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In the High Court of Justice
Business and Property Courts
Of England & Wales

Claim No. BL-2020-001343

Between:

London Capital & Finance Plc & Ors

Claimants

- and -

Mr Michael Andrew Thomson & Ors

Defendants

Supplementary expert report of Chris Osborne

Confidential

3 November 2023

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Glossary

Term	Definition
Administrators	Finbarr O'Connell et al
AICPA	American Institute of Certified Public Accountants
Assets	LOG's interests in IOG
BSM	Black Scholes Merton
Claimants	LCF, LOG and the Administrators of LCF and LOG
CLN 1	£ 10,000,000 Loan Agreement between LOG and IOG dated 5 February 2016
CLN 2	£ 10,000,000 Loan Agreement between LOG and IOG dated 20 February 2018
Defendants (Respondents)	Michael Andrew Thomson, Simon Hume-Kendall, Elten Barker, Spencer Golding, Paul Careless, Surge Financial Limited, John Russell-Murphy, Robert Sedgewick, Grosvenor Park Intelligent Investment Limited and Helen Hume-Kendall
EMS	Exchange Market Size
First Report (CO1)	Expert report of Chris Osborne dated 29 September 2023
IVSC	The International Valuation Standards Council
Joint Statement	Joint Statement of Matters Agreed and Disagreed dated 20 October 2023
LCF	London Capital & Finance Plc
LOG	London Oil & Gas Limited
LOG's investments	LOG's interests in IOG
Mr Wright's Report (JW1)	Expert report of Jonathan Wright dated 29 September 2023
IOG	Independent Oil & Gas Plc
LPC	London Power Corporation Limited
LSE	London Stock Exchange
Parties	Claimant and the Respondent
SETSqx	Stock Exchange Electronic Trading Service – quotes and crosses'
SSVS-1	Statement on Standards for Valuation Services No. 1

1. Introduction and summary of conclusions

Introduction

1.1 My name is Chris Osborne. I have previously filed an expert report in these proceedings dated 29 September 2023 (my **'First Report'** or **'CO1'**), to which my curriculum vitae is attached.

1.2 I am instructed by Mishcon de Reya LLP, solicitors for London Capital & Finance Plc (In Administration) (**'LCF'**), London Oil & Gas Limited, Finbarr O'Connell, Adam Stephens, Colin Hardman and Geoffrey Rowley (the administrators of LCF) and Finbarr O'Connell, Adam Stephens, Colin Hardman and Lane Bednash to respond to the Expert Report of Jonathan Wright dated 29 September 2023 (**'Mr Wright's Report'** or **'JW1'**). On 20 October 2023, Mr Wright and I filed a Joint Statement of Matters Agreed and Disagreed (the **'Joint Statement'**).

1.3 This report contains my opinions on the matters that I have been instructed to address. I have been assisted in its preparation by staff at Osborne Partners. All work has been carried out under my supervision, and the opinions expressed within this report are my own.

1.4 I understand that this report will be used in proceedings between the Claimant and the Respondent ('Parties') and will be provided to the Court, the Parties, and their advisers. In all other respects, this report is confidential. It should not be used, reproduced, or circulated for any other purposes, in whole or in part, without our prior written consent.

1.5 For convenience, I adopt the abbreviations and glossary from my First Report in this report.

My instructions

1.6 I have been instructed to respond to Mr Wright's Report, taking into account the opinions expressed in the Joint Statement.

Background

1.7 The Joint Statement was divided into three sections, namely:

(i) Matters Agreed;

(ii) Matters Disagreed that do not have a material impact on final conclusions; and

(iii) Matters Disagreed that do have a material impact on final conclusions.

1.8 This report seeks to explain the differences between Mr Wright's conclusions and my own in those cases where we have identified differences that have a material bearing on our respective conclusions.

1.9 Briefly, those three areas of differences pertain to:

(i) the effect of dilution on IOG's share price and, therefore, the effect of dilution on the value of the warrants and convertible loan notes issued by IOG to LOG;

(ii) our respective approaches to the valuation of the convertible loan notes issued by IOG to LOG; and

(iii) the discounts to be applied to the theoretical value of LOG's investments to arrive at a market value of those instruments on the assumption that LOG sought to realise their value.

Contents of this report

1.10 **Section 2** seeks to explain the valuation differences that have arisen between Mr Wright and me in respect of:

(i) the effect of dilution on our respective valuations of IOG's warrants and convertible loan notes; and

(ii) our respective approaches to the valuation of IOG's convertible loan notes.

1.11 **Section 3** discusses the empirical evidence relating to discounts for lack of marketability and for blockage.

1.12 **Section 4** contains my expert declaration and serves as a signature page for this report. My conclusions follow below.

1.13 **Appendix 1** contains a list of the documents on which I have relied in preparing this report.

1.14 Where documents have not previously been exhibited in this matter, we have exhibited them to this report. As in my First Report, these exhibits are referred to as "CO" exhibits, for example "Exhibit CO-01".

Summary of conclusions

1.15 My conclusions are set out where appropriate within the body of this report. In summary, I have not changed my views on any of the three matters of significance between Mr Wright and me. Those are:

- first, that there is no need, in identifying a theoretical value of the various instruments that make up LOG's investments in IOG, to adjust for the potentially dilutive effects of the options embedded in those instruments being exercised;
- second, that the practical maximum theoretical value of IOG's convertible loan notes is, if they are *in the money*, their value on conversion, and that the practical minimum value is the value of the loan – in both cases with no uplift to reflect the option value associated with the possibility that the share price may rise in future; and
- third, that in assessing the potential *market* value of the instruments, the downward adjustment (discount) that is required from the theoretical values that both Mr Wright and I have calculated is of the order of 20% to 30%, rather than the 10% to 15% suggested by Mr Wright.

1.16 As to the first point, which leads Mr Wright to *lower* theoretical valuations than mine, I agree that dilution adjustments are sometimes made. The premise is that when an option is exercised, the resulting issue of shares will dilute the holdings of other shareholders, and there will be a corresponding reduction in the share price. That depends, however, on whether those other shareholders have already factored in the potential dilutive effects in their own assessments of an appropriate share price.

1.17 My review of IOG's share price movements strongly suggests that any potential dilutive effect was already priced in at the relevant dates. This ought not, in my view to be surprising – the scale of the potential share issuance associated with the various instruments was at all times large, in relation to the number of shares in issue. I would not expect other shareholders to be unaware, or not to take account, of the potential dilutive effects.

1.18 In relation to the second point, which leads Mr Wright to *higher* theoretical valuations than mine, I do not disagree that theory would suggest that some uplift would be appropriate. My concerns are more practical; and arise because at the relevant valuation dates the choice facing a holder of the convertible loan notes would have been entirely straightforward: IOG was cash constrained and unlikely to pay dividends, so holding the loan note and accruing interest would always be the superior option.

1.19 The third point is necessarily subjective, given the illiquidity of the market for IOG shares, let alone for complex derivative instruments in those shares. A base level of discount is required, in my view, for the relative illiquidity of the shares themselves; with a further discount required for the problems associated with disposing of a large block of shares (even in a relatively liquid market). I review such evidence as there is, in both the literature and in US court proceedings, in Section 3. I regard it as being supportive of my view as to the likely scale of the discount required.

1.20 In principle, those discounts might have been reduced or eliminated in the event that a strategic purchaser for LOG's investments emerged. I understand, however that aside from RockRose, whose offers were rejected by the Administrators in the period leading up to 1 April 2019, no strategic purchaser was available to LOG or its administrators at any time.

1.21 My conclusions therefore remain as before, and as summarised in the table below. I should note, as before, that at many of the dates there would have been practical difficulties associated with realising even the discounted values shown in the table – including, by 2018 (but prior to the administration), the potential of triggering a mandatory takeover bid. I should also note, again, that the amounts are gross of any tax that might be payable in the event the implied values were realised.

Figure 1.1 **My valuations of the LOG portfolio (excluding cash), £ m**

Date	Low value	Midpoint	High value
22-Dec-15	1.08	1.16	1.23
05-Feb-16	0.59	0.63	0.67
20-Feb-18	13.8	17.2	20.7
27-Jul-18	26.4	40.0	53.6
13-Sep-18	28.0	42.5	57.0
18-Mar-19	36.9	44.1	51.4
01-Apr-19	33.1	37.3	41.5
24-Apr-19	34.1	38.6	43.0
28-Oct-19	30.8	33.6	36.3
03-May-22	46.5	50.4	54.2
01-Sep-23	2.3	5.2	8.1

Source: CO1, Figure 1.1

2. Differences relating to valuation approach.

Introduction

2.1 The Joint Statement identified two differences in the valuation approaches adopted by Mr Wright and me in respect of:

(i) the application of a discount to the valuation of IOG's warrants and convertible loan notes to reflect the dilution of IOG's equity that would result if the warrants or conversion rights were to be exercised.; and

(ii) the valuation of IOG's convertible loan notes.

2.2 Mr Wright's application of a dilution effect to his valuations, all else equal, results in a reduction in their assessed value compared to my approach, which assumes that IOG's share price already anticipates the dilution that would result upon exercise of the warrants or conversion rights. I have sought to adjust my own conclusions to reflect the effects of dilution to enable a like-for-like comparison with Mr Wright's conclusions.

2.3 Having adjusted my conclusions for the effects of dilution, the remaining differences between Mr Wright and me as to inputs and approach may then be expressed as a residual difference between our conclusions. I have sought to explain some of the reasons why Mr Wright's assessments of the value of LOG's investment differ from my own after taking account of the effects implied by the potential effects of dilution on IOG's share price.

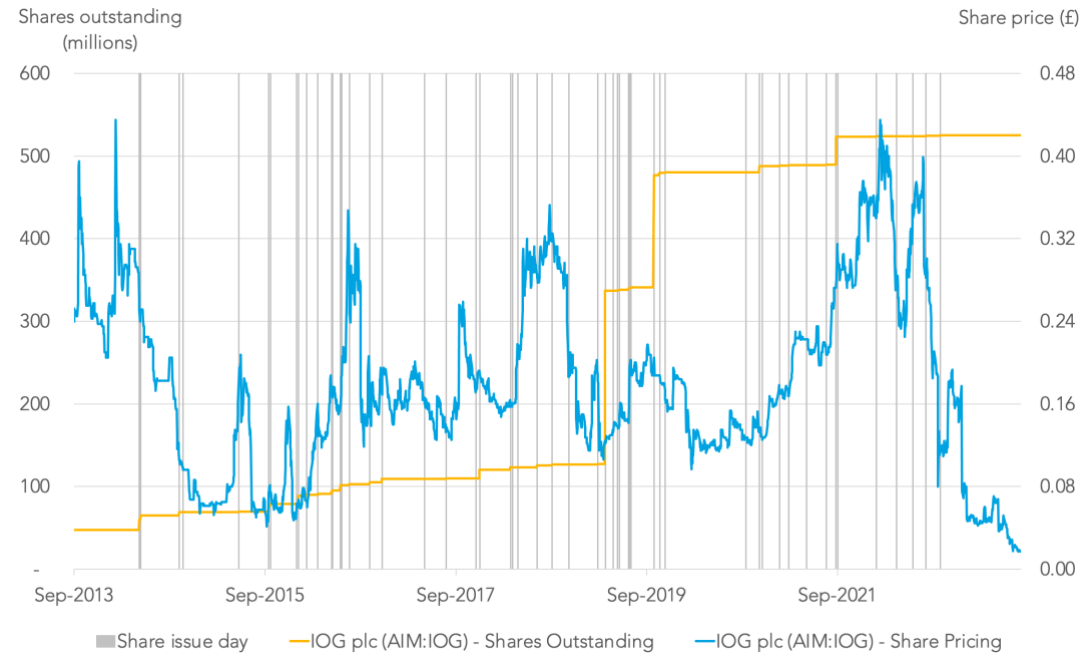
2.4 In principle, it would be possible to break down the residual differences between Mr Wright and me into several components, at least to some degree. In practice, however, that exercise would likely prove complex without yielding substantial additional insight. I have therefore confined my comments to general explanations of the likely principal sources of remaining difference between Mr Wright's conclusions and my dilution-adjusted conclusions.

2.5 In the remainder of this section, I have sought to describe the differences in our respective approaches in greater detail and then to consider their effect on our respective valuations at a range of dates. Finally, I explain why it is that I continue to prefer my own approach in respect of these valuation issues.

The effects of dilution on value

2.6 As set out in my First Report, it is my opinion that the market price of IOG's shares anticipated the dilution associated with the exercise of LOG's warrants and conversion rights. At a high level, this conclusion is supported by a visual comparison of the number of IOG shares in issue against the trend in the share price, as shown in the chart below.

Figure 2.1 **Dilution effect on share price, September 2013 – September 2023**



Source: Annexe 2

2.7 As may be seen from the chart, there is no obvious correlation between the dates on which new shares were issued – shown in grey – and the trend in IOG's share price. Sometimes, periods of heavy issuance were accompanied by increases in IOG's share price; at other times, the share price tended to decline when no shares were issued.

2.8 It therefore seems to me that either:

(i) the dilution effect associated with the potential exercise of LOG's warrants and conversion rights was relatively unimportant in comparison to the fundamental drivers of IOG's value, which related to its ability to produce quantities of commercially recoverable gas. Given the scale of potential dilution associated with LOG's warrants and conversion options, however, I consider this unlikely even though (in the case of the CLNs) the conversion would be offset by a corresponding reduction in IOG's debt; and/or

(ii) the dilution effect associated with the potential exercise of LOG's warrants and conversion options was generally anticipated by the market, including the offsetting effect on equity value of the cancellation of the loan to the extent that the conversion options embedded in the CLNs were exercised. Overall, I consider this the likelier explanation.

2.9 It is possible that the effect of share issuance was reflected in the share price during the days leading up to the issuance rather than on the day of issuance itself. Such an effect might be observed, for example, if IOG announced its intention to issue new shares several days ahead of the issuance taking place. If that were so, the share price decline associated with dilution – if any – would be reflected prior to the issuance occurring rather than on the day of issuance itself.

2.10 Such an effect, however, would be consistent with my own observation that the market price reflected an anticipation that LOG's warrants and conversion options would one day be exercised. Given that market participants had long been aware of the options embedded in LOG's loans to IOG, it seems reasonable to assume that they would also have taken the associated dilution into account in the share price at the time when each loan tranche was drawn down by IOG. Such an effect might be difficult to discern, however, if IOG's use of LOG's funds made sooner gas production more likely, causing a countervailing uplift in IOG's share price.

2.11 I accept that it cannot definitively be shown that the market price of IOG's share incorporated the anticipated effects of dilution given the long periods of time over which the dilution implied by LOG's investments was present. For the reasons set out above, however, I continue to prefer my approach of assuming that the effect of dilution was already present in the share price.

2.12 For illustration purposes, I have sought to adjust my own conclusions to take account of the effect of dilution and, for the CLNs, the countervailing reduction in IOG's debt. The table below compares:

(i) Mr Wright's total valuation of LOG's investments;

(ii) my own assessment of the total theoretical value of LOG's investments, adjusted to reflect the effect of dilution as calculated by Mr Wright;

(iii) my original total valuation; and

(iv) two columns of percentage differences, the first of which shows the dilution effect by reference to the conclusions from my First Report and the second of which shows the difference between my dilution-adjusted conclusions and Mr Wright's maximum conclusion from his first report.

Figure 2.2 **Dilution effect on my valuations of LOG's investments**

Date	JW1	CO1 diluted	CO1	CO1 diluted vs CO1	JW1 vs CO1 diluted
	A	B	C	(B-C)/C	(A-B)/B
22/12/2015	940,000	1,419,724	1,541,566	-8%	-34%
05/02/2016	320,000	869,732	929,524	-6%	-63%
31/12/2016	11,210,000	9,527,703	11,252,533	-15%	18%
31/12/2017	25,370,000	16,465,132	27,009,720	-39%	54%
20/02/2018	23,710,000	14,978,830	25,077,546	-40%	58%
27/07/2018	62,170,000	38,346,204	66,184,942	-42%	62%
13/09/2018	66,980,000	41,581,229	70,718,219	-41%	61%
31/12/2018	48,010,000	38,912,729	54,791,062	-29%	23%
25/03/2019	55,100,000	44,109,358	60,251,226	-27%	25%
26/03/2019	54,290,000	43,743,464	59,337,851	-26%	24%
27/03/2019	53,330,000	43,104,858	58,229,143	-26%	24%
28/03/2019	52,890,000	42,879,050	57,800,562	-26%	23%
29/03/2019	51,390,000	42,254,608	56,284,473	-25%	22%
01/04/2019	43,740,000	41,627,949	47,193,006	-12%	5%
31/12/2019	35,390,000	35,040,854	35,065,458	0%	1%
31/12/2020	29,440,000	30,857,955	30,859,566	0%	-5%
31/12/2021	74,830,000	74,547,461	76,920,799	-3%	0%
03/05/2022	66,270,000	65,584,109	67,714,465	-3%	1%
31/12/2022	36,860,000	34,073,952	34,075,416	0%	8%

Source: Annexe 2

2.13 As may be seen, Mr Wright's valuations are generally higher than my own once my own conclusions are adjusted for dilution (as shown in the rightmost column). The exceptions to that general rule are:

(i) at the earliest dates of valuation – when I used an expiry date for the warrants of 31 December 2019, consistent with their later extension, while Mr Wright used the actual expiry date prior to it being extended; and

(ii) on 31 December 2020, when IOG's share price and volatility were low, which has the effect of reducing Mr Wright's assessment of the option value in addition to the loan value.

2.14 Substantially all of the remaining differences between Mr Wright and me are a function of the different inputs and approaches we have used in valuing LOG's CLNs. Below, I have sought to explain the reasons for those remaining differences in my valuations as compared to those of Mr Wright.

Valuation approach to CLNs

2.15 Mr Wright has put forward a valuation range that is bounded:

(i) at the low end as the higher of the loan value or by the loan value plus Mr Wright's assessment of the value of the conversion option based on conversion at the average maturity date of the loan. In practice, this means that the loan value is never selected by Mr Wright as the lower bound for his range. A further artefact of Mr Wright's approach is that, so far as I can tell, the low end of his valuation range always exceeds the conversion value of the shares at my instructed dates of valuation; and

(ii) at the high end by the loan value plus Mr Wright's assessment of the value of the conversion option on the assumption that the conversion occurs sequentially as each tranche drawn down reaches maturity. This valuation also always exceeds the conversion value of the shares at all of my instructed dates of valuation.

2.16 As is evident from that ordering of the values, Mr Wright's assessment of the value of the conversion options is systematically higher when the options are exercised sequentially at the maturity date of each tranche.[1] This suggests that in all cases, the upper bound of Mr Wright's range will be represented by the valuation calculated on the assumption of sequential exercise of the conversion options in LOG's CLNs.

2.17 As may be seen in the table below, Mr Wright's assessment of the maximum value generally exceeds the value of the shares that would be received if the conversion option were to be exercised, at least prior to the time when CLN2 was converted to a zero-coupon loan under the terms of IOG's 2019 restructuring. For CLN2, in particular, that difference can at times be quite large, of the order of a 50% to 100% uplift to the price implied by the conversion value of the shares at any given date.

[1] Despite my attempts to investigate why this should be so, I am unsure as to why Mr Wright's valuation based on the maturity date of each tranche should persistently exceed Mr Wright's valuation based on a weighted average maturity date.

Figure 2.3 **Mr Wright's maximum assessed value vs. conversion value of the associated shares, CLN1 and CLN2**

Date	CLN1		CLN2	
	Assessed values	Share conversion	Assessed values	Share conversion
31/12/2016	7,420,000	6,070,000	-	-
31/12/2017	20,050,000	17,760,000	-	-
20/02/2018	18,630,000	15,860,000	-	-
27/07/2018	37,020,000	35,910,000	18,360,000	14,490,000
13/09/2018	38,170,000	37,320,000	18,490,000	15,010,000
31/12/2018	22,220,000	21,640,000	12,480,000	8,810,000
25/03/2019	23,320,000	22,090,000	13,780,000	9,280,000
26/03/2019	22,760,000	21,470,000	13,640,000	9,050,000
27/03/2019	22,100,000	20,710,000	13,470,000	8,770,000
28/03/2019	21,790,000	20,370,000	13,390,000	8,640,000
29/03/2019	20,750,000	19,160,000	13,130,000	8,200,000
01/04/2019	15,300,000	11,840,000	11,890,000	5,430,000
31/12/2019	-	-	11,860,000	9,010,000
31/12/2020	-	-	9,850,000	7,400,000
31/12/2021	-	-	20,680,000	20,680,000
03/05/2022	-	-	18,740,000	18,740,000
31/12/2022	-	-	13,930,000	9,510,000

Source: Annexe 2

2.18 In principle, I do not disagree that the theoretical value of the CLNs at any given date might exceed the value of the shares if the conversion right were exercised on that date. In my opinion, however, that theoretical value was most unlikely ever to be realised at any of the valuation dates considered owing to:

(i) the accrual of interest at an annual rate of LIBOR+9% (prior to the conversion of CLN2 to a zero-coupon loan); and

(ii) the possibility that IOG's value would increase markedly as the prospects of first gas production approached.

2.19 In other words, the actual value of the CLNs at any given date ought to assume that they would be held until expiry (so as to accrue the maximum interest and conversion rights), at which point an election would be made between accepting repayment of the loan or exercising the conversion rights.

2.20 In practice, therefore, their maximum theoretical value (if in the money) is the share price at the date of expiry, the best estimate of which at any given date is the current share price. I therefore disagree that the value of the CLNs, *in practice*, could ever exceed the expected value of their converted value as LOG would not have sold the CLNs prior to expiry on account of the value of future interest accrual.

2.21 As noted above, the lower end of Mr Wright's range is represented (in practice) by his alternative method of assessing the value of the loan plus the conversion option at the average maturity date of each instrument.[2] For the same reasons that I disagree with Mr Wright's maximum assessed value, I also disagree with the minimum assessed value. If the conversion option was out of the money, LOG would still have preferred to hold the CLNs and accrue interest on them, rather than to sell them to a third party for the loan value plus the option value (even if the theoretical value was in practice available to LOG).

2.22 Accordingly, the best estimate of the theoretical value of the CLNs when out of the money is in fact the face value of the loans, on the presumption that the best assessment of whether the conversion options will in future be in the money or not is represented by the current share price in relation to the strike price.

2.23 In summary, therefore, I do not agree that any of Mr Wright's assessed values were ever likely to be realised in practice. The CLNs would always be held to maturity and, at the date, a choice exercised between conversion or repayment of the loans. I note that LOG's management did not seek to realise the apparently superior value of certain of the CLNs – taking account of their option value as well as their loan value – at any time prior to the company being placed into administration.

2.24 Setting aside that difference of opinion, the table below compares Mr Wright's assessed maximum value of CLN1 to my own assessed maximum net of the dilution adjustment described earlier in this section.

Figure 2.4 **Mr Wright's maximum assessed value (JW1) vs. my own assessed value adjusted for dilution (CO1), CLN1**

Date	JW1 assessed values	CO1 diluted	CO1 assessed values	CO1 diluted vs CO1	JW1 vs CO1 diluted
	A	B	C	(B-C)/C	(A-B)/B
31/12/2016	7,420,000	5,036,241	6,663,359	-24%	47%
31/12/2017	20,050,000	11,187,543	21,658,812	-48%	79%
20/02/2018	18,630,000	9,958,983	20,002,046	-50%	87%
27/07/2018	37,020,000	20,015,361	42,709,096	-53%	85%
13/09/2018	38,170,000	20,794,914	44,306,991	-53%	84%
31/12/2018	22,220,000	13,234,350	28,458,072	-53%	68%
25/03/2019	23,320,000	13,198,447	28,719,125	-54%	77%
26/03/2019	22,760,000	12,925,041	28,055,084	-54%	76%
27/03/2019	22,100,000	12,548,422	27,241,424	-54%	76%
28/03/2019	21,790,000	12,378,012	26,875,258	-54%	76%
29/03/2019	20,750,000	11,947,672	25,575,485	-53%	74%
01/04/2019	15,300,000	11,957,010	17,188,202	-30%	28%

Source: Annexe 2

[2] I make that observation because even when the value of the conversion option was very low – because volatility was low and the options were significantly 'out of the money' – it still had some positive value that ensured that Mr Wright's 'hybrid' valuation of the loan value plus the option value would exceed the value of the loan alone.

2.25 The table indicates that:

(i) the dilution effect associated with CLN1 (shown in the second-to-rightmost column) was very large on account of the low strike price and large number of shares associated with it. Prior to the farm-out transaction commenced in April 2019, LOG's conversion rights – if exercised – would have granted it voting control over IOG; and

(ii) once the concluded value from my First Report is adjusted for the potential effect of dilution, Mr Wright's valuations considerably exceed my own (by the percentages shown in the rightmost column). That conclusion reflects the very significant value that Mr Wright accords to the conversion options, especially during periods when IOG's share price was elevated and/or IOG shares experienced periods of greater volatility. In effect, Mr Wright opines that the value of the CLNs greatly exceeds the value that they could have had if the conversion options were actually exercised. For the reasons set out above, however, I do not consider that LOG would ever have sought to realise the value of the CLNs prior to their exercise date and I note that, in fact, it did not do so.

2.26 The table below compares Mr Wright's assessed maximum value of CLN2 to my own assessed maximum net of the dilution adjustment described earlier in this section.

Figure 2.5 **Mr Wright's maximum assessed value (JW1) vs. my own assessed value adjusted for dilution (CO1), CLN2**

Date	JW1 assessed values	CO1 diluted	CO1 assessed values	CO1 diluted vs CO1	JW1 vs CO1 diluted
	A	B	C	(B-C)/C	(A-B)/B
27/07/2018	18,360,000	11,447,815	16,445,879	-30%	60%
13/09/2018	18,490,000	11,886,015	17,060,884	-30%	56%
31/12/2018	12,480,000	10,676,947	10,957,919	-3%	17%
25/03/2019	13,780,000	10,919,100	11,062,772	-1%	26%
26/03/2019	13,640,000	10,922,007	10,922,007	0%	25%
27/03/2019	13,470,000	10,924,914	10,924,914	0%	23%
28/03/2019	13,390,000	10,927,821	10,927,821	0%	23%
29/03/2019	13,130,000	10,930,728	10,930,728	0%	20%
01/04/2019	11,890,000	10,939,449	10,939,449	0%	9%
31/12/2019	11,860,000	11,565,763	11,565,763	0%	3%
31/12/2020	9,850,000	11,565,763	11,565,763	0%	-15%
31/12/2021	20,680,000	19,632,380	21,914,077	-10%	5%
03/05/2022	18,740,000	17,833,029	19,905,286	-10%	5%
31/12/2022	13,930,000	11,565,763	11,565,763	0%	20%

Source: Annexe 2

2.27 The dilution relating to CLN2 (in the second-to-rightmost column) is assessed as being nil on those dates on which the strike price of the conversion option – set at £0.19 – was in excess of the share price. In other words, my valuation at those dates is the loan value alone and, accordingly, there is no dilution implied because the conversion option would not be exercised.

2.28 As may be seen, Mr Wight's assessed value – which also includes a dilution adjustment – is systematically higher than my own once dilution is taken into account (in the rightmost column). I attribute this difference to the same factors set out at paragraph 2.25(ii) above, namely Mr Wright's conclusion that the value of CLN2 could exceed its value if converted into shares. As noted above, while I agree with that conclusion on a theoretical level, I disagree that it had any bearing on LOG's ability to realise value from its investments in practice.

Conclusion

2.29 A comparison of Mr Wright's conclusions from his first report to my assessment of the theoretical value of LOG's investments from my First Report indicate that my assessment of the theoretical value of LOG's investments in IOG (without any adjustment for dilution) generally exceeds Mr Wright's assessment (including an adjustment for dilution).

2.30 As is apparent from the analysis set out in this section, that result is a product of the preponderant balance between two opposing factors, namely:

(i) Mr Wright's opinion that it is appropriate to reduce the value of LOG's investments for the dilution that would result from LOG's exercise of its warrants and conversion options; and

(ii) Mr Wright's addition of the value of the conversion options to the loan value of the CLNs, which – when the options are 'in the money' – has the effect of increasing their value above the value that they would have if the conversion options were actually exercised.

2.31 Of those two effects, the dilution assumption has a generally stronger influence on value than the addition of the option value to the loan value, with the result that Mr Wright's concluded values are generally below my own.

2.32 I continue to consider, however, that my valuation approach is the more appropriate given the evidence that IOG's share price was likely fully diluted in any case and my inference that LOG would never have sought to realise the theoretical value of the CLNs and, in fact, does not appear to have considered doing so. On the basis of that second observation, I continue to consider that the practical choice facing LOG was to either seek repayment of the loan or convert it at the expiry date of each CLN.

3. Marketability and blockage discounts

Introduction

3.1 In my First Report, I applied a discount of between 20% and 30% to the theoretical value of LOG's investments in IOG at every date. Mr Wright acknowledges that the conversion of LOG's investments to cash would result in a discount, but his own view is that such a discount would be of the order of 10% to 15%.

3.2 For the reasons set out in the remainder of this section, I continue to consider that a higher discount would apply to LOG's investments in IOG in the event that LOG (or its administrators) sought to realise their value.

3.3 I say that because, in principle, LOG's investments in IOG, and in particular its holdings of IOG shares, were subject to two distinct types of discount, namely:

(i) a discount for lack of marketability, a discount that would apply to IOG's shares on account of their lack of positive cash flows or dividends, the company's uncertain prospects and the low liquidity in IOG's shares on the LSE's trading platform. Such a discount would apply even to a relatively small block of shares that an investor may have sought to trade and would apply to a greater extent to LOG's large holdings in the event that it sought to realise their value; and also

(ii) a blockage discount, which explicitly recognises the discount that LOG would need to offer to dispose of its shareholdings, which were very large both in relation to the daily trading in IOG shares and also in relation to the total IOG shares in issue.

3.4 Below, I consider the evidence as to the potential scale of each of those discounts before summarising my conclusions.

Discount for lack of marketability ('DLOM')

3.5 In principle, a marketable asset is one that can be quickly converted to cash at low cost. According to one commentator, *'the cost of reversing an asset trade almost instantaneously after you make the trade'* is a measure of the cost of illiquidity.[3] Shares in large, publicly traded companies and government bonds are examples of highly marketable (or liquid) assets. At the other extreme, real estate assets are by their nature unique and often require a period of marketing as a pre-requisite for achieving their market value.

3.6 In between these two extremes, assets vary as to their marketability. A well-known text book lists four factors that influence the marketability of an asset, namely:[4]

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[3] CO-39 - Damodaran, Aswath, *The cost of illiquidity,* New York University, date accessed November 1, 2023.

[4] Pratt, Shannon P., Business valuation discounts and premiums, 2nd. Ed, John Wiley & Sons 2009 at Chapter 8.

(i) the availability and scale of distribution, such as dividends, that offer compensation to an investor that is unable to trade in the asset. In principle, assets with higher distributions, all else equal, should experience a lower DLOM;

(ii) the prospects for liquidity, or the time it may take to convert the asset to cash. Clearly, the more distant the prospects for realising value from an investment, all else equal, the greater the discount applicable to it;

(iii) the pool of potential buyers. In principle, the presence of a larger pool of buyers, all else equal, should reduce the DLOM applicable to an asset. For the reasons set out below, I consider that IOG shares had a relatively restricted pool of potential buyers in comparison to more widely traded, liquid assets; and

(iv) risk factors, such as the level and volatility of the asset's underlying earnings and the absolute size of the issuer.

3.7 In the present case, I consider that IOG shares lay at the higher end of exposure to all four of these factors insofar as they apply to publicly traded equities.

3.8 **First**, IOG shares paid no dividends and interest accrued rather than being paid in cash. There were, therefore, no intermediate cash flows associated with holding CLNs, warrants or loans issued by IOG.

3.9 **Second**, the prospects for liquidity in the asset were constrained, initially, by the distant maturity dates for the loans and, once those dates arrived, by the low liquidity in the underlying stock in relation to the size of LOG's holdings of it. The Takeover Rules further constrained LOG's ability to realise the full value of its holdings.

3.10 **Third**, the pool of buyers was relatively small as compared to the pool of buyers for larger listed UK companies, as discussed below in relation to the SETSqx trading platform on which IOG share are traded.

3.11 **Finally**, IOG's shares bore elevated risk, in the first instance, because IOG had no positive cash flows; secondly, because IOG had a very low market capitalisation, well below £100 million for most of the period of LOG's investments; and thirdly because the future value of IOG shares was heavily contingent on the discovery and exploitation of sizeable quantities of commercially viable natural gas. Such risks are not easily modelled and depend critically on inputs whose values will only become known with the passage of time.

3.12 For all of these reasons, I consider that LOG's investments would have attracted a discount for lack of marketability in comparison to, say, shares in dividend-paying companies with a track record of positive earnings, traded on the main board of the London Stock Exchange.

3.13 There are three main approaches to assessing the discount for lack of marketability in the academic literature, namely:

(i) portfolio optimisation-based approaches: these approaches seek to quantify the value of marketability from the perspective of an investor who is prevented from optimising the value of his portfolio because a portion of it is not marketable. Real-world examples of the issues addressed by these studies include employee share options or entrepreneurs' holdings in companies they have founded. Potentially, these financial instruments form a large part of the wealth of the individuals concerned, but have restrictions placed on their sale that limit their owners' ability to optimise the structure and value of their asset portfolios;

(ii) derivatives-based approaches: these studies use option pricing techniques to arrive at a market-based estimate of the cost of replicating the marketability lost as a result of restrictions on the sale of an asset; and

(iii) transaction-based approaches: there is a range of studies that compare the market value of a marketable asset to the observed value of a similar, non- marketable asset. Examples include restricted stock placements in US companies, pre- and post-IPO share valuations and segregated stock market listings. In each case, the objective is to understand the impact of a lack of marketability by reference to the value of two instruments, each of which has an identical claim on the underlying assets, but only one of which is marketable.

3.14 In my opinion, all of these kinds of studies will tend to overstate the discount for lack of marketability properly associated with LOG's investments, which had reduced marketability (compared to, say, shares in BP or AstraZeneca) but which were nonetheless able to be traded. For that reason, I consider the studies factually inappropriate in the present context because they focus on the discount associated with assets that are not able to be traded at all. In the present instance, although IOG's shares were less liquid than many other assets, they were still able to be traded, subject to the availability of willing buyers at the asking price.

SETSqx trading in IOG shares

3.15 The London Stock Exchange (**'LSE'**) operates two trading platforms for LSE stocks, to which stocks are allocated according to their liquidity profiles. The most liquid stocks, such as, FTSE 100, FTSE 250, FTSE Small Cap Index as well as liquid AIM, Irish and London Standard Listed securities, are traded on SETS electronic order book.

3.16 The least liquid stocks listed on AIM, including IOG shares, are traded on the SETSqx platform (Stock Exchange Electronic Trading Service – quotes and crosses), which uses the services of market makers to ensure that sufficient stocks are available to trade each day. As of January 2019, 157 AIM-listed companies traded on SETS, whereas 778 AIM-listed companies traded on SETSqx.

3.17 Since many of the companies listed on AIM are small, early-stage businesses, they are faced with a range of risks common to such companies, such as a lack of a track record of positive earnings, the increased risks associated with unproven business models and a greater risk (all else equal) of experiencing cash flow difficulties.

3.18 SETSqx is tailored for securities with lower liquidity compared to those traded on SETS. Since the liquidity of stocks traded on SETSqx is limited, market makers are obliged by LSE to offer bid and ask prices for all SETSqx-traded securities. Market makers play a role in forming stock prices and change bid and ask prices according to trade volume and/or in response to supply and demand dynamics.

3.19 Market makers are further obliged to offer a minimum number of shares for trading in each SETSqx-listed company, the Exchange Market Size (**'EMS'**), but are not obliged to buy or sell in volumes greater than the EMS. In October 2023, the EMS was set at 50,000 shares. Investors can also participate in the price formation process by trading in the auction, but it is reported that the liquidity during these auctions is very low. Since liquidity is low for the companies traded on SETSqx, stock prices may change significantly when there are bulk share sales. [5]

3.20 I would expect that the costs of trading in IOG's shares would be significantly higher than SETS-traded companies on account of:

(i) potentially wide bid-ask spreads, particularly in times of market stress or supply and demand imbalances;

(ii) significant price impact in response to large purchases or sales of shares in a low-liquidity market; and

(iii) all else equal, a higher opportunity cost of waiting for an order to be filled or matched with another market participant.

3.21 In principle, I would expect bid-ask spreads to be wider, all else equal, if:

(i) the stock price is lower in absolute terms. That is, I would expect a lower percentage bid-ask spread on a stock priced at £10.00 than one priced at £0.10;

(ii) trading volumes in a stock are lower in absolute terms, especially given the requirement for market makers to hold a minimum quantity of shares available to trade;

(iii) there are fewer market makers in a stock, as a higher number of market makers will tend to increase the liquidity of the stock; and

(iv) a share is more volatile, all else equal, or is experiencing a period of higher volatility.

3.22 Several studies, including those by Tinic and West (1972)[6], Stoll (1978)[7], and Jegadeesh and Subrahmanyam (1993)[8], and Kothare and Laux (1995) [9] confirm that these expectations are supported by empirical research.

3.23 As may be seen in the chart below, the bid-ask spread on IOG shares between January 2016 and August 2023 was generally around 1% except:

(i) during 2016 and 2017, when the spread was generally between 2% and 4%; and

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5 CO-40 - Taylor, Michael, *SETS, SETSqx & SEAQ: Everything You Need To Know,* March 2021.

6 CO-41 - Tinic, Seha M. and Richard R. West, 1972, *Competition and the pricing of dealer services in the over-the-counter stock market*, Journal of Financial and Quantitative Analysis 8.

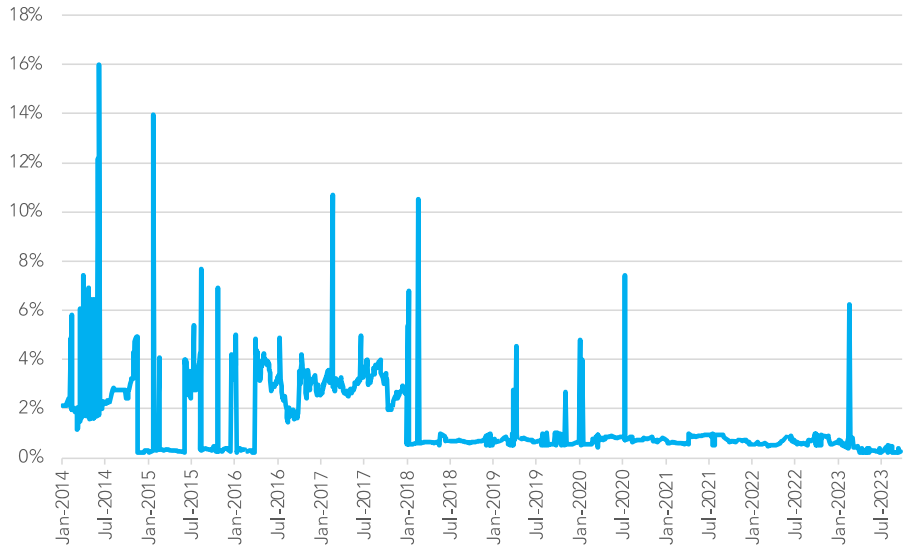
7 CO-42 - Stoll, Hans, 1978, *The pricing of security dealer services: An empirical study of NASDAQ stocks*, Journal of Finance 33.

8 CO-43 - Jegadeesh, N. and Subrahmanyam, A., 1993, *Liquidity Effects of the Introduction of the S&P 500 Index Futures Contract on the Underlying Stocks*, The Journal of Business, vol.66, issue 2.

9 CO-44 - M. Kothare, P. Laux, 1995, *Trading Costs and the Trading Systems for Nasdaq Stocks*, Financial Analysts Journal, Volume 51, Issue 2.

(ii) during periods of increased activity in IOG shares, when the bid-ask spread could spike to a range between 4% and 11%.

Figure 3.1 **Bid-ask spread of IOG's shares, 2014 – 2023, percent**



Source: Annexe 2

3.24 In my opinion, in the event that LOG sought to realise the value of its investments in IOG, bid-ask spreads on IOG shares would have widened from the ~1% range typically seen because:

(i) IOG's share price was generally below £0.50, so that even a £0.01 change in the share price would cause a percentage movement of more than 2%;

(ii) IOG shares, being traded on SETSqx, would generally have only been able to be traded in smaller blocks without moving the price; and

(iii) IOG's share experienced considerable volatility in response to its announcements about its gas reserves, in particular following the announcement of the farm-out transaction in April 2019.

3.25 As noted in my first report, given the size of LOG's interests in IOG share in relation to the daily trading volume, that period of time over which the bid-ask spread could have been elevated might have been quite extended.

Conclusion on discount for lack of marketability

3.26 I consider that the four factors listed at paragraph 3.6 above would have affected the value that LOG could realise for its investments in IOG. In my opinion, therefore, a third party contemplating the acquisition of some or all of LOG's investments would have had regard to the potential difficulties in realising value from its acquisition owing to:

- IOG's lack of cash inflows let alone its ability to demonstrate profitability or to pay dividends;

- the uncertainties associated with IOG's ability to discover and extract significant quantities of commercially recoverable gas and the potential for those uncertainties to alter in response to new information released during the period in which it held the shares;
- the time that it would likely take to realise liquidity in LOG's investments and the price risk borne during that time; and
- the absence of hedging options for the principal risks embedded in IOG's shares.

3.27 In addition, for the reasons set out in paragraph 3.23 and 3.24, bid-ask spreads on IOG shares – which reflect the relative lack of marketability in IOG's shares – would have tended to be higher than usual in the event that LOG sought to realise the value of its investments in IOG.

3.28 For those reasons, it is my opinion that a third-party considering the acquisition LOG's investments would have sought a higher discount for lack of marketability than would be associated with a comparable trade involving a frequently traded, widely held asset for which appropriate hedging options were available.

3.29 Those factors are likely to have been incorporated within the bid-ask spread sought by market-makers in IOG's shares. The evidence I have reviewed indicates that during periods of heavy trading in IOG's shares, the bid-ask spread between 2018 and 2023 spiked from its typical level of around 1% to between 4% and 11%.

3.30 In my opinion, the appropriate discount for such marketability factors therefore lies in that range and I conclude that a range of 5% to 10% would be appropriate to apply to LOG's investments in IOG for lack of marketability alone. I consider this discount to be quite separate from the one that would apply in the event that LOG sought to dispose of its interests in IOG through a block trade.

Blockage discounts

3.31 The International Valuation Standards Council (**'IVSC'**) defines a blockage discount as potentially applicable:[10]

> *'when the subject asset represents a large block of shares in a publicly traded security such that an owner would not be able to quickly sell the block in the public market without negatively influencing the publicly traded price. Blockage discounts may be quantified using any reasonable method but typically a model is used that considers the length of time over which a participant could sell the subject shares without negatively impacting the publicly traded price (i.e., selling a relatively small portion of the security's typical daily trading volume each day).'*

3.32 I also note that the American Institute of Certified Public Accountants (AICPA) Statement on Standards for Valuation Services No. 1 (SSVS-1) and the American Society of Appraisers (ASA) Business Valuation Standards both define a blockage valuation discount as a reduction in the current market price of publicly traded stock to reflect the diminished per-share value of a large block of stock that cannot be reasonably sold within a normal trading volume period.

[10] CO-45 - IVSC Valuation Standards, January 2002, 30.17(c).

3.33 In my First Report,[11] I assessed that the average daily trading volume in IOG shares prior to the second half of 2022 was generally less than 3 million share per day. On the assumption that LOG could dispose of no more than 20% of that figure without adversely affecting the price that it received for its shares, LOG could have disposed of around 600,000 shares per day. Given a total holding of IOG shares of up to 155 million shares, it would therefore have taken LOG (or its counterparty in a block trade) over a year of trading fully to dispose of its shares, during which time it would be fully exposed to price risk and the risk that IOG's prospects might worsen as its exploration efforts developed.

3.34 The United States Internal Revenue Code also acknowledges that a blockage discount may be relevant when valuing substantial blocks of shares for estate tax purposes:[12]

> *'In certain exceptional cases, the size of the block of stock to be valued in relation to the number of shares changing hands in sales may be relevant in determining whether selling prices reflect the fair market value of the block of stock to be valued. If the executor can show that the block of stock to be valued is so large in relation to the actual sales on the existing market that it could not be liquidated in a reasonable time without depressing the market, the price at which the block could be sold as such outside the usual market, as through an underwriter, may be a more accurate indication of value than market quotations. Complete data in support of any allowance claimed due to the size of the block of stock being valued shall be submitted with the return. On the other hand, if the block of stock to be valued represents a controlling interest, either actual or effective, in a going business, the price at which other lots of change hands may have little relation to its true value.'*

3.35 While supportive of the concept of blockage discounts in general, the Internal Revenue Code marks out a clear exception in respect of controlling interests, which might attract a premium if a strategic acquirer wishes to obtain control over the company. I acknowledged this possibility in my First Report,[13] while noting that the presence of such an acquirer could not be taken for granted.

3.36 In my experience, there are two general approaches to assessing the level of a blockage discount, namely:

(i) a 'dribble-out' approach that considers (perhaps using hindsight, or otherwise relying upon a projection based on the expected future volatility of the shares) the value that a seller of a large block of shares might realise if they were to release them into the market over time. In the present case, while it might be possible to use hindsight, I consider that there would likely have been material adverse movements in IOG's share price in the event that LOG – by far the largest investor in IOG – had sought to dispose of its holdings. I am unable to estimate those adverse movements with any precision, although I consider that they would likely have exceeded the 5% to 10% range that I considered above which would reflect the general lack of marketability of IOG shares; and/or

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11 CO1: para 5.17 et seq.

12 CO-46 - Internal Revenue Code para 20.2031–2, article (e)

13 CO1: para 5.15(iii).

(ii) an option-based approach, which would require a calculation of the theoretical cost of an appropriate option-based hedging strategy (likely involving the purchase of put options) either during the dribble-out period or to create 'synthetic liquidity' at a known future date. The cost of the put options would be subtracted from the valuation assessed.

3.37 There was, however, no public trading in options on IOG shares, which implies that to dispose of its interest using a hedging strategy, LOG would have needed to identify a counterparty willing to write a nonstandard, nontraded put option. I understand that the cost of such options is typically at a premium to the theoretical value calculated (for example) using a BSM model owing to the difficulty the counterparty would face in unwinding the position or purchasing IOG's stock for hedging purposes.[14]

3.38 One paper that I have reviewed suggests that the additional charge to compensate option writers for writing unlisted options – such as for thinly traded assets such as IOG shares – might be around 50% above the theoretical price calculated using a BSM model.[15] Such a premium not only relates to marketability but also accounts for the real and significant risks associated with writing uncovered put options when the position cannot be readily closed or hedged (as with traded options). I consider that similar considerations would apply to any counterparty that might potentially have written options on IOG shares to provide liquidity in LOG's investments.

3.39 In my opinion, however, no such counterparty likely existed, suggesting that any assumptions about the potential cost of hedging LOG's interests would likely be unreliable.

Empirical evidence for blockage discounts

3.40 In my First Report, I noted that LOG's investments in IOG shares were very large in relation to the daily trading volume of the shares, suggesting that even if a third party were willing to enter into a block trade, that third party would take time and bear risk prior to converting the investment to cash. Those factors would have been relevant considerations to any third party considering entering into a block trade to purchase a substantial portion of, or all of, LOG's investments.

3.41 A 2001 study by FMV Opinions considered around 230 transactions in restricted stocks from 1980 to 1997 and analysed the results.[16] Subsequently, one of the authors updated the study to consider the effect of the block size traded on the observed discounts.[17] A summary of the results, based on 43 out of the 230 transactions, is shown in the table below.

[14] CO-47 - Liu, H. and Yong, J., Option pricing with an Illiquid Underlying Asset Market', Journal of Economic Dynamics and Control, 2005, 29(12), pp. 2125–2156.

[15] CO-48 - Hawkins, George B., *Blockage Discounts For Publicly Traded Stock,* 2021, page 6.

[16] CO-49 - E Robak and LS Hall, *Bringing Sanity to Marketability Discounts: A New Data Source*, Valuation Strategies, July/August 2001.

[17] CO-50 - E Robak, *Liquidity and levels of value: A new theoretical framework,* 2004, BVUpdate.

Figure 3.2 **Blockage discount from the FMV study**

	Median	Mean	Count
Control group DLOM	23.9%	23.3%	43
Large-block data			
More than 35%	48.2%	45.2%	4
More than 30%	40.9%	41.5%	11
More than 25%	40.9%	38.0%	17
More than 20%	35.9%	32.4%	28
Implied incremental blockage discount			
More than 35%	24.3%	21.9%	
More than 30%	17.0%	18.2%	
More than 25%	17.0%	14.7%	
More than 20%	12.0%	9.1%	

Source: E Robak: *"Liquidity and levels of value: A new theoretical framework"* BVUpdate 2004, page 6.

3.42 As may be seen, for blocks of a size comparable to that held by LOG in IOG –30% or more of the outstanding equity – mean discounts ranged from 18.2% to 21.9% simply on account of the size of the block being traded. This discount is in addition to the 'Control Group' discount of 23.3% identified by the study, which reflects the discount associated with the lack of marketability of much smaller parcels of shares.[18]

3.43 Mr Wright has opined that an appropriate block trade discount would lie in a region from 10% to 15%, without indicating where in that range it might lie. In my opinion, having regard to the study above and Mr Wright's opinion, the *minimum* block trade discount would likely be at the upper end of the range identified by Mr Wright.

3.44 In my opinion, the lack of suitable hedging options for IOG shares would have left a counterparty to a block trade holding considerable, unhedged risk, potentially for an extended period. For that reason, I am content to conclude that the upper end of the range might be represented by the values suggested by the FMV Opinions study shown above, which exceed 20% for blocks of more than 35% of the issued shares.

Evidence from US Court proceedings

3.45 I have reviewed evidence from US Court proceedings in respect of the blockage discounts applied to large holdings of shares. In general, these cases have been decided in the United States Tax Court and relate to the estates of deceased persons.

3.46 Over time, there have been several cases in which the relevant factors that might be taken into account in assessing discounts for block size or lack of marketability might be assessed. For example, in *Estate of Foote v Commissioner*, the expert for the IRS considered at least 16 factors that might have a bearing on the discount, including:

[18] The scale of that discount reflects the absolute lack of marketability of the share blocks considered in the FMV study and therefore exceeds the 5% to 10% range I identified above in respect of the appropriate discount for lack of marketability for IOG shares.

(i) the size of the block in relation to the total shares outstanding;

(ii) the size of the block in relation to daily trading volume;

(iii) the proportion of the total shares trading in the market (as opposed to held by insiders);

(iv) the dividend-paying record of the company;

(v) the company's current outlook;

(vi) the percentage of institutional ownership of the stock; and

(vii) the effect of trading more than 50,000 shares of stock in eight separate trading days.

3.47 Later, the case of *Estate of Murphy v Commissioner* considered six factors, namely:

(i) the volatility of the stock;

(ii) the actual price change in the stock under recent and preceding market conditions;

(iii) the subject company's current economic outlook;

(iv) the trend of the price and financial performance of the stock;

(v) the trend of the subject company's earnings; and

(vi) the existence of any resale restrictions on the stock.

3.48 I agree that these are the kinds of factors that one might take into account in considering a blockage discount in respect of shares in publicly traded companies such as IOG. I have reviewed the cases having regard to:

(i) the size of the block of shares in relation to the total equity in the firm;

(ii) whether the firm was publicly traded or privately held; and

(iii) the size of the discount applied by the Court.

3.49 Notable cases from my review are summarised in the table overleaf.

Figure 3.3 **Summary of notable US Tax Court decisions**[19]

Case	Block	Discount	Notes
Estate of Murphy, 07-CV-1013, 2009	0.4%-3%	1.3% - 5%	Estate held 2.67% of Murphy Oil Corp., 3.6% of Deltic Timber Corp. and 0.37% in BancorpSouth. Court held that blockage discounts of 5%, 5% and 1.3% should apply to each interest, respectively.
Estate of Gimbel v Commissioner, 2006 Tax Ct Memo	13%	14.2%	Stock held in Reliance Steel & Aluminium Co (publicly traded). The IRS expert argued for a 9% blockage discount and the petitioner: 17%.
Estate of Mellinger v. Commissioner, 112 T.C. 26	27.9%	25%	Case related to two blocks of equal size (both 27.9%) in Fredericks of Hollywood, a publicly traded company. Although characterised as a discount for lack of marketability, it is apparent that the Court gave weight to the fact that the block size was large, and the stock thinly traded.
Estate of Foote v Commissioner, T.C. Memo 1997-37	2.2%	3.3%	Decedent held 280,507 shares in Applied Power, a publicly traded company. A blockage discount was allowed on the basis that the holding was large in relation to the daily trading in the stock (approximately 29 days of trading).
Estate of Davis v Commissioner, 110 T.C. 530 (1998)	0.71%-1.33%	Nil	Decedent held 1.33% in Winn-Dixie, a publicly traded company and 0.71% in DDI, a privately held company. The Court held that the descendant's estate had failed to discharge the burden of establishing that a blockage discount should apply.
Estate of McClatchy v Commissioner, 147 F.3d 1089 (1998)	Unknown	15%	The decedent held untraded Class B shares that were freely convertible for publicly traded Class A shares. The Court allowed a blockage discount of 15% on account of the size of the block in relation to normal trading volumes in Class A shares.
Estate of Mandelbaum v Commissioner, T.C. Memo 1995-255	1.4%-16.4%	30%	Collectively, the blocks comprised 100% of the capital in a privately held women's clothing retail business. The Court applied at 30% discount, but it is unclear to what extent the discount should distinguish between one of for lack of marketability and block size.

3.50 From the above table, I conclude that US Courts have generally found that:

(i) larger blockage discounts should apply to blocks that are large both in relation to the total share issuance of the company and also in relation to the daily trading in the shares;

[19] See also CO-51 - Valuation Analysis Insights, *Fair Market Value and Blockage Discounts: When the Market Doesn't Give You the Answer,* Charles A. Wilhoite, CPA, and Aaron M. Rotkowski, 2014, page 78.

(ii) smaller blocks of shares – such as those in Foote – may nonetheless attract a blockage discount, subject to the constraint that the petitioner must prove its case in relation to the existence of a blockage discount; while

(iii) in respect of privately-held companies, Courts may not distinguish clearly between a discount for lack of marketability, a blockage discount and other factors (such as the degree of control conferred by the block) that may be taken into account.

3.51 Overall, I conclude that the specific blockage discounts awarded in Gimbel, Mellinger and McClatchy are supportive of the range of 15% to more than 20% upon which I concluded above, while the cases of Murphy and Foote are not inconsistent with it (on account of the smaller size of those blocks in relation to total issuance).

3.52 On that basis, I conclude that the evidence from US Courts that have considered the issue would tend to support my view that the blockage discount applicable to LOG's investments in IOG shares would lie at the upper end of the range provided in the evidence i.e., in excess of 15% and potentially in excess of 20%.

Conclusions on discounts

3.53 In my First Report, I assessed the discount that LOG would need to accept in order to realise the value of its investments in IOG to lie between 20% and 30% of their value. I continue to hold that opinion.

3.54 For the reasons set out above, I consider that:

- an appropriate discount for lack of marketability to apply to LOG's investment would have been between 5% and 10%. In the event that liquidity in those investments was sought, whether directly or through a block trade, in my opinion market makers would have widened their bid-ask spreads in response to the likely increased selling pressure in IOG shares. The evidence suggests that when selling pressure has been higher than usual in IOG shares between 2018 and 2023, the bid-ask spread has been between 4% and 11%. On that basis, I concluded on a discount for lack of marketability of 5% to 10%; and
- an appropriate blockage discount applicable solely on account of the size of LOG's holdings in relation to the free float and daily trading volumes in IOG shares would lie in a range from 15% (the upper end of Mr Wright's range) to 20%+ (consistent with the FMV Opinions research from 2001 and 2004 and the decisions of the US Tax Courts).

3.55 In total, therefore, I consider that my original range of 20% to 30% remains appropriate and consistent with the evidence as to the scale of such discounts seen both in the market for IOG's shares and empirical evidence in relation to trading in IOG shares, in particular, and block trades in illiquid stock, more generally.

4. Expert Declaration

4.1 I declare that:

(i) I understand my duty as an expert witness is to the Court. I have complied with that duty and will continue to comply with it. This report includes all matters relevant to the issues on which my expert evidence is given. I have given details in this report of any matters which might affect the validity of this report. I have addressed this report to the Court. I further understand that my duty to the Court overrides any obligation to the party from whom I received instructions.

(ii) I confirm that I have complied and will continue to comply with Part 35 of the Civil Procedure Rules, the associated Practice Direction, and the Civil Justice Council's Guidance for the Instruction of Experts in Civil Claims 2014 at all stages of my involvement in this case.

(iii) I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Christopher Osborne
Managing Director
27 Throgmorton Street, London EC2N 2AQ
3 November 2023

Appendix 1 Sources of information

List of CO Exhibits

Exhibit	Document
CO-39	Damodaran, Aswath, The cost of illiquidity, New York University, date accessed November 1, 2023. https://pages.stern.nyu.edu/~adamodar/pdfiles/country/illiquidity.pdf
CO-40	Taylor, Michael, SETS, SETSqx & SEAQ: Everything You Need To Know, March 2021. https://www.shiftingshares.com/sets-setsqx-seaq/
CO-41	Tinic, Seha M. and Richard R. West, 1972, Competition and the pricing of dealer services in the over-the-counter stock market, Journal of Financial and Quantitative Analysis 8.
CO-42	Stoll, Hans, 1978, The pricing of security dealer services: An empirical study of NASDAQ stocks, Journal of Finance 33.
CO-43	Jegadeesh, N. and Subrahmanyam, A., 1993, Liquidity Effects of the Introduction of the S&P 500 Index Futures Contract on the Underlying Stocks, The Journal of Business, vol.66, issue 2.
CO-44	M. Kothare, P. Laux, 1995, Trading Costs and the Trading Systems for Nasdaq Stocks, Financial Analysts Journal, Volume 51, Issue 2.
CO-45	IVSC Valuation Standards, January 2002, 30.17(c).
CO-46	Internal Revenue Code para 20.2031–2, article (e)
CO-47	Liu, H. and Yong, J., Option pricing with an Illiquid Underlying Asset Market', Journal of Economic Dynamics and Control, 2005, 29(12), pp. 2125–2156.
CO-48	Hawkins, George B., Blockage Discounts For Publicly Traded Stock, 2021, page 6. https://www.businessvalue.com/resources/Valuation-Articles/Blockage-Discounts.pdf
CO-49	E Robak and LS Hall, Bringing Sanity to Marketability Discounts: A New Data Source, Valuation Strategies, July/August 2001.
CO-50	E Robak, Liquidity and levels of value: A new theoretical framework, 2004, BVUpdate
CO-51	Valuation Analysis Insights, Fair Market Value and Blockage Discounts: When the Market Doesn't Give You the Answer, Charles A. Wilhoite, CPA, and Aaron M. Rotkowski, 2014, page 78, available at https://willamette.com/insights_journal/14/autumn_2014_12.pdf.