

VALUATION OF NCC GROUP PLC

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ABSTRACT

This report investigates and gives an in-depth explanation of the valuation of NCC Group plc. In doing so, this valuation highlights the group's historical performance while analysing management efficiency and explaining the source of the group's core sustainable competitive advantage and revenue growth projection. Major assumptions used in this valuation take the school of thought of reputable scholars such as Aswath Damodaran, CFA, Kemi Akinde, CFA, and McKinsey in revenue, financial statement forecasting, and cost of capital calculation. Furthermore, certain concepts of valuation might not produce tantamount results as the financials of the company were integrated and adjusted over time to adhere with the FIRS standard of reporting. Finally, assumptions made in this valuation are based on publicly available information about the company and the stock market at large.

Framework for company analysis

Overview: Established 1999 in Manchester, the United Kingdom, NCC Group plc engages in the cyber and software resilience business in the United Kingdom, Asia-Pacific, North America, and Europe. It operates in two segments, assurance and software resilience. The company offers assessment and advisory services, which include risk management, supply chain risk, cloud and infrastructure, application and security software, mobile, managed vulnerability scanning, hardware and embedded systems, and cryptography, as well as calibrator and cyber security review solutions. The company serves customers in various industries that include finance and professional, transport and manufacturing, public, retail, and energy and utilities, as well as the technology, media, and telecommunications sectors.

Industry characteristics

Sector: Technology

Industry groups: Software- Application

Industry: Security software

Sub-industry: Cyber security, Assurance and software Resilience

Demand: The company serves both government institutions and private companies in a variety of industries, including finance and professional services, transportation and manufacturing, retail, energy and utilities, and technology, media, and telecommunications.

Supply: Two major suppliers provide NCC with ACX series universal access routers to deploy high-bandwidth services; MX series Ethernet routers that function as a universal edge platform; PTX series packet transport routers; wide-area network SDN controllers; and session smart routers.

Pricing: The pricing Environment of NCC is more company-controlled than market-controlled.

The valuation processes

- Reorganising the financial statements
- Analysing historical performance
- Estimating a continuing value
- Computing the cost of capital
- Converting the enterprise value to equity value
- Interpreting the results

1. Historical Analysis and Relevant Ratios

When analysing any firm, we want to know the types of assets that it owns, the value of these assets, and the degree of uncertainty about this value. Accounting statements do a reasonably good job of categorizing the assets owned by a firm, but to assess the value, uncertainty and economic performance of the asset value reorganising the statement is crucial, this section begins by reorganizing the financial statement to understand the company's past, which is essential to forecasting its future, after which this analysis will consider Key ratios of **Return, Growth, Margin and Risk**.

1.1. Re-organizing the financial Statement

1.1.1 Reorganizing the Statement of Profit or Loss statement – analysis of NOPLAT

We transform the income statement to determine NOPLAT (Net operating profit less adjusted Tax) where the operating profit is EBIT for this analysis as the amortization consist majorly of acquired intangibles. NOPLAT is used for this analysis as it is independent of the capital structure of the firm and takes into consideration only the operating activities of the firm. Using this will enable this analysis to determine how NCC is performing when compared to its comparable.

NOPLAT	2018A	2019A	2020A	2021A	2022A
	£'M	£'M	£'M	£'M	£'M
Revenue	233.00	250.70	263.70	270.50	314.80
Cost of sales	(137.10)	(148.90)	(159.30)	(159.90)	(182.20)
Gross profit	95.90	101.80	104.40	110.60	132.60
Administrative expenses:					
Depreciation and amortisation	(9.40)	(19.00)	(23.60)	(19.70)	(19.70)
Other administrative expenses	(65.10)	(63.30)	(60.30)	(60.90)	(77.30)
Total administrative expenses	(74.50)	(82.30)	(83.90)	(80.60)	(97.00)
Operating profit	21.40	19.50	20.50	30.00	35.60
Operating Cash taxes	0.55	(4.71)	(3.75)	(5.24)	(8.93)
NOPLAT	21.95	14.79	16.75	24.76	26.67
Nonoperating Taxes	-0.05	0.41	0.55	0.44	0.93
Income Available to investors	21.90	15.20	17.30	25.20	27.60
Reconciliation to net Income					
Net income	20.10	13.50	14.30	22.70	23.90
Interest Expense	1.80	1.70	3.00	2.50	3.70
Income Available to investors	21.90	15.20	17.30	25.20	27.60
Reconciliation to net Income					
Net income	20.10	13.50	14.30	22.70	23.90
Interest Expense	1.80	1.70	3.00	2.50	3.70
Interest Tax shield	0.05	-0.41	-0.55	-0.44	-0.93
NOPLAT	21.95	14.79	16.75	24.76	26.67

Other Computations	2018A	2019A	2020A	2021A	2022A
Invested Capital	270.9	269.9	343.6	333.5	453.00
EBITA	21.40	19.50	20.50	30.00	35.60
<i>Marginal Tax Rate</i>	19.00%	19.00%	19.00%	19.00%	19.00%
<i>Effective Tax Rate</i>	2.55%	24.16%	18.29%	17.45%	25.08%
Taxes	0.5	4.3	3.2	4.8	8
Subtract (Add): Taxes on non-operating income (expenses)					
<i>Taxes on interest income</i>	0	0	0	0	0
<i>Taxes on Other Income</i>	0	0	0	0	0
<i>Taxes on other non-operating income</i>					
Add: Taxes on financing expenses					
<i>Tax shield on interest expense</i>	0.05	0.41	0.55	0.44	0.93
<i>Tax shield on capitalized operating lease</i>					
Operating taxes	0.55	4.71	3.75	5.24	8.93
Operating Tax	0.55	4.71	3.75	5.24	8.93
Subtract(Add): Increase (Decrease) Adjust for Deferred Taxes		-1.00	-3.70	-1.40	1.00
Operating Cash Taxes	0.55	4.71	3.75	5.24	8.93
Operating Cash Tax Rate	2.55%	24.16%	18.29%	17.45%	25.08%
NOPLAT	21.95	14.79	16.75	24.76	26.67
Growth in NOPLAT		-32.61%	13.27%	47.83%	7.71%
ROIC	8.10%	5.47%	5.46%	7.31%	6.78%

Table 1 – Re-organised statement of profit or loss (data from: NCC Group Annual report, 2022)

1.1.2 Reorganizing the Statement of Financial Position – analysis of Invested Capital

Unlike the reported financial position statement, here we reorganize the financial position into invested capital and financing provided by investors to fund those operations by separating operating assets from non-operating assets and financial structures. The reason for the rearrangement is to create consistency with the definition of NOPLAT and show the assets and liabilities that drive revenue, cost of goods, and operating expenses.

Statement of Financial Position Decomposed		AY 2018	AY 2019	AY 2020	AY 2021	AY 2022
		31 May 2018	31 May 2019	31 May 2020	31 May 2021	31 May 2022
		£'M	£'M	£'M	£'M	£'M
Cash and cash equivalents	C	21.20	34.90	95.00	116.50	73.20
Inventories	OA	0.80	0.70	0.90	1.10	0.90
Trade and other receivables	OA	66.00	61.60	73.40	68.70	77.70
Current tax receivable	OA	0.00	0.60	0.60	4.50	3.10
Operating Current Asset		88.00	97.80	169.90	190.80	154.90
Trade and other payables	OL	35.70	31.60	46.40	45.20	48.30
Current tax payable	OL	1.30	0.00	0.00	4.00	7.40
Provisions	OL	2.60	2.70	2.00	2.40	2.70
Contract liabilities – deferred revenue	OL	30.60	36.20	39.50	43.60	61.70
Operating Current Liabilities		70.20	70.50	87.90	95.20	120.10
Operating Working Capital		17.80	27.30	82.00	95.60	34.80
Property, plant and equipment	OA	19.40	16.90	13.90	11.50	12.90
Right-of-use assets	OA	0.00	0.00	28.70	23.80	22.00
Provisions	OL	-6.30	-5.50	-1.70	-0.60	-0.80
Contract liabilities – deferred revenue	OL	0.00	0.00	-1.40	-0.70	-0.60
Invested Capital Without Goodwill		30.90	38.70	121.50	129.60	68.30
Goodwill	OA	187.20	189.40	193.10	182.90	266.10
Intangible assets	OA	52.80	41.80	29.00	21.00	118.60
Invested Capital With Goodwill		270.90	269.90	343.60	333.50	453.00
Invested Capital		270.90	269.90	343.60	333.50	453.00
Investments	NOA	0.40	0.30	0.30	0.30	0.30
Derivative financial instruments	NOA	0.00	0.00	0.00	0.00	0.20
Consideration receivable on disposal	NOA	1.50	0.00	0.00	0.00	0.00
Derivative financial instruments	NOL	0.00	0.00	0.00	-0.80	0.00
Contingent consideration	NOL	0.00	0.00	0.00	0.00	-1.90
Consideration on acquisitions	NOL	-11.90	0.00	0.00	0.00	0.00
Total Funds Invested		260.90	270.20	343.90	333.00	451.60
			0.00	0.00	0.00	0.00
Reconciliation of total funds invested						
Borrowings	D	49.00	50.10	99.20	33.20	107.10
Lease liabilities	D	0.00	0.00	32.90	29.30	27.20
short term Borrowings	D	0.00	5.00	0.00	0.00	18.50
short term Lease liabilities	D	0.00	0.00	5.30	5.10	5.40
Debt and debt equivalents		49.00	55.10	137.40	67.60	158.20
Total equity attributable to equity holders of the Parent	E	206.60	210.80	205.90	266.20	293.20
Deferred tax asset	DTA	-4.50	-1.10	-2.30	-2.00	-1.40
Deferred tax liabilities	DTL	9.80	5.40	2.90	1.20	1.60
Equity and equity equivalents		211.90	215.10	206.50	265.40	293.40
Total Funds Invested		260.90	270.20	343.90	333.00	451.60

Table 2 – Re-organised statement of financial position (data from: NCC Group Annual report, 2022)

1.1.3 Reorganizing the Statement of Cashflow – analysis of Free Cash Flow

This analysis determines free cash flow as the after-tax cash flow that is available to all investors, which is consistent with our definitions of NOPLAT and Invested capital. “FCF is the after-tax cash flow that would be generated if the company held only core operating assets and financed the business entirely with equity “(Koller et al., 2005, p. 209).

FCF = NOPLAT + noncash operating expenses + investment in Invested Capital

FCF = NOPLAT – net increase in Invested Capital

Free Cash Flow		2018	2019	2020	2021	2022
		£'M	£'M	£'M	£'M	£'M
Cash flows from operating activities						
NOPLAT		14.79	16.75	24.76	26.67	
Adjustments for:						
Depreciation of property, plant and equipment	OL	5.6	5.8	4.4	3.9	
Depreciation of right-of-use assets	OL	0	6	5.9	5.4	
Amortisation of customer contracts and relationships	OL	9	8.8	6.4	8.6	
Amortisation of software and development costs	OL	4.4	3	3	1.8	
Impairment reversal of right-of-use assets	OL	0	1.1	–	-0.1	
Gross cash flow		33.79	41.45	44.46	46.27	
Increase(Decrease) in provisions	OL	-0.7	-4.5	-0.7	0.5	
Decrease/(Increase) in trade and other receivables	OA	4.4	-11.8	4.7	-9	
Decrease/(increase) in inventories	OA	0.1	-0.2	-0.2	0.2	
Increase/(Decrease) in trade and other payables	OL	-4.1	14.8	-1.2	3.1	
Purchase of property, plant and equipment	OA	-3	-3	-2	-5	
Contract liabilities – deferred revenue	OL	6	5	3	18	
Free cash flow		35.99	41.65	48.46	53.77	
Decrease/(increase) in Goodwill		-2.20	-3.70	10.20	-83.20	
Decrease/(increase) in Intangibles		11.00	12.80	8.00	-97.60	
After tax expenses shield	OA	0.41	0.55	0.44	0.93	
Unexplained foreign-currency translation		0.3	–	-6.3	1.3	
Decrease (increase) in excess cash	C	-13.7	-60.1	-21.5	43.3	
Decrease (Increase) Derivative financial instruments	NOA	0	0	0.8	-1	
Cash Flow available to investors		31.80	-8.80	39.30	-81.50	
Reconciliation of cash flow available to investors						
Interest expense		1.70	3.00	2.50	3.70	
Decrease (increase) in short and long-term debt	D	-6.1	-44.1	66	-92.4	
Decrease (increase) in short and long-term capital leases	D	0	-38.2	3.8	1.8	
Cash flow to debt and debt equivalents		-4.40	-41.10	68.50	-88.70	
Decrease (Increase)Deferred Tax Liabilities	DTA	-1	-3.7	-1.4	1	
Increase in equity	E	-0.3	-1.1	-72.6	-0.8	
Share-based payments		1.7	1.4	2.8	3.9	
Dividend paid	E	12.9	12.9	13	14.4	
Cash flow to equity and equity equivalents		13.3	9.5	-58.2	18.5	
Cash Flow available to investors		8.90	-31.60	10.30	-70.20	

Table 3 – Re-organised statement of Cash flow (data from: NCC Group Annual report, 2022)

1.2 Key Ratios

1.2.1 Returned on Invested Capital

ROIC is driven by competitive advantages that enable a firm to realize price premiums and determine whether a firm is creating value. Hence, this analysis takes a deep dive into strategic and investment decisions to understand and predict what drives and sustains the firm's ROIC. ROIC is used in this analysis rather than ROE or ROA because this analysis tends to explain what drives the firm's operating performance regardless of the capital structure.

$$\text{ROIC} = \frac{\text{NOPLAT}}{\text{Invested capital}}$$

This analysis will consider ROIC with goodwill as it tends to show how the firm has created value above and beyond the price paid for these acquisitions. Also, ROIC without goodwill helps indicate if the firm has captured significant synergies to improve the performance of the acquired businesses, but that won't be the focus of this analysis.

ROIC	2021 £'M	2022 £'M	%
NOPLAT	24.76	26.67	7.71%
Invested Capital Without Goodwill	125.55	98.95	-21.19%
Invested Capital with Goodwill	338.55	393.25	16.16%
ROIC Without Goodwill	19.72%	26.96%	36.66%
ROIC With Goodwill	7.31%	6.78%	-7.27%

Table 4 – ROIC Computation for NCC Group Plc (data from: NCC Group Annual report, 2022)

From the table above, the analysis shows that the underlying performance of NCC grew by 36%, moving from 19% in the prior year to 27% in current year. This might imply that NCC is growing organically, improving operating performance, and creating value without relying on intangibles from acquisitions. Also, we see from the analysis that ROIC with goodwill dropped to 6.8% in 2022 (vs. 7.3% in 2021) this might not necessarily imply that the firm has destroyed value, rather it might be as a result of delay in realizing the synergy of the premium paid for the acquisitions to improve the underlying business.

Comparison With Peer Group

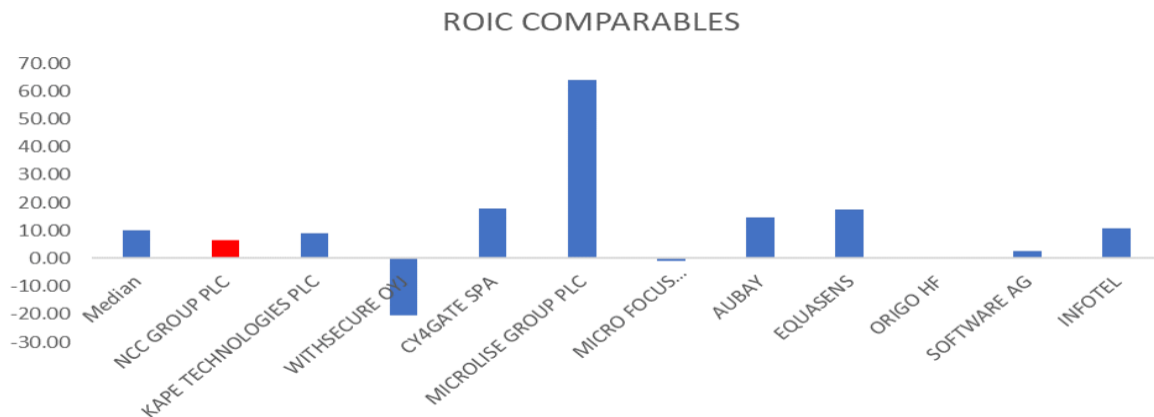


Chart 1 – NCC Group Plc Peer Group comparison of ROIC (data from: Bloomberg, 2022)

Although NCC appears to be performing well but when compared to peers, we see that NCC's performance is below the industry average and is creating less value for its stakeholders than the industry average.

1.2.2 Dupont Analysis ROIC

ROIC of a firm can be embodied as a function of the operating profit margin it has on its sales and its capital turnover ratio. This way, the analysis can inquire into which component of the firm's business drives its performance.

$$\begin{aligned}
 \text{ROIC} &= (1 - \text{Operating Cash Tax Rate}) \times \frac{\text{EBITA}}{\text{Revenues}} \times \frac{\text{Revenues}}{\text{Invested Capital}} \\
 &= \text{Operating Margin} \times \text{Capital Efficiency}
 \end{aligned}$$

NCC GROUP PLC ROIC Breakdown 2022

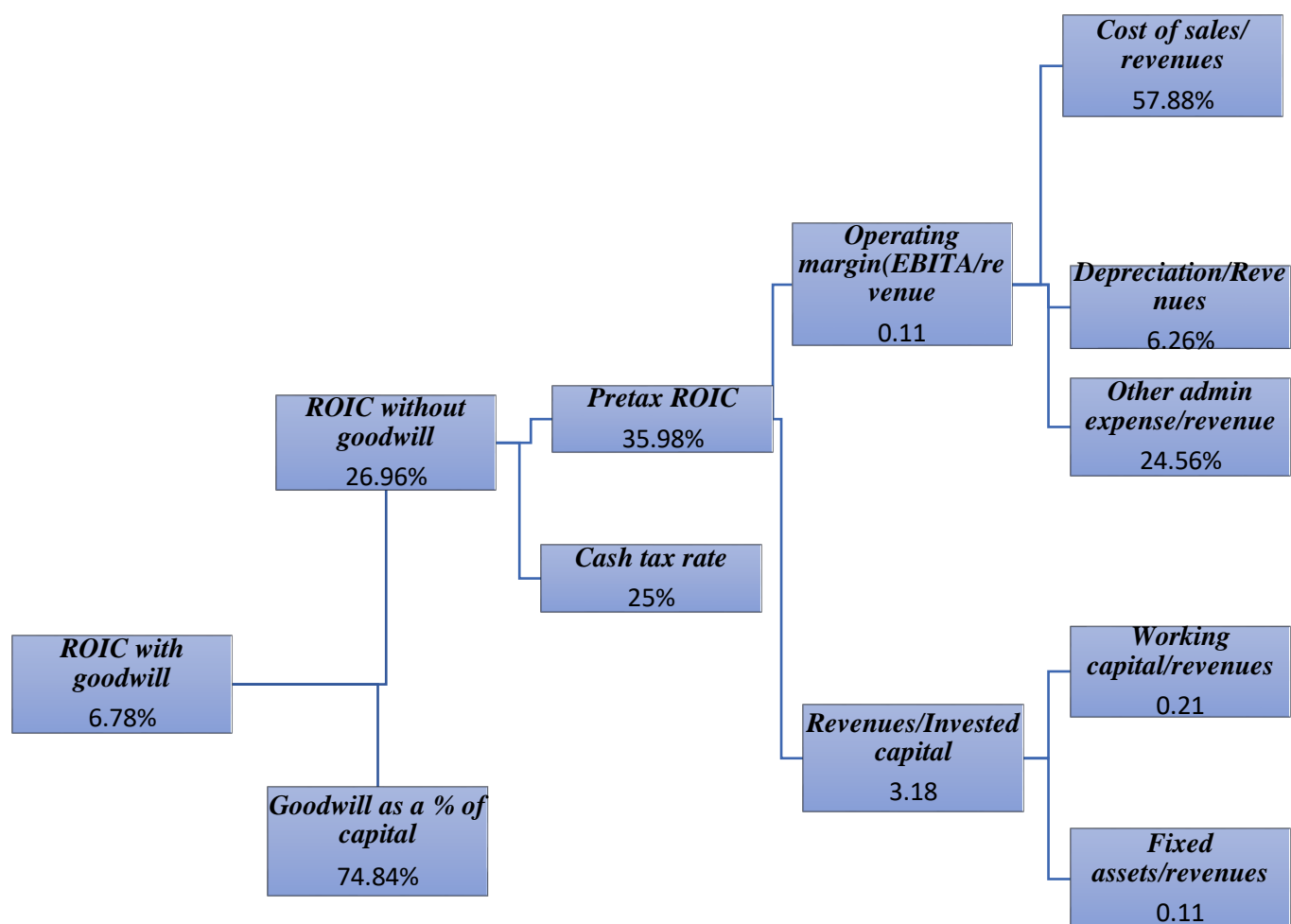


Chart 2 – NCC Group Plc ROIC decomposition (data from: NCC Group Annual report, 2022)

From the analysis above, we see that NCC's ROIC declined to **6.78%** in 2022 (vs. 7.31% in 2021) despite maintaining the same capital efficiency of 0.80. This might be as a result of higher operating cash tax which has arisen as a result of NCC accounting for deferred tax using the new UK tax regulation to move the marginal tax rate to 25% from 19%. Also, we see that operating margin had little to know growth perhaps owing to the firm struggling to reduce administrative expenses, which is partly attributable to the firm scaling up in salaries as a result of new employees that join the firm after the acquisition of IPM. Also, capital efficiency 0.81 times (vs. 0.81 times) was rather stagnant, which might

be as a result of the management not utilizing the synergy from the acquisition of IPM, it might also be as a result of the delay in harnessing the acquisition synergy of IPM integration.

1.2.3 ANALYSING REVNUUE GROWTH

From the raw growth of NCC revenue, this analysis established that revenue grows on an arithmetic average of 7.93% YoY and a geometric average of 6.39% YoY. Although this growth is straightforward, this analysis takes a deep dive into the distortion in revenue growth of NCC as a result of mergers and acquisitions, changes in accounting policies, and changes in currency value. The computation of NCC revenue increased by 17.9% on a constant currency basis and at actual rates increased by 16.4%, the difference to actual rates was mainly as a result of strengthening of GBP against the USD. Similarly, the firm's revenues, excluding the recent acquisition of IPM 8.9% at actual rates. Financially, the Interest rate benchmark reform (amendments to IFRS 4,7,9 and 16) and COVID-19-related rent concession (amendment to IFRS 16) were effective during the year but had no material impact.

1.2.4 Momentum in profitable revenue growth

NCC has a sustainable core competitive advantage of loyal customers globally, which is built on their strategy of differential services provided and global resourcing skills to match demand anywhere in the world in the cyber security industry, leading to NCC having pricing power over its services. Also, with NCC's unique ability to capture new market opportunities, acquire businesses (16.6% revenue growth following the acquisition of IPM), in conjunction with expanding existing market share.

1.2.5 Margins

Although NCC maintained a relatively stable operating margin, this analysis saw that the static movement might be as a result of terminations in exceeding than new business sales, slight decline in assurance and software resilience business margin. Also, the increase in OPEX margin compared to prior year was as a result of IPM overhead and integration costs, and recruitment.

1.2.6 RISK

In this analysis, we consider the risk NCC faces as a result of its capital structure. This analysis considers, liquidity and solvency as the major financial risks to NCC.

NCC's financial leverage grew to 1.97 times in 2022 (vs. 1.62 times in 2021), which shows that management can effectively finance the acquired debt from its operating profit. One - time financial leverage is good for a firm, but this analysis is limited in scope as it does not have peers' data to properly compare if NCC is doing well according to industry standards.

Also, the current ratio of NCC fell by 0.83 times from 1.89 times in 2021 to 1.06 times in 2022, this might indicate that NCC is struggling to meet short term obligations. A deep dive into the activities of NCC indicates that NCC's payables days reduced to 97 days in 2022 from 103days in 2021 while receivables days decreased to 90 days in 2022 (vs. 93 days in 2021) and inventory days declined to 2 days from 3 days in 2021, perhaps this is as a result of NCC paying suppliers promptly to get a good price offer, giving incentive to customers for prompt payment and increased ability to push its product to new and existing market to foster sales in other to move cash conversion circle to -5 days in 2022 (vs. -8 days in 2021).

Looking at NCC's solvency, this analysis considers the gearing ratio which recorded + 112% YoY growth in Debt to Equity to 0.54 in 2022 (0.25 in 2021) which implies that NCC has £0.54 of debt for every GBP of equity. Generally, a D/E ratio below 1 would be seen as relatively safe, whereas values of 2 or higher might be considered risky. For better comparison, the industry ratio should be used for peer comparison to determine if NCC is more geared when compared to peers in the industry.

2. Forecasting Performance

2.1 Forecasting Statement of Profit or Loss

Revenue Forecast

After thoroughly reorganizing and analysing the historical performance of NCC, this analysis forecasts future financials using an explicit forecast period of 10 years. This analysis starts by building the revenue forecast using both a top-down (market based) and bottom-up (customer-based) approach.

Using the market-based approach, this analysis uncovered that NCC has 1.47% of the software application industry group and 18% among the top 5 peers in the cyber security sub-industry.

The pandemic-induced “new normal” for technology investment, including that related to cyber security spending, is unlikely to go back to pre-pandemic levels. NCC revenue growth will be attributable to the increase in global cyber security budgets around the world to combat the cyber challenges faced by organisations. Three factors influencing growth in security spending are the increase in remote and hybrid work, the transition from virtual private networks (VPNs) to zero trust network access (ZTNA) and the shift to cloud-based delivery models, according to Gartner, Inc. press release 2022 which also forecast spending on security and risk management to 11.3% in 2023 with double-digit growth through 2024. Also, according to NCC Opinionium research across more than 1,300 cyber security decision makers in APAC, Europe, and North America confirms, an expected 10.1% increase in global cyber budgets in 2023 and beyond (Gartner, 2022).

Hence, due to history rhymes, NCC sustainable position strategy to capture growth in new markets, general expansion of existing market share, acquiring businesses, digital transformation, differential service, pricing power, and use of technology on an increasing pace, coupled with this analysis of historical growth rates, macroeconomic information, public information other than earnings, information revealed by competitors, and firm specific information made public since the last earnings report, this report projects revenue growth of the firm to **8%** for the sustainable period and **3%** in the continuing period. (Damodaran, 2012)

NOPLAT	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
	£'M	£'M	£'M	£'M	£'M	£'M	£'M	£'M	£'M	£'M
Revenue	339.98	367.18	396.56	428.28	462.54	499.55	539.51	582.67	629.29	679.63
Cost of sales	(201.02)	(217.10)	(234.47)	(253.23)	(273.49)	(295.37)	(319.00)	(344.52)	(372.08)	(401.84)
Gross profit	138.96	150.08	162.08	175.05	189.06	204.18	220.51	238.16	257.21	277.78
Administrative expenses:										
Depreciation and amortisat	(23.19)	(25.70)	(27.76)	(29.98)	(32.38)	(34.97)	(37.77)	(40.79)	(44.05)	(47.57)
Other administrative expen	(83.72)	(90.42)	(97.65)	(105.46)	(113.90)	(123.01)	(132.86)	(143.48)	(154.96)	(167.36)
Total administrative exp	(106.91)	(116.12)	(125.41)	(135.44)	(146.28)	(157.98)	(170.62)	(184.27)	(199.01)	(214.93)
Operating profit	32.05	33.96	36.67	39.61	42.78	46.20	49.89	53.89	58.20	62.85
Operating Cash taxes	(8.01)	(8.49)	(9.17)	(9.90)	(10.69)	(11.55)	(12.47)	(13.47)	(14.55)	(15.71)
NOPLAT	24.04	25.47	27.50	29.71	32.08	34.65	37.42	40.41	43.65	47.14
Nonoperating Taxes	0.92	0.94	0.96	0.97	1.08	1.10	1.35	1.38	1.40	1.43
Income Available to inve	24.96	26.40	28.46	30.68	33.16	35.75	38.77	41.79	45.05	48.57
Reconciliation to net Income										
Net income	21.28	22.66	24.64	26.78	28.84	31.34	33.37	36.28	39.43	42.84
Interest Expense	3.67	3.75	3.82	3.90	4.32	4.41	5.40	5.51	5.62	5.73
Income Available to inve	24.96	26.40	28.46	30.68	33.16	35.75	38.77	41.79	45.05	48.57
Reconciliation to net Income										
Net income	21.28	22.66	24.64	26.78	28.84	31.34	33.37	36.28	39.43	42.84
Interest Expense	3.67	3.75	3.82	3.90	4.32	4.41	5.40	5.51	5.62	5.73
Interest Tax shield	-0.92	-0.94	-0.96	-0.97	-1.08	-1.10	-1.35	-1.38	-1.40	-1.43
NOPLAT	24.04	25.47	27.50	29.71	32.08	34.65	37.42	40.41	43.65	47.14

Table 5 – Statement of Profit or Loss forecast (data from: Forecast, 2022)

Other line Items

The benefit streams of the profit or loss account relies indirectly or directly on revenue. Hence, each income statement line item is forecasted as a proportion of revenue, usually with the exception of depreciation and amortization, which are based on PPE and intangibles. In this analysis, Depreciation and amortization are modelled with OPEX (operation expenditure) to account for inconsistencies in other administrative expenses and align with the assumption of the balance sheet forecast.

Also, ‘Interest Expenses’, which are forecasted based on net-debt, where net Debt is not projected based on a growth rate (the adopted method) or independently of equity but based on total liabilities, there will be circular referencing in estimating interest expenses because liabilities are derived from the difference between total assets and equity, which depends on net profit and interest expenses are deducted before arriving at net profit. To correct for the circular referencing, this model considers interest expenses as a proportion of revenue such that the nominal value is approximately equal to the value based on interest expenses [interest-bearing debt]’. Finally, taxes are based on pre-tax profit less the effective tax rate (Akinde, 2022).

Other Computations	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Invested Capital	457.43	469.08	481.53	494.84	508.98	524.11	540.08	557.20	575.56	595.24
EBITA	32.05	33.96	36.67	39.61	42.78	46.20	49.89	53.89	58.20	62.85
<i>Marginal Tax Rate</i>	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
<i>Effective Tax Rate</i>	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
Taxes	7.09	7.55	8.21	8.93	9.61	10.45	11.12	12.09	13.14	14.28
Subtract (Add): Taxes on non-operating income (expenses)										
<i>Taxes on interest income</i>	0	0	0	0	0	0	0	0	0	0
<i>Taxes on Other Income</i>	0	0	0	0	0	0	0	0	0	0
<i>Taxes on other non-operating income</i>										
Add: Taxes on financing expenses										
<i>Tax shield on interest expense</i>	0.92	0.94	0.96	0.97	1.08	1.10	1.35	1.38	1.40	1.43
<i>Tax shield on capitalized operating lease</i>										
Operating taxes	8.01	8.49	9.17	9.90	10.69	11.55	12.47	13.47	14.55	15.71
Operating Tax	8.01	8.49	9.17	9.90	10.69	11.55	12.47	13.47	14.55	15.71
Subtract(Add): Increase (Decrease)	1.37	0.36	0.39	0.42	0.45	0.49	0.53	0.57	0.61	0.66
Operating Cash Taxes	8.01	8.49	9.17	9.90	10.69	11.55	12.47	13.47	14.55	15.71
Operating Cash Tax Rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
NOPLAT	24.04	25.47	27.50	29.71	32.08	34.65	37.42	40.41	43.65	47.14
Growth in NOPLAT	-9.87%	5.95%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
ROIC	5.28%	5.50%	5.79%	6.08%	6.39%	6.71%	7.03%	7.37%	7.71%	8.05%

Table 6 – Statement of Profit or Loss forecast (data from: Forecast, 2022)

2.2 Forecasting Statement of Financial Position

Total Asset

In forecasting the financial position, this analysis adopts the Total asset turnover assumption to forecast the Total asset and then common size other line items to Total assets with exception to; Items that are constant in values, cash balancing item and relevant ratios (Inventory turnover and trade receivables).

Equity

In projecting the shareholders' fund, ordinary share capital, share premium, and other reserves with the exception of retained earnings reserves, are kept constant. Retained earnings is forecasted based on the surplus after dividend pay-out (forecasted based on industry and company ratios) from Profit after Tax.

Total Liabilities (Total Asset – Equity)

Net debt a major component of total liabilities is forecasted based on growth rate which is informed by matured industry debt to equivalent, and firms own projections of equity to debt ratio for the foreseeable future. Other line items are common sized to the total liabilities, with the exception of trade payables turnover, provisions, and other payables.

Statement of Financial Position Decomposed		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
		31 May 2023	31 May 2024	31 May 2025	31 May 2026	31 May 2027
		£'M	£'M	£'M	£'M	£'M
Cash and cash equivalents	C	32.37	34.99	37.81	40.86	44.15
Inventories	OA	1.13	1.22	1.31	1.42	1.53
Trade and other receivables	OA	88.95	96.06	103.75	112.05	121.01
Current tax receivable	OA	1.62	1.75	1.89	2.04	2.20
Operating Current Asset		124.06	134.01	144.76	156.36	168.90
Trade and other payables	OL	52.73	56.95	61.51	66.43	71.74
Current tax payable	OL	4.85	5.54	6.30	7.11	7.98
Provisions	OL	3.18	3.64	4.13	4.66	5.24
Contract liabilities – deferred revenue	OL	55.09	63.01	71.54	80.74	90.68
Operating Current Liabilities		115.86	129.14	143.48	158.94	175.65
Operating Working Capital		8.21	4.87	1.28	-2.58	-6.75
Property, plant and equipment	OA	30.92	33.40	36.07	38.95	42.07
Right-of-use assets	OA	17.12	18.49	19.97	21.56	23.29
Provisions	OL	39.22	21.55	2.31	-18.62	-41.44
Contract liabilities – deferred revenue	OL	-0.98	-1.12	-1.27	-1.44	-1.61
Invested Capital Without Goodwill		94.49	77.18	58.36	37.89	15.55
Goodwill	OA	258.68	279.38	301.73	325.87	351.94
Intangible assets	OA	105.05	113.46	122.53	132.33	142.92
Invested Capital With Goodwill		458.22	470.02	482.62	496.09	510.41
Invested Capital		458.22	470.02	482.62	496.09	510.41
Investments	NOA	0.30	0.30	0.30	0.30	0.30
Derivative financial instruments	NOA	0.05	0.06	0.06	0.07	0.07
Consideration receivable on disposal	NOA	0.43	0.47	0.50	0.54	0.59
Derivative financial instruments	NOL	-0.98	-1.12	-1.27	-1.44	-1.61
Contingent consideration	NOL	-1.22	-1.40	-1.59	-1.79	-2.02
Consideration on acquisitions	NOL	0.00	0.00	0.00	0.00	0.00
Total Funds Invested		456.80	468.32	480.62	493.77	507.74
		0.00	0.00	0.00	0.00	0.00
Reconciliation of total funds invested						
Borrowings	D	109.24	111.43	113.66	115.93	118.25
Lease liabilities	D	27.74	28.30	28.86	29.44	30.03
short term Borrowings	D	18.87	19.25	19.63	20.02	20.43
short term Lease liabilities	D	5.51	5.62	5.73	5.85	5.96
Debt and debt equivalents		161.36	164.59	167.88	171.24	174.67
Total equity attributable to equity holders of the Parent	E	293.87	301.80	310.42	319.79	329.89
Deferred tax asset	DTA	-2.10	-2.27	-2.45	-2.65	-2.86
Deferred tax liabilities	DTL	3.67	4.20	4.77	5.38	6.05
Equity and equity equivalents		295.44	303.73	312.74	322.53	333.08
Total Funds Invested		456.80	468.32	480.62	493.77	507.74

Table 7 – Statement of Financial Position Forecast (data from: Forecast, 2022). (See appendix for complete table)

Assumptions Table

FINANCIAL STATEMENTS Assumptions	Forecast Period									
	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Revenue Growth (% Change)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Cost of Goods Sold (% of Revenue)	59.1%	59.1%	59.1%	59.1%	59.1%	59.1%	59.1%	59.1%	59.1%	59.1%
Other administrative expenses (% of revenue)	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%
Depreciation & Amortization (% of Revenue)	6.82%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Depreciation & Amortization (% of PP&E)	15.1%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%
Interest (% of Debt)										
Interest Expenses/Sales	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%
Interest Expenses	3.23	3.49	3.77	4.07	4.39	4.75	5.13	5.54	5.98	6.46
Cost of Debt	2.30%	2.30%	2.30%	2.30%	2.50%	2.50%	3.00%	3.00%	3.00%	3.00%
Average debt	159.78	162.98	166.24	169.56	172.95	176.41	179.94	183.54	187.21	190.95
Interest expenses	3.67	3.75	3.82	3.90	4.32	4.41	5.40	5.51	5.62	5.73
Tax Rate (% of Earnings Before Tax)										
Effective Tax Rate	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Asset Turnover	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Total Asset Growth	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Accounts Receivable (Days)	95	95	95	95	95	95	95	95	95	95
Inventory (Days)	2	2	2	2	2	2	2	2	2	2
Accounts Payable (Days)	96	96	96	96	96	96	96	96	96	96
Capital Expenditures										
Payout Ratio	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
Net debt growth rate	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

Table 8 – Financial statement Forecast assumption (data from: Forecast, 2022). (See appendix for complete table)

Forecast drivers

Financial Statement	Item	Forecast Driver	Basis of forecast
Profit or Loss	Revenue		Growth Projection
	Cost of Sales	Revenue	% of Sales: Cost to Sales
	Gross Profit		Implied
	OPEX	Revenue	% of Sales: OPEX/Sales
	EBIT		Implied
	Interest and other income	-	% of Sales; quite negligible
	Interest Expenses	Prior year Net debt	interest expenses as a % of debt. % of Sales. To avoid circular referencing where debt depends on equity, model as % of sales such that the interest expenses is equivalent to that derived from % of debt
	PBT	-	Implied
	Tax		Tax/PBT: Effective Tax Rate
	PAT	-	Implied
Financial Position	Total Asset	Revenue	Asset Turnover Common size each asset to Total Asset, cash as the balancing item. Focus is on operating assets
	Equity	-	Retained Earnings; Beginning Net Asset + Retained Earnings Retained Earnings = PAT * (1 - Payout Rate)
	Total Liabilities	-	Total Asset - Equity Common size each item to Total Liabilities OR to Total Asset Focus is on Debt and Operating Liabilities
Valuation Model	Excess ROE		Ability to generate competitive advantage
	Reinvestment		Average Reinvestment rate of companies in the sector
	Margins		Margins of companies in the sector
	Growth Rate		Reinvestment * Returns Caveat: Growth rate is limited to the estimated long-run economic growth rate
	Damodaran's data archive for average reinvestment and margins		https://pages.stern.nyu.edu/~adamodar/New_Home_Page/dataarchived.html https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datacurrent.html https://tradingeconomics.com/united-kingdom/rating#:~:text=Standard%20%26%20Poor's%20credit%20rating%20for,at%20AA%2D%20with%20negative%20outlook. https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.htm

Table 9 – Financial statement Forecast drivers & references (data from: Forecast, 2022).

Free Cash Flow Forecast

Free Cash Flow	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	£'M	£'M	£'M	£'M	£'M	£'M	£'M	£'M	£'M	£'M
Cash flows from operating activities										
NOPLAT	24.04	25.47	27.50	29.71	32.08	34.65	37.42	40.41	43.65	47.14
Adjustments for:										
Depreciation & ammorization	23.19	25.70	27.76	29.98	32.38	34.97	37.77	40.79	44.05	47.57
Gross cash flow	47.23	51.17	55.26	59.69	64.46	69.62	75.19	81.20	87.70	94.71
Increase(Decrease) in provisions	-38.31	18.30	19.92	21.67	23.62	25.67	28.05	30.45	33.04	35.84
Decrease/(Increase) in trade and other	-11.25	-7.12	-7.69	-8.30	-8.96	-9.68	-10.46	-11.29	-12.20	-13.17
Decrease/(increase) in inventories	-0.23	-0.09	-0.10	-0.11	-0.11	-0.12	-0.13	-0.14	-0.15	-0.17
Increase/(Decrease) in trade and other	4.43	4.22	4.56	4.92	5.31	5.74	6.20	6.69	7.23	7.81
Purchase of property, plant and equipm	-22.78	-37.95	-40.99	-44.27	-47.81	-51.63	-55.76	-60.22	-65.04	-70.24
Contract liabilities – deferred revenue	-5.03	10.01	10.92	11.91	12.99	14.14	15.43	16.77	18.22	19.78
Free cash flow excluding Goodwill a	-25.93	38.55	41.90	45.51	49.50	53.73	58.52	63.46	68.79	74.56
Decrease/(increase) in Godwill	7.42	-20.69	-22.35	-24.14	-26.07	-28.15	-30.41	-32.84	-35.47	-38.30
Decrease/(increase) in Intangibles	13.55	-8.40	-9.08	-9.80	-10.59	-11.43	-12.35	-13.34	-14.40	-15.56
Free cash flow including Goodwill &	-4.97	9.45	10.47	11.57	12.85	14.14	15.77	17.28	18.92	20.70
After tax expenses shield	0.92	0.94	0.96	0.97	1.08	1.10	1.35	1.38	1.40	1.43
Unexplained foreign-currency translati	0	0	0	0	0	0	0	0	0	0
Decrease (increase) in excess cash	30.55	-9.99	-10.79	-11.65	-12.58	-13.59	-14.68	-15.85	-17.12	-18.49
Decrease (Increase) Derivative financi	1.13	0.14	0.15	0.16	0.17	0.18	0.20	0.22	0.23	0.25
Cash Flow avaialable to investors	27.63	0.54	0.78	1.05	1.52	1.84	2.64	3.03	3.44	3.90
Reconciliation of cash flow available to investors										
Interest expense	3.67	3.75	3.82	3.90	4.32	4.41	5.40	5.51	5.62	5.73
Decrease (increase) in short and long-t	-2.51	-2.56	-2.61	-2.67	-2.72	-2.77	-2.83	-2.89	-2.94	-3.00
Decrease (increase) in short and long-t	-0.65	-0.67	-0.68	-0.69	-0.71	-0.72	-0.73	-0.75	-0.76	-0.78
Cash flow to debt and debt equivale	0.51	0.52	0.53	0.54	0.90	0.92	1.84	1.87	1.91	1.95
Decrease (Increase)Deferred Tax Lia	-1.37	-0.36	-0.39	-0.42	-0.45	-0.49	-0.53	-0.57	-0.61	-0.66
Increase in equity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dividend paid	13.83	14.73	16.01	17.41	18.75	20.37	21.69	23.58	25.63	27.85
Cash flow to equity and equity equivale	12.46	14.37	15.63	16.99	18.29	19.89	21.16	23.02	25.02	27.19
Cash Flow avaialable to investors	12.97	14.89	16.16	17.53	19.19	20.80	23.00	24.89	26.93	29.13

Table 10 – Financial statement free cash flow Forecast (data from: Forecast, 2022).

3. **Estimating Cost of Capital**

3.1 Computation of Weighted Average Cost of Capital – WACC

In estimating the opportunity cost associated with investing in NCC group plc using WACC, this report computes Cost of equity using standard process of estimating Beta and Equity risk premium, cost of debt is computed default risk-free rate and company's default risk premium and Capital company's target capital structure.

$$WACC = (E/V) \times K_e + (D/V) \times K_d \times (1-T)$$

$$E = \text{firm's equity}$$

$$D = \text{firm's debt}$$

$$V = E + D$$

$$K_e = \text{Cost of equity}$$

$$K_d = \text{Cost of debt}$$

$$T = \text{Corporate tax rate}$$

3.1.1 Cost of equity

The cost of equity is computed using the Capital Asset Pricing Model (CAPM). In doing so Beta B is computed using the firm's historical return and the FTSE 250 historical return from 1 June 2017 through 31 May 2022, and the Equity risk premium ERP is calculated using the average of 3 approaches: Damodaran's Europe industry specific ERP, the rating-based approach, and the historical approach of the UK stock market minus the risk-free rate. The use of 3 approaches is to help improve the quality of estimation as the historical approach gives less insight as it is reviewed over a short period of time (5 years). To account for inconsistencies in interest rates and the market values of equities, this analysis adopts a synthetic risk-free rate for use in the CAPM. The synthetic risk-free rate used is based on the country's target inflation corridor of 1.7 to 2.3%.

$$K_e = R_f + B \cdot (ERP)$$

Where:

B = Beta

ERP = Equity risk premium (Stock market return – Rf)

Rf = Risk-free rate

Cost of Equity	Finite Period	Continuing Period
Risk-free rate	1.127%	1.127%
Beta	0.996	1.00
Adjusted Beta	0.998	1.00
ERP	4.064%	4.064%
Cost of Equity	5.18%	5.19%

Table 11 – Cost of Equity (data from: Forecast, 2022).

3.1.2 Risk-free rate

The German government's ten-year government bond yield as at May 31 2020 is used as an equivalent to the risk-free rate for the period under review as it tends to have lower credit risk, while the German 10-years government bond is used in the historical approach of ERP as it is more traded and is best suited for comparison with the stock market.

$$R_f (\text{Synthetic risk-free rate}) = \text{Nominal } R_f + \text{Inflation}$$

3.1.3 Cost of debt

This is computed based on the risk-free rate, the firm's default risk (using Damodaran's default spread), and the tax advantage of debt component in capital structure. NCC Group plc is currently not rated by any credit agencies; hence, this analysis incorporates the adjusted industrial EBIT interest coverage as a proxy to calculate the firm's default risk. (See the appendix for Damodaran's default spread table)

After Tax cost of debt = Pre-tax cost of debt (1- Tax rate)

Kd = Rf + after tax cost of debt

Time Interest Coverage

Member Companies	Member Ticker	Mkt Cap	EBIT interest
			coverage
NCC GROUP PLC	NCC LN	668,802,600	9.62

Cost of Debt

Risk-free rate	1.127%
Default Premium	0.85%
YTM	2.0%
Tax	25%
Cost of Debt	1.483%

Table 12 – Cost of Debt (data from: Forecast, 2022).

3.2 Debt Structure

Research shows that high-growth industries like software and IT services, especially those with intangible investments, tend to use very little debt, except for firms that utilize debt for specific reasons like funding acquisitions. Damodaran's research archive shows that the industry maintains an average of 15:85 debt to equity ratio. The current capital structure of NCC is only a temporary deviation from a more conservative target, as the firm finances acquisitions with debt and plans to retire quickly or refinance with a stock offering. Although the current management is mixed between conservative and aggressive use of debt, this analysis assumes that NCC will incur debt for the next 10 years to make adequate provision for the intended acquisitions and market expansion.

Finally, WACC gives:

	Finite Period										Continuir	Weight
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Cost of Equity	5.18%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.191%	90%
After-tax Cost of Debt	1.48%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	10%
WACC	4.81%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.820%	

Table 13 – Cost of Capital (data from: Forecast, 2022).

4. Valuation

Having computed the Free Cash Flow (FCF), NOPLAT, ROIC and WACC, this analysis considers two valuation methods:

- Discounted cash flow analysis (DCF) and
- Discounted Economic Profit Valuation Model

4.1 DCF

This value is computed by discounting future FCF (cash claim to all holders in the firm) to the present value using the cost of capital (WACC).

Estimation of continuing value

$$\text{Continuing value} = \frac{NOPLAT_{n+1} \times \left(1 - \frac{g}{RONIC}\right)}{WACC - g}$$

Value of operation = (Present value of FCF + PV of continuing value) * Adjustment factor

ASSUMPTIONS	
WACC	4.81%
Perpetual Growth Rate	3%
RONIC %	7.12%
Tax Rate	25%
Shares Outstanding	310.9

Table 14.1 – Assumption of valuation using DCF model (data from: Forecast, 2022).

Enterprise DCF (FCF)				
S/N	Year	Free cash flow (FCF) £'M	Discount Factor	Discounted FC £'M
1	2023	-25.93	0.9541	-24.7440
2	2024	38.55	0.9103	35.0918
3	2025	41.90	0.8685	36.3865
4	2026	45.51	0.8286	37.7121
5	2027	49.50	0.7906	39.1388
6	2028	53.73	0.7543	40.5286
7	2029	58.52	0.7197	42.1165
8	2030	63.46	0.6866	43.5742
9	2031	68.79	0.6551	45.0693
10	2032	74.56	0.6251	46.6034
11	Continuing Value	1887.22	0.6251	1179.6134
PV of operations				1521.0905
Mid year adjustment				1.0238
PV of operations				1557.2529

Table 14.2 – Computation of valuation using DCF model (data from: Forecast, 2022).

Applying a perpetual growth rate of 3.4% (U.K GDP growth rate 1999 – 2022, an average of 23 years percentage change in GDP), the DCF valuation with £1.56 billion in value of operations for the foreseeable period is composed of 22% present value of £341 million in the forecast period and 78% in the continuing period with a value of £1.2 billion.

4.2 ECONOMIC PROFIT VALUATION MODEL

Based on the ideology that a company has true profitability when it creates additional wealth for its stakeholders and that a firm should always create returns above its cost of capital, the economic profit model, like the DCF model, can also be used to calculate the continuing value of a firm. Hence, using the EP model, today's value of a firm is:

$$\text{Value}_0 = \text{Invested Capital}_0 + \text{PV of forecast economic profit during explicit forecast period} + \text{PV of forecast EP after explicit forecast period}$$

Where PV of explicit forecast period is given as;

$$CV_t = \frac{IC_t(\text{ROIC}_{t+1} - \text{WACC})}{\text{WACC}} + \frac{\text{PV}(\text{Economic Profit}_{t+2})}{\text{WACC} - g}$$

And

$$\text{PV}(\text{Economic Profit}_{t+2}) = \frac{\text{NOPLAT}_{t+1} \left(\frac{g}{\text{RONIC}} \right) (\text{RONIC} - \text{WACC})}{\text{WACC}}$$

Where;

IC = invested capital at the end of the explicit forecast period

WACC = Cost of capital

g = growth rate

RONIC = rate of return on new invested capital

Economic profit \$ million											
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
NOPLAT	24.0	25.5	27.5	29.7	32.1	34.6	37.4	40.4	43.6	47.1	50.91
Invested capital _{beg yr}	453.0	457.4	469.1	481.5	494.8	509.0	524.1	540.1	557.2	575.6	595.2
Times: Cost of capital, %	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%
Capital charge	21.8	22.0	22.6	23.2	23.8	24.5	25.2	26.0	26.8	27.7	28.6
Economic profit	2.2	3.5	4.9	6.5	8.3	10.2	12.2	14.4	16.8	19.4	22.3

Table 15 – Computation of Economic profit (data from: Forecast, 2022).

S/N	Year	Economic	Discount factor	Discounted EI
1	2023	2.2	0.9541	2.14
2	2024	3.5	0.9103	3.15
3	2025	4.9	0.8685	4.29
4	2026	6.5	0.8286	5.42
5	2027	8.3	0.7906	6.54
6	2028	10.2	0.7543	7.66
7	2029	12.2	0.7197	8.78
8	2030	14.4	0.6866	9.91
9	2031	16.8	0.6551	11.03
10	2032	19.4	0.6251	12.16
11	Continuing Value	1,292.0	0.6251	807.55
Invested capital _{today}				453.00
				1,331.63
Mid year adjustment				1.023774049
PV of operations				1,363.29

Table 16 – Computation of valuation using Economic profit model (data from: Forecast, 2022)

4.3 Enterprise Value

Estimated as the amount of money contributed to a business by stakeholders the Enterprise value of NCC is derived by adding the nonoperating assets to core operations value. In this case, nonoperating assets of NCC includes but are not limited to investments, derivative financial instruments, etc.

Enterprise DCF (FCF)				
S/N	Year	Free cash flow (FCF)	Discount Factor	Discounted FC
		£'M		£'M
1	2023	-25.93	0.9541	-24.7440
2	2024	38.55	0.9103	35.0918
3	2025	41.90	0.8685	36.3865
4	2026	45.51	0.8286	37.7121
5	2027	49.50	0.7906	39.1388
6	2028	53.73	0.7543	40.5286
7	2029	58.52	0.7197	42.1165
8	2030	63.46	0.6866	43.5742
9	2031	68.79	0.6551	45.0693
10	2032	74.56	0.6251	46.6034
11	Continuing Value	1887.22	0.6251	1179.6134
PV of operations				1521.0905
Mid year adjustment				1.0238
PV of operations				1557.2529
PV of nonoperating assets				0.5
Excess Cash				73.2
Enterprise value				1630.9529

Table 17.1 – Computation of Enterprise Value (data from: Forecast, 2022)

ENTERPRISE VALUE		
PV of Discrete	341	22%
PV of Terminal	1,180	78%
Enterprise Value	1,631	100%

Table 17.2 – Composition of Enterprise Value (data from: Forecast, 2022)

4.4 Equity Value

In estimating the equity value of NCC, non-equity claims such as short-term, long-term debt, debt equivalent and hybrid securities are taken out of enterprise value to arrive at the equity value.

Enterprise DCF (FCF)				
S/N	Year	Free cash flow (FCF)	Discount Factor	Discounted FC
		£'M		£'M
1	2023	-25.93	0.9541	-24.7440
2	2024	38.55	0.9103	35.0918
3	2025	41.90	0.8685	36.3865
4	2026	45.51	0.8286	37.7121
5	2027	49.50	0.7906	39.1388
6	2028	53.73	0.7543	40.5286
7	2029	58.52	0.7197	42.1165
8	2030	63.46	0.6866	43.5742
9	2031	68.79	0.6551	45.0693
10	2032	74.56	0.6251	46.6034
11	Continuing Value	1887.22	0.6251	1179.6134
PV of operations				1521.0905
Mid year adjustment				1.0238
PV of operations				1557.2529
PV of nonoperating assets				0.5
Excess Cash				73.2
Enterprise value				1630.9529
Debt				-158.2
Deferred Tax Liabilities				-1.6
Equity value				1471.1529

Table 18.1 – Computation of Equity Value (data from: Forecast, 2022)

EQUITY VALUE	
Enterprise Value	1,631
Less: Net Debt	(160)
Equity Value	1,471

Table 18.2 – Composition of Equity Value (data from: Forecast, 2022)

4.5 Value per Share

The value per share of NCC is determined by dividing the equity value by the number of diluted outstanding shares. Diluted outstanding shares were used in this analysis as it is based on the assumption that employees will exercise their share-based payment (Employee Stock option) which will dilute the outstanding shares of NCC.

Diluted number of shares as at 2022 is 310.9 million shares (Source: Annual Report, 2022)

$$\text{Value per share} = \frac{\text{Equity Value}}{\text{Number of Shares}}$$

EQUITY VALUE PER SHARE			
Equity Value			1,471
Shares	(FD		
Outstanding	MILLIONS)		311
Equity Value	(GBP/sh)		4.73

Table 18 – Computation of Value per share (data from: Forecast, 2022)

5. Interpretation of Results

Upon completion of the model, this analysis validates the model by scrutinizing for mechanical errors.

In doing so, this analysis considers the following:

5.1 Robusticity of Model

In analysing whether the model is technically robust, this analysis considers checks on the balance sheet, and reconciliation of NOPLAT to net income.

Statement of Financial Position Decomposed			AY 2018	AY 2019	AY 2022	FY 2031	FY 2032
			31 May 2018	31 May 2019	31 May 2022	31 May 2031	31 May 2032
			£'M	£'M	£'M	£'M	£'M
Operating Assets	OA		326	311	501	932	1,006
Non-operating Assets	NOA		2	0	1	1	1
Excess Cash	EC		-	-	-	-	-
Deferred Tax Asset	DTA		5	1	1	4	4
Cash	C		21	35	73	60	65
TOTAL ASSETS			353.80	347.30	576.40	997.14	1076.92
Operating Liabilities	OL		77	76	122	414	474
Non-Operating Liabilities	NOL		12	-	2	6	6
Debt	D		49	55	158	189	193
Debt Equivalent	DE		-	-	-	-	-
Deferred Tax Liabilities	DTL		10	5	2	9	10
Minority Interest	MI		-	-	-	-	-
Equity	E		207	211	293	379	394
TOTAL LIABILITIES & EQUITIES			353.80	347.30	576.40	997.14	1076.92

Table 19 – Robusticity check (data from: Forecast, 2022)

From the table above, this analysis concludes the robusticity of the model as the Total assets equals total liabilities and equity. Also, the sum of invested capital and nonoperating assets equals the sum of debt and equity.

5.2 Economical Consistency

Furthermore, this analysis checks of flows in logic by examining reasonable and consistent patterns such as revenue growth, free cash flow growth, and stability of margins and returns.

Free cash flow	2026	2027	2028	2031	2032
0	£'M	£'M	£'M	£'M	£'M
Free cash flow	45.31	49.28	53.49	68.49	74.24
Growth	8.6%	8.8%	8.5%	8.4%	8.4%

Table 20 – Economical Consistency (data from: Forecast, 2022)

From the table above, this analysis concludes that revenue growth, free cash flow and relevant margins of this model is stable and hence, the model is economically consistent.

5.3 Sensitivity Analysis

In conclusion, this report examines how the firm's value responds to changes in key inputs and uncertainty about such inputs.

ENTERPRISE VALUE					
WACC	Terminal Growth Rate				
	2.4%	2.9%	3.4%	3.9%	4.4%
2.8%	6,782	(25,613)	(3,008)	(1,160)	(475)
3.8%	2,122	2,769	4,987	(17,721)	(1,876)
4.8%	1,320	1,435	1,631	2,044	3,459
5.8%	983	1,010	1,050	1,109	1,212
6.8%	795	798	803	809	818

Table 21.1 – Sensitivity analysis – Enterprise value (data from: Forecast, 2022)

EQUITY VALUE PER SHARE					
WACC	Terminal Growth Rate				
	2.4%	2.9%	3.4%	3.9%	4.4%
2.8%	21.30	(82.90)	(10.19)	(4.25)	(2.04)
3.8%	6.31	8.39	15.53	(57.51)	(6.55)
4.8%	3.73	4.10	4.73	6.06	10.61
5.8%	2.65	2.74	2.86	3.05	3.38
6.8%	2.04	2.05	2.07	2.09	2.12

Table 21.2 – Sensitivity analysis – Equity value per share (data from: Forecast, 2022)

		EQUITY VALUE				
WACC		Terminal Growth Rate				
		2.4%	2.9%	3.4%	3.9%	4.4%
	2.8%	6,623	(25,772)	(3,167)	(1,320)	(635)
	3.8%	1,963	2,609	4,827	(17,881)	(2,035)
	4.8%	1,160	1,275	1,471	1,884	3,299
	5.8%	823	851	890	950	1,052
	6.8%	635	639	643	649	658

Table 21.3 – Sensitivity analysis – Equity value (data from: Forecast, 2022)

		PREMIUM (DISCOUNT) TO CURRENT PRICE				
WACC		Terminal Growth Rate				
		2.4%	2.9%	3.4%	3.9%	4.4%
	2.8%	(89.7%)	(140.2%)	(104.9%)	(102.1%)	(101.0%)
	3.8%	(96.9%)	(95.9%)	(92.5%)	(127.9%)	(103.2%)
	4.8%	(98.2%)	(98.0%)	(97.7%)	(97.1%)	(94.8%)
	5.8%	(98.7%)	(98.7%)	(98.6%)	(98.5%)	(98.4%)
	6.8%	(99.0%)	(99.0%)	(99.0%)	(99.0%)	(99.0%)

Table 21.4 – Sensitivity analysis – Premium (Discount) to current price (data from: Forecast, 2022)

6.

MULTIPLES

In order to properly analyse the cashflow forecast and the integrity of the model, this analysis considers the EV/EBITA multiple, and P/E ratio of NCC and its comparable companies in its sub-industry group.

This analysis uses EV/EBITA as the assumption of the model, is based on the assumption that the intangibles of the firm consist majorly of research and development, and customer contracts and relationships, which does not include the position of the firm as a result of acquisitions when compared with comparable peers. Also, good will included in the intangibles is not amortized but rather tested for impairment on a periodic basis. EV/EBITA is represented as

$$\frac{EV}{EBITA} = \frac{(1-T)\left\{1 - \frac{g}{ROIC}\right\}}{WACC - g} \quad \& \quad \text{Price to earnings} = \frac{\text{Market Capitalization}}{\text{Net Income}}$$

$$\frac{EV}{EBITA} = \frac{(1-25\%)\left\{1 - \frac{3\%}{6.75\%}\right\}}{4.81\% - 3\%} \quad \& \quad \text{Price to earnings} = \frac{\pounds 621.05m}{\pounds 23.90m}$$

$$\frac{EV}{EBITA} = 23.03 \text{ times} \quad \& \quad \text{Price to earnings} = 25.9 \text{ times}$$

These values explain that investors are willing to pay a premium of 23 times the value of NCC Group Plc Compared to its peers.

Conclusion

After thorough analysis of the historical performance of NCC, current and expected financial and non-financial caveat that might hinder or boost the current and future performance of NCC with robust model and forecast of anticipated performance and value of the firm for the foreseeable future, this analysis concludes that NCC has a strong fundamental performance which according to analysis gives a 'BUY' recommendation for investors to invest in.

During this analysis, several assumptions were made based on the available information at the time of the analysis. Also, this analysis relies heavily on assumptions and school of thought of Aswath Damodaran CFA and Kemi Akinde CFA.

In conclusion, NCC is in the growth stage of its life cycle analysis, and this report expects to see improving profitability, a rapid increase in demand, falling prices, and low competition for the explicit period while maintaining its current acquisition and expansion strategy to boost performance.

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APPENDIX

Appendix 1

FINANCIAL RATIOS					
KEY RATIOS	2018	2019	2020	2021	2022
Profitability Ratios					
Gross Margin	41%	41%	40%	41%	42%
Opex margin	32%	33%	32%	30%	31%
EBIT Margin	9%	8%	8%	11%	11%
Pre-tax Margin	8%	7%	7%	10%	10%
Net Margin	9%	5%	5%	8%	8%
Return on Asset	6%	4%	4%	6%	5%
Return on Equity	10%	6%	7%	9%	8%
Return on Invested Capital					
Activity Ratios					
Inventory Turnover	171.38	212.71	177.00	145.36	202.44
Inventory Days	2.13	1.72	2.06	2.51	1.80
Receivable turnover	3.53	4.07	3.59	3.94	4.05
Sales Outstanding Days	103.39	89.68	101.60	92.70	90.09
Payables Turnover	3.84	4.71	3.43	3.54	3.77
Payables Days	95.04	77.46	106.32	103.18	96.76
Total Asset Turnover	0.66	0.72	0.60	0.63	0.55
Operating Asset Turnover	1.40	1.24	1.29	1.16	1.59
Liquidity Ratios					
Current ratio	1.09	1.30	1.82	1.89	1.06
Quick Ratio	1.08	1.29	1.81	1.88	1.06
Cash ratio	0.26	0.46	1.02	1.15	0.50
Cash conversion cycle	10.48	13.94	-2.66	-7.97	-4.87
Solvency Ratios					
Debt to Equity ratio	0.24	0.26	0.67	0.25	0.54
Total debt Ratio	0.1385	0.1587	0.3143	0.1564	0.2745
Total debt Ratio [+ contingent liabilities]	0.1385	0.1587	0.3143	0.1564	0.2745
Financial leverage/Equity Multiplier ratio	1.71	1.65	2.12	1.62	1.97
Leverage Ratios					
Times interest covered	11.89	11.47	6.83	12.00	9.62
Times cash flow coverage					
Fixed charge coverage	11.89	11.47	1.49	1.86	2.03
Cash flow Ratios					
Cash flow-to-revenue	0.14	0.16	0.15	0.14	0.17
Cash return on asset		0.11	0.10	0.09	0.11
Cash return on equity		0.19	0.19	0.16	0.20
Debt coverage ratio	0.67	0.72	0.29	0.58	0.35
Debt coverage ratio [+ contingent liabilities]					

Appendix 2

Comparable						
Name	ROIC LF	P/ELF	ROELF	EV / EBITDA Adj LF	Raw Beta:Y-1	Debt/EBITDA LF
Median	10.05	25.91	15.96	10.60	0.90	0.84
NCC GROUP PLC	6.46	28.85	8.22	15.69	0.95	2.91
KAPE TECHNOLOGIES PLC	9.14	22.98	9.62	7.71	0.95	0.70
WITHSECURE OYJ	-20.33		364.92		0.96	
CY4GATE SPA	17.83	50.19	18.77	24.42	0.59	0.00
MICROLISE GROUP PLC	64.09		-3.48		0.45	0.00
MICRO FOCUS INTERNATIONAL	-1.05		-8.05	5.36	1.18	4.60
AUBAY	14.84	17.70	15.96	9.94	0.90	0.34
EQUASENS	17.50	36.15	25.88	23.83	0.80	1.35
ORIGO HF	-	14.10	21.15		1.00	
SOFTWARE AG	2.67	35.32	3.29	11.26	0.77	4.16
INFOTEL	10.96	19.78	17.39	8.00	0.37	0.84

Appendix 3

Equity comparables (Industry Group)			
Member Companies	Membe	Mkt Cap	Ind Rev
NCC GROUP PLC	NCC LN	668,802,599.7834	314,800,000.00
FORTINET INC	FTNT U	34,443,129,739.1884	2,429,441,289.4631
KAPE TECHNOLOGIE	KAPE L	1,062,619,781.6849	95,192,145.4956
WITHSECURE OYJ	WITH F	231,144,071.3274	111,716,698.554
CY4GATE SPA	CY4 IM	182,282,309.8075	4,598,420.0724
PALO ALTO NETWOR	PANW I	43,528,205,982.8348	4,180,390,488.1423
CROSSWORD CYBERS	CCS PZ	19,873,427.2144	
		202,097,996,215.899	21,486,068,504.2617
NCC share(%)		0.33%	1.47%

Appendix 4

Equity Comparables sub-industry (Top 5 Peers)			
Member Companies	Membe Mkt Cap	Ind Rev	
NCC GROUP PLC	NCC LN	668,802,600	314,800,000
KAPE TECHNOLOGIE	KAPE L	1,062,619,782	95,192,145
CY4GATE SPA	CY4 IM	182282309.8	4598420.072
WITHSECURE OYJ	WITH F	231,144,071	111,716,699
TREND MICRO INC	4704 JP	6,041,363,220	1,259,903,905
		8,186,211,982	1,786,211,170
NCC share(%)		8%	18%

Appendix 5

Statement of profit/ (loss) for the year ended					
	31 May 2018 £'M	31 May 2019 £'M	31 May 2020 £'M	31 May 2021 £'M	31 May 2022 £'M
Revenue	233.00	250.70	263.70	270.50	314.80
Cost of sales	(137.10)	(148.90)	(159.30)	(159.90)	(182.20)
Gross profit	95.90	101.80	104.40	110.60	132.60
Administrative expenses:					
Depreciation and amortisation	(9.40)	(19.00)	(23.60)	(19.70)	(19.70)
Other administrative expenses	(65.10)	(63.30)	(60.30)	(60.90)	(77.30)
Individually Significant Items	(7.60)		(7.90)	(12.70)	(0.90)
Share-based payments	(0.30)				
Total administrative expenses	(82.40)	(82.30)	(91.80)	(93.30)	(97.90)
Operating profit	13.50	19.50	12.60	17.30	34.70
Finance costs	(1.80)	(1.70)	(3.00)	(2.50)	(3.70)
Profit before taxation	11.70	17.80	9.60	14.80	31.00
Taxation	0.50	(4.30)	(3.20)	(4.80)	(8.00)
Profit from continuing operations	12.20	13.50	6.40	10.00	23.00
Loss from discontinued operations net	(5.50)				
Profit for the year attributable to the	6.70	13.50	6.40	10.00	23.00

Earnings per ordinary share

Basic EPS	2.4p	4.9p	2.3p	3.6p	7.4p
Diluted EPS	2.4p	4.8p	2.3p	3.5p	7.4p
Dividend Paid	12.80	12.90	12.90	13.00	14.40
Basic weighted average number of shares (Millions)				281.20	309.50
Diluted weighted average number of shares (Millions)				282.70	310.90

Consolidated statement of comprehensive income/(loss) for the year ended 31 st May					
	2018 £'M	2019 £'M	2020 £'M	2021 £'M	2022 £'M
Profit for the year attributable to the	6.70	13.50	6.40	10.00	23.00
Other comprehensive income/(loss)					
Items that may be reclassified subsequently	0.30				
Cash flow hedges— effective portion of changes in fair value			0.00	(0.80)	(0.10)
Foreign exchange translation differences		1.50	4.00	(11.60)	14.80
Total other comprehensive income	0.30	1.50	4.00	(12.40)	14.70
Total comprehensive income/(loss)	7.00	15.00	10.40	(2.40)	37.70

Appendix 6

Statement of financial position as at		31 May 2018	31 May 2019	31 May 2020	31 May 2021	31 May 2022
		£'M	£'M	£'M	£'M	£'M
Non-current assets						
Goodwill	OA	187.2	189.4	193.1	182.9	266.1
Intangible assets	OA	52.8	41.8	29	21	118.6
Property, plant and equipment	OA	19.4	16.9	13.9	11.5	12.9
Right-of-use assets	OA		0	28.7	23.8	22
Investments	NOA	0.4	0.3	0.3	0.3	0.3
Deferred tax asset	DTA	4.5	1.1	2.3	2	1.4
Total non-current assets		264.30	249.50	267.30	241.50	421.30
Current assets						
Inventories	OA	0.8	0.7	0.9	1.1	0.9
Trade and other receivables	OA	66	61.6	73.4	68.7	77.7
Derivative financial assets	NOA				0	0.2
Consideration receivable	NOA	1.5			0	0
Current tax receivable	OA	0	0.6	0.6	4.5	3.1
Cash and cash equivalents	C	21.2	34.9	95	116.5	73.2
Total current assets		89.5	97.8	169.9	190.8	155.1
Total assets		353.80	347.30	437.20	432.30	576.40
Current liabilities						
Trade and other payables	OL	35.7	31.6	46.4	45.2	48.3
short term Borrowings	D	0	5	0	0	18.5
short term Lease liabilities	D		0	5.3	5.1	5.4
Current tax payable	OL	1.3	0	0	4	7.4
Derivative financial liabilities	NOL		0	0	0.8	0
Contingent consideration	NOL				0	1.9
Provisions	OL	2.6	2.7	2	2.4	2.7
Consideration on acquisition	NOL	11.9				
Contract liabilities	OL	30.6	36.2	39.5	43.6	61.7
Total current liabilities		82.1	75.5	93.2	101.1	145.9
Non-current liabilities						
Borrowings	D	49	50.1	99.2	33.2	107.1
Lease liabilities	D		0	32.9	29.3	27.2
Deferred tax liabilities	DTL	9.8	5.4	2.9	1.2	1.6
Provisions	OL	6.3	5.5	1.7	0.6	0.8
Contract liabilities	OL		0	1.4	0.7	0.6
Total non-current liabilities		65.1	61	138.1	65	137.3
Total liabilities		147.2	136.5	231.3	166.1	283.2
Net assets		206.6	205.9	205.9	266.2	293.2
Equity						
Share capital		2.8	2.8	2.8	3.1	3.1
Share premium		149.5	149.8	150.9	223.2	224
Hedging reserve			0	0	-0.8	0
Merger reserve		42.3	42.3	42.3	42.3	42.3
Currency translation reserve		26.4	27.9	31.9	20.3	35.1
Retained earnings		-14.4	-12	-22	-21.9	-11.3
Total equity attributable to owners of the company	E	206.6	210.8	205.9	266.2	293.2
Total Equity and Liabilities		353.8	347.3	437.2	432.3	576.4

Appendix 7

Statement of cashflow for the year ending					
	31 May 2018	31 May 2019	31 May 2020	31 May 2021	31 May 2022
	£'M	£'M	£'M	£'M	£'M
Cash flows from operating activities					
Profit for the year	6.7	13.5	6.4	10	23
Adjustments for:					
Depreciation of property, plant and equipment	6.5	5.6	5.8	4.4	3.9
Depreciation of right-of-use assets			6	5.9	5.4
Share-based payments	0.2	1.7	1.4	2.8	3.9
Cash-settled share-based payments				–	-0.5
Amortisation of customer contracts and other intangible assets	9.4	9	8.8	6.4	8.6
Amortisation of software and development costs	5.9	4.4	3	3	1.8
Impairment reversal of right-of-use assets			1.1	–	-0.1
Lease financing costs			1.2	1.2	1.2
Other financing costs	1.8	1.7	1.8	1.3	2.5
Foreign exchange	–	0.2	–	1.5	-0.6
Acquisition of businesses – transaction costs			–	-1.2	-7.3
Individually Significant Items (non-cash)	3.5	3.6	0	7.6	0
Profit on disposal of right-of-use assets	–	-0.1	-0.1	-0.2	0
Profit on sale of intangible assets			0	-0.5	0
Loss on disposal of subsidiaries	6.4				
Loss on sale of property, plant and equipment		0.2	0	0.2	0
Research and development UK tax credit	–	-0.3	-0.6	-0.6	-1
Research and development US tax credit	–		0.5	1.9	-1.1
Income tax expense	-0.6	4.3	2.7	2.9	9.1
Increase in provisions	–	-2.5	0.8	0.7	0.5
Cash inflow for the year before changes in working capital	39.8	41.3	38.8	47.3	49.3
(Increase)/decrease in trade and other receivables	-4.8	6	-11	4.7	-1.8
Decrease/(increase) in inventories	–	0.1	-0.2	-0.2	0.2
Increase/(decrease) in trade and other payables	4.5	0.5	19.2	-5.5	12.6
Cash generated from operating activities	39.5	47.9	46.8	46.3	60.3
Interest element of lease payments	-1.8	-1.7	-1.2	-1.2	-1.2
Other interest paid			-1.6	-1.1	-2.1
Taxation paid	-4.7	-6.4	-4.8	-5.1	-2.2
Net cash generated from operating activities	33	39.8	39.2	38.9	54.8
Cash flows from investing activities					
Acquisition of trade and assets as part of business combinations				–	-153
Purchase of property, plant and equipment	-7.7	-3	-2.8	-2.7	-5.2
Software and development expenditure	-5	-6.1	-2.5	-2.1	-3
Acquisition of businesses	-3.1	-10.9			
Net proceeds from sale of subsidiaries	9.9	1.8			
Proceed from sale of intangible assets	-0.7	–	–	0.5	0
Net Cash used in investing activities	-6.6	-18.2	-5.3	-4.3	-161.2
Cash Flows from financing activities					
Proceeds from the issue of ordinary shares	1.5	0.3	1.1	72.6	0.8
Principal element of lease payments			-5.3	-6	-5.3
Drawdown of borrowings (net of debt issuance costs)	7.5	13	44.3	0	120.7
Issue costs related to borrowings			-1	–	-0.6
Repayment of borrowings	-12.9	-8.6	0	-60.4	-39.4
Equity dividends paid	-12.8	-12.9	-12.9	-13	-14.4
Net cash generated from/(used in) financing activities	-16.7	-8.2	26.2	-6.8	61.8
Net (decrease)/increase in cash and cash equivalents	9.7	13.4	60.1	27.8	-44.6
Cash and cash equivalents at beginning of year	12.3	21.2	34.9	95	116.5
Effect of foreign currency exchange movements	-0.8	0.3	–	-6.3	1.3
Cash and cash equivalents at end of year	21.2	34.9	95	116.5	73.2

Appendix 8

Common Size	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Revenue	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Cost of sales	58.84%	59.39%	60.41%	59.11%	57.88%	59.13%	59.13%	59.13%	59.13%	59.13%	59.13%	59.13%	59.13%	59.13%	59.13%
Gross profit	41.16%	40.61%	39.59%	40.89%	42.12%	40.87%	40.87%	40.87%	40.87%	40.87%	40.87%	40.87%	40.87%	40.87%	40.87%
Administrative expenses															
Depreciation and amortisation	4.03%	7.58%	8.95%	7.28%	6.26%	6.82%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Other administrative expenses	27.94%	25.25%	22.87%	22.51%	24.56%	24.63%	24.63%	24.63%	24.63%	24.63%	24.63%	24.63%	24.63%	24.63%	24.63%
Total administrative expenses/ OPEX	31.97%	32.83%	31.82%	29.80%	30.81%	31.45%	31.63%	31.63%	31.63%	31.63%	31.63%	31.63%	31.63%	31.63%	31.63%
Operating profit	9.18%	7.78%	7.77%	11.09%	11.31%	9.43%	9.25%	9.25%	9.25%	9.25%	9.25%	9.25%	9.25%	9.25%	9.25%
Finance costs	0.77%	0.68%	1.14%	0.92%	1.18%	1.08%	1.02%	0.96%	0.91%	0.93%	0.88%	1.00%	0.94%	0.89%	0.84%
Profit before taxation	8.41%	7.10%	6.64%	10.17%	10.13%	8.35%	8.23%	8.28%	8.34%	8.31%	8.37%	8.25%	8.31%	8.36%	8.41%
Taxation	0.21%	1.72%	1.21%	1.77%	2.54%	2.09%	2.06%	2.07%	2.08%	2.08%	2.09%	2.06%	2.08%	2.09%	2.10%
Profit for the year attributable to the owners of the Company	8.63%	5.38%	5.42%	8.39%	7.59%	6.26%	6.17%	6.21%	6.25%	6.23%	6.27%	6.19%	6.23%	6.27%	6.30%

Growth	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Revenue		7.60%	5.19%	2.58%	16.38%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Cost of sales		8.61%	6.96%	0.38%	13.95%	10%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Gross profit		6.15%	2.55%	5.94%	19.89%	5%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Administrative expenses															
Depreciation and amortisation		102.13%	24.21%	-16.53%	0.00%										
Other administrative expenses		-2.76%	-4.74%	1.00%	26.93%	18%	11%	8%	8%	8%	8%	8%	8%	8%	8%
Total administrative expenses/ OPEX		10.47%	1.94%	-3.93%	20.35%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Operating profit		-8.88%	5.13%	46.34%	18.67%	10%	9%	8%	8%	8%	8%	8%	8%	8%	8%
Finance costs		-5.56%	76.47%	-16.67%	48.00%	-10%	6%	8%	8%	8%	8%	8%	8%	8%	8%
Profit before taxation		-9.18%	-1.60%	57.14%	16.00%	-11%	6%	9%	9%	8%	9%	6%	9%	9%	9%
Taxation		-96.00%	-25.58%	50.00%	66.67%	-1%	2%	2%	2%	11%	2%	22%	2%	2%	2%
Profit for the year attributable to the owners of the Company		-32.84%	5.93%	58.74%	5.29%	-11%	6%	9%	9%	8%	9%	6%	9%	9%	9%

Appendix 9

Statement of Financial Position Decomposed																	
		AY2018 31 May 2018	AY2019 31 May 2019	AY2020 31 May 2020	AY2021 31 May 2021	AY2022 31 May 2022	FY 2023 31 May 2023	FY 2024 31 May 2024	FY 2025 31 May 2025	FY 2026 31 May 2026	FY 2027 31 May 2027	FY 2028 31 May 2028	FY 2029 31 May 2029	FY 2030 31 May 2030	FY 2031 31 May 2031	FY 2032 31 May 2032	
		£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	
Operating Assets	OA	326	311	340	314	301	503	544	587	634	685	740	799	863	932	1,006	
	NOA	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
	EC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DTA	5	1	2	2	1	2	2	2	3	3	3	3	4	4	4	
	C	21	35	95	117	73	33	35	38	41	45	48	52	56	61	66	
TOTAL ASSETS		353.80	347.30	437.20	432.30	576.40	538.72	581.82	628.37	678.64	732.93	791.56	854.89	923.28	997.14	1076.91	
Operating Liabilities	OL	77	76	91	97	122	79	110	144	181	221	264	311	362	417	477	
	NOL	12	-	-	1	2	1	1	1	1	2	2	2	2	2	3	
	D	49	55	137	68	158	161	165	168	171	175	178	182	185	189	193	
	DE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DTL	10	5	3	1	2	4	4	5	5	6	7	8	8	9	10	
	MI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	E	207	211	206	266	295	294	302	310	330	330	341	353	365	379	394	
	TOTAL LIABILITIES & EQUITIES		353.80	347.30	437.20	432.30	576.40	538.73	581.82	628.37	678.64	732.93	791.56	854.89	923.28	997.14	1076.92
Operating Assets	OA	92%	90%	78%	73%	87%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	
	NOA	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	EC	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	DTA	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	C	6%	10%	22%	27%	13%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Operating Liabilities	OL	22%	22%	21%	22%	21%	15%	19%	23%	27%	30%	33%	36%	39%	42%	44%	
	NOL	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	D	14%	16%	31%	16%	27%	30%	28%	27%	25%	24%	23%	21%	20%	19%	18%	
	DE	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	DTL	3%	2%	1%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
	MI	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	E	58%	61%	47%	62%	51%	55%	52%	49%	47%	45%	43%	41%	40%	38%	37%	
Total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Appendix 10

Growth	2018A	2019A	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Non-current assets															
Goodwill	1.18%	1.95%	-5.28%	45.49%	-2.79%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Intangible assets	-20.83%	-30.62%	-17.75%	12.17%	139.71%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Property, plant and equipment	-12.89%	-17.75%	-17.07%	-7.56%	0.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Right-of-use assets	-25.00%	0.00%	0.00%	-13.04%	-30.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Investments	-75.56%	109.09%	7.13%	-9.65%	74.45%	-1.69%	7.99%	7.99%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Deferred tax asset	-5.80%	7.13%	28.57%	22.22%	-18.18%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Total non-current assets															
Current assets															
Inventories	-12.50%	28.57%	19.16%	-6.40%	13.10%	25.10%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Trade and other receivables	-6.67%	19.16%	-6.40%	13.10%	14.48%	14.48%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Derivative financial instruments	-100.00%	0.00%	650.00%	-31.11%	-47.87%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Consideration receivable on disposals	64.62%	172.21%	22.63%	-37.17%	-55.18%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Cash and cash equivalents	9.27%	73.72%	12.30%	-18.71%	-19.70%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Total current assets	-1.84%	25.89%	-1.12%	33.33%	-6.54%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Current liabilities															
Trade and other payables	-11.48%	46.84%	-2.59%	6.86%	9.18%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Borrowings	-100.00%	-10.94%	-7.17%	129.55%	-46.97%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Lease liabilities	-100.00%	-69.09%	-50.00%	-14.29%	-24.52%	18.37%	16.75%	15.52%	14.50%	13.75%	13.04%	12.45%	11.95%	11.56%	11.15%
Current tax payable	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%
Derivative financial instruments	3.85%	-25.93%	20.00%	12.50%	17.89%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%
Contingent consideration	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%
Provisions	18.30%	9.12%	10.38%	41.51%	-10.71%	14.36%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%
Consideration on acquisitions	-8.04%	23.44%	8.48%	44.31%	-3.21%	9.85%	9.66%	9.48%	9.34%	9.21%	9.11%	8.99%	8.89%	8.80%	8.70%
Contract liabilities – deferred revenue	-8.04%	23.44%	8.48%	44.31%	-3.21%	9.85%	9.66%	9.48%	9.34%	9.21%	9.11%	8.99%	8.89%	8.80%	8.70%
Total current liabilities															
Non-current liabilities															
Borrowings	2.24%	98.00%	-66.53%	222.59%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Lease liabilities	-44.90%	-46.30%	-58.02%	33.33%	129.55%	-46.97%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Deferred tax liabilities	-12.70%	-69.09%	-50.00%	-14.29%	-24.52%	18.37%	16.75%	15.52%	14.50%	13.75%	13.04%	12.45%	11.95%	11.56%	11.15%
Provisions	-6.30%	126.39%	-52.93%	111.23%	-13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%
Contract liabilities – deferred revenue	-7.27%	69.45%	-28.19%	70.50%	-13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%
Total liabilities															
Net assets															
Equity	0.00%	0.00%	10.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Share capital	0.20%	0.73%	47.91%	0.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Share premium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hedging reserve	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Merger reserve	5.68%	14.34%	-36.56%	72.91%	-19.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Currency translation reserve	-16.67%	83.33%	-0.45%	-48.40%	-65.92%	211.43%	73.80%	45.73%	34.10%	27.08%	23.17%	20.44%	18.44%	16.44%	14.44%
Retained earnings	2.03%	-2.22%	29.29%	10.14%	0.23%	2.70%	2.86%	3.02%	3.16%	3.33%	3.43%	3.60%	3.78%	3.96%	4.14%
Total equity attributable to equity holders of the Parent	-1.84%	25.89%	-1.12%	33.33%	-6.54%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Total Equity and Liabilities															

Appendix 11

Output

Interest coverage ratio =

Estimated Bond Rating =

Estimated Default Spread =

Estimated Cost of Debt =

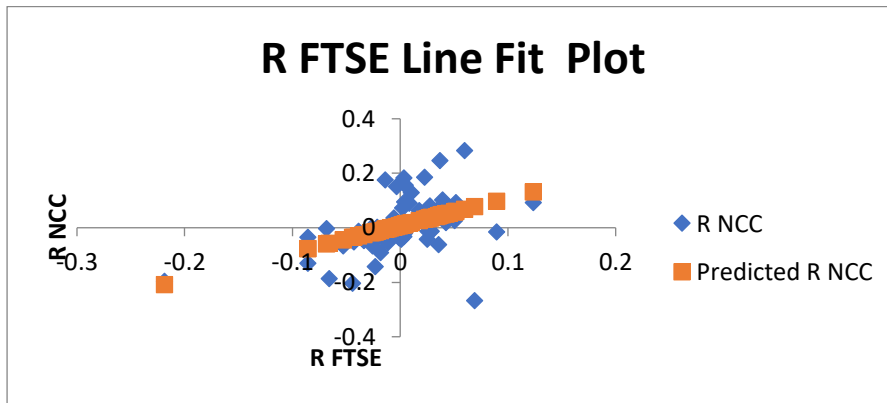
6.25
A2/A
1.18%
4.18%

If you want to update the spreads listed below, please visit <http://www.bondsonline.com>

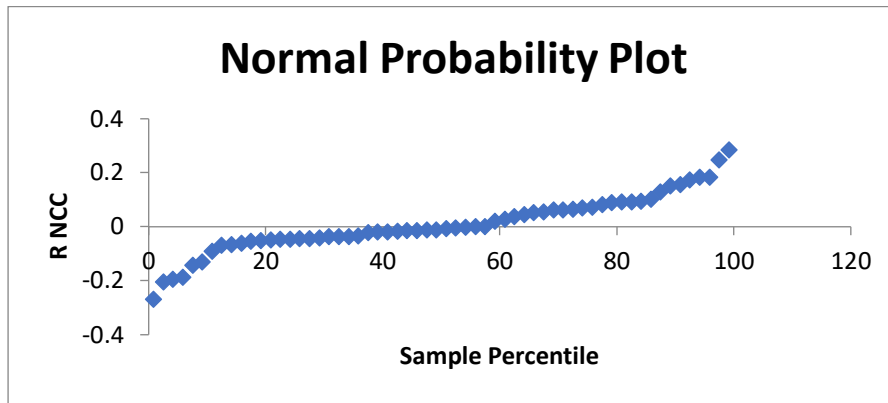
For large manufacturing firms

If interest coverage ratio is			
>	≤ to	Rating is	Spread is
-100000	0.199999	D2/D	17.44%
0.2	0.649999	C2/C	13.09%
0.65	0.799999	Ca2/CC	9.97%
0.8	1.249999	Caa/CCC	9.46%
1.25	1.499999	B3/B-	5.94%
1.5	1.749999	B2/B	4.86%
1.75	1.999999	B1/B+	4.05%
2	2.25	Ba2/BB	2.77%
2.25	2.49999	Ba1/BB+	2.31%
2.5	2.999999	Baa2/BBB	1.71%
3	4.249999	A3/A-	1.33%
4.25	5.499999	A2/A	1.18%
5.5	6.499999	A1/A+	1.07%
6.5	8.499999	Aa2/AA	0.85%
8.50	100000	Aaa/AAA	0.69%

Appendix 12



Appendix 13



Appendix 14

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.467811
R Square	0.2188471
Adjusted R Square	0.205379
Standard Error	0.0936205
Observations	60

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.142421	0.142421	16.24923	0.00016396
Residual	58	0.508358	0.008765		
Total	59	0.65078			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.00896	0.012087	0.741262	0.461525	-0.0152357	0.033156	-0.01523573	0.03315571
R FTSE	0.9964969	0.247206	4.031034	0.000164	0.50165973	1.491334	0.501659726	1.49133407

Appendix 15

Cost of Equity	Finite Period	Continuing Period
Risk-free rate	1.127%	1.127%
Beta	0.996	1.00
Adjusted Beta	0.998	1.00
ERP	4.064%	4.064%
Cost of Equity	5.18%	5.19%

Cost of Debt	
Risk-free rate	1.127%
Default Premium	0.85%
YTM	2.0%
Tax	25%
Cost of Debt	1.483%

	Finite Period										Continuing	Weight
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Cost of Equity	5.18%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.181%	5.191%	90%
After-tax Cost of Debt	1.48%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	1.483%	10%
WACC	4.81%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.811%	4.820%	

Appendix 16

ERP: Ratings-based Approach		
Ratings		
Moody's sovereign rating (Local Currency)		Aa3
S&P sovereign rating (Local Currency)		AA
Fitch Ratings		AA-
ERP for a matured equities market		5.07%
Country Risk Premium		0.2%
Default spread for the ratings [basis points]		50.1
Rating-based Default Spread		0.50%
Default spread multiplier		0.42
<i>Annualized Standard Deviation in eq</i>	21.42%	
<i>Coefficient of Variation in bond yield</i>	51%	
<i>Relative Standard Deviation of (equi</i>	0.42179	
Equity Risk Premium		5.3%

Equity Risk Premium: Summary		
Approach	ERP	Weight
Historical Approach: Monthly	0.076%	20%
Data Archieve Approach (Damodaran)	4.840%	40%
Ratings-based Approach	5.281%	40%
ERP	4.064%	

Appendix 17

Risk Free Rate			
Date	UK GY10	GER GY10	Synthetic risk free rate
Jun-22	2.240%	1.368%	Rf = nominal Rf + Inflation 2.827%
May-22	2.100%	1.127%	
Apr-22	1.909%	0.935%	
Mar-22	1.607%	0.547%	
Feb-22	1.415%	0.159%	
Jan-22	1.309%	0.014%	
Dec-21	0.972%	-0.179%	
Nov-21	0.811%	-0.343%	
Oct-21	1.032%	-0.094%	
Sep-21	1.022%	-0.191%	
Aug-21	0.622%	-0.380%	
Jul-21	0.566%	-0.458%	
Jun-21	0.718%	-0.203%	
May-21	0.796%	-0.183%	
Apr-21	0.843%	-0.200%	
Mar-21	0.846%	-0.292%	
Feb-21	0.823%	-0.257%	
Jan-21	0.329%	-0.520%	
Dec-20	0.196%	-0.575%	
Nov-20	0.306%	-0.571%	
Oct-20	0.263%	-0.625%	
Sep-20	0.232%	-0.521%	
Aug-20	0.313%	-0.398%	
Jul-20	0.105%	-0.531%	
Jun-20	0.172%	-0.453%	
May-20	0.185%	-0.448%	
Apr-20	0.227%	-0.589%	
Mar-20	0.355%	-0.469%	
Feb-20	0.440%	-0.608%	
Jan-20	0.526%	-0.434%	
Dec-19	0.825%	-0.187%	
Nov-19	0.700%	-0.360%	
Oct-19	0.631%	-0.403%	
Sep-19	0.486%	-0.572%	
Aug-19	0.479%	-0.703%	
Jul-19	0.609%	-0.442%	
Jun-19	0.832%	-0.328%	
May-19	0.888%	-0.203%	
Apr-19	1.186%	0.013%	
Mar-19	0.996%	-0.071%	
Feb-19	1.303%	0.182%	
Jan-19	1.220%	0.149%	
Dec-18	1.269%	0.246%	
Nov-18	1.364%	0.315%	
Oct-18	1.437%	0.386%	
Sep-18	1.574%	0.472%	
Aug-18	1.429%	0.331%	
Jul-18	1.331%	0.445%	
Jun-18	1.278%	0.303%	
May-18	1.229%	0.340%	
Apr-18	1.418%	0.562%	
Mar-18	1.350%	0.493%	
Feb-18	1.502%	0.654%	
Jan-18	1.512%	0.697%	
Dec-17	1.188%	0.427%	
Nov-17	1.331%	0.367%	
Oct-17	1.333%	0.364%	
Sep-17	1.366%	0.464%	
Aug-17	1.036%	0.359%	
Jul-17	1.231%	0.533%	
Jun-17	1.259%	0.465%	

Appendix 18

Beta				
Date	FTSE 250	NCC	R FTSE	R NCC
01/06/2017	19,340.15	143.52		
01/07/2017	19,781.14	170.04	0.022802	0.184733
01/08/2017	19,803.59	163.03	0.001135	-0.0412372
01/09/2017	19,874.82	192.94	0.003597	0.18349683
01/10/2017	20,227.86	204.97	0.017763	0.0623557
01/11/2017	19,952.89	197.40	-0.01359	-0.0369566
01/12/2017	20,726.26	208.54	0.03876	0.05643347
01/01/2018	20,243.60	179.13	-0.02329	-0.1410256
01/02/2018	19,687.27	178.47	-0.02748	-0.0036479
01/03/2018	19,460.47	168.87	-0.01152	-0.0538229
01/04/2018	20,285.05	176.50	0.042372	0.04518878
01/05/2018	20,846.26	190.86	0.027666	0.08138346
01/06/2018	20,830.97	183.86	-0.00073	-0.0366885
01/07/2018	20,877.87	197.33	0.002251	0.07324214
01/08/2018	20,689.00	197.51	-0.00905	0.00090992
01/09/2018	20,307.04	179.55	-0.01846	-0.0909092
01/10/2018	18,917.68	179.12	-0.06842	-0.0023836
01/11/2018	18,480.83	171.10	-0.02309	-0.0447611
01/12/2018	17,502.05	159.72	-0.05296	-0.0665601
01/01/2019	18,711.75	117.08	0.069118	-0.266971
01/02/2019	19,181.35	112.07	0.025097	-0.0428015
01/03/2019	19,117.49	129.02	-0.00333	0.15129439
01/04/2019	19,824.81	160.91	0.036999	0.2471426
01/05/2019	18,970.25	152.61	-0.04311	-0.0515462
01/06/2019	19,462.10	150.77	0.025927	-0.0120773
01/07/2019	19,666.52	170.31	0.010503	0.1295843
01/08/2019	19,393.63	162.75	-0.01388	-0.0443723
01/09/2019	19,936.67	160.54	0.028001	-0.0135901
01/10/2019	20,021.50	175.64	0.004255	0.09408722
01/11/2019	20,812.60	193.54	0.039513	0.10192123
01/12/2019	21,883.42	211.35	0.051451	0.09200949
01/01/2020	21,143.49	201.51	-0.03381	-0.0465631
01/02/2020	19,330.92	194.48	-0.08573	-0.0348837
01/03/2020	15,101.13	156.60	-0.21881	-0.1947827
01/04/2020	16,454.46	154.15	0.089618	-0.0156626
01/05/2020	17,042.96	144.71	0.035765	-0.0611996
01/06/2020	17,119.16	167.35	0.004471	0.15645381
01/07/2020	16,932.65	159.43	-0.01089	-0.0473506
01/08/2020	17,788.33	169.81	0.050534	0.06508883
01/09/2020	17,315.30	166.03	-0.02659	-0.0222223
01/10/2020	17,214.38	172.26	-0.00583	0.03750005
01/11/2020	19,336.32	188.33	0.123266	0.09329882
01/12/2020	20,488.30	241.89	0.059576	0.28440363
01/01/2021	20,228.58	237.09	-0.01268	-0.0198413
01/02/2021	20,910.37	251.97	0.033704	0.06275308
01/03/2021	21,518.71	249.04	0.029093	-0.011652
01/04/2021	22,497.37	262.07	0.045479	0.05232562
01/05/2021	22,683.95	285.72	0.008293	0.09023937
01/06/2021	22,376.02	283.79	-0.01357	-0.0067567
01/07/2021	22,948.83	303.57	0.025599	0.06972779
01/08/2021	24,102.19	311.78	0.050258	0.02702696
01/09/2021	23,031.29	248.07	-0.04443	-0.2043343
01/10/2021	23,106.61	239.87	0.00327	-0.0330739
01/11/2021	22,519.72	223.80	-0.0254	-0.0669677
01/12/2021	23,480.81	228.20	0.042678	0.01965067
01/01/2022	21,926.62	185.69	-0.06619	-0.1862956
01/02/2022	21,081.05	183.34	-0.03856	-0.0126315
01/03/2022	21,160.07	179.87	0.003748	-0.018956
01/04/2022	20,708.71	180.26	-0.02133	0.00219048
01/05/2022	20,417.95	211.78	-0.01404	0.17486344
01/06/2022	18,666.80	184.40	-0.08577	-0.1293024

0.07%

Appendix 19

ERP: Historical Approach (a)					
Date	FTSE 250UK GY10		Rm - Rf		Germany Rf
01/06/2017	19,340.15	1.259%			0.465%
01/07/2017	19,781.14	1.231%	2.28%	1.049%	0.533%
01/08/2017	19,803.59	1.036%	0.11%	-0.923%	0.359%
01/09/2017	19,874.82	1.366%	0.36%	-1.006%	0.464%
01/10/2017	20,227.86	1.333%	1.78%	0.443%	0.364%
01/11/2017	19,952.89	1.331%	-1.36%	-2.690%	0.367%
01/12/2017	20,726.26	1.188%	3.88%	2.688%	0.427%
01/01/2018	20,243.60	1.512%	-2.33%	-3.841%	0.697%
01/02/2018	19,687.27	1.502%	-2.75%	-4.250%	0.654%
01/03/2018	19,460.47	1.350%	-1.15%	-2.502%	0.493%
01/04/2018	20,285.05	1.418%	4.24%	2.819%	0.562%
01/05/2018	20,846.26	1.229%	2.77%	1.538%	0.340%
01/06/2018	20,830.97	1.278%	-0.07%	-1.351%	0.303%
01/07/2018	20,877.87	1.331%	0.23%	-1.106%	0.445%
01/08/2018	20,689.00	1.429%	-0.90%	-2.334%	0.331%
01/09/2018	20,307.04	1.574%	-1.85%	-3.420%	0.472%
01/10/2018	18,917.68	1.437%	-6.84%	-8.279%	0.386%
01/11/2018	18,480.83	1.364%	-2.31%	-3.673%	0.315%
01/12/2018	17,502.05	1.269%	-5.30%	-6.565%	0.246%
01/01/2019	18,711.75	1.220%	6.91%	5.692%	0.149%
01/02/2019	19,181.35	1.303%	2.51%	1.207%	0.182%
01/03/2019	19,117.49	0.996%	-0.33%	-1.329%	-0.071%
01/04/2019	19,824.81	1.186%	3.70%	2.514%	0.013%
01/05/2019	18,970.25	0.888%	-4.31%	-5.199%	-0.203%
01/06/2019	19,462.10	0.832%	2.59%	1.761%	-0.328%
01/07/2019	19,666.52	0.609%	1.05%	0.441%	-0.442%
01/08/2019	19,393.63	0.479%	-1.39%	-1.867%	-0.703%
01/09/2019	19,936.67	0.486%	2.80%	2.314%	-0.572%
01/10/2019	20,021.50	0.631%	0.43%	-0.206%	-0.403%
01/11/2019	20,812.60	0.700%	3.95%	3.251%	-0.360%
01/12/2019	21,883.42	0.825%	5.15%	4.320%	-0.187%
01/01/2020	21,143.49	0.526%	-3.38%	-3.907%	-0.434%
01/02/2020	19,330.92	0.440%	-8.57%	-9.013%	-0.608%
01/03/2020	15,101.13	0.355%	-21.88%	-22.236%	-0.469%
01/04/2020	16,454.46	0.227%	8.96%	8.735%	-0.589%
01/05/2020	17,042.96	0.185%	3.58%	3.392%	-0.448%
01/06/2020	17,119.16	0.172%	0.45%	0.275%	-0.453%
01/07/2020	16,932.65	0.105%	-1.09%	-1.194%	-0.531%
01/08/2020	17,788.33	0.313%	5.05%	4.740%	-0.398%
01/09/2020	17,315.30	0.232%	-2.66%	-2.891%	-0.521%
01/10/2020	17,214.38	0.263%	-0.58%	-0.846%	-0.625%
01/11/2020	19,336.32	0.306%	12.33%	12.021%	-0.571%
01/12/2020	20,488.30	0.196%	5.96%	5.762%	-0.575%
01/01/2021	20,228.58	0.329%	-1.27%	-1.597%	-0.520%
01/02/2021	20,910.37	0.823%	3.37%	2.547%	-0.257%
01/03/2021	21,518.71	0.846%	2.91%	2.063%	-0.292%
01/04/2021	22,497.37	0.843%	4.55%	3.705%	-0.200%
01/05/2021	22,683.95	0.796%	0.83%	0.033%	-0.183%
01/06/2021	22,376.02	0.718%	-1.36%	-2.075%	-0.203%
01/07/2021	22,948.83	0.566%	2.56%	1.994%	-0.458%
01/08/2021	24,102.19	0.622%	5.03%	4.404%	-0.380%
01/09/2021	23,031.29	1.022%	-4.44%	-5.465%	-0.191%
01/10/2021	23,106.61	1.032%	0.33%	-0.705%	-0.094%
01/11/2021	22,519.72	0.811%	-2.54%	-3.351%	-0.343%
01/12/2021	23,480.81	0.972%	4.27%	3.296%	-0.179%
01/01/2022	21,926.62	1.309%	-6.62%	-7.928%	0.014%
01/02/2022	21,081.05	1.415%	-3.86%	-5.271%	0.159%
01/03/2022	21,160.07	1.607%	0.37%	-1.232%	0.547%
01/04/2022	20,708.71	1.909%	-2.13%	-4.042%	0.935%
01/05/2022	20,417.95	2.100%	-1.40%	-3.504%	1.127%
01/06/2022	18,666.80	2.240%	-8.58%	-10.817%	1.368%
			-0.0089		0.0757%

Appendix 20

Macrotrends Data Download

U.K. GDP Growth Rate 1961-2023

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date	GDP Gr	Annual Change
31/12/1961	2.6771	
31/12/1962	1.1029	-1.57
31/12/1963	4.8744	3.77
31/12/1964	5.5337	0.66
31/12/1965	2.1422	-3.39
31/12/1966	1.5731	-0.57
31/12/1967	2.7865	1.21
31/12/1968	5.4411	2.65
31/12/1969	1.9241	-3.52
31/12/1970	6.3179	4.39
31/12/1971	3.5047	-2.81
31/12/1972	4.3217	0.82
31/12/1973	6.5238	2.2
31/12/1974	-2.484	-9.01
31/12/1975	-1.474	1.01
31/12/1976	2.9103	4.38
31/12/1977	2.4578	-0.45
31/12/1978	4.2043	1.75
31/12/1979	3.749	-0.46
31/12/1980	-2.031	-5.78
31/12/1981	-0.788	1.24
31/12/1982	1.9949	2.78
31/12/1983	4.2219	2.23
31/12/1984	2.2691	-1.95
31/12/1985	4.1474	1.88
31/12/1986	3.1503	-1
31/12/1987	5.3927	2.24
31/12/1988	5.7324	0.34
31/12/1989	2.5776	-3.15
31/12/1990	0.7338	-1.84
31/12/1991	-1.103	-1.84
31/12/1992	0.4011	1.5
31/12/1993	2.4898	2.09
31/12/1994	3.846	1.36
31/12/1995	2.5317	-1.31
31/12/1996	2.4285	-0.1
31/12/1997	4.909	2.48
31/12/1998	3.154	-1.76
31/12/1999	2.9901	-0.16
31/12/2000	3.6724	0.68
31/12/2001	2.0727	-1.6
31/12/2002	2.1232	0.05
31/12/2003	3.0299	0.91
31/12/2004	2.3556	-0.67
31/12/2005	2.5933	0.24
31/12/2006	2.5841	-0.01
31/12/2007	2.2695	-0.31
31/12/2008	-0.24	-2.51
31/12/2009	-4.247	-4.01
31/12/2010	2.1314	6.38
31/12/2011	1.4576	-0.67
31/12/2012	1.4699	0.01
31/12/2013	1.89	0.42
31/12/2014	2.9912	1.1
31/12/2015	2.6226	-0.37
31/12/2016	2.2635	-0.36
31/12/2017	2.1345	-0.13
31/12/2018	1.6509	-0.48
31/12/2019	1.6719	0.02
31/12/2020	-9.27	-10.94
31/12/2021	7.4413	16.71

Appendix 21

INDUSTRY AVERAGE

	05-Jan-22											
Date updated:	Aswathi Damodaran, adamodar@stern.nyu.edu											
Created by:	Debt to capital & debt to equity ratios, with key drivers.											
What is this data?	Western Europe											
Home Page:	http://www.damodaran.com											
Data website:	https://www.stern.nyu.edu/~adamodar/New_Home_Page/data.html											
Companies in each industry:	https://www.stern.nyu.edu/~adamodar/pc/datasets/indname.xls											
Variable definitions:	https://www.stern.nyu.edu/~adamodar/New_Home_Page/datafile/variable.htm											
	Per c *	Book Debt to Capital	Debt to Capital (Unadj)	Market D/E (unadj)	Market D	Market D/E (adj)	Effectiv	Institutional Holdin	Sd dev in Sto	EBITDA/EV	Net PP&E/Total Assets	Spending/T
Advertising	89	50.66%	30.96%	44.85%	31.43%	45.84%	11.82%	30.59%	34.46%	6.24%	12.05%	0.81%
Aerospace/Defense	57	50.97%	20.63%	25.99%	20.63%	25.99%	12.12%	32.23%	27.37%	6.98%	16.89%	1.72%
Bank (Money Center)	115	79.17%	85.67%	597.67%	85.67%	597.67%	18.68%	28.83%	22.17%	0.00%	0.84%	0.03%
Coal & Related Energy	17	11.55%	9.14%	10.06%	9.18%	10.11%	2.73%	26.04%	50.62%	10.21%	50.79%	5.80%
Computer Services	223	34.96%	7.47%	8.08%	8.06%	8.76%	16.94%	23.48%	31.26%	5.01%	8.92%	1.33%
Computers/Peripherals	40	45.02%	12.51%	14.30%	12.59%	14.40%	9.00%	22.91%	30.14%	7.76%	13.95%	3.45%
Construction Supplies	116	41.88%	27.24%	37.45%	27.38%	37.71%	15.55%	23.64%	28.55%	9.49%	28.84%	2.49%
Diversified	66	37.71%	30.69%	44.27%	30.69%	44.28%	14.18%	19.99%	22.87%	10.42%	9.87%	2.72%
Drugs (Biotechnology)	238	30.98%	9.54%	10.54%	9.49%	10.48%	1.80%	22.09%	39.35%	-0.36%	9.91%	1.55%
R.E.I.T.	178	42.51%	45.11%	82.17%	45.12%	82.22%	1.68%	39.81%	22.38%	2.90%	71.24%	0.48%
Real Estate (Development)	66	48.99%	45.07%	82.05%	45.07%	82.06%	10.87%	22.07%	27.98%	6.46%	6.77%	0.33%
Real Estate (General/Diversified)	54	56.99%	53.71%	116.05%	53.75%	116.24%	10.95%	22.79%	26.72%	2.25%	26.20%	0.45%
Real Estate (Operations & Services)	243	51.37%	47.65%	91.04%	47.71%	91.23%	13.32%	27.41%	21.55%	2.98%	57.22%	0.12%
Recreation	61	54.36%	16.96%	20.42%	17.53%	21.26%	9.78%	29.89%	28.31%	3.14%	42.73%	4.75%
Reinsurance	4	25.54%	21.86%	27.98%	22.18%	28.51%	22.70%	33.72%	20.92%	8.90%	0.00%	0.02%
Restaurant/Dining	41	64.35%	32.23%	47.57%	32.27%	47.64%	5.96%	40.26%	35.18%	2.32%	34.17%	1.86%
Retail (Automotive)	24	42.37%	26.45%	35.96%	26.45%	35.96%	18.47%	38.41%	28.53%	10.08%	29.41%	3.36%
Retail (Special Lines)	71	49.95%	19.15%	23.68%	19.20%	23.76%	13.74%	30.98%	34.09%	5.90%	34.31%	1.50%
Rubber& Tires	8	39.62%	27.67%	38.25%	27.67%	38.25%	19.42%	19.28%	21.73%	13.46%	33.44%	2.97%
Semiconductor	36	40.79%	11.41%	12.88%	11.52%	13.01%	4.66%	27.68%	36.82%	5.93%	20.14%	5.56%
Semiconductor Equip	21	23.71%	1.71%	1.74%	1.76%	1.79%	7.90%	31.87%	32.68%	2.51%	14.40%	3.86%
Shipbuilding & Marine	62	40.35%	23.58%	30.86%	23.73%	31.10%	4.80%	21.30%	30.68%	15.15%	56.99%	4.81%
Shoe	9	46.41%	10.58%	11.84%	10.90%	12.23%	17.34%	23.02%	28.48%	2.61%	21.90%	0.97%
Software (Entertainment)	60	22.76%	7.42%	8.01%	7.24%	7.81%	8.04%	26.00%	36.22%	1.60%	6.81%	1.84%
Software (Internet)	30	60.53%	14.19%	16.54%	14.22%	16.58%	6.37%	17.81%	29.28%	4.32%	39.17%	13.84%
Software (System & Application)	366	31.81%	8.50%	9.29%	8.53%	9.33%	8.33%	27.63%	34.48%	3.20%	6.09%	1.13%
Steel	56	25.79%	28.13%	39.14%	28.30%	39.48%	15.21%	23.20%	30.71%	31.71%	31.07%	3.53%
Telecom (Wireless)	13	54.07%	58.49%	140.93%	58.49%	140.93%	15.07%	26.41%	22.70%	12.46%	25.41%	3.90%
Telecom. Equipment	53	28.42%	13.45%	15.54%	13.46%	15.56%	10.15%	22.66%	31.45%	10.32%	7.31%	1.43%
Telecom. Services	71	59.24%	53.89%	116.87%	53.94%	117.12%	12.58%	23.34%	26.29%	14.28%	35.06%	6.18%
Tobacco	6	44.63%	38.90%	63.66%	38.90%	63.66%	20.93%	44.67%	13.44%	11.98%	4.42%	0.51%