows in his DCF valuation.

320. In RE-Goffri, Mr Edwards adopted a terminal growth rate of 2%, because Dr Goffri had forecast that in the terminal period the solar industry would grow only with inflation and believed that 2% was an appropriate default forecast for inflation (Dr Goffri had concluded that 2% in revenue terms, a common default for the inflation rate, was a reasonable terminal value growth rate for the solar industry and that it was reasonable in comparison to the IEA growth rate of 1.3% and the BNEF growth rate of 3.4%).

Terminal cash flow

321. Ms Glass estimated the terminal cash flow based on the assumption that the Company will have reached a steady state, such that profit margins, sales mix and returns, would remain stable. Accordingly, terminal cash flow was projected based on the following:

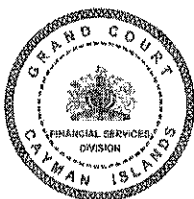
- (a). *EBITDA*: Revenue, EBIT, depreciation, EBITDA and cash taxes were each estimated based on 2023 forecasts plus 3.5% growth, which resulted in after-tax operating cash flow also increasing by 3.5%.
- (b). *capital expenditures (upstream)*: In the valuation of a non-capital-intensive company, terminal capital expenditures were sometimes assumed to approximate depreciation, since the assumption was simple and (in a non-capital-intensive business) any difference between capital expenditures and depreciation was immaterial. However, when dealing with a capital-intensive company such as the Company, the appropriate approach was to assume that property, plant and equipment will increase each year at the terminal growth rate. That way, capital turnover and returns remain constant. At the end of 2023, property, plant and equipment was projected to have a closing balance of US\$2,370.7 million. Capital expenditures were estimated at depreciation plus 3.5% of US\$2,370.7 million. This approach resulted in property, plant and equipment increasing by 3.5% each year.
- (c). *working capital & downstream investment*: Downstream investment was treated using the same approach as working capital, since the project assets were comparable to inventory. These items were assumed to increase proportionately to the increase in 2023. In particular,



growth in 2023 approximated 5%, which was approximately 60% of the terminal growth rate. Thus, terminal working capital and downstream investment were estimated to be approximately 60% of 2023 investment amounts. This approach resulted in a higher value than other potential standard alternatives, which would normally parallel the treatment of capital expenditures.

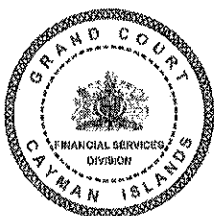
- (d). these assumptions resulted in terminal cash flow of US\$279.2. Ms Glass considered that this might be viewed as optimistic since it was much higher than free cash flow of prior years. The main reason for the difference was the lower capital expenditures assumed in the terminal period, which also might be on the low side.
- (e). Ms Glass assessed the overall reasonableness of her terminal value assumptions by calculating the implied terminal multiples compared to multiples prevailing at the Valuation Date (or the Acceptance Date in the case of the Company). She concluded that the multiples implied by her terminal value assumptions were on the high side, suggesting that her terminal value (and her DCF conclusion) might also be on the high side.

322. Mr Edwards calculated the various elements of terminal period cash flow separately. He had calculated (a) the terminal period EBITDA by applying the long term growth rate to EBITDA in the final year of the explicit forecast period (except for downstream EBITDA in RE-Goffri, which he calculated by assuming that the volume of solar plants sold each year would remain constant); (b) the capital expenditure and depreciation (upstream) - in RE-Goffri, he applied the long-term growth rate to capital expenditure in the final year of the explicit forecast period, consistently with Dr Goffri's assumption that capital expenditure would be a fixed proportion of revenue, however because he considered Dr Goffri's assumption to be unsound, in RE-Russo and RE-Mgmt he calculated capital expenditure by reference to estimated production volumes and the cost of production and since depreciation depended on the rate of growth of capital expenditure and the useful life of that capital expenditure he assumed a useful life of 15 years; (c) project investment (downstream) – he calculated project investment as the product of capacity added (i.e. the power generating capacity of build-to-sell plants constructed) and the investment cost per unit of capacity; (d) tax – he assumed a tax rate of 15% in the terminal period, consistent with the rate assumed in the explicit forecast period; and (e) net working capital – since the cash flow forecast in the final year of the explicit period included various one-off decreases in net working capital and Mr Edwards did not consider it appropriate to assume that those one-off decreases in capital would be repeated each year in perpetuity, he assumed that net working capital as a percentage

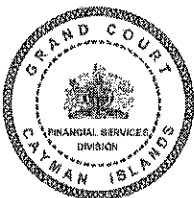


of revenue remained constant in the terminal period (save with respect to the upstream segment of RE-Goffri, where he forecast that the upstream segment would have negative working capital in the final year of the explicit period – since he did not consider it reasonable to assume a positive cash flow due to working capital into perpetuity, he assumed that the change in net working capital would be zero).

323. As regards RE-Russo, Ms Glass considered Mr Edwards' terminal value investment to be too low and, therefore, his estimated terminal value cash flows to be too high. She considered that the figures Mr Edwards used for RE-Russo implied an annual rate of return on new investment of 15.8% in perpetuity yet his WACC for the upstream segment was 8%. She asked whether it was reasonable to assume that, beginning in 2024, the Company would be able to generate an annual rate of return of 15.8%, in perpetuity, in an industry that (according to Mr Edwards) required or expected an 8% rate of return? This was in her view a clear case of excess returns. Mr Edwards assumed that the industry required or expected only an 8% rate of return yet his terminal cash flow projection implied that the Company would enjoy 15.8% rate of return on new investments in perpetuity.
324. The same objection applied to RE-Mgmt. RE-Mgmt implied an annual rate of return on new investment of 12.1%.
325. Ms Glass referred to Professor Damodaran (in *Investment Valuation*, second edition) and McKinsey (in *Measuring and Managing the Value of Companies*, sixth edition) who both point out that excess returns (where the annual rate of new investment exceeds the WACC) are not sustainable in the long term, since such excess returns will attract new competitors, whereupon the excess returns will disappear. Indeed, McKinsey went so far as to suggest that, when valuing companies that operate in competitive industries, the return on new investment should be set to equal the WACC. Ms Glass considered that to avoid this problem, Mr Edwards needed to revisit one or all of his assumptions surrounding the assumed terminal investment, the WACC and /or the perpetual growth rate.
326. The Company also noted, while relying on Ms Glass' evidence, that the evidence relied on by Dr Goffri (four sources containing forecasts of industry growth rate and average selling prices for 2014-2040) supported his findings that industry revenue was expected to remain largely flat or showing slow rates of growth.



327. The Dissenting Shareholders submitted that Mr Edward's approach was to be preferred and the Court should adopt the terminal growth rate he calculated for RE-Russo. The 5% growth rate was justified because (i) Mr Russo's forecast for long-term growth in the solar industry implied that the solar industry will grow faster than GDP in the long term, and (ii) the weighted average long-term nominal growth rate forecast by the OECD for the Company's five main markets (the US, China, Japan, India and the United Kingdom) was 4.3%. As Mr Edwards had explained, it was appropriate to use nominal rather than real growth forecasts because he used nominal USD cash flows in his DCF valuation.
328. Mr Edwards' bottom up approach to the calculation of free cash flows was to be preferred to Ms Glass' approach. Ms Glass' top-down approach was flawed:
- (a). her approach to forecasting capital expenditure and depreciation in the upstream segment was backwards. She first estimated depreciation by applying her terminal growth rate to depreciation in the last year of the explicit period, and then calculated the long-run capital expenditure that would be required to sustain this depreciation charge. This was wrong in principle since depreciation is the product of an accounting calculation after investments have been made. It was not a cash flow or a component of cash flow. DCF analysis was concerned with the measurement of cash flows, not with accounting fictions. Ms Glass' terminal growth rate was to be applied to a cash flow and not an accounting number like depreciation. Ms Glass' approach implied that the level of capital that was expended to acquire depreciable assets depended causally on the level of depreciation, whereas in fact the converse was true. Ms Glass' approach led to the implausible result that investment cost per watt increased dramatically in the terminal period. During her cross-examination it was put to Ms Glass that her position was based on the implausible proposition that it was appropriate significantly to increase Capex in the terminal period as against the explicit forecast period on the basis that new assets are not being bought but only refurbishing old assets. Her only response had been that her terminal Capex was much lower than historical figures for Capex.
 - (b). Ms Glass should have made the adjustment in respect of net working capital that Mr Edwards had made. Ms Glass, during her cross-examination, accepted that the effect of this was to assume a negative change (reduction) in working capital every year for perpetuity and that the correct approach would have been to make the adjustment made by



Mr Edwards. Accordingly, the Court was invited to find that this adjustment should indeed be made.

- (c). in addition, there were further flaws in Ms Glass' approach whose net effect on valuation was minimal so that they were not explored with her in cross-examination but they were relied on as casting further doubt on the reliability of her approach to valuation.

329. In my view, Ms Glass' terminal cash flow of US\$279.2 million and terminal growth rate of 3.5% are to be preferred. I find her criticisms of Mr Edwards' approach and analysis to be convincing. 3.5%, as I have noted, is the rate used by Mr Edwards for his calculation based on RE-Mgmt which I consider, in line with the decisions set out above, the forecast of Mr Edwards that is closest to the forecast I consider to be preferred. I have, as discussed above, rejected the forecasts and the adjustments to the Management Projections proposed by Mr Russo and generally followed the Management Projections (without the need to make adjustments to give effect to Dr Goffri's different forecasts in those limited number of cases where he disagreed with and did not support the Management Projections). I therefore do not consider that the terminal growth rate proposed by Mr Edwards for use with RE-Russo is appropriate for use in the DCF valuation.

The weight to be given to the different valuation methodologies

330. As I have explained, Mr Edwards, valued the Company using a DCF valuation while Ms Glass relied on the traded ADS price, the Merger Price, and her DCF valuation. She applied a 40% weighting to each of the ADS price and the Merger Price and a 20% weighting to her DCF valuation to reach her overall valuation.

331. The Company submitted, as I have already explained, that the fair value determination should be based exclusively on the adjusted trading price as calculated by Ms Glass. There was no need for a discount. This was for two reasons, as explained above. First, Ms Glass had been mistaken when she decided that in order to determine fair value it was appropriate to adopt a blended approach because the task was to find a value that reflected and took into account the intrinsic value of the Company. Secondly, if it was appropriate to give a weight to each of the alternative valuation methodologies, in the present case no or only a very limited weight should be attributed to the other methodologies. As a matter of law and principle, in the case of the shares of public companies, where the company's shares are listed and there is a liquid market, with the shares being followed by analysts and the share price moving with announcements, a market based price

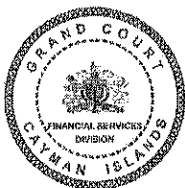


was likely to be the best evidence of fair value. This was the case here. The evidence showed that the market for the Company's shares was semi-strong efficient and the Dissenting Shareholders had failed to demonstrate that the Company's shares were affected by or undervalued because of the existence of MNPI or the China Effect. The Merger Price was above fair value and to be considered as a ceiling and not a floor for fair value. The DCF valuation was wholly unreliable because:

- (a). the DCF valuations carried out for the purpose of these proceedings had resulted in valuations of between US\$9.48 and US\$197.13 (pre-minority discount) per ADS. The valuation experts had differed significantly as to the appropriate inputs for calculating the discount rate.
- (b). a DCF was inherently unreliable in a litigation context:
 - (i). as had been noted in the New York and Delaware jurisprudence, the "DCF methodology has been subject to criticism for its flexibility: a skilled practitioner can come up with just about any value he wants" (*In re Iridium Operating LLC*, 373 BR 283, Bankr. S.D.N.Y. 2007 373 at 351).
 - (ii). the difficulties of DCF valuation were recently summarised by Parker J in *Qunar*:

"The DCF methodology can be an accurate measure of fair value. However, it depends upon the reliability of the models/projections, the various assumptions, and the validity of the inputs. Even a slight difference in these inputs can produce large variances. It also relies on subjective judgments to a large extent and can be easily manipulated by applying certain assumptions in the context of litigation. As it is also something of an abstract concept, a cross-check may also be needed to bring a DCF valuation back to the 'real world' and prevailing commercial context."

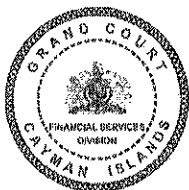
- (c). Mr Edwards' DCF valuation was unreliable because his instructions had prevented him from forming a view as to the reasonableness of the projections, which was a necessary precondition for determining whether a DCF valuation should be relied on exclusively.
- (d). valuing the Company on a DCF basis was particularly difficult, given that any projections will be inherently uncertain due to the nature of the industry. In this case any valuation used by the Court based on the DCF methodology will be subject to substantial uncertainty. This was because any projections in the case of the Company will be inherently uncertain due to the nature of the industry and the valuation experts differed significantly as to the



appropriate inputs for calculating the discount rate. An attempt by the Court to settle on and endorse accurate projections for 7 years and thereafter, and to resolve the different approaches to calculating the appropriate discount rate, should be undertaken only as a last resort, if there are no other possible indicators of value. The point that the Supreme Court made in *DFC* and *Dell* was that market trading prices and the merger price may be better indicators of value because they were the product of the collective judgment of many well-informed market participants about the company's future prospects, based on public filings, industry information and research conducted by equity analysts who are uninterested in the outcome of litigation.

332. The Dissenting Shareholders submitted that the Court should base its fair value determination solely on the value produced by a DCF valuation incorporating the inputs which the Court considered to be appropriate (which they argued was RE-Russo). The Dissenting Shareholders submitted that this was the right approach for the following main reasons:

- (a). as a matter of principle, since the fair value of a share was its intrinsic value and a DCF valuation is a direct measure of intrinsic value, it was to be preferred.
- (b). neither the traded ADS price nor the Merger Price were reliable indicators of the fair value of the Company. The only reliable valuation method that is put forward by either Mr Edwards or Ms Glass was the DCF method.
- (c). it had been wrong for the Company to suggest that Mr Edwards, in affording a 100% weighting to his DCF valuation and no weight to market price, had been guilty of uncritically accepting the numbers produced by his DCF valuation without questioning them. He had, as he explained during his cross-examination, considered whether his valuations, in particular RE-Russo, were implausible and was satisfied that they were not. As he said "*we have seen things that are similar to [these] and multiples that are in fact far greater.*"
- (d). a DCF valuation had the advantage that the assumptions and workings on which it was based are stated expressly and, therefore, can be properly scrutinised. Any other valuation method must still involve some assumption as to the Company's future prospects, but that assumption was not available to be interrogated or assessed by the Court. Simply to adopt



a questionable price instead of carrying out a proper analysis was an abrogation of the valuer's responsibility.

333. The Dissenting Shareholders said that if the Court did not accept this and concluded that it was appropriate for the market price and the Merger Price to be taken into account in determining fair value, the weight that Ms Glass afforded to those methods was excessive. She afforded only a 20% weighting to her DCF valuation, even though it was the only method that fully captured the intrinsic value of the shares. As a matter of principle that could not be right. The weight to be given to the DCF valuation should be substantially higher. But they did not make any submissions as to what the higher weighting should be. In addition, the Merger Price rather than the adjusted market price should be used either exclusively or substantially. The fact that the Buyer Group was happy to offer a Merger Price which was 60% higher than US\$7.26 was evidence that US\$7.26 could not be a sensible measure of fair value.

334. Ms Glass provided detailed reasons for her weighting of the different valuation methodologies.

335. As regards the weighting to be given to the adjusted (or unaffected) market price:

(a). Ms Glass noted that the US\$7.26 adjusted or unaffected market price she had calculated reflected the fair value of a minority position. To arrive at the fair value of a control position, and for the purpose of determining the relative weighting of the different valuations, she considered that it was necessary to add a control premium. For the reasons explained below, she assessed the appropriate minority discount to be 10% so that, in order to be consistent, she added a control premium of approximately 11.1%, resulting in a fair value for a control position of US\$8.07.

(b). Ms Glass summarised her conclusions as follows (Glass 1 at [322] – [323]):

“322 I am of the view that the Market Trading Price also provides strong evidence as to the fair value of the ADS, considering:

- a) The overall liquidity of the ADS, as indicated by all of the tests summarized [above]. Over all periods reviewed, the Trina ADS had a low bid-ask spread, a deep public float, and were actively traded. In addition, the share price reacted quickly to news about the Company.*
- b) The high number of trades per day, which further strengthens our ability to rely on the trading price. Over the period reviewed, the market price of the Trina ADS reflected the combined opinions and*



market activity of an average of 8,680 investors each day. In my view, those combined opinions should not be dismissed or ignored.

- c) *The experience and qualifications of many of Trina's larger public shareholders, which included respected institutional investors with substantial stakes, such as Franklin Resources, Platinum Investment Management, Oaktree Funds, Goldman Sachs, Morgan Stanley, Deutsche Bank, State Street, Citadel Advisors, and Bank of America Corp.*
- d) *The relatively wide analyst and investor following, together with the views of many respected analysts at or shortly prior to the Valuation Date. For the most part, analysts believed the shares were fairly priced – as illustrated by the high proportion of hold recommendations.*
- e) *The lack of strategic premiums. Unlike the Merger Price, the trading price does not include any strategic or similar premiums that must be removed.*

323 *The key negative arising from the market trading approach is the subjectivity surrounding Trina's likely share price movements between the Acceptance Date and the Valuation Date – although I believe my estimate of that change (a 12% decline) was fair, since it represented the minimum decline experienced by any of the peer companies.”*

- (c). Ms Glass considered that a discount was needed not only because of the difficulty (subjectivity) and therefore the uncertainty surrounding the assessment of the likely share price movements between the Acceptance Date and the Valuation Date but also because, as she said and accepted during her oral evidence, there were limitations applicable to aspects of her valuation methodology so that her market price valuation was only accurate within a range, and might be understated by as much as 20%.

336. As regards the Merger Price:

- (a). Ms Glass set out her conclusions as follows (Glass 1 at [321]):

“I believe the Merger Price can and should be relied upon as providing strong evidence of the fair value of Trina. Thus, I gave this approach a relatively high weighting. However, several reasons convinced me that the Merger Price should not be given a weighting higher than 40%:

- a) *The Merger Price was derived a year prior to the Valuation Date and many negative events arose between the Proposal Date and the Valuation Date, suggesting that on the Valuation Date, the Merger Price likely overstated intrinsic fair value.*



- b) *Despite the negative events, the Buyer Group ultimately concluded the deal at the Merger Price and, therefore, they presumably believed that the value of Trina at the Valuation Date justified the Merger Price. In that regard, the Buyer Group would have enjoyed not only the intrinsic fair value of Trina, but also synergies or similar benefits arising from the Merger. Since I have not had discussions with the Buyer Group, I do not know precisely what benefits were expected by the Buyer Group. However, based on my experience, I would find the following benefits to be logical candidates:*
- i). *Financing benefits – the ability to lever a company beyond amounts accepted by the public markets or strategic buyers. In my experience, leverage gains are a common benefit enjoyed by financial buyers. Moreover, leverage benefits seem likely in this case given that a key member of the Buyer Group (Xingsheng) was a subsidiary of Industrial Bank.*
 - ii). *Reduced costs of being a public company, including costs of document preparations, filings and disclosure, together with the need to maintain an investor relations team.*
 - iii). *Avoiding other disadvantages associated with public markets, including reduced disclosure and the ability to protect competitively-sensitive information, less scrutiny as to future strategies, possibly a greater ability to focus on longer-term results, and so forth.*
- c) *Regardless of their reasons, the Buyer Group did ultimately pay a high premium and it is not reasonable to assume that the premium arose because Trina’s trading price vastly understated fair value, considering my analysis [above]. Thus, a large portion of the premium must have arisen due to benefits expected by the Buyer Group, whatever they might have been. The fact that I am unable to remove these benefits from the Merger Price is the one negative that dampens its relevance as a measure of fair value, since past Cayman cases have held that dissenting shareholders should not be afforded the benefits of the transaction from which they have dissented. This issue explains my reluctance to place a higher weighting on the Merger Price.”*

(b). she considered that while the premium implied by the Merger Price appeared to be reasonable, it reflected a relatively high takeover premium (she considered that the Merger Price represented a premium of approximately 21.5% to the closing price of the Company’s ADSs on 11 December 2015, immediately preceding the Proposal Date, and a premium of approximately 20.2% to the average closing price of the ADS over the 90 trading days immediately preceding the Proposal Date but as a result of negative industry circumstances transpiring between the Proposal Date and the Acceptance Date, the Merger Price represented a premium of approximately 40.6% over the closing price of the Company’s ADS on 29 July 2016).



337. As regards the DCF valuation, Ms Glass summarised her conclusions as follows (see Glass 1 at [324] and [325] and see also [15])

“324 Three key factors caused me to afford a lower weighting (20%) to my DCF analysis:

- a) Projections for Trina (and the other peer companies in the industry) are highly subjective, given uncertainties surrounding issues facing the industry at the relevant time. For example, two respected Industry Experts were retained in this matter and each came to widely differing conclusions as to market share, market size, pricing, gross margins, capital expenditures and similar issues, demonstrating the extent of judgment required and the level of subjectivity involved.*
- b) Given the issues facing the industry and Trina at the Valuation Date, it would have been difficult to reliably project even one year into the future, let alone seven years. This high uncertainty is even more relevant when one considers that, under my DCF approach, more than 75% of the value stems from the terminal value – that is, the value at the end of 2023 – and only 25% stems from cash flow expected over the next seven years High uncertainty surrounds Trina's likely future circumstances seven years hence.*
- c) At the Valuation Date, Trina had only recently entered the downstream segment and was already in the process of altering its downstream strategy, moving from its former build-to-operate focus to a new build-to-sell focus. These recent events and changes further illustrate the subjectivity of the projections, since we do not have the benefit of proven historical results. In addition, most of Trina's peers were in a similar situation and, therefore, we are unable to rely on actual peer experience for guidance.*

325 On the positive side, I did have access to contemporaneous management projections. I performed detailed analyses on these projections and no significant issues were noted.”

338. I comment on Ms Glass' approach as follows, starting with her approach to the weight to be given to the adjusted market price and the Merger Price:

- (a). the first point to consider is Ms Glass' split between the adjusted market price and the Merger Price and her apportionment as between market based valuations (she used US\$8.07 for the unaffected market price inclusive of a control premium and US\$11.60 for the Merger Price) and her DCF valuation (US\$10.15 per ADS). She attaches an equal weight to the adjusted market price and the Merger Price (in effect she first adopts an 80%:20% ratio as between the market indicators and the DCF valuation). She did not explain her reasons for this allocation. It gives rise to two issues. First, is it appropriate to bring into account in the weighting analysis *both* the adjusted market price and the Merger



Price? Secondly, if it is, was an equal weighting as between the adjusted market price and the Merger Price appropriate and justified?

- (b). I note that in *Nord Anglia*, it appears that the company argued that both the market price and the transaction price should be given weight in determining fair value (the company argued that even though the transaction price included a premium it was still a useful indicator of fair value: see [6(d)]). However, Kawaley J gave no weight to the adjusted trading price in his final determination of value. Instead he used the transaction or merger price (and gave it, as I have said, a 60% weighting compared to a 40% weighting for the DCF valuation, even though neither expert proposed a blended approach). He decided that the transaction price was to be preferred to the market price and said as follows (see [227(e)]):

"I find that the Transaction price is a more reliable indicator of the fair value of the Shares than the Market Price because it was arrived at taking into account MNPI which may have resulted in the market undervaluing the Shares. Nonetheless, there is a risk that because of a commercial desire to effect a sale as soon as possible Barings preference for a sale to a known buyer as opposed to a complete outsider and Premier's blocking position, the Merger Consideration did not reflect the full intrinsic value of the Shares."

- (c). Professor Hamermesh noted that the potential relevance of both the market price and the merger price may require a court to assess their relative importance in determining fair value and considered how the Delaware courts addressed this question on both Hamermesh 1 (see [23]) and Hamermesh 2 (see [11]). In Hamermesh 2, which was prepared after the decision of the Delaware Supreme Court in *Aruba*, he opined that this decision indicated a preference for the merger price where there had been a robust and properly conducted transaction process. He said as follows:

*"Although the Aruba Opinion reflects the Delaware Supreme Court's continued receptivity to reliance on share market prices to measure fair value, it also suggests a preference for a merger price minus synergies approach over reliance on market prices, for reasons that may be pertinent in this case. First, the Supreme Court states that when a share price generated in an informationally efficient market "is further informed by the efforts of arm's length buyers of the entire company to learn more through due diligence, involving confidential non-public information, and with the keener incentives of someone considering taking the non-diversifiable risk of buying the entire entity, the price that results from that process is even more likely to be indicative of so-called fundamental value " (2019 Del. LEXIS 197, * 19). The Supreme Court suggested two further reasons to consider the merger price more pertinent than the unaffected share market price:*



“The price that HP paid could be seen as reflecting a better assessment of Aruba’s going-concern value for reasons consistent with corporate finance theory. For starters, the unaffected market price was a measurement from three to four months prior to the valuation date, a time period during which it is possible for new, material information relevant to a company’s future earnings to emerge. Even more important, HP had more incentive to study Aruba closely than ordinary traders in small blocks of Aruba shares, and also had material, non-public information that, by definition, could not have been baked into the public trading price.”

*(2019 Del. LEXIS 197, *19-20). In sum, I continue to maintain that under Delaware law the price of stock in an informationally efficient market can be relied upon as a measure of fair value, although the Aruba Opinion suggests that the price generated in a reasonable sale process may be even more reliable as such a measure.”*

- (d). Mr Montejó quoted part of the above extract from *Aruba* in Montejó 2 at [16] (noting that the Delaware Supreme Court had found that the record clearly demonstrated that the acquiring company, HP, was in a better position to value Aruba than the market as a whole) but otherwise did not deal with this issue directly in either of his reports. In my view, based on my reading of the court’s opinion, Professor Hamermesh’s analysis is in accordance with the decision in *Aruba*. I note the following passages from the opinion:

“Extending this basic point, DFC and Dell merely recognized that a buyer in possession of material non-public information about the seller is in a strong position (and is uniquely incentivized) to properly value the seller when agreeing to buy the company at a particular deal price, and that view of value should be given considerable weight by the Court of Chancery absent deficiencies in the deal process.

Likewise, assuming an efficient market, the unaffected market price and that price as adjusted upward by a competitive bidding process leading to a sale of the entire company was likely to be strong evidence of fair value.” (underlining added)

.....

[The Vice Chancellor] viewed an estimate of deal price minus synergies as compelling evidence of fair value on this record. [He] himself concluded that because the HP–Aruba transaction involved enormous synergies, “the deal price ... operates as a ceiling for fair value.” That conclusion was abundantly supported by the record. Aruba’s estimate of \$ 19.10 resulting from that method was corroborated by HP’s and Aruba’s real-time considerations and Aruba’s DCF, comparable companies, and comparable transactions analyses.”

- (e). Ms Glass does not record whether she considered whether the Merger Price should be preferred to and should displace the adjusted market price. It appears as though she regarded both to be subject to problems (she notes in Glass 1 at [320] that “*All three approaches have advantages and disadvantages*”) and that the problems and weaknesses



in reliance on the Merger Price were of the same order of magnitude and significance and therefore were to be given the same weight as those affecting the adjusted market price.

(f). Ms Glass' 60% discount was based on her view that (i) the Merger Price included a material payment for benefits derived from synergies (it was necessary for fair value purposes to remove any value derived from benefits flowing from the merger, in which the Dissenting Shareholders were not entitled to share) which she was unable to remove from the Merger Price and (ii) the Merger Price probably overstated intrinsic fair value because it was derived a year prior to the Valuation Date and many negative events had arisen between the Proposal Date and the Valuation Date. But, she did not (understandably as these are primarily legal questions) identify or take into account and adjust her weighting to reflect any of the problems I have identified with the merger process. I have found that there were weaknesses in the Citi Market Check process with respect to the involvement of the Company's main competitors; the Special Committee could and should have done more to ensure the independence and separation of the team preparing the Management Projections from Mr Gao's influence and Mr Gao's position may have had chilled the interest of some potential bidders and reduced the chance of bidders being prepared to make full value bids (without a Mr Gao discount) in competition with the Buyer Group. In my view, while I do not consider that these problems substantially undermined the merger process they are material and introduce an additional element of uncertainty as to the reliability of the Merger Price. Therefore, they need to be taken into account when determining the appropriate discount and relative weighting of the Merger Price.

(g). as regards the adjusted trading price, Ms Glass decided that a reduced weighting was appropriate taking into account to the uncertainty surrounding the share price movements between the Acceptance Date and the Valuation Date. But, as she acknowledged during her cross examination, there were also limitations of her methodology for testing of the reliability of the adjusted market price. She said that she also took this into account when deciding the amount of the discount to be applied but this does not appear in her list of relevant factors, quoted above, in her written evidence. This omission suggests to me that the limitations in her testing methodology require and justify an additional discount to the weight to be given to the adjusted market price. As I have explained above, Ms Glass failed to support her analysis with an event study, and while I do not consider that the absence of an event study wholly undermines the value of Ms Glass' analysis its absence does weaken her evidence regarding the existence of market efficiency. Therefore, once again, in my



view some additional discount should be applied to reflect the additional uncertainties that, as a result, apply to the adjusted market price.

339. I now consider Ms Glass' approach to the weight to be attached to the DCF valuation:

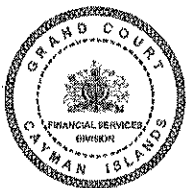
- (a). Ms Glass explained clearly why she considered that the DCF valuation was subject to serious uncertainties. In my view her approach was reasonable. I do not accept the views of Mr Edwards or the Dissenting Shareholders as to the reliability of the DCF valuations. It seems to me that this is one of those cases in which the concerns expressed by various judges in this jurisdiction and in Delaware regarding the risks associated with judicial determinations of complex and arcane questions of valuation methodology apply with considerable force. Furthermore, and importantly, I am satisfied that in this case there was, as Dr Goffri and Ms Glass argued, significant uncertainties and volatility relating to the future of the solar energy industry in which the Company operates which made forecasting difficult.
- (b). I have generally upheld Ms Glass' view that the forecasts in the Management Projections are reasonable and to be relied on (and to be preferred to the alternative forecasts proposed by Mr Russo and Mr Edwards). However, I have also found that the Company's failure to provide clear explanations of the analysis and reasoning for inputs and forecasts and to adduce additional evidence to explain the basis for key elements of the Management Projections mean that reduced weight is to be given to those inputs and forecasts. While these inputs and forecasts were validated (rescued) by Ms Glass' analysis, and I accepted that the Management Projections were prepared by a team with the requisite knowledge and expertise, the result is a set of forecasts which remain subject to uncertainties.
- (c). the disputes between and the very different views regarding the future of the industry expressed by Dr Goffri and Mr Russo bear this out. I have formed a view on the proper resolution of the disputes as to the industry issues but on occasions the analysis has been complex and not straightforward. I have also decided the disputes relating to the valuation issues but these were numerous and also on occasions complex. The result is that the DCF valuation in this case is subject to material uncertainties and therefore should be discounted.



- (d). Ms Glass discounted her DCF valuation by 80%. The justification for this depends in part on the significance to be attached and extent of the uncertainties to which the DCF valuation was subject and the uncertainty (the relative uncertainty) attaching to the adjusted sale price and the Merger Price

340. In these circumstances, in my view the proper approach is as follows:

- (a). I am satisfied that this is a case in which it is appropriate to adopt a blended approach, giving an appropriate weight to each of the three competing valuation methodologies. I have held, for the reasons given above, that it is not appropriate to rely exclusively on just one of them. Each is subject to a sufficiently serious uncertainty or problem to justify some level of discounting.
- (b). it seems to me that in a case where the Court concludes that (i) on balance the merger is the product of arm's-length negotiation and a robust, non-conflicted market check, and where bidders had full information and were subject to few, if any, barriers to bidding and (ii) it can be shown that bidders were given an opportunity to learn more than market participants through due diligence, involving confidential non-public information and had *"the keener incentives of someone considering taking the non-diversifiable risk of buying the entire entity"*, the merger price is to be preferred to the market price and is to be given substantial weight, subject to testing and checking by a DCF valuation.
- (c). in the present case, some but not all of these requirements are satisfied. There was a market check process that while deficient was sufficient to demonstrate an adequate level of marketing of the Company to show that it was likely that all interested parties including strategic purchasers could have pursued their interest if they wished to do so. The failure to obtain a competing bid does not prevent this conclusion. Furthermore, the Buyer Group were clearly given an opportunity to learn more than market participants through due diligence, involving confidential non-public information. The Buyer Group had access to all the Company's financial information and management team. It seems to me that the Delaware approach on this issue is both realistic and consistent with proper valuation principles. As Mr Montejo pointed out, it boils down to an evidential question as to whether the record clearly demonstrates that the acquiring company was in a better position to value the Company than the market as a whole. In this case, while there was no MNPI, so that the market had sufficient information from which to form a reliable view of the value of



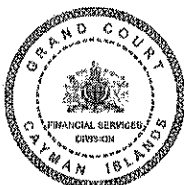
the Company and its shares, it is clear the Buyer Group was in a better position to value the Company than the market as a whole. But the problem is that it is not clear that, paraphrasing what was said in *Aruba*, this is a case in which “a share price generated in an informationally efficient market is further informed by the efforts of arm's length buyers of the entire company to learn more through due diligence, involving [some] confidential non-public information, and with the keener incentives of someone considering taking the non-diversifiable risk of buying the entire entity.” There is a question mark over the independence of the market check process and there was a risk that Mr Gao’s position had a chilling effect (being a management buyout there is a heightened concern as to whether there was a level playing field for all interested parties). On balance, these factors seem to me to justify giving some additional weight to the Merger Price but not to prefer it to the exclusion of the adjusted market price. I take into account that as an experienced valuer Ms Glass did not consider it to be illogical or inconsistent with core valuation principles to give weight to both the Merger Price and the adjusted market price (although I do not think that any Delaware cases were cited to me in which this approach has been adopted and of course none of the section 238 cases in this jurisdiction have done so). I also note that I do not consider that this approach is precluded because I have found that there was no MNPI. I have concluded that there was no MNPI so that the Court is not prevented from relying on the adjusted market price (the existence of MNPI persuaded *Kawaley J* in *Nord Anglia* to prefer the transaction price). But this does not prevent me concluding, for the purpose of deciding on the relative weighting to be given to the Merger Price and the adjusted market price, that the Buyer Group’s superior (as compared with market participants) access to financial information and due diligence and position as a purchaser pursuant to a market check process that was satisfactory to a substantial extent means that the justification for giving preference to the Merger Price (as explained above) applies at least to some extent. I do not accept the Company’s argument that in this case the Merger Price should be ignored in favour of complete reliance on the adjusted market price. This position was contradicted by the Company’s own expert and I do not see how the Company can succeed on that point in light of her evidence and no contradictory evidence from another expert supporting the Company’s position.

- (d). but as Ms Glass has concluded, properly in my view, the Merger Price itself is subject to material uncertainties which she considered justified a 60% discount but the same weighting as the adjusted market price. I have also concluded that the discount applied by Ms Glass to the Merger Price failed to take into account the additional problems with the



merger process that I have identified and therefore needed to be adjusted. For the reasons I have given these additional problems do not substantially undermine the merger process and so I would regard them as only requiring a small additional discount.

- (e). in addition, as Ms Glass has concluded, once again properly in my view, the adjusted trading price is also subject to material uncertainties which she considered justified a 60% discount but the same weighting as the Merger Price. I have also concluded that the discount applied by Ms Glass to the adjusted market price failed to take into account the methodological limitations and the resulting uncertainty which I have identified. To that extent the discount she applied to the adjusted market price needs to be adjusted.
- (f). further I have decided that it is appropriate to apply a significant discount to the DCF valuation. It seems to me that Ms Glass' approach is generally reasonable but requires some adjustment to reflect the greater risk that I attribute to the market based valuations, in particular to the adjusted market price. I do not disagree with Ms Glass' core proposition, that in this case the market based valuations should be given substantially greater weight than the DCF valuation. But I do consider that she has to a small extent underrated the risk associated with her analysis of the Merger Price and to a greater extent the adjusted market price so that it is appropriate to make a modest adjustment to reduce the weighting given to the market based valuations and increase the relative weight to be given to the DCF valuation, which is to be used to check and test the market based valuations.
- (g). balancing out all these various factors, I conclude that the market based valuations should be given a combined weight of 75% and the DCF valuation given a weight of 25%. I shall attribute a weight of 45% to the Merger Price and 30% to the adjusted market price.
- (h). this does produce a rather complex analysis and calculation of the fair value determination but it seems to me right in this case to (i) start by following Ms Glass' methodology of blending and (ii) making some adjustments to this to reflect my findings on the challenges made to the reliability of the merger process and the adjusted market price. I appreciate that my approach results in an increase in the weighting to be given to the DCF valuation above that attributed to it by Ms Glass, in circumstances where I have generally accepted Ms Glass' reasons for applying a significant discount to it. But it seems to me to be appropriate to give the DCF valuation an increased *relative* weighting, having regard to



and taking into account the additional discounts which in my view need to be applied to the adjusted trading price and the Merger Price.

- (i). in conducting the weighting exercise, I have had regard to the evidential weaknesses in the Company's case, which I have explained above. I note that the Dissenting Shareholders, in reliance on the Delaware approach and the evidence of Mr Montejo, argued that in order to be able to rely on the Merger Price the Company needed to provide substantial discovery (much more than the Company has provided here) and that those with knowledge of the process by which the company was sold and those with knowledge of the future performance of the company would be expected to give evidence and be available for cross examination (including the company's financial advisers) -- and that a failure to provide the full set of documents or witnesses can result in adverse inferences at trial. But it seems to me that the litigation culture and procedural rules affecting discovery are different in Delaware so that the Delaware jurisprudence is not directly relevant. In this jurisdiction, discovery is dealt with pursuant to the procedural directions given by Court in the early stages of the proceedings and as the case law of this Court makes clear the underlying principle in this jurisdiction, as in Delaware, is that the Company is in possession of the critical documents and personnel and should provide sufficient discovery and proffer the appropriate witnesses, to enable the experts and through them the Court to be able to form a view on fair value (I would note that in this case as in other similar cases further information was provided at a without prejudice management meeting to assist the experts). As the Company pointed out, in our system, if dissenting shareholders and their experts are not satisfied with the documentary evidence produced they can apply for directions or specific discovery and can seek an order that the company file and serve evidence from particular witnesses. The Dissenting Shareholders took none of these steps in this case. It would have assisted had they done so. In the absence of such action, the Court must deal with the evidence before it drawing such inferences as are appropriate. I have explained my approach to the evidential deficiencies in this case when discussing particular issues in the body of this judgment. Having said that, I should say that I regard it as unfortunate that the Company was economical with its evidence in this case and would hope that its approach will not be followed in future cases.



Minority discount

341. In the JCPC Shanda Advice, as I have explained, the Privy Council held that a minority discount could be applied in an appropriate case, depending on the valuation exercise under consideration although it did not rule out the possibility that there might be a case where such a discount was inappropriate. In this case, both parties submit that a minority discount is appropriate. The Company, based on Ms Glass' opinion, submits that the discount should be 10%. The Dissenting Shareholders, based on Mr Edwards' opinion, consider it should be 2%.
342. Ms Glass and Mr Edwards disagree as to the principle to be applied in deciding whether a minority discount is appropriate. They both agree that the academic literature (to which they make reference) indicates that there are a number of reasons why buyers might pay a premium to acquire a company (and thereby acquire control of it) including:
- (a). the value of control per se, i.e. the value of the right to make management decisions in the future and of full access to information about the company.
 - (b). anticipated value creation through synergies associated with the acquisition.
 - (c). anticipated value creation through a change of strategy or leadership.
 - (d). "private benefits of control", i.e. the potential for the controlling shareholders to extract value from the company at the expense of minority shareholders (Mr Edwards).
 - (e). the buyer believes that the current trading price is too low (it understates the fair value of the shares) (Ms Glass).
343. Mr Edwards considered that only the first of these reasons, the value of control per se, should be taken into account when determining the value of a company on an as-is basis as at the Valuation Date. After a review of the academic literature he concluded as follows (Edwards 1 at [9.26]):

"The academic and empirical evidence suggests that where there are robust protections for minority shareholders, the value of control per se is very small. Consequently, in these circumstances the valuation discount that is applicable to shareholdings that do not have control is very small."



344. He noted that there was a range of views in the academic papers he studied and a range of values for control per se. He concluded that the value of control per se in the present case was between 0% and 4%. He adopted the midpoint of 2% as his minority discount in his valuation.

(a). the position of the commentators who support a nil value was explained in a 2013 paper published by Professor Bradford Cornell as follows:

“More than 20 years ago [Eric] Nath (1990, 1994) and [I] (1992) put forth the argument that control does not have value per se. Instead, the value of control arises because it carries with it the potential to take actions not being taken by current board of directors [sic] and management and, thereby, create value. If the potential for value creation is great enough, an acquirer will pay the premium necessary to acquire a controlling block of shares. However, as explained below, in the great majority of situations there is no such value associated with a change of control because the current board and management are effectively maximizing the value of the company. In these situations, according to Nath and [me], the control premium is zero. This is consistent with the observation that only a tiny fraction of all listed companies are takeover targets.”

[underlining added]

(b). the position of the commentators who support a 4% value was explained in a 2004 paper by Alexander Dyck and Luigi Zingales. They analysed privately-negotiated transfers of controlling blocks in publicly traded companies to infer the value of private benefits of control. They reviewed 393 control transactions between 1990 and 2000 in 39 countries and found that the value of control varied significantly between countries, with lower premiums in countries with (among other things) better accounting standards and better legal protection for minority shareholders. For US-listed companies they found that the average control premium was between 0.2% and 4.4%. Mr Edwards conservatively adopted a value at the upper end of that finding as his upper limit for his range.

345. The Dissenting Shareholders submitted that Mr Edwards’ view was also supported by a 2003 paper by Tatiana Nenova of the World Bank which found that the average control premium for US-listed companies was between 1.6% and 2%. Furthermore, Mr Edwards noted that Citi had concluded in its Fairness Opinion that no minority discount was appropriate and that it did not apply a control premium to its valuation analysis based on trading multiples. He considered that this suggested that Citi considered the valuations implied by trading multiples (i.e. valuations derived from the prices at which minority stakes change hands) to be consistent with the

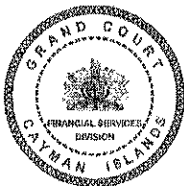


controlling valuations implied by its DCF analysis (i.e. valuations of all of the cash flows generated by the company), implying no control premium or minority discount.

346. Ms Glass took a different view. She considered that minority discount could not be viewed as the mirror image of control premiums, since premiums seen in takeover bids were not paid solely for the ability to control the public company. They were paid for one or more of the other reasons listed above. Furthermore, barring illiquidity or other unusual circumstances, the minority discount applicable to public securities was low. She said that her views were also supported by academic literature and valuation standards. She referred to a 2005 paper by Professor Damodaran in which he said:

“Researchers have used the premium paid by acquirers in mergers as a measure of a control, but this premium is an amalgam of all of the motives behind acquisitions including synergy. The premiums paid in an acquisition are a composite value of control, synergy and overpayment.”

347. She accepted that many valuers considered that control had value in and of itself, such that a minority position was worth less than a control position, and a control position was worth more than a minority position. She agreed that this was true for private companies (or if special circumstances surrounded the valuation) but not in the case of liquid shares of a public company, (and no special circumstances surround the valuation) as in the present case. Although a minority shareholder in a private company was disadvantaged relative to a controlling shareholder, such was not the case in the public markets where a minority position carried both advantages and disadvantages relative to a controlling position. A majority shareholder would have the ability to dictate a company’s strategy and future path, whereas a minority shareholder would not. To the extent one believed that this advantage (pure control) had value, then one would expect a majority holding to be worth more than a minority holding. But, on the other hand, the majority shareholder did not have a liquid asset. If something should go wrong, a minority shareholder could quickly exit the investment, thus minimising its losses, whereas a majority shareholder cannot. The additional liquidity of a minority holding thus minimised risk, and lower risk leads to higher value. In that regard, a minority shareholder of a public company was in a preferable position to the majority shareholder.
348. Accordingly, considering the pluses and minuses of the two positions, she saw no reason automatically to assume that the fair value of the Company’s minority shares should be subject to a relatively high discount. In her view, the appropriate minority discount for a well-traded, liquid share should be in the range of nil to 10%. This range was not supported by any academic



studies or precise calculations, since no such studies or formulae exist but instead, was based on judgment, considering that takeover premiums were typically in the order of 25% to 35% and because a relatively low proportion of such premiums relate to pure control. She concluded that the appropriate discount in this case should be 10%, which was at the high end of her range for two main reasons:

- (a). the low end of her range (0%) would only be supportable if her fair value conclusion was based solely on market trading prices and/or her ultimate conclusion was the same or similar (in amount) to the market trading price, which was not the case.
- (b). her valuation (before minority discount) was influenced by the Merger Price, which in turn reflected a relatively high takeover premium of 21.5% measured at the Proposal Date and 40.6% measured at the Acceptance Date. She recognised that the existence of these premiums was a factor considered in her selection of weightings. Nonetheless, the 40% weighting that she ultimately selected did not amount to a full removal of the premiums. Indeed, even with a 40% weighting and a 10% minority discount, her conclusion as to the fair value of a controlling interest probably still reflected a premium element.

349. The Company supported Ms Glass' approach and minority discount. The Dissenting Shareholders submitted that Mr Edwards' approach was preferable. It was based on reliable and independent sources whereas Ms Glass' view was not. Furthermore, Ms Glass' selection of the upper end of her range was unreasonable. She accepted during her cross examination that where the merger price was consistent with fair value without synergies, then she would use 5%. The evidence in this case established that the Buyer Group did not expect to achieve any synergies through the merger so that even on Ms Glass' approach only a minority discount of 5% at most was justifiable.

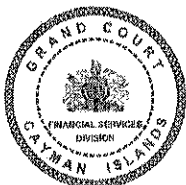
350. In *Qunar* (see [399] – [406]), Parker J considered similar arguments to those put forward by Ms Glass and Mr Edwards. Ms Glass was, in fact, also an expert witness in that case. Parker J had held that the shares were liquid and well traded and that their market trading price was reasonably representative of fair value. The other expert in *Qunar* adopted the same position as that taken by Mr Edwards and placed importance on the value of control per se. Ms Glass' evidence was that in the case of a publicly traded liquid security she would not normally apply a minority discount and if the company was well run at the valuation date there was no basis for applying a minority discount for an inability to change management, but she considered that a discount



should still be applied to account for the fact that the majority retained control over the timing of the payment of dividends. Parker J held that this was insufficient to justify a minority discount and therefore applied no minority discount.

351. In *Nord Anglia*, the Company adduced no expert evidence on the minority discount issue. The dissenting shareholders' expert considered that no discount was justified because there was no economic justification for one; alternatively, any discount must be based on the value of control to the controlling shareholder or the negative value impact of the absence of control for the minority shareholder, which in *Nord Anglia* would not exceed 2%. Kawaley J felt unable fairly to assess the validity of the opinion of the dissenting shareholders' expert and that he did not have a sufficient evidential basis for deciding this issue (and thought Parker J had been in a similar position in *Qunar*). But if required to make a finding on the point, he would adopt the 2% figure given by the dissenting shareholders' expert as the value attached to control which could not be attributed to the minority's shares.

352. I find Mr Edwards' approach to be more reliable. As the Dissenting Shareholders submitted, Mr Edwards analysis was based on reliable and independent sources and in my view was clearly and cogently argued. Ms Glass' approach on this issue was more impressionistic and difficult to justify (not least her decision to adopt the highest figure on her judgment based range). Ms Glass accepted that the minority discount applicable to public securities was low and objected to reliance being placed on premiums paid in takeover bids because they were not paid solely for the ability to control the public company. But the data relied on by Mr Edwards sought to isolate and establish a separate value for control (control per se). Mr Edwards used a number of apparently well researched and respectable studies and selected the mid-point from the range of discounts suggested thereby. This seems to me to be a reasonable and the preferable approach. It is also supported by the approach taken by Citi. Ms Glass appeared to be concerned that where, as in the present case (applying both her weightings and mine as between the Merger Price and the adjusted market price) substantial reliance was placed on the Merger Price and that price included a substantial implicit premium over the market price, it was arguable that a significant part of that premium might be said to represent control and therefore the minority discount, being the negative value impact of the absence of control for the minority shareholder, should be at the higher end of her range. But she recognised that the impact of this concern would be reduced by the discount to be applied to the Merger Price for the purpose of determining fair value. I note that the Dissenting Shareholders submitted that Ms Glass had accepted that where the merger



price was consistent with fair value without synergies, then she would use 5% but Ms Glass did not accept that in this case the Buyer Group did not expect to achieve any synergies.

353. While the expert evidence in this case was clearly more substantial than that adduced in *Nord Anglia* and perhaps *Qunar*, I ended up with the same feeling as that experienced by Kawaley J of not being fully satiated! The minority discount issue may well merit a more thorough and detailed explanation by the experts in future cases.



A handwritten signature in black ink, appearing to read 'Segal', is written over a horizontal line.

Mr Justice Segal
Judge of the Grand Court, Cayman Islands

23 September, 2020