IN THE HIGH COURT OF THE REPUBLIC OF SINGAPORE

[2016] SGHC 285

Suit No 806 of 2004 (Assessment of Damages No 23 of 2016)

Between

(1) Main-Line Corporate Holdings Ltd

… *Plaintiff*

And

(1) United Overseas Bank Ltd
(2) First Currency Choice Pte Ltd

… *Defendants*

JUDGMENT

[Patents and inventions] — [Infringement]
[Patents and inventions] — [Remedies]
[Damages] — [Assessment]

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v
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29 December 2016 Judgment reserved.

Tay Yong Kwang JA:

Introduction

1 This judgment concerns an assessment of the quantum of damages to be awarded to the Plaintiff arising from the infringement of the Plaintiff's Singapore Patent No 86037 (W/O 01/04846) titled "Dynamic Currency Conversion for Card Payment Systems" ("the Patent") by the two Defendants over a period of about 5 and a half years. The trial on liability was concluded in 2006, with judgment being given for the Plaintiff. The Defendants appealed but their appeals were dismissed by the Court of Appeal. Subsequently, the Plaintiff elected as remedies an account of profits against the first Defendant (United Overseas Bank Ltd, hereafter referred to as "UOB") and damages against the second Defendant (First Currency Choice Pte Ltd, hereafter referred to as "FCC"). Another round of appeals to the Court of Appeal

followed. The Plaintiff's choice of different remedies against UOB and FCC was upheld.

2 After lengthy applications, court conferences and meetings among the parties spanning several years, the taking of the account of profits and the assessment of damages ("the Assessment Hearing") commenced on 11 October 2016 before me and lasted six days. At the conclusion of evidence at the Assessment Hearing, written submissions were filed and exchanged. Oral arguments were heard on 7 November 2016, after which I reserved judgment.

Background

3 The dispute, which arose out of the infringement of the Patent, has been a long running one, spanning close to 12 years and leaving a number of written judgments in its wake. I shall only set out the salient facts and findings for the purposes of this Assessment Hearing.

4 The Plaintiff is a company incorporated in Ireland and used to be one of the corporate vehicles for holding the intellectual property assets of an Irish group of companies called the Fintrax Group. The Fintrax Group was in the business of providing multiple-currency credit card payment systems and tourist tax refund services. The Fintrax group was controlled by Mr Gerard Barry ("Mr Barry"), the Plaintiff's representative in the present hearing, and his family, until they sold their controlling stake in the Fintrax Group in 2012. Mr Barry remains a director of the Plaintiff.[1] The Plaintiff is the proprietor of the Patent, which was granted on 30 June 2003, with its priority date being 12 July 1999 ("the priority date").[2]

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[1] BAEIC p 174, para 1

5 UOB is a bank incorporated in Singapore and is one of the major local banks. FCC is a company incorporated in Singapore with its main business at the material time being the provision of dynamic currency conversion payment services to retailers. It was the proprietor of the "First Currency Choice System" ("the FCC system"), a card currency recognition system which performed the same function as the Patent and which was found at the trial to have infringed the Patent.

6 The Patent covers a method and system of determining the operating currency of a payment card at the point of sale ("POS") between the merchant and the cardholder. The Patent converts the value of a card transaction from the currency of the country where the POS system is located to the currency of the card's country of issue and presents both values at the POS to the cardholder for his selection of the currency he wishes to pay in. It thus provides an accurate means of automatically determining the preferred currency for a card transaction between a local merchant and a foreign cardholder. This is in contrast to the common technology where the foreign cardholder has to choose his preferred currency manually at the POS terminal, which accordingly carries the potential of operator error.

7 Between July 1999 and June 2000, UOB entered into negotiations with the Plaintiff for the provision of an automatic currency conversion system that applied the Patent. However, after those discussions ended in June 2000, there was no further communication between them until April 2002. In the meantime, FCC approached UOB with its FCC system and they eventually signed a multicurrency exchange agreement on 11 October 2001 ("the MEA")

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[2] BAEIC vol 1 pp 226-260

whereby UOB would make the FCC system available to its merchants. The FCC system was first offered for use at UOB's merchant outlets in December 2001. I will return to the MEA subsequently as the interpretation of its terms was disputed during the Assessment Hearing.

8 The Plaintiff commenced action against UOB and FCC for infringement of the Patent. The trial culminated in a finding of liability against UOB and FCC (see *Main-Line Corporate Holdings Ltd v United Overseas Bank Ltd and another (First Currency Choice Pte Ltd, third party)* [2007] 1 SLR(R) 1021 ("*Main-line Liability*")). I found UOB liable for infringement of the Patent from 10 May 2002 to 12 December 2007. I ordered an inquiry by the Registrar on damages or an account of profits by reason of the infringement, with the Plaintiff required to make its election as to the remedy it wished to seek. *Main-line Liability* was upheld on the Defendant's appeal in *First Currency Choice Pte Ltd v Main-Line Corporate Holdings Ltd and another appeal* [2008] 1 SLR(R) 335.

9 In the meantime, after obtaining certain disclosures from UOB as part of pre-election discovery, the Plaintiff sought an interim payment from UOB of S$3,135,236.40 in Summons No 2556 of 2009, claiming that this sum represented the minimum amount that UOB would be liable to pay the Plaintiff after the Assessment Hearing. The assistant registrar ordered UOB to pay into court the amount of $1,962,424.30 as an interim payment, with the amount having been derived after applying certain expense/income ratios provided by UOB. The order was set aside on appeal to the High Court in *Main-Line Corporate Holdings Ltd v United Overseas Bank Ltd and Another* [2009] SGHC 212. On further appeal, the Court of Appeal in *Main-Line Corporate Holdings Ltd v United Overseas Bank Ltd* [2010] 2 SLR 986

("*Main-Line Interim Payment*") found that it was reasonably certain that the sum of $1,962,424.30 would be the minimum sum payable by UOB. The Court of Appeal therefore reversed the High Court's decision and ordered that UOB pay the amount to the Plaintiff. UOB complied accordingly. Hence, by the time of the Assessment Hearing, the Plaintiff had already received $1,962,424.30 from UOB ("the Interim Payment").

10 As mentioned earlier, the Plaintiff elected to have an account of profits against UOB and damages against FCC. The election of different remedies against the Defendants in the same suit was disputed. However, the election was allowed by the High Court in *Main-Line Corporate Holdings Ltd v United Overseas Bank Ltd and another (First Currency Choice Pte Ltd, third party)* [2010] 1 SLR 189. On appeal by the Defendants, the High Court's decision was affirmed by the Court of Appeal.

11 The parties were eventually directed to file pleadings for the Assessment Hearing as their pleadings filed for *Main-line Liability* contained insufficient particulars for the Assessment Hearing. Subsequently, multiple discovery applications were taken out and the matter remained not ready for the Assessment Hearing for a number of years.

12 As the infringing transactions from UOB's merchants' use of the FCC system from 2002 to 2007 were too voluminous, by mid-2012, the parties reached general agreement that sampling of transactions would be done.[3] In the meantime, they also attempted mediation but failed to arrive at a settlement. The parties only reached agreement in April 2016 on the sample

[3] Minute for RAs 385-386 and 389-391 of 2012, dated 18 May 2012 by Philip Pillai J; Minutes of PTC dated 30 July 2012 by SAR Yeong Zee Kin

transactions to be used for verification of the flow of funds. By consent, I ordered that the following 10 samples of transactions across three years, two Schemes and seven different currencies be used to represent the whole body of transactions for the Assessment Hearing:[4]

(a) 1 December 2005 – Visa transactions for Australian dollar ("AUD"), Swiss franc ("CHF"), Hong Kong dollar ("HKD"), Japanese Yen ("JPY") and New Zealand dollar ("NZD").

(b) 1 December 2006 – Visa transactions for US dollar ("USD"), AUD and Euro ("EUR").

(c) 1 June 2007 – Mastercard transactions for AUD and EUR.

13 I also directed UOB and FCC to jointly prepare a chart on the flow of funds for each sample transaction from the point of sale until the payment of commission by FCC to UOB.

14 The parties did not dispute that the estimated value of the total number of infringing transactions for the infringing period was S$627m and the Assessment Hearing proceeded on that basis.[5]

The Ecosystem

15 To understand the function of the Patent and how its infringement operated to generate profit for UOB, it is necessary to understand what has been termed the "four party model" or "Ecosystem" throughout the

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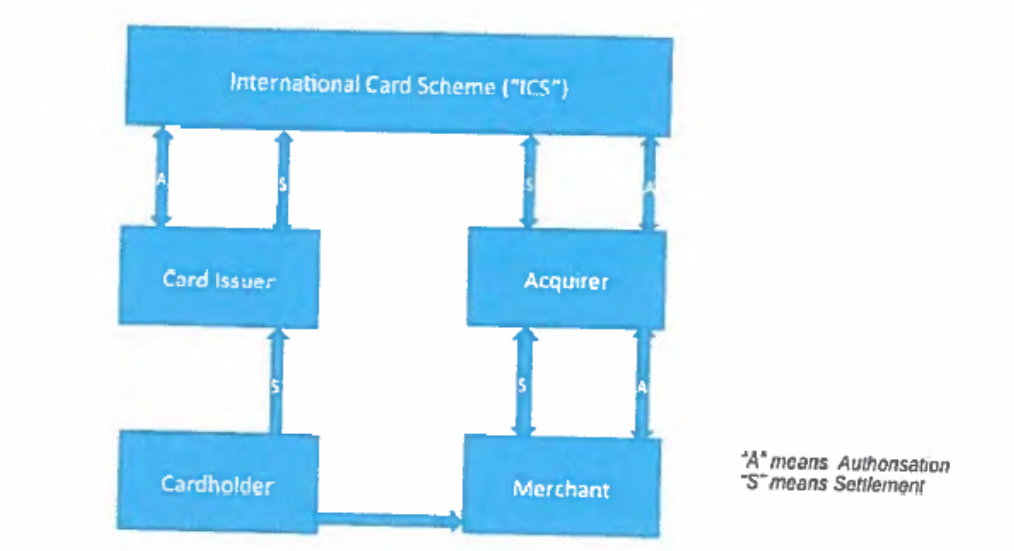
[4] Minutes of JPTC dated 6 April 2016

[5] Plaintiff's Errata Sheet E2

Assessment Hearing ("the Ecosystem"). The existence and function of the Ecosystem is not disputed. This Ecosystem is the structure for card payments devised by card schemes such as Visa or Mastercard ("the Schemes"). I reproduce a diagram from FCC's expert Mr Enda Murphy's ("Mr Murphy") affidavit of evidence-in-chief ("AEIC") depicting the Ecosystem:[6]



16 The Schemes facilitate transactions between banks. Banks are usually members of one or more Schemes. Banks who become members of the Schemes can choose to become "Issuers" under the Schemes, which means that they issue cards to cardholders under the respective brands of the Schemes, together with the name of the Issuer pursuant to agreements with the cardholders ("Cardholder Agreements"). The cardholders can use their cards to make payment for purchases from merchants (physical or Internet-based entities that sell goods and services) which accept the cards from the Schemes. The cardholders then pay their Issuers as shown in their monthly statements. If

[6] BAEIC vol 2 p 244

a card is used overseas, the value of the transactions would be converted from the currency of the overseas transactions to the card's billing currency. The cardholders therefore pay the Issuers in the card's billing currency.[7]

17 Banks can also choose to become "Acquirers", which means that they acquire merchants who will accept the cards issued by the Scheme's member banks as payment for the merchants' goods and services. The Acquirer usually enters into agreements with the merchants ("Merchant Agreements") for the Acquirer to provide the merchants with POS terminals that connect the merchant terminals to the Acquirer for the purposes of authorizing and completing sale transactions. In exchange, the merchants agree to sell the sale transactions that they have effected with the cardholders to the Acquirer. The merchants would be paid the transaction value less a discount called "the merchant discount rate" (hereafter known as "MDR").[8] Banks like UOB are usually both Issuers and Acquirers in various Schemes.

18 The flow of funds occurs in the following manner. Let us name the day of the sale transaction as Day X. The merchants' POS terminals would route the transaction information for Day X to the Acquirer, which would then transmit this information to the Scheme. On the next banking day after Day X, the Acquirer credits all of its merchants' accounts with the sums collected from the various transactions for Day X less the MDR.[9] The Scheme in turn debits the total amount due for Day X's transactions from the Issuer and credits the Acquirer's account with a total amount reflecting all of the

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[7] BAEIC vol 1 p 175 paras 6-8

[8] BAEIC vol 1 p 176 paras 10-12

[9] BAEIC vol 2 p 244

merchants' transactions for Day X ("the Settlement Proceeds") less what is known as the interchange reimbursement fee ("the IRF"). The reimbursement to the Acquirer is usually received three banking days after transactions are cleared into the Schemes.[10]

Traditional cross-border card transaction

19 Using the common example cited by the parties, assuming an Acquirer charges a merchant a MDR of 1.2% and the Scheme in turn deducts an IRF of 0.8% from the original transaction value ("OTV") of S$100, the Acquirer would reimburse the merchant S$98.80 whilst receiving Settlement Proceeds of S$99.20, resulting in a net revenue of S$0.40.[11] The Acquirer's net revenue from this transaction is the MDR minus IRF. The net revenue remains the same even in a cross-border multi-currency transaction ("converted transaction"), where the card used is billed in a currency different from the price of the transaction in SGD. The Acquirer's net revenue remains the same as the Scheme would settle with the Acquirer in the merchant's currency, *ie,* SGD in this example. The Settlement Proceeds are thus in SGD. The foreign currency exchange is conducted on the Issuer's end.

20 The Issuer's general revenue from being part of the Scheme would be derived from items like membership fees from cardholders, late fees, interest charged on rollover of outstanding charges, etc. In a converted transaction, the Issuer stands to gain from an additional fee for the use of the card overseas, which is commonly known as "the Uplift". The Uplift is typically referred to as an administrative fee or mark-up in Cardholder Agreements[12] and could

[10] BAEIC vol 1 p 177 para 14

[11] BAEIC vol 1 p 177 para 14

range from 3% to 7% of the OTV.[13] Using the example of an OTV of S$100, where the applicable exchange rate of SGD to the foreign currency ("FX") of the cardholder is S$1: FX 0.5, and the Uplift is 3%, the Issuer could charge the cardholder FX 51.50, whilst transmitting the sum payable of S$100 to the Scheme. The Issuer also has an opportunity to earn profits from the conversion of foreign currency ("the Arbitrage opportunity") as it has to convert the OTV in SGD to the billing currency of the cardholder.[14]

Relocation effect

21 Dynamic currency conversion ("DCC") is a generic term used to describe detection and conversion of a card's billing currency at the merchant's POS terminal. It is applicable in converted transactions, where the merchant's currency differs from the cardholder's. DCC allows the Uplift and the Arbitrage opportunity to be relocated from the cardholder's Issuer to the merchant's Acquirer. This allows the Acquirer to apply the Uplift during the conversion process, charge the cardholder in his billing currency, and in turn settle with the respective Scheme in the cardholder's billing currency. The Settlement Proceeds are thus in foreign currency. The Uplift is still borne by the cardholder in a DCC transaction and paid to the Issuer like in a traditional converted transaction, although it is the Acquirer who would eventually receive this Uplift where DCC is used.

22 Through DCC, the Acquirer would thus receive Settlement Proceeds in the cardholder's foreign currency inclusive of the Uplift, therefore obtaining

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[12] BAEIC vol 1, Tab 2 at 127 – 383; BAEIC vol 1 Tab 2 at 263

[13] NEs 13 October 2016 p 36 lines 15-19

[14] BAEIC vol 1 p 178 para 15

the Arbitrage opportunity. The Patent's role in this DCC process is that it allows for automatic DCC as it detects a card's billing currency automatically[15] and presents the cardholder a choice of paying in the local currency of the place of transaction or in his card's billing currency. This is in contrast to manual DCC, where the cardholder has to manually choose the preferred billing currency for the transaction, which would be more prone to operator error. It was not disputed that the use of the Patent resulted in the relocation of the Arbitrage opportunity and the Uplift to UOB, although whether UOB retained the Uplift as part of its profits was disputed.

23 The Plaintiff's expert witness, Leonard Dowling ("Mr Dowling") testified that typically, in a regular transaction, the Acquirer's profit margin from a traditional card transaction is about 0.30% to 1% of the OTV.[16] With the application of DCC in general or the Patent specifically, the Acquirer would see a significant boost in profit for converted transactions arising from the Uplift and the Arbitrage opportunity.

Parties' positions

Plaintiff

24 As against FCC, the Plaintiff in its pleadings initially claimed for the following, together with interest and costs:[17]

(a) Damages on the basis of the lost Arbitrage opportunity from the settlement proceeds in foreign currency in converted transactions;

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[15] BAEIC vol 1 p 183 para 28; Plaintiff's closing submissions para 55

[16] BAEIC vol 1 p 183 para 27

[17] Bundle of Post Liability Pleadings ("BP"), p 22

(b) The 3% Uplift on converted transactions;

(c) In the alternative to the above two claims, damages on the basis of licence fees that the Plaintiff would have earned from licensing the Patent to FCC; and

(d) Aggravated or exemplary damages.

25 However by the time of the closing submissions, the Plaintiff's position appeared to have shifted slightly. It sought, along with interest and costs:

(a) Damages measured by the lost profits that Plaintiff would have made from entering into a similar DCC provision arrangement with UOB;[18]

(b) In the alternative, damages measured on the basis of notional royalties that would have been paid to the Plaintiff if it licensed the Patent to FCC;[19] and

(c) Exemplary damages for infringement of the Patent amounting to $34.5m.[20]

26 As against UOB, the Plaintiff claimed, along with interest and costs:[21]

(a) The 3% Uplift on converted transactions;

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[18] Plaintiff's closing submissions, paras 169, 180

[19] Plaintiff's closing submissions, para 186

[20] Plaintiff's closing submissions, para 14

[21] Plaintiff's closing submissions, para 14

(b) Commissions received from FCC under the MEA; and

(c) Profits from acquiring new merchants or retaining existing merchants as a result of using the FCC system.

27 Notably, the Plaintiff is now claiming the 3% Uplift from UOB instead of FCC. The claim for damages for the lost Arbitrage opportunity also appears to be made against UOB instead of FCC.[22] The Plaintiff clarified that it sought the 3% Uplift and the damages for the lost Arbitrage opportunity from FCC in the alternative, subject to the rule against double recovery.[23]

Defendants

28 UOB took the position that:

(a) It is not liable for the 3% Uplift; instead, the 3% Uplift was transferred to FCC pursuant to the terms of the MEA and so it did not form part of UOB's profit from its infringement of the Plaintiff's Patent;

(b) There were no profits made from new and retained merchants that were attributable to the infringement of the Patent;

(c) There are no further commissions owed to the Plaintiff after UOB's costs and the Interim Payment are taken into account.

29 FCC took the position that:

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[22] Plaintiff's skeletal submissions dated 7 November 2016, para 18

[23] Plaintiff's skeletal submissions dated 7 November 2016, para 35

(a) The Plaintiff's loss, whether from the 3% Uplift or the Arbitrage opportunity, can only be recovered from either UOB or FCC, and so if it successfully seeks its account of profits from UOB for these heads of claim, FCC should not be liable for any further damages;[24]

(b) The damages, whether based on the lost profits if Plaintiff licensed to the Patent to UOB or based on notional royalties, should be non-existent or nominal;[25]

(c) FCC is not liable for exemplary damages as the Plaintiff has no legal basis for claiming so.

Issues

30 The following issues arise for determination:

(a) Whether UOB or FCC is liable to the Plaintiff for the 3% Uplift and Arbitrage opportunity on converted transactions;

(b) After taking into account the Interim Payment, what is the outstanding sum, if any, owed by UOB to the Plaintiff from the commissions that UOB received under the MEA;

(c) What is the quantum of profits, if any, made by UOB from acquiring new merchants or retaining existing merchants arising from the infringement of the Patent;

(d) Whether UOB is entitled to cost deductions;

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[24] FCC's closing submissions dated 1 November 2016, p 13

[25] FCC's skeletal arguments for oral closing submissions, paras 12-13

(e) The extent of damages payable by FCC to the Plaintiff;

(f) Whether exemplary damages can be granted in patent infringement, and if so, whether FCC is liable for exemplary damages.

31 I will now deal with these issues, beginning with the claims relating to UOB.

Claim against UOB

Applicable principles for accounting of profits

32 The general legal principles governing an account of profits are not disputed. In an action for patent infringement, the court may grant an account of profits to the plaintiff under s 67(1)(d) of the Patents Act (Cap 221, 2005 Rev Ed) ("the Patents Act"). An account of profits is a personal remedy against unjust enrichment of the defendant at the plaintiff's expense (see W. Cornish, D. Llewelyn & T. Aplin, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (Sweet & Maxwell, 8th Ed, 2013) at paras 2-43 and 2-58 ("*Cornish Llwelyn and Aplin*")). Its purpose is not to punish the defendant but to treat the defendant as having carried on his business on behalf of the plaintiff, such that the plaintiff is entitled to the profits that have been earned by the use of his invention. It also proceeds on a common principle of legal causation. As stated in *Bosch Corp v Wiedson International (S) Pte Ltd and others and another suit* [2015] 3 SLR 961 ("*Bosch Corp*") at [10], the concern is with the actual profit made by the infringer which is derived from the infringement.

33 As stated in *Bosch Corp* at [10] and *Main-Line Corporate Holdings Ltd v United Overseas Bank Ltd* [2011] SGHC 268 at [23] and [25], the profits

that are accountable can be reduced in two ways - first, by deducting costs and expenses from receipts and, second, by apportionment of profits if the profits are generated by a chain of activities and the infringing acts occupy a part of this chain. The English Patents Court in *Celanese International Corp v BP Chemicals Ltd* [1999] RPC 203 at 242 ("*Celanese*") stated that "the court is trying to find out what profits have been made in fact by the defendant, not the profits he could have made"; a plaintiff therefore cannot "complain that the defendant could have made greater profits if he had taken an alternative course".

34 In the present situation, the parties have agreed on using sample transactions to extrapolate UOB's profits. UOB submits that an account of profits "does not require a detailed financial accounting exercise" and that the approach adopted in *Bosch Corp* of "judicial estimation of the available indications" should be equally applicable here. While this approach is useful in appropriate cases, it must also be noted that the facts of the present case are not quite the same as those in *Bosch Corp.* In the latter case, there was a dearth of documentation since the infringing company was of a much smaller scale and was not managed very professionally. However, UOB could hardly be described in the same way. The justification for the use of judicial estimation here is that the volume of UOB's merchant transactions from 2002 to 2007 would make the quantification of UOB's profits down to the cent an extremely difficult task and so a more broad brush approach of extrapolation from the samples has to be applied instead. As stated in *Bosch Corp* at [29], "available indications" mean that the court must do the best it can on the whole of the material before it.

3% Uplift

35 As stated at [20], the Uplift refers to the additional fee that is charged to a cardholder when his or her card is used overseas. With the infringing application of the Patent by the FCC system, the Uplift is relocated from the Issuer bank to the Acquirer bank, which in the present case is UOB. The Plaintiff has accepted that the Uplift would be 3% of the OTV on average and insists that it formed part of UOB's profits. It is also not in dispute that there is only "one pot of Uplift"[26] – it was received by only one party, whether UOB or FCC.

36 UOB denies that the 3% Uplift forms part of its revenue from the infringement of the Patent, arguing that the flow of funds from receipt to outgoing expenses showed that the 3% Uplift sought by the Plaintiff was actually transferred to FCC under the terms of the MEA. The salient portions of the MEA are reproduced below:[27]

> **1. DEFINITIONS**
>
> 1.1 In this Agreement unless the context otherwise requires:-
>
> […]
>
> "Transaction" means the discharge by a Cardholder of his indebtedness to a Merchant in any of the Foreign Currencies by use of a Credit Card using the Multicurrency Facility
>
> **3. MULTICURRENCY EXCHANGE**
>
> 3.1 From the Commencement Date and throughout the term of this Agreement, the Bank shall make available to the Merchants the capability to accept payments in Foreign Currencies by the use of Credit Card for goods and/or service supplied by the Merchants on the terms and conditions of the Multicurrency Merchant Agreement.

[26] NEs 11 October 2015, p 53 lines 4-12

[27] BAEIC vol 3 pp 527-540

> 3.2 From the Commencement Date and throughout the term of this Agreement, FCC shall be responsible for all currency risks and losses, and entitled to all currency gains arising from the operation of the Multicurrency Facility contemplated under Clauses 8,9 and 10 of this Agreement.
>
> **4. COMMISSION**
>
> 4.1 In consideration of the foreign currency business it receives as a result of Merchants using the Multicurrency Facility FCC shall pay the Bank the Commission on or before the 15th day of each calendar month calculated based on the Net Foreign Turnover processed through the Multicurrency Facility during the preceding calendar month.
>
> **8. TRANSACTION**
>
> […]
>
> 8.2 **Payments**: In respect of a Transaction submitted to FCC for processing before FCC Cut-Off Time:-
>
> > (a) at the Bank Settlement Time the Bank shall be entitled to deduct the Transaction Price from the Singapore Dollars Account.
> >
> > (b) at FCC Settlement Time the Bank shall deposit the Foreign Currency Equivalent of the Transaction to the relevant Foreign Currency Account.

37 UOB's witness, Mr Tan Min Yeow ("Mr Tan"), gave evidence that under clause 8.2 of the MEA, FCC had to pay UOB the OTV while UOB was required to pay FCC the Settlement Proceeds.[28] Therefore, UOB's only profit under the MEA and from the infringement of the Patent through its use of the FCC system was a monthly commission paid to it by FCC based on a percentage of "Net Foreign Turnover" under clause 4.1.[29]

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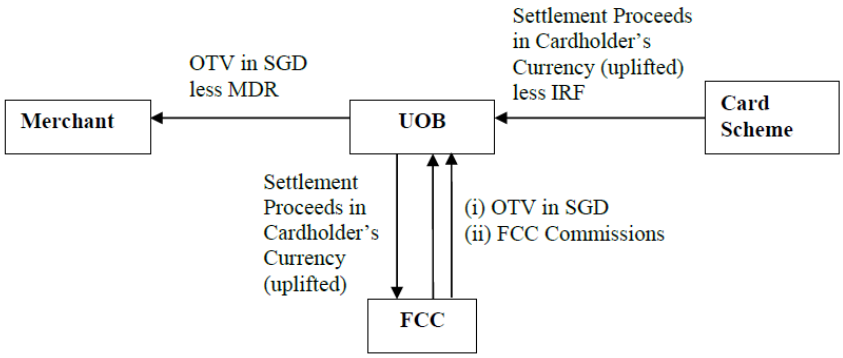
[28] Tan Min Yeow's AEIC, para 24

[29] Tan Min Yeow's AEIC, para 25

38 This is the diagram that UOB argued represents the overall flow of funds:[30]



39 UOB argues that as shown in the diagram, the net revenue earned by UOB was the commissions from FCC and the difference between the MDR and IRF.[31] Therefore, it is not liable for the 3% Uplift as it was transferred to FCC in exchange for a monthly commission.

40 The Plaintiff on the other hand argues that UOB is liable for the Uplift, because the Patent was designed for use by Acquirers within the undisputed Ecosystem.[32] The Plaintiff claims that this Ecosystem was a "closed system". The Plaintiff relies on the English Court of Appeal case of *In re Charge Card Services Ltd* [1989] Ch 487 ("*Re Charge Card*") to argue that there were separate and independent contracts in place between the parties in the Ecosystem, such that parties could not sue to recover outstanding amounts from other parties who were not in a contract with them.[33] Issuers and

[30] UOB's closing submissions dated 1 November 2016, para 57

[31] UOB's closing submissions, para 57

[32] Plaintiff's closing submissions, para 29

Acquirers dealt with each other and with the Schemes as principals and not agents of either the merchants or cardholders.[34] In the present case, under the Merchant Agreements that UOB signed with its merchants, it would have been provided that UOB was the sole owner of the sales slips that it purchased from the merchants.[35] Thus, UOB also owned all the Settlement Proceeds that it received from the Schemes after it had reimbursed the merchants.[36] Also, the Settlement Proceeds were indisputably credited into UOB's NOSTRO accounts, of which UOB was the sole owner, beneficiary and operator.[37] Therefore, the Settlement Proceeds ought to form part of UOB's profits and losses.

41 As for UOB and FCC's arrangements under the MEA, the Plaintiff argues that it is merely a separate currency exchange agreement and is UOB's chosen means of dealing with the Settlement Proceeds in foreign currency that it receives from the Schemes. While accepting that UOB should be liable to account for the commission that it earned under the MEA, the Plaintiff took the position that UOB was nevertheless also liable for the 3% Uplift.[38] The Plaintiff pointed out that UOB would prefund its foreign currency account in anticipation of the currency exchange with FCC, even before it received Settlement Proceeds from the Scheme or had an indication of what the IRF deductions would be.[39] The Plaintiff therefore argues that there is no nexus

[33] Plaintiff's closing submissions, paras 35-40

[34] Plaintiff's closing submissions, paras 42

[35] Plaintiff's closing submissions, paras 64-71

[36] Plaintiff's closing submissions, para 73

[37] Plaintiff's closing submissions, para 77-78

[38] Plaintiff's closing submissions, para 93

[39] Plaintiff's closing submissions, paras 102-103

between the 3% Uplift that UOB receives as part of the Settlement Proceeds and UOB's currency exchange arrangement with FCC, as it was not backed up by the flow of funds.[40] There was also no mention of the word "Uplift" in the MEA. Furthermore, to consider the Uplift and the commissions together would "amount to a global treatment of UOB's profit and loss" when they were part of separate businesses, which the Plaintiff argued was an approach that had been rejected in the seminal case of *Celanese*.[41]

42 The Plaintiff also attacked the MEA for not making commercial sense. The Plaintiff argued that the MEA essentially meant that in the example of an exchange rate of S$1.00: FX 0.5 and a S$100 OTV, with an Uplift of 3% charged, UOB was exchanging the FX equivalent of S$103 for S$100. Therefore, UOB was only earning the commission of around 0.5% of the OTV while it apparently relinquished 3% of the OTV to FCC. The Plaintiff argued that this arrangement made no sense in the light of the Plaintiff's offer to share 1.2% of the OTV with UOB when the Plaintiff and UOB were in negotiations regarding the use of the Patent.[42]

43 In my view, the Plaintiff's claim against UOB for the 3% Uplift is unmeritorious.

44 The MEA cannot be viewed as a separate and independent business from UOB's use of the infringing FCC system as the MEA essentially sets out the entire arrangement between UOB and FCC for the use of the FCC system, which resulted in infringement of the Patent. This is a fact that has been

[40] Plaintiff's closing submissions, paras 99-101

[41] Plaintiff's closing submissions, paras 27, 107-108

[42] Plaintiff's closing submissions, para 118

reiterated in previous judgments arising out of this case, such as the Court of Appeal's judgment in *Main-Line Interim Payment* at [3]. Therefore, there is no merit in the Plaintiff's attempt to dispute the nature of the MEA as somehow being unrelated to the FCC system in the Assessment Hearing. Clauses 4 and 8.2 of the MEA also set out the arrangement between UOB and FCC, which is that UOB would obtain a commission from FCC by depositing into FCC's account the "Foreign Currency Equivalent of the Transaction" and deducting the "Transaction Price" from FCC's SGD account. The wording of the MEA supports UOB's case theory that the Settlement Proceeds it obtained from the Schemes were completely transferred to FCC.

45 Further, I am satisfied that the flow of Settlement Proceeds in foreign currency from UOB to FCC and the flow of the OTV in SGD from FCC to UOB was established. Expert evidence was centred on the flow of funds in the Assessment Hearing and the main area of dispute between the experts related to the flows between UOB and FCC. It was not disputed that the Settlement Proceeds less the IRF were paid by Schemes like Visa to UOB.[43] I will use the 1 December 2006 sample transaction in EUR[44] for this discussion, since it was the sample that was the most frequently discussed during the experts' evidence. It was accepted by Mr Dowling that the exchange between FCC and UOB which covered transactions made during normal hours and after hours of 1 December 2006 did not follow the Visa settlement cycle which covered transactions made after hours on 30 November 2006 and during normal hours on Friday 1 December 2006.[45] This different timing in settlement for FCC and

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[43] NEs 17 October 2016 p 53 lines 17-22

[44] BAEIC vol 1 pp 148-169

[45] BAEIC vol 1 p 30, para 148

Visa resulted in sums that were transferred between UOB and Visa on the one hand and between UOB and FCC on the other not directly corresponding in value. The VSS-110 report, which shows Visa's settlement process with UOB, indicates that a sum of 67,751.36 EUR, after deduction of IRF from 68,425.33 EUR, was credited to UOB.[46] UOB's transfer of Settlement Proceeds to FCC is corroborated by the bank statements, which showed a withdrawal of 68,425.33 EUR in Settlement Proceeds from UOB's GCA corporate account to an account with the number 1019106484,[47] and a deposit of the same amount into FCC's GCA corporate account with the same account number on 6 December[48]. From this, I accept that UOB did in fact transfer the Settlement Proceeds, inclusive of the 3% Uplift, to FCC. I also accept the evidence of Mr Lim See Sai ("Mr Lim")(who testified for FCC) and Mr Tan (who testified for UOB) that UOB topped up the IRF amount deducted by Visa when it transferred the Settlement Proceeds to FCC.[49] FCC's same day transfer of the relevant OTV to UOB was corroborated by the bank statements as well - its bank statement from the Singapore branch of Skandinaviska Enskilda Banken AB shows a remittance of S$739,147.72,[50] which was received in UOB's account with the reference "Dcc Settlement for 1 Dec'06".[51] I accept Mr Tan's explanation that the sum of S$739,147.72 represented the OTV of the transactions in all 9 currencies for all transactions of 1 December 2006.[52]

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[46] BAEIC vol 1 p 159

[47] BAEIC vol 1 p 162

[48] BAEIC vol 1 p 163

[49] BAEIC vol 2 p 7

[50] BAEIC vol 1 p 164

[51] BAEIC vol 1 p 165

[52] NEs 17 October 2016 p 85 lines 3-8

46 In gist, I am satisfied that the flow of funds has been established, contrary to the Plaintiff's allegations of lack of documentation. The information such as internal reconciliation and accounts sought by Mr Dowling during the Assessment Hearing were not in my view necessary to establish the flow of funds.

47 I also note that my findings regarding the flow of funds and the movement of the 3% Uplift are not inconsistent with the Plaintiff's own position during interlocutory hearings. For instance, all counsels agreed during a related registrar's appeal hearing before Philip Pillai J that it was "[u]ndisputed that 3% is earned on the card" and "[u]ndisputed that UOB has paid this 3% to FCC".[53]

48 The Plaintiff's reliance on the cases of *Re Charge Card* and *Celanese* are also misguided. To begin with, the description of the Ecosystem as "closed" has not been explained and appears to be a rather imprecise term used by the Plaintiff to support its unmeritorious case. Taking the Plaintiff's case at its highest and assuming "closed" means that profits and losses of each party in the Ecosystem cannot take into account their arrangements with non-parties to the Ecosystem, *Re Charge Card* does not prove the Plaintiff's assertion that the Ecosystem was "closed". I agree with UOB that all that *Re Charge Card* indicates is that the contracts between the various parties in the Ecosystem are separate and therefore matters relating to one contract have no relevance to the other. Accordingly, a Scheme cannot look to a cardholder for recovery if the Issuer defaults on repayments, as the Scheme is not in a contract with the cardholder. A merchant also cannot look to the Scheme for

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[53] Minutes for RAs 385-386 and 389-391 of 2012, dated 18 May 2012

recovery should the Acquirer fail to reimburse its share of sales receipts, as the merchant is not in a contract with the Scheme. There is nothing in *Re Charge Card* to suggest that the Ecosystem is "closed" in the sense that the profits and losses of each party cannot take into account its arrangements with third parties. Since the present dispute is not one between the parties in the Ecosystem, I do not think *Re Charge Card* has any relevance here.

49 I pause to acknowledge the possibility raised by the court in *Celanese* at [33]:

> … a case in which those loss-making activities can realistically be treated as a sequence of separate and self-contained businesses where profits made on one are obliterated by losses on others so that, looked at as a whole, the profits attributable to infringement are hidden. In such a case it may be possible to disentangle the profits made on the infringing business and order them to be paid to the plaintiff notwithstanding the losses made elsewhere.

50 However, given my finding that the MEA is the means by which the FCC system was implemented, this is clearly not a case like *Celanese* where the calculation of profits of two plants was in dispute. UOB's transfer of the 3% Uplift is evidently connected to its receipt of commissions from FCC pursuant to the arrangement set out in the MEA. For that reason, the 3% Uplift cannot be treated as a source of profits separate from the commissions.

51 In relation to UOB's arrangement of purportedly forgoing a potential 3% Uplift in exchange for a commission of around 0.5% of the net turnover, I am of the view that there were reasons to do so at that time, even if it did not result in maximum profits possible for UOB. I accept UOB's witness, Mr Tan's, explanations for this arrangement. He explained that the decision to enter into the MEA was based on multiple factors. The bank's focus was not

purely on profits and losses but also providing quality services to their merchants.[54] FCC was a desirable partner as it had a committed sales force on the ground that UOB could rely on to provide timely and quality services to its merchants and also use to acquire new merchants.[55] Further, UOB's arrangement with FCC meant that UOB did not have the responsibility for incentivising merchants to take up the FCC system, as FCC had separate contracts with the merchants which provided them with certain rebates. The existence of these separate contracts was confirmed by Mr Lim.[56] UOB preferred this to the arrangement offered by the Plaintiff where UOB took a share of the Uplift but had to pay out rebates to the merchants.[57] UOB saw greater value in eliminating the need to negotiate with merchants regarding the rebate and this appears to me to be a reasonable explanation. UOB essentially took the commission of 0.5% of the net turnover and left FCC to deal with the currency risks associated with trading of the Settlement Proceeds and provision of rebates to UOB's merchants. This arrangement does make commercial sense, even if it did not result in maximum profits possible to UOB. In any case, automatic DCC was a new technology at the material time and in implementing the FCC system, it was not unreasonable for UOB to decide to limit its exposure and responsibilities in return for lower but assured profits.

52 I find that the 3% Uplift went to FCC and accordingly, the Plaintiff's claim against UOB for this head of profits fails. The Arbitrage opportunity

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[54] NEs 18 October 2016 p 31 lines 5-9

[55] NEs 18 October 2016 p 31 lines 11-15

[56] NEs 18 October 2016 p 146 line 25 to p 147 line 3

[57] NEs 18 October 2016 p 31 lines 19 to p 32 line 5, p 33 lines 9-22

from the trading of the Settlement Proceeds therefore belonged to FCC and I will consider this when I deal with the Plaintiff's claims against FCC.

Commissions from FCC

53 I note the Plaintiff's arguments that the quantum for UOB's commission from FCC was not verified by invoices and Mr Tan's admission during the hearing that UOB did not issue invoices for the FCC commissions during the infringement period.[58] However, in its submissions, the Plaintiff did not dispute that the quantum for commissions that UOB received from FCC was S$3,157,847.09,[59] which represented the general commission rate of 0.5% of the net turnover of S$627m. It was not disputed that the commission was on average around 0.5% of the net turnover.[60] I therefore proceed on this basis.

54 The dispute is whether UOB is entitled to deduct costs and expenses incurred in relation to setting up the FCC system from its profits. The Plaintiff submits that UOB cannot do so.[61]

55 The Plaintiff submits that UOB should not be entitled to any deductions as it has failed to provide documentary evidence of its costs and thus failed to discharge its evidential burden.[62] The Plaintiff also pointed out the inconsistency between UOB's position when it filed its Statement of Defence in 2011 and its position at the Assessment Hearing. In the former,

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[58] NEs 18 Oct 2016 pp 97-98

[59] Plaintiff's closing submissions paras 14 and 20; UOB's closing submissions para 207

[60] NEs 12 October 2016 pp 86-88

[61] Plaintiff's closing submissions paras 20

[62] Plaintiff's closing submissions paras 148, 159

UOB provided a brief table with a breakdown of costs and expenses incurred as well as the applicable tax rates.[63] In the latter, UOB takes the position that its general expense/income ratios for the infringing period should be used instead.[64] UOB's position at the Assessment Hearing was identical to that in 2009 during pre-election discovery and was the basis upon which the Court of Appeal determined the quantum of the Interim Payment. The Plaintiff argues that UOB should be bound by its later Statement of Defence in 2011 and that the court should draw an adverse inference against UOB for not disclosing the source documents for the figures in the Statement of Defence.[65] While the Plaintiff acknowledges that taxes constitute a form of deductible costs, it submits that there was no evidence to show that UOB paid the relevant corporate taxes.[66] Further, the Plaintiff submits that there are "significant overlaps in the general overheads incurred during the implementation and maintenance of multicurrency systems and DCC services", which would make it unfair for such costs to be associated with UOB's infringement. This is because in 2001, UOB did not have multicurrency capability, which was a prerequisite to implementing the FCC system. Therefore, the costs that were expended went to developing multicurrency capability and DCC services concurrently.[67]

56 The inconsistency in UOB's position and the lack of documentation were admitted by Mr Tan during his cross-examination,[68] as well as by UOB's

[63] BP 40-42

[64] UOB's closing submissions para 217, BAEIC vol 3 pp 515-516

[65] Plaintiff's closing submissions para 153

[66] Plaintiff's closing submissions para 155

[67] Plaintiff's closing submissions para 158

[68] NEs 18 October 2016 p 119 line 18 to p 120 line 16

counsel during submissions. Mr Tan explained that UOB only has a separate profit and loss account that covers both the acquiring and issuing business and UOB's resources such as manpower and technical resources are shared. Therefore it did not have a separate profit and loss account for the acquiring business that involved DCC.[69] UOB submits that Mr Tan's evidence was consistent with the Court of Appeal's observation in *Main-Line Interim Payment* at [28] that it was unlikely that UOB would be able to work out its actual profits from operating the FCC system. UOB takes the position that the expense/income ratios provided, which enabled the Court of Appeal to arrive at the Interim Payment sum, should suffice since an account of profits requires only a reasonable approximation and not mathematical exactitude. In the alternative, UOB submits that the court should at least allow UOB to deduct taxes paid from the overall profits and a "reasonable sum of expenses" given that UOB had to incur significant expense to set up and operate the FCC system as it was the first of its kind.[70]

57 In my view, Mr Tan's explanation is not inconsistent with UOB's position at the Interim Payment stage and is a reasonable one. There is admittedly a margin of error that may arise as a result of the court taking the expense/income ratios. However, it would also be unfair to deny UOB any deductions completely. After all, it was acknowledged by the Plaintiff's expert, Mr Dowling, that "it takes many months of work and requires the expenditure of hundreds if not thousands of man hours" to implement DCC technology.[71] While the multicurrency capability that was implemented could

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[69] NEs 18 October 2016 pp 17-18

[70] UOB's closing submissions paras 224-226

[71] BAEIC vol 1 p 14 at para 43

also support manual DCC services, the fact remains that UOB implemented this in 2001 in preparation for the launch of the FCC system. In the light of this, I follow the Court of Appeal's approach in *Main-Line Interim Payment* and find that UOB's profits from FCC's commissions are to be derived by applying UOB's expense/income ratios (with expenses ranging between 34.7% and 41.4% of income) to the sum of S$3,157,847.09. Therefore, the profits from FCC's commissions are S$1,962,424.30, which has already been paid to the Plaintiff as the Interim Payment.

Profits from acquiring new merchants or retaining existing merchants

58 The Plaintiff argues that UOB must have acquired some new merchants or retained existing merchants ("retained merchants") who would have left UOB but for the offering of the FCC system. It was noted in *Main-line Liability* that more than 300 merchants in Singapore were using the FCC system. As of 2007, there were 567 POS terminals with the infringing FCC system.[72] The Plaintiff pointed out that the sample Merchant Agreement produced by UOB[73] indicated that the particular merchant was acquired by UOB on 29 March 2007. Therefore, the Plaintiff argues that it would be reasonable to "assume that merchants were indeed acquired by UOB using the FCC system as a marketing tool".[74] The Plaintiff therefore submits that it would be reasonable for the court to hold that 100 out of these 300 merchants were new or retained merchants. Relying on Mr Dowling's evidence that the MDR margins from these merchants would be 0.3% to 1%, the Plaintiff

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[72] BPA vol 3 tab 1 page 6 at para 6

[73] BAEIC vol 3 pp 521-524

[74] Plaintiff's closing submissions para 142

submits that, taking a conservative estimate of the MDR at 0.3% to 0.5%, UOB should be liable for profits of S$627,000 to S$1,045,000.[75]

59 In my view, this head of claim is based on pure conjecture. The Plaintiff has not produced evidence to suggest that merchants were specifically acquired or retained as a result of the FCC system. A patentee can only claim the amount of profits that is attributable to the infringing use. Accordingly, the causation has to be proved and that was not done in this case. While it was not disputed that UOB's intention in implementing the FCC system was partly to acquire more merchants and its merchant base grew non-stop since 2001,[76] there is no proof that a specific merchant was acquired or retained as a result of the said system. The sample Merchant Agreement was merely proof that UOB was acquiring new merchants during the infringing period but did not go so far as to show the causative effect of the FCC system in acquiring new merchants. I also accept UOB's argument that the earning of MDR happens in every credit card transaction, whether the transaction is converted or not. Therefore, there is a lack of causal link between the infringement of the Patent and the MDR earned. UOB also raises the possibility of other factors influencing merchants to sign up with UOB, such as the discounts, rebates and incentives that FCC provided to merchants independently of UOB.[77] In my view, there were many possible reasons why the merchants would sign up with UOB or with any other bank and the Plaintiff has failed to prove that it was partly or wholly due to the FCC system.

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[75] Plaintiff's closing submissions para 146

[76] NEs 18 October 2016 p 134 lines 12-15

[77] UOB's closing submissions para 187

60 I add for completeness that even if there were such merchants who signed up with UOB because of the FCC system, UOB did not appear to profit from the MDR. I accept Mr Tan's evidence that based on the 10 sample transactions that were the focus of this Assessment Hearing, the average difference between the MDR charged by UOB to the merchant and IRF charged by the Schemes to UOB was negative, meaning that UOB did not actually profit from those transactions.[78]

61 Accordingly, the Plaintiff's head of claim against UOB regarding the profits from new or retained merchants fails.

Profits payable

62 Flowing from my findings above, UOB's only profit from infringement of the Patent is its commissions from FCC under the MEA multiplied by the expense/income ratios. This would amount to S$1,962,424.30. As it has already paid this sum to FCC as the Interim Payment, UOB is not liable to the Plaintiff for any further sums.

Claim against FCC

Applicable principles for assessment of damages

63 Damages are generally intended to be compensatory, such that they put the victim of the wrong in the position which he would have been in had the wrong not been committed. The situation is the same in relation to patent infringement, which is an instance of a statutory and economic tort. Recovery of damages is possible provided that the loss proved is foreseeable, caused by

[78] BAEIC vol 3 p 511, para 38(b)

the wrong and not excluded from recovery by public or social policy (see *Gerber Garment Technology Inc. v Lectra Systems Ltd and another* [1997] RPC 443 ("*Gerber v Lectra*") at 452). The general principles enunciated in *General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd* [1975] 1 WLR 819 ("*General Tire*") at 824-825 were cited with approval by the Court of Appeal in *Ong Seow Pheng and others v Lotus Development Corp and another* [1997] 2 SLR(R) 113. As stated by Lord Wilberforce in *General Tire* at 824:

> …There are two essential principles in valuing that claim: first, that the *plaintiffs have the burden of proving their loss*: second, that, the defendants being wrongdoers, *damages should be liberally assessed* but that the object is to compensate the plaintiffs and not punish the defendants…
>
> [emphasis added]

64 In *General Tire* at 824, Lord Wilberforce cautioned that in patent infringement cases, the application of the principles would vary depending on the particular facts of the case and it would be misleading if fact-specific decisions and observations are "relied on as establishing a rule of law". In general, patentees usually derive remuneration from their inventions either by manufacturing articles or products which they sell at a profit or by permitting others to use their inventions under licence in exchange for royalty payments. In the former situation, the measure of damages would normally be lost profits on sales which the patentee would otherwise have made, or lost profit on the patentee's own sales to the extent that he was forced by the infringement to reduce his own price. In the latter situation, the measure of damages will likely be what the patentee would have charged the defendant for a licence based on the "accepted royalty rate" (see Richard Miller QC et al, *Terrell on the Law of Patents* (Sweet & Maxwell, 17th Ed, 2011) ("*Terrell on Patents*") at para 19-

43). However, "it must be shown that the circumstances under which the going rate was paid are the same or at least comparable" with the present situation in which the patentee and infringer are assumed to strike their bargain (see *General Tire* at 825).

65 Lord Wilberforce in *General Tire* also acknowledged (at 826) that there may be situations where the patentee cannot show a normal or established licence royalty or a rate of profit as a manufacturer, in which case the plaintiff would have to adduce admittedly general or hypothetical evidence in the form of expert opinion or practice in the trade, to support a finding of a reasonable royalty (also see *Terrell on Patents* at 19-44).

66 It has been suggested in *Cornish Llwelyn and Aplin* (at para 2-38) that the starting point is to ask whether the patentee and infringer are in actual competition, and if so, whether the infringer might have had the patentee's licence if he had sought it. However, if the patentee would not have granted the licence, the court will look to his losses through competition from the infringer and it is only where their anticipated profits are in the same market that the infringer's gain will be the patentee's loss. Here, the concern is not limited to just lost profits on potential sales but damage to future prospects of the patentee.

Damages payable

67 The Plaintiff argues that its situation is more similar to a patentee who exploits the patent as a manufacturer and sells the patented articles for profits, than a patentee who licenses the Patent for profit. The Plaintiff relies on Mr Barry's evidence that the Patent is to be used by Acquirers in the first instance who would be the appropriate licensee. FCC as a competitor of the Plaintiff

was not part of that target audience.[79] Therefore, the proper measure is the lost profits on the contract for offering automatic DCC services, which the Plaintiff would otherwise have entered into with UOB.[80] I note that during the oral closing submissions, counsel for the Plaintiff clarified that he was foregoing the alternative argument in the Statement of Case regarding potential profits from licensing the Patent to FCC, as the licence would have been granted in any event to UOB and not FCC.[81]

68 The Plaintiff argues that there is a substantial chance that it would have entered into a contract with UOB as a DCC service provider and that FCC's actions caused the loss of this contract.[82] The issue that arises for determination is whether the loss of profits from this potential contract should be assessed from the perspective of the Plaintiff's negotiations with UOB for a 1.8% share of the net turnover to accrue to the Plaintiff or by allowing the Plaintiff to step into FCC's shoes in the MEA and obtain the 3% Uplift.[83] The Plaintiff submits that the latter approach should be taken, in line with the principle that damages should be assessed liberally and the principle that the Defendant should not profit from his wrong.[84] Flowing from this, the Plaintiff would be entitled to the damages equivalent to the value of the 3% Uplift which is S$18,810,000 and also the Arbitrage opportunity, valued at not less than the value of the commissions paid to UOB, which is S$3,157,847.09.[85]

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[79] BAEIC vol 1 p 219 para 137

[80] Plaintiff's closing submissions paras 169-170

[81] NE 7 November 2016 p 91 lines 16-20

[82] Plaintiff's closing submissions paras 178-179

[83] Plaintiff's closing submissions paras 182

[84] Plaintiff's closing submissions paras 183

[85] Plaintiff's closing submission para 184

69 As an alternative argument, the Plaintiff submits that if the court declines to adopt the approach above, it should assess damages "on the basis of reasonable royalty".[86] Whilst acknowledging the difficulty with this approach due to the *sui generis* nature of the Patent as there was no normal or established royalty rate in the market at the material time and the fact that it was designed for use by Acquirers and not competitors like FCC, the Plaintiff submits that the court would have to proceed on the basis of a hypothetical negotiation for a licence between the Plaintiff and FCC. In this respect, the Plaintiff submits that the royalty rate should be 2-2.5%.[87]

70 FCC's position is that the Plaintiff has failed to prove that there was "a substantial chance rather than a speculative one" that it could have entered into a contract with UOB (see *Gerber v Lectra* at 459) or that FCC's infringement caused the loss of this chance.[88] FCC submits that UOB entered into the MEA with FCC for other reasons, of which the Patent-infringing FCC system was merely a peripheral one.[89] In fact, Mr Barry admitted during cross-examination that the Plaintiff's discussions with UOB were very preliminary and while the automatic DCC technology was mentioned, the Patent was not mentioned as it had not been granted yet.[90] FCC points out that despite the terms of the Plaintiff's proposal seeming more profitable to UOB than those of the MEA, UOB chose to contract with FCC.[91] FCC also argues that even if the Plaintiff could step into FCC's shoes, there was no lost profit to speak of, because the

[86] Plaintiff's closing submissions paras 186

[87] Plaintiff's closing submissions para 192-193

[88] FCC's closing submissions paras 46-48

[89] FCC's closing submissions para 49

[90] NEs 11 October 2016 p 40 to p 41

[91] FCC's closing submissions para 49(h)(i)

Plaintiff was likely to have sustained the same losses as FCC, which made the infringement unprofitable.[92]

71 As for the alternative argument of a hypothetical licence between FCC and the Plaintiff, FCC submits that the hypothetical licence fee would have been nominal. Mr Murphy had testified that there was no market for a licence for DCC service providers in respect of the Patent in 2001. Mr Murphy and Mr Lim also agreed that DCC, much less automatic DCC, was in its embryonic stage in 2001 in Singapore.[93] FCC also argues that the three sample agreements available on the record are not helpful in establishing a hypothetical licence rate.[94] In gist, any hypothetical licence fee would have been small given the conditions in 2001[95]. FCC submits that it would have been a nominal $1.[96] FCC submits that even if the court were minded to award the Plaintiff royalties, it should at best be no more than 0.1% of the net total turnover of infringing transactions.[97]

72 The present situation is not easy to categorize under the framework set out at [64] as the Plaintiff, being a DCC service provider, does not fall neatly into either of the two situations delineated. The court has to do the best it can with the available information. On the facts, I prefer the Plaintiff's argument that its position in relation to FCC is closer to the situation of a patentee who exploits a patent as a manufacturer and sells the patented articles for profits,

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[92] FCC's closing submissions paras 52-63

[93] FCC's closing submissions para 76

[94] FCC's closing submissions paras 78-90

[95] FCC's closing submissions paras 91

[96] FCC's closing submissions paras 93

[97] FCC's closing submissions paras 94

than a patentee who licenses the Patent for profit. Despite the Plaintiff and FCC being competitors, the Plaintiff was not likely to have offered the licence to its competitor for use. I accept the Plaintiff's evidence that any licence it would have given in respect of the Patent would have been targeted at UOB, not FCC. Following from that, the measure of damages due to the Plaintiff should be a quantum equivalent to its loss of profits arising from FCC's actions.

73 I do accept that it was not certain that the Plaintiff would have entered into a contract with UOB for provision of automatic DCC services absent FCC's infringement. Nevertheless, the possibility was not as speculative as FCC submits. Mr Lim admitted during cross examination that one of FCC's selling points to UOB was that UOB would be a "first market mover" and have a "competitive advantage" by implementing the FCC system.[98] On a balance of probabilities, given that the infringing FCC system gave UOB a first mover advantage among the other Acquiring banks, I am of the view that that the Plaintiff would more likely than not have secured a DCC service-related contract with UOB, had FCC not offered its infringing FCC system for use.

74 However, I prefer to proceed on the basis that the damages should be measured using the MEA as a reference point because this was the least speculative basis. The Plaintiff's negotiations with UOB did not materialize and I see little merit in adopting the hypothetical arrangement of a 1.8-1.2 split of the 3% Uplift. The Plaintiff could well have struck a more favourable deal than the MEA eventually or a less favourable one with UOB. In my view,

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[98] NEs 18 October 2016 pp 143-144

because of the uncertainties surrounding the specifics of the potential contract that the Plaintiff might have secured and the fact that the DCC market was nascent such that no similar agreements could be preferred for comparison, it is not unreasonable to adopt a pragmatic approach to assessing the damages. It is therefore not unreasonable to proceed on the basis that FCC's revenue stream under the MEA could have been that of the Plaintiff's but for FCC's infringement of the Patent.

75 While I agree that the MEA should be used as a point of reference, I do not agree with the Plaintiff that it is entitled to damages equivalent to the *entire quantum* of FCC's revenue stream under the MEA. The measure of damages is in terms of the Plaintiff's loss of profits from FCC's infringement, which would mean that the Plaintiff's potential costs and expenses have to be taken into account. There is some difficulty in measuring the Plaintiff's loss of profits in this case as it provides a specific technical service that only has a handful of potential customers in Singapore. There is no indication as to the rates of profit that the Plaintiff could have obtained absent FCC's infringement, again due to the Patent's *sui generis* nature and the nascent DCC market in Singapore. I also note the Plaintiff's lack of physical presence in Singapore (thereby leading to the difficulty of assessing its operating costs) and FCC's submissions that after deducting its costs and expenses, it did not make a profit during the infringing period.[99]

76 Mr Lim's evidence was that "FCC made a cumulative loss during the period of infringement because its costs outstripped its cumulative revenues"[100]

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[99] FCC's skeletal arguments dated 7 November 2016, para 31

[100] BAEIC vol 3 p 8 para 26

and the targeted breakeven period was five years from the time of implementation.[101] According to him, FCC eventually broke even in the Financial Year ending in March 2006, within five years after it started operations in 2001.[102] Although he provided various tables of computation of audited revenue and audited costs for the infringing period, the numbers given were for FCC's operations in Singapore and in Thailand. The numbers were extracted from various audited and management accounts. The tables show that the audited revenue for the infringing period was S$46,862,000 while the audited costs for the same period amounted to S$52,697,000.[103] From these two numbers, FCC derived revenue for Singapore at S$21,237,000 and costs at S$32,713,000, thereby resulting in a loss of S$11,476,000 over the same period.

77 However, in computing the costs component, FCC included provisions for damages payable to the Plaintiff (S$8,151,000) and actual legal costs and expert witness fees incurred in this action (S$2,448,000). The costs also included "HQ costs" which are inter-company charges imposed by FCC's then holding company for providing support and assistance to FCC in various areas such as info-technology system support, marketing, competition analysis, intellectual property protection, business strategy development, planning, accounting, finance, taxation and legal. This item amounted to S$5,672,000. In my view, the first two items relate to costs necessitated by infringement of the Patent and are not proper operating costs for generating the revenue. The HQ costs item should also not be taken into account as there is no direct nexus

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[101] BAEIC vol 3 p 9 para 30

[102] BAEIC vol 3 p 9 para 33

[103] BAEIC vol 3 pp 11 and 13

between them and the DCC system in question. After all, there is also the item of "Other operating costs" ($9,473,000) in FCC's computation of its total costs. If these three items are excluded from the computation, the overall result is a profit of $4,795,000.[104] This is the amount of damages that I hold FCC to be liable to pay the Plaintiff to compensate the Plaintiff's loss of profits from FCC's infringement.

78 This method of quantifying the damages may have its limitations but in the circumstances, it is the most fact-based method as opposed to the alternative approach of assessing damages "on the basis of reasonable royalty" put forth by the parties. In my view, owing to the *sui generis* nature of the Patent and the nascent DCC market such that there was no normal or established royalty rate at the material time, it is difficult to construct a hypothetical contract between the Plaintiff and FCC. There is no comparable contract at the material time that would be similar to the situation between the Plaintiff and FCC. The "reasonable royalty" approach in this case would be less desirable as it is a largely speculative exercise, compared to assessing damages from the loss of profits by the Plaintiff.

79 At [52] above, I found that the Arbitrage opportunity crystallized in the hands of FCC, so it is also part of FCC's revenue under the MEA. The Plaintiff claims that this was worth not less than the commissions given to UOB, which would be S$3,157,847.09. I note that FCC did not dispute the valuation of the Arbitrage opportunity.[105] However, there was no concrete evidence as to how much more the Arbitrage opportunity was worth. I will

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[104] BAEIC vol 3 p 14

[105] FCC's skeletal arguments for 7 November 2016 para 30(e)

therefore proceed on the basis that it was worth the commissions paid to UOB, *ie*, S$3,157,847.09. Since FCC, in computing its costs elements, already took these commissions into account,[106] the amount of damages that it has to pay the Plaintiff remains at S$4,795,000.

80 In total, FCC is liable for S$4,795,000 in damages to the Plaintiff.

Exemplary damages

81 The Plaintiff submits that there is no bar in Singapore to the court awarding exemplary damages, relying on the assistant registrar's ("the AR") decision in *Cordlife Group Ltd v Cryoviva Singapore Pte Ltd* [2016] SGHCR 5 ("*Cordlife Group*") at [10].[107] Relying on the English case of *Cassell & Co v Broome and another* [1972] AC 1027, the Plaintiff seeks exemplary damages from FCC on the basis that FCC made a calculated decision to infringe the Patent and did so with "guilty knowledge".[108] The Plaintiff submits that like the situation in the English case of *Ramzam v Brookwide Limited* [2011] 2 All ER 38, exemplary damages are appropriate given FCC's deliberate and contumelious disregard for the rights of the Plaintiff as FCC did not commence revocation proceedings for the Patent before concluding the MEA with UOB.[109] The Plaintiff also submits that the genuine remorse of the defendant should be a relevant consideration in awarding exemplary damages. The Plaintiff argues that FCC has not shown any remorse for infringing the Patent and its conduct continued even after the finding of liability in *Main-line*

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[106] BAEIC vol 3 p 13

[107] Plaintiff's skeletal arguments for oral closing submissions para 38

[108] Plaintiff's closing submissions para 201-202

[109] Plaintiff's closing submissions para 204-205

Liability.[110] The Plaintiff alleged that FCC has not been forthcoming throughout the discovery proceedings and verification exercises and submits that FCC has been intentionally dragging out the Assessment Hearing such that it could repatriate its profits to its holding companies outside of Singapore "to put those monies out of the reach of [the Plaintiff]".[111] The Plaintiff suggests in its closing submissions that it was possible that FCC may still be infringing the Patent in Thailand and relies on it as a basis to claim exemplary damages.[112] The Plaintiff therefore submits that FCC's conduct was so egregious that compensatory damages will not sufficiently punish or deter FCC's conduct.[113] The Plaintiff also argued that FCC's infringement emboldened other service providers and banks in Singapore like DBS and E-Clearing Pte Ltd to infringe the Patent, thereby diminishing the potential profits from the Patent.[114]

82 The Plaintiff submits at the beginning of its closing submissions that the quantum of exemplary damages should be S$34.5m but at [238] of its closing submissions, it submits that a multiplier of 1.5 should be applied to the award for infringement of damages. This appears inconsistent as applying the multiplier of 1.5 to the sum they seek in damages would not amount to S$34.5m.

83 FCC submits that exemplary damages are not available for patent infringement whether under statute or the common law in Singapore. It points

[110] Plaintiff's closing submissions para 210-212

[111] Plaintiff's closing submissions para 213-215

[112] Plaintiff's closing submissions para 221

[113] Plaintiff's closing submissions para 222

[114] Plaintiff's closing submissions para 229-230

out that the remedies for patent infringement under s 67(1) of the Patents Act do not include exemplary damages as a possible remedy. This is in contradistinction to s 119(2)(b), read with s 119(4) of the Copyright Act (Cap 63, 2006 Rev Ed) ("Copyright Act"), which provides the possibility for the court to award "additional damages as it considers appropriate in the circumstances" having regard to factors such as the flagrancy of infringement and benefits that accrued to the defendant as a result of the infringement. FCC submits that if Parliament intended for there to be exemplary damages for patent infringement, it would have introduced an equivalent section in the Patents Act. Therefore, the absence of such an express provision should lead to the inference that Parliament did not intend that exemplary damages be awarded.[115] FCC points out that this argument was accepted, albeit in relation to the Trade Marks Act 1995 (Cth) in Australia, in the case of *Paramount Pictures Corporation v Hasluck* [2006] FCA 1431 by the Australian Federal Court. Further, FCC submits that the English case of *Catnic Components Ltd and another v Hill & Smith Ltd* [1983] FSR 512 ("*Catnic*"), where the High Court refused to award exemplary damages to the patentee on the basis that it had never been awarded for patent infringement prior to the landmark case of *Rookes v Barnard* [1964] AC 1129 ("*Rookes v Barnard*"), is binding authority in Singapore as it was delivered before the repeal of s 5 of the Civil Law Act (Cap 43) in 1993 by s 6 of the Application of English Law Act (Cap 7A, 1994 Rev Ed). The subsequent developments in English law doubting the decision in *Catnic*, such as *Kuddus v Chief Constable of Leicestershire Constabulary* [2002] 2 AC 122, are only persuasive authority and should not be followed.

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[115] FCC's closing submissions paras 97, 102, 105

84 Thus, a preliminary issue that has to be addressed is whether the court possesses the power to award exemplary damages for patent infringement in Singapore, in the light of the provisions of the Patents Act. Neither the Plaintiff nor FCC addresses this issue in depth.

85 The AR in *Cordlife Group,* which was cited by the Plaintiff, observed at [10] that there is no general bar against an award of exemplary damages in Singapore, given the repeated approval of the categories set out in *Rookes v Barnard* by the local courts (see *eg*. *Li Siu Lun v Looi Kok Poh and another* [2015] 4 SLR 667). Nevertheless, the situations in which exemplary damages can be awarded remain limited.

86 The relevant subsections of s 119 of the Copyright Act state:

> 119.—
>
> (2) Subject to the provisions of this Act, in an action for an infringement of copyright, the types of relief that the court may grant include the following:
>
> (a) an injunction (subject to such terms, if any, as the court thinks fit);
>
> (b) damages;
>
> […]
>
> (4) Where, in an action under this section —
>
> (a) an infringement of copyright is established; and
>
> (b) the court is satisfied that it is proper to do so, having regard to —
>
> (i) *the flagrancy of the infringement;*
>
> (ii) *any benefit shown to have accrued to the defendant by reason of the infringement*; and
>
> (iii) *all other relevant matters*,

> the court may, in assessing damages for the infringement under subsection (2)(b), award such *additional damages as it considers appropriate in the circumstances*.
>
> [emphasis added in italics]

87 The wording of s 119(4) of the Copyright Act allowing for additional damages suggests a discretion for the court to award what is in fact punitive or exemplary damages to the patentee. The equivalent legislation in Australia, s 115(4) of Copyright Act 1968, has been interpreted in the same way (see *Autodesk Inc, Autodesk Australia Pty Limited, Microsoft Corporation and Microsoft Pty Limited v Michael Yee and Peter Leung* (1996) 139 ALR 735 at 739). The wording of s 67(1) of the Patents Act, as contrasted with s 119 of the Copyright Act, contains no such provision for additional damages. This suggests that additional damages are not available as a remedy for patent infringement. The Parliamentary debates offer no assistance on this point. I therefore think that the better view is that if Parliament had intended exemplary or punitive damages to be available remedies like under the Copyright Act, it would have provided so. The Plaintiff has not proffered an argument to the contrary on this point.

88 The wording of s 67 of the Patents Act and s 119 of the Copyright Act in Singapore are *in pari materia* with s 61(1)(*c*) of the Patents Act 1977 and s 97(2) of the Copyright, Designs and Patents Act 1988 in England. This may suggest that the English position, which appears permissive towards exemplary damages for patent infringement (see *Terrell on Patents* at para 19-58), could be persuasive in the present case. The AR in *Cordlife Group* stated at [111]:

> Perhaps for the same reason that the cause of action requirement has been discarded, leading intellectual property rights and torts treatises now suggest that the court has the

> discretionary power at common law to award exemplary damages in *cases involving infringements of statutory intellectual property rights (and passing off) and torts including passing off*, as long as the case falls within one of the three restricted categories set out in Rookes (see Copinger and Skone James at para 21-201; Richard Miller QC et al, Terrell on the Law of Patents (Sweet & Maxwell, 17th Ed, 2011) at para 19-58; and Clerk & Lindsell on Torts (Michael A Jones gen ed) (Sweet & Maxwell, 21st Ed, 2014) at para 28-142).
>
> [emphasis added]

89 It is doubtful that the AR's observation can apply across all statutory intellectual property rights. In *Cordlife Group*, the action was for infringement of copyright and passing off. The availability of exemplary damages at common law in patent infringement cases was not specifically considered.

90 I also note that the English position, which appears more permissive in awarding exemplary damages in patent infringement, may have been bolstered by the Intellectual Property (Enforcement, etc.) Regulations 2006 ("the IP Regulations") coming into force on 29 April 2006 as part of the United Kingdom's obligations under the European Union. Article 3 states:

> 3.—(1) Where in an action for infringement of *an intellectual property right* the defendant knew, or had reasonable grounds to know, that he engaged in infringing activity, the damages awarded to the claimant shall be appropriate to the *actual prejudice he suffered as a result of the infringement.*
>
> (2) When awarding such damages—
>
> (a) all appropriate aspects shall be taken into account, including in particular—
>
> > (i) *the negative economic consequences*, including any *lost profits*, which the claimant has suffered, and any *unfair profits* made by the defendant; and
> >
> > (ii) elements other than economic factors, including the *moral prejudice caused to the claimant* by the infringement; or

> (b) where appropriate, they may be awarded on the basis of the royalties or fees which would have been due had the defendant obtained a licence.
>
> [emphasis added in italics]

91 Article 3 of the IP Regulations, which applies broadly to infringement of intellectual property rights, appears to import into patent law the same discretion to award punitive or exemplary damages that exists in copyright law. As this regulatory framework does not apply here, we should be cautious when looking at the English position on exemplary damages in patent infringement.

92 For completeness, even if exemplary damages were within the court's discretion for patent infringement and assuming the second category in *Rookes v Barnard* concerning punishing wrongful and calculated conduct applies, I do not think that the Plaintiff's claim for exemplary damages would have succeeded on the facts here. From the procedural history of the case, the delay of almost ten years for this Assessment Hearing to be conducted is as much the fault of the Plaintiff and UOB as much as it is FCC's. I am not convinced that FCC was deliberately obstructive in this process. Further I find that the Plaintiff's allegation that FCC was somehow infringing the Patent in Thailand is baseless and irrelevant to the present case. After all, the main suit only related to the infringement of the Patent in Singapore. During oral submissions, counsel for the Plaintiff stated that the Plaintiff was not commencing legal action for infringement against FCC in Thailand for reasons which are unknown and also that "what the facts are and how they do it and with whom, we don't have details".[116] The allegation of continuing infringement in Thailand is clearly not backed up by evidence. The Plaintiff

[116] NEs 7 November 2016 pp 99-100

has also not shown that FCC's actions were particularly egregious. Therefore, the Plaintiff's claim for exemplary damages against FCC is dismissed.

Conclusion

93 I make no further award on the Plaintiff's claim against UOB. I order FCC to pay the Plaintiff damages in the sum of S$4,795,000.

94 On the issues of interest and costs of this Assessment Hearing, I now direct the parties to file and serve written submissions within three weeks of the date of this judgment. The submissions are restricted to 10 pages for each party. However, if the parties decide to agree on interest and costs on their own, the Plaintiff may write to me to seek a consent order without the need for attendance of counsel.

Tay Yong Kwang
Judge of Appeal

Wong Siew Hong, Gavin Foo and Regina Lim (Eldan Law LLP) for the plaintiff;
Eddee Ng, Cheryl Nah, Leonard Loh and Sherlene Goh (Tan Kok Quan Partnership) for the first defendant;
Koh Chia Ling (instructed), Oh Pin-Ping and Gerald Tan (instructed) (Bird & Bird ATMD LLP) for the second defendant.