



Equity Valuation The Sage Group

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Abstract

Title: Equity Valuation – The Sage Group

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This dissertation aims to estimate the share price of The Sage Group (LON:SGE), a prominent player operating in the enterprise resource planning software (ERP) market for small and medium-sized businesses, as of November 27th 2024. The objective of the valuation is anchored on ultimately providing a “buy”, “hold”, or “sell” recommendation after a thorough analysis of macroeconomic factors, market conditions, competitive dynamics, and company-specific data.

The target price is derived from four valuation approaches: Discounted Cash Flow (DCF), forward P/E multiple, forward EV/S multiple, and forward EV/EBITDA multiple, with the DCF model constituting the primary driver (80% weighting) and subject to sensitivity analysis. The DCF valuation yields a target price of GBX 1,324, with a sensitivity range between GBX 1,039.61 and GBX 1,817.53, reflecting potential variations of -22% to +37% under fluctuations of +/- 1 percentage point in WACC and +/- 0.5 percentage points in the terminal growth rate. The relative valuation methods yield a lower target price: GBX 746 from the forward P/E ratio, GBX 1,132 from the forward EV/S, and GBX 926 from the forward EV/EBITDA multiple.

The resulting Sage target price per share amounts to GBG 1,246, representing a slight downside of -3% relative to the November 27th 2024 trading price of GBX 1,303 and a -4% downside compared to the GBX 1,290 target from HSBC. Therefore, considering all factors, this dissertation issues a “hold” recommendation.

Keywords: Equity Valuation, DCF, Relative Valuation, The Sage Group, Enterprise Resource Planning, Software

Abstract

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Esta tese tem por objetivo estimar o preço das ações do The Sage Group (LON:SGE), um interveniente prominente no mercado de software de planeamento de recursos empresariais (ERP) para pequenas e médias empresas, à data de 27 de Novembro de 2024. O objetivo da avaliação é, em ultima instância, providenciar uma recomendação de “comprar”, “manter”, ou “vender”, após uma análise detalhada dos fatores macroeconómicos, condições de mercado, dinâmicas competitivas e dados específicos da empresa.

O preço-alvo é derivado de quatro abordagens de avaliação: Fluxos de Caixa Descontados (DCF), múltiplo P/L futuro, múltiplo VE/Vendas futuro e múltiplo VE/EBITDA futuro, com o modelo DCF a constituir o fator determinante (ponderação de 80%) e sujeito a análise de sensibilidade. A avaliação DCF resulta num preço-alvo de GBX 1.324, com um intervalo de sensibilidade entre GBX 1.039,61 e GBX 1.817,53, refletindo variações potenciais de -22% a +37% sob ajustes de +/- 1 ponto percentual no custo médio ponderado de capital e +/- 0.5 pontos percentuais na taxa de crescimento terminal. Os métodos de avaliação relativa indicam um preço-alvo inferior: GBX 746 pelo múltiplo P/L futuro, GBX 1.132 pelo múltiplo VE/Vendas futuro e GBX 926 pelo múltiplo VE/EBITDA futuro.

O preço-alvo resultante para as ações Sage é de GBX 1.246, representando uma ligeira desvalorização de -3% em relação ao preço à data de 27 de novembro de 2024 de GBX 1.303 e uma desvalorização de -4% em comparação com o preço-alvo de GBX 1.290 da HSBC. Considerando todos os fatores, esta tese emite uma recomendação de "manter".

Palavras-chave: Avaliação Patrimonial Fluxos de Caixa Descontados, Avaliação Relativa, The Sage Group, Planeamento de Recursos Empresariais, Software

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Looking forward, I am excited to continue growing both professionally and personally, embracing new challenges, while never losing the intellectual curiosity that has been key in shaping my journey thus far.

List of Abbreviations

AI – Artificial Intelligence

APAC – Asia-Pacific

APV – Adjusted Present Value

APT – Arbitrage Pricing Theory

CAPEX – Capital Expenditures

CAPM – Capital Asset Pricing Model

CCV – Contingent Claim Valuation

D&A – Depreciation and Amortization

DCF – Discounted Cash Flow

EBIT – Earnings Before Interest and Taxes

EBITDA – Earnings Before Interest, Taxes, Depreciation and Amortization

EoP – End of Period

EPS – Earnings Per Share

ERP – Enterprise Resource Planning

EQRP – Equity Risk Premium

EV – Enterprise Value

FY – Financial Year

GBP – British Pound Sterling

GBX – British Pence Sterling (GBX / 100)

GDP – Gross Domestic Product

IMF – International Monetary Fund

PE – Price to Earnings Ratio

FCF – Free Cash Flow

FCFE - Free Cash Flow to Equity

FCFF – Free Cash Flow to Firm

LTM – Last Twelve Months

L3Y – Last Three Years

HSBC - Hong Kong and Shanghai Banking Corporation

ME – Middle East

NCA – Net Customer Acquisition

NOPAT – Net Operating Profit After Taxes

NWC – Net Working Capital

OECD - The Organization for Economic Cooperation and Development

pp – Percentage Points

PPE – Property, Plant and Equipment

PV – Present Value

Q&A – Questions and Answers

ROA – Return on Assets

ROE – Return on Equity

ROIC – Return on Invested Capital

R&D – Research & Development

SaaS – Software-as-a-Service

SMBs – Small and Medium Businesses

SSRS – Software and Software-related Services

TV – Terminal Value

UK – United Kingdom

WACC – Weighted Average Cost of Capital

YoY – Year-on-Year

YTM – Yield-to-Maturity

3FF – Fama-French Three-Factor Model

Chapter 1: Literature Review

1.1 Valuation procedure

The valuation process is complex and with high degree of variability derived from one's interpretations of the overall context¹ and its translation into the inputs of a given model. Nonetheless, the general approach to the matter can be holistically and quasi-systematically outlined across the five key steps of (i) understanding the business, (ii) forecasting business performance, (iii) selecting the valuation model, (iv) converting forecasts to a valuation and (v) applying the valuation conclusions (Stowe J. et al., 2007):

- i. Identify key dimensions influencing company performance, including market size and trajectory, competitive dynamics, product or services offerings, go-to-market, financial performance, customer feedback and value creation potential to establish a forecasting baseline.
- ii. Aggregate the insights obtained in (i) and forecast individual items through a top-down or bottom-up approach depending on the specific situation and the degree of available data.
- iii. Select the appropriate valuation model tailored to the industry, business and overall context as “the use of an inappropriate model can lead to incorrect valuation and investment decisions, resulting in significant financial losses” (Amerasinghe N. and Bibile Y., 2019).
- iv. Test model assumptions and its impact on the valuation using sensitivity analysis to identify key value drivers, potential risks, alongside critical sense to adjust for specific circumstances or events that could impact the business or its assets.
- v. Provide investors with a “buy”, “hold” or “sell” recommendation based on the deviation of the asset's intrinsic value from market value.

¹ Consult Appendix 1-2 for details regarding the concept of value and valuation use cases; Appendix 6 for details regarding the application of the literature discussed in this chapter

1.2 Valuation methodologies

"Valuation is not a science; it's an art. It requires a combination of skill, experience, and judgment. Choosing the right valuation method is critical to ensuring that you are painting an accurate picture of a company's value" (Koller T. et al., 2015). Several approaches to valuation are used by analysts to determine the intrinsic value of an asset. Each methodology contains its strengths and weaknesses which will in turn influence the decision between using each based on its applicability to the type of asset under analysis as well as the special circumstances of the valuation.

Although financial analysts use a variety of valuation models depending on the scope of its role and often create adaptations of traditional methods (Viebig J. et al., 2008), according to the literature there are three common approaches to valuation, specifically (i) discounted cash flow (DCF), (ii) relative valuation and (iii) contingent claim valuation (Damodaran A., 2012):

- i. Value an asset based on estimating its future expected cash flows and discount the sum back to its present value relying on a discount rate
- ii. Value an asset by comparing it with the price of similar assets based on common parameters, often financial performance indicators
- iii. Value an asset relying on option pricing models

1.2.1 Discounted Cash Flow (DCF) methodologies

The Discounted Cash Flow approach is perhaps the most common and widely used by financial analysts in the industry². This approach aims to appraise the value of a particular asset by discounting the sum of its future expected cash flows to the present by relying on a discount rate (Damodaran A., 2012):

² Consult Appendix 3-5 for alternative DDM, APV and CCV valuation methodologies not explicitly discussed in the dissertation

Equation 1: *Value of an asset*

$$Value = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t}$$

where,

n = *life of the asset*

CF_t = *cash flow in period t*

r = *discount rate reflecting the riskiness of the estimated cash flows*

This discount rate should be appropriate to the particular cash flow category. In line with Stowe J. et al. (2007) cash flows can be categorized in two buckets: (i) free cash flow to equity (FCFE) and (ii) free cash flow to firm (FCFF). Other literature goes further and lists free cash flow to debt (Fernández, 2007) as another category. The question then becomes which cash flows are relevant, where and in which way when approaching the valuation of a business.

1.2.1.a Equity Valuation DCF models

Equity-based DCF models leverage free cash flow to equity (FCFE) as a key driver and input for the valuation. FCFE relates to the cash amount available to common shareholders net of the business reinvestment needs (Damodaran A., 2012):

Equation 2: *FCFE*

$$Free\ Cash\ Flow\ to\ Equity\ (FCFE) = Net\ income - Equity\ reinvestment$$

Equity reinvestment aims to account for cash flow effects by subtracting cash outflows among which capital expenditures and debt repayments and adding back depreciation and amortization (D&A) since these are registered in accounting although not constituting cash expenses and new debt issues which are considered inflows (Damodaran A., 2012):

Equation 3: FCFE deconstruction

Net income
+ Depreciation
- Capital expenditures
= Net capital expenditures
- Changes in non-cash working capital
+ New debt issues
- Debt repayments
= Free Cash Flow to Equity (FCFE)

1.2.1.a.i FCFE models

“The Constant Growth FCFE model is designed to value firms that are growing at a stable growth rate and are hence in steady state” (Damodaran A., 2012). This model relies on three key inputs to appraise the value of equity:

Equation 4: Constant Growth FCFE

$$Value = \frac{FCFE_1}{k_e - g_n}$$

where,

$Value$ = share value today

$FCFE_1$ = expected free cash flow to equity next year

k_e = cost of equity of the firm³

g_n = growth rate in FCFE for the firm in perpetuity

The steady state assumptions in the Constant Growth FCFE model also infers that the business possesses the characteristics of similarly stable-growing companies, among which moderate risk perception and moderate capital expenditures to depreciation ratio (Damodaran A., 2012).

³ Detailed in section 1.2.1.b.iv

Nonetheless, literature also presents a more granular approach to the model, the Two-Stage FCFE⁴. This method allows to account for non-constant growth rates and can be better suited for companies experiencing undergoing significant changes, be it a high period of growth or significant turmoil before assuming a stable period in perpetuity (Damodaran A., 2012):

Equation 5: Two-Stage FCFE

$$Value = PV (FCFE) + PV (TP)$$

where:

$PV (FCFE)$ = present value of free cash flow to equity

$PV (TV)$ = present value of terminal price

=

$$Value = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1 + k_{e,hg})^t} + \frac{P_n}{(1 + k_{e,st})^n}$$

where:

$FCFE_t$ = expected free cash flow to equity in year t

P_n = price at the end of the extraordinary growth/turmoil period

k_e = cost of equity in high growth (hg) and stable growth (st) periods

1.2.1.b Firm Valuation DCF models

Firm valuation DCF models leverage free cash flow to the firm (FCFF) as one of the key drivers. These models differ from equity-based DCF as the aim switches to valuing the business holistically across all claimholders rather than only stockholders. Hence, FCFF should include (i) equity cash flows (ii) cash flows to debtholders, and occasionally (iii) cash flows to preferred shareholders (Stowe J. et al., 2007):

⁴ Damodaran also discusses a more granular Three-Stage FCFE model in the literature, omitted for simplicity.

Equation 6: *FCFF bridge from Net income*

Net income
+ Depreciation
+ Interest expense x (1 – Tax rate)
- Investment in fixed capital
- Investment in working capital
= Free Cash Flow to Firm (FCFF)

Alternatively, although perhaps less used than the approach above, one can derive FCFF from FCFE by adding back debt and preferred shareholders outflows to the latter (Damodaran A., 2012):

Equation 7: *FCFF bridge from EBIT*

Free Cash Flow to Equity (FCFE)
+ Interest expense
x (1 – Tax rate)
+ Principal repayments
- New debt issues
+ Preferred dividends
= Free Cash Flow to Firm (FCFF)

1.2.1.b.i FCFF models

Akin to the Constant Growth FCFE model, its FCFF counterpart assumes a perpetual and stable growth rate (Damodaran A., 2012). However, the model aims to appraise the entire firm rather than only the equity value, implying that the rate at which future expected cash flows are discounted to the present through a blended rate between equity and debt sources of financing and the firm's capital structure:

Equation 8: Constant Growth FCFF

$$Value = \frac{FCFF_1}{(WACC - g_n)}$$

where,

Value = value of the firm

FCFF₁ = expected free cash flow to firm next year

WACC = weighted average cost of capital

g_n = growth rate in free cash flow to equity for the firm in perpetuity

However, as in previously depicted constant growth models, this model also suffers from a high degree of sensitivity when it comes to the growth rate. Consequently, the industry widely employs FCFF-based with a core adjustment (Damodaran A., 2012):

Equation 9: FCFF DCF

$$Value = \sum_{t=1}^n \frac{FCFF_t}{(1 + WACC_{hg})^t} + \frac{Terminal\ value}{(1 + WACC_{st})^n}$$

where,

Value = value of firm

$$Terminal\ value = \frac{FCFF_{n+1}}{(WACC_{st} - g_n)}$$

FCFF = expected free cash flow in year *t*

WACC_{st,hg} = weighted average cost of capital in high growth (hg) and stable growth (st) periods

g_n = growth rate in perpetuity after year *n*

1.2.1.b.ii Firm Valuation DCF inputs – WACC

Weighted average cost of capital (WACC) corresponds to the weighted average demanded return on invested capital in a business financed by both debt and equity. Since debt and equity share different risk levels and tax considerations, WACC incorporates both components and is used to discount future free cash flows and terminal value to the present. “WACC can also be thought of as an opportunity cost of capital or what an investor would expect to earn in an alternative investment with a similar risk profile” (Rosenbaum J. et al., 2013).

WACC is generally expressed as the sum of the after-tax cost of debt and cost of equity weighted according to the target capital structure:

Equation 10: WACC

$$WACC = \frac{D}{V} k_d (1 - T_m) + \frac{E}{V} k_e$$

where,

$\frac{D}{V}$ = market value of target debt to enterprise value

$\frac{E}{V}$ = market value of target equity to enterprise value

k_d = cost of debt

k_e = cost of equity

T_m = marginal income tax rate

WACC should include opportunity costs of all investors and each security's required return should be weighted by individual required returns rather than historical book value. Furthermore, it should be net of corporate taxes due to the nature of free cash flows, whilst the expectations of inflation should match those used for the free cash flow projection. Lastly, the duration of the cash flows should match those of the securities serving as input to estimate cost of capital (Koller T. et al., 2015). These arguments can be further complemented with Fernandez P. (2002) who argues that there are further common errors in WACC computations, among which assuming a capital structure different from neither the current nor the projected and using the incorrect formula when the value of debt does not equal to its book value.

However, one must not forget that WACC is a function of two non-directly observable parameters, (i) cost of debt and (ii) cost of equity with its individual ramifications and considerations that should be carefully addressed.

1.2.1.b.iii Firm Valuation DCF inputs – After-tax Cost of Debt

Cost of debt is the return debtholders demand for the risk undertaken when investing in a given company's debt or, alternatively the cost at which the company lends currency to finance projects. Moreover, after-tax cost of debt is a function of the (i) risk-free rate, (ii) company default risk spread and, (iii) tax rate:

Equation 11: *Cost of Debt*

$$k_d(after - tax) = (k_{rf} + Default\ risk\ spread) \times (1 - T_m)$$

- i. The risk-free rate (k_{rf}) is the expected return on a riskless asset. An asset is considered risk-free when there is no default risk nor reinvestment risk (Damodaran A., 2012). In developed markets where the government is considered risk default-free “government securities such as T-bills, T-notes and T-bonds are accepted by the market as risk-free“ (Rosenbaum J. et al., 2013). Naturally, the higher the riskless rate, the higher the cost of lending.
- ii. Default risk spread exhibits the perception of the market regarding a company's likelihood of defaulting on its interest payments, often influenced by the borrower's creditworthiness, economic conditions and specific security terms, among others. Under circumstances where a company possesses publicly traded long-term bonds outstanding, its market price coupled with its coupon and maturity will serve as inputs to compute the yield. Otherwise, one can estimate default risk spread by either observing the company's recent borrowing history and extrapolate spread figures or, estimating a synthetic rating by computing the interest coverage ratio and benchmarking it against lists provided by credit rating agencies which attribute a rating linked to a specific spread based on interest coverage ratio (Damodaran A., 2012).
- iii. The tax rate (T_m) should be marginal rather than effective under normal circumstances because the latter can reflect non reoccurring items. “A cost of capital based on the marginal tax rate usually better reflects a company's future costs in raising funds” (Stowe J. et al., 2007). Moreover, one should keep in mind that a

company accounting for operating losses will not benefit from tax shields and consequently the after-tax cost of debt will match the pre-tax cost of debt (Damodaran A., 2012).

1.2.1.b.iv Firm Valuation DCF inputs – Cost of Equity

Cost of equity corresponds to the rate of return demanded by investors when performing an equity investment in a company. In general, cost of equity can be estimated through the Fama-French three-factor model (3FF), arbitrage pricing theory (APT) or capital asset pricing model (CAPM), the latter widely adopted. These models define risk differently. The 3FF model uses stock sensitivity to the stock market and two portfolios, one based on firm size and another on book-to-market ratios to define risk, whilst CAPM considers solely the stock's sensitivity to the stock market (Koller T. et al., 2015).

Whilst CAPM is often criticized for what is believed to be unrealistic assumptions of frictionless markets and that investors are rational (Roll R., 1977) or not accounting for all risk sources such as firm-specific risk (Black F., 1972), the literature also states that it remains the better option when it comes to computing the cost of equity. In CAPM the cost of equity is a function of three parameters, (i) equity risk premium, (ii) beta, and (iii) risk-free-rate⁵:

Equation 12: *Cost of Equity*

$$k_e = k_{rf} + \beta_i(k_{mkt} - k_{rf})$$

- i. In the CAPM model equity or market risk premium ($EQRP = k_{mkt} - k_{rf}$) relates to the difference between the expected return of the market and the risk-free rate. “No single model for estimating the market risk premium has gained universal acceptance” (Stowe J. et al., 2007). However, Damodaran A. (2022) presents three approaches to estimating equity risk premium. The most common approach assumes premiums revert to the mean; therefore, one should compute the historical returns on equities investments relative that of riskless investments to obtain the measurement of EQRP.

⁵ Consult section 4.1.h.ii. “WACC inputs – Cost of Equity” for details.

Moreover, assuming the market is aggregately correct, or the valuation should be market neutral, one should use the current implied equity risk premium which attempts to estimate a forward-looking EQRP based on market prices of assets currently traded⁶. Lastly, if we assume investors require a premium to invest in risky assets, one can survey investors to obtain an aggregated view of their expected returns.

- ii. The beta (β_i) measures risk through the covariance between the returns of the company's stock and the returns of a given market i.e., it estimates the degree at which the stock and the market move together. The most typical approach, historical market betas, consists in performing a regression between the stock returns against market returns, where the slope corresponds to the beta of the stock whilst the intercept measures its performance across the selected time horizon (Damodaran A, 2012). Further approaches such as fundamental and accounting betas are also mentioned, although not as common as historical market betas. The former refers to a beta figure determined by the company's type of business, degree of operating and financial leverage, whilst the latter leverages accounting earnings to estimate market risk parameters rather than traded prices (Damodaran A, 2012).

1.2.1.b.v Firm Valuation DCF inputs – Terminal Value

Terminal value (TV) corresponds to the expected value of a company's free cash flows beyond the initial projection period. It is a critical element since it accounts for a significant portion of the business valuation, approximately a 70% share of the total value (Bernard V, 1994), or, in some instances as much as three-quarters or more (Rosenbaum J. et al., 2013).

Whilst Rosenbaum J. et al (2013) refers to (i) exit multiple method and (ii) perpetuity growth model as the two approaches to estimate terminal value, Damodaran A. (2012) goes further with (iii) liquidation value:

- i. Computes the value of the business based on the current LTM trading multiples applied to the company's terminal year EBITDA. Although a method with a degree of simplicity as far as its approach is concerned, using industry multiples to reach terminal value can result in an inaccurate mix of relative and discounted cash flow

⁶ If one assumes that the market makes mistakes even aggregately but is correct over time the approach should rather be the average implied equity risk premium over time.

valuation and therefore should not be used to estimate intrinsic value (Damodaran A., 2012).

- ii. Treats the terminal year free cash flow as a perpetuity which grows at a presumed stable rate (Rosenbaum J. et al., 2013). This methodology requires a complex assumption concerning the business long-term growth rate, constrained to an upper bound corresponding to the growth rate of the economy (Damodaran A., 2012).

Equation 13: Terminal Value – Perpetuity Growth Model

$$\text{Terminal value} = \frac{FCFF_{n+1}}{(WACC_{st} - g_n)}$$

FCFF = expected dividends per share in year t or, subsequent period to n

WACC_{st} = weighted average cost of capital in stable growth (st) periods

g_n = growth rate in perpetuity after the terminal year (n)

- iii. Assumes the company will become obsolete at a certain point in time in the future, with its assets sold to the highest bidder. This methodology can be applied based on either the book value of assets, adjusted for inflation or based on the earning power of assets. Whilst the former results from the product of the book value of assets and the inflation rate to the power of the average life of the assets, the latter begins by estimating the expected cash flows from the assets and discounts them to the present at an adequate discount rate (Damodaran A., 2012).

1.2.2 Relative valuation methodologies

Whereas DCF methodologies aim to determine the value of a business through an assessment of cash flow generation, growth perspectives and risk profile, relative valuation seeks to estimate the worthiness of a company based on close peers in the market (Damodaran A., 2012).

Relative valuation traces back to Modigliani and Miller who introduced the capital asset pricing model (CAPM), which provided a framework for selecting comparable firms based on their systematic risk (Modigliani F. et al., 1961), later becoming a popular method to identify and compare peer sets. In the following decades research around the concept expanded, underlining the importance of selecting an appropriate set of comparable companies based on key factors among which financial structure, growth prospects (Brealey R. et al., 1984) and introducing a detailed framework to applying multiples (Damodaran A., 1994).

Whilst relative valuation remains very popular, particularly since it requires less explicit assumptions, it is quicker, easier to use and communicate than DCF results and, it incorporates the market sentiment (Damodaran A., 2012), the literature warns practitioners around the potential to misuse this methodology. Dispersion is often encountered due to the arbitrary nature of the selection process in multiples (Fernandez P., 2001). Furthermore, although relative valuation incorporates market sentiment, it can also constitute an issue when the market is under or overvaluing a particular company, whilst the lack of transparency regarding the assumptions going into its inputs leaves space for bias (Damodaran A., 2012).

There are two important steps to approaching relative valuation. Firstly, it is essential to select an appropriate group of comparable companies since the “peer group choice determines both the average multiple for the group and the degree of comparability between the companies.” (Bhattacharya et al., 2016), followed by selecting the right multiple “as different multiples capture different aspects of a company's value and growth prospects” (Lee H., et al., 2013).

1.2.2.a Comparable companies

"Selecting a relevant peer group is a critical step in the relative valuation process. A poorly chosen peer group can lead to inaccurate valuations, while a well-chosen peer group can provide valuable insights into a company's relative value" (Deloitte, 2018). Whilst relative valuation is often viewed as a relatively more practical and easily applied methodology, literature often refrains from selecting the peer group based solely on companies competing in the same industry or sector.

Many researchers argue that one of the most common mistakes is to select a peer group based on the industry where the target operates, regardless of financial performance (Koller T. et al., 2015). Others argue that industry-wide shocks such as changes in regulation or technological disruptions may affect the degree of comparability (Fernandez-Feijoo B. et al., 2014) and, that cyclical industries can create valuation distortions as it becomes complex to understand whether the target's high earnings and consequently its valuation multiple derives from cyclicity or underlying factors (Eckbo B., 2016). Therefore, according to Damodaran A. (2012), the peer set should rather be composed by companies with similar cash flows, growth potential and risk profile.

However, there are also arguments in support of complementing the approach depicted by Damodaran A. (2012) with the industry approach. Rosenbaum J., et al. (2013) argues that a granular approach i.e., companies in the same sub-sector tend to yield good comparables whilst others affirm that similarities in macroeconomic and competitive factors can lead to similar financial performance (Kaneko T., 2020). With perceived benefits from both business and financial profile dimensions, a solid framework to selecting comparable companies can be derived from combining the two (Rosenbaum J. et al., 2013):

Figure 1: Comparable Companies Framework

Business Profile	Financial Profile
☐ Sector	☐ Size
☐ Products and services	☐ Profitability
☐ Customers and end markets	☐ Growth profile
☐ Distribution channels	☐ Return on investment
☐ Geography	☐ Credit profile

1.2.2.b Multiples

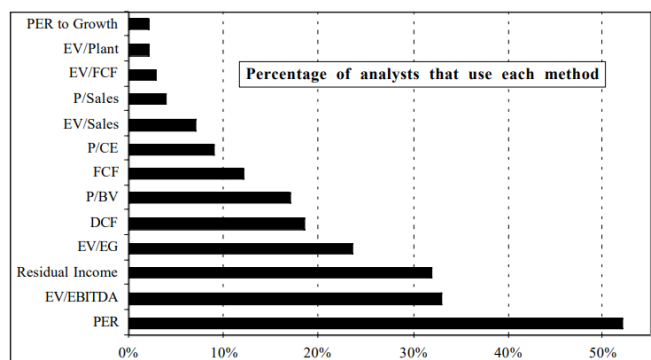
Whilst computing a business' valuation using trading multiples is fairly straightforward, selecting the multiple can be complex due to the wide range of options available. According to Fernandez (2001), there are three main vectors along which one can think about the spectrum, (i) capitalization multiples, (ii) value multiples and, (iii) growth-referenced multiples:

Figure 2: Multiples Framework:

Firm Capitalization Multiples	☐ Price to Earnings Ratio
	☐ Price to Cash Earnings
	☐ Price to Sales
	☐ Price to Levered FCF
	☐ Price to Book Value
Firm Value Multiples	☐ Enterprise Value to EBITDA
	☐ Enterprise Value to Sales
	☐ Enterprise Value to Unlevered FCFF
	☐ Enterprise Value to Assets
	☐ Enterprise Value to Capital Employed
Growth-Referenced Multiples	☐ Price to Earnings to EPS Growth
	☐ Enterprise Value to EBITDA Growth
	☐ Price to Cash Flow to Growth Ratio
	☐ Price to Sales to Growth Ratio
	☐ Price to Earnings to Growth

Furthermore, research indicates that out of the vast universe of existing multiples price to earnings and enterprise value to EBITDA (EV/EBITDA) are the two approaches more commonly used by practitioners (Morgan Stanley, 1999):

Figure 3: Most widely used valuation methods, percentage



Price to earnings ratio (PE ratio) consists of a numerator corresponding to the equity value per unit of stock and a denominator which measures equity earnings per share:

Equation 14: PE ratio

$$PE = \frac{\text{Market price per share}}{\text{Earnings per share (EPS)}}$$

Nonetheless, it is important to state that the ratio is sensitive to severe earnings fluctuations which can be further escalated by the earnings measured chosen⁷, particularly in rapidly growing firms with volatile EPS or management options (Damodaran A., 2012).

Unlike the PE ratio, the EV/EBITDA multiple is based on firm value. Its proliferation in the industry stems from empirical evidence stating that there are fewer firms with negative EBITDA than there are those with negative EPS. Furthermore, companies use different depreciation methodologies which cause differences in income but do not affect EBITDA. Lastly, EV/EBITDA is relatively easier to benchmark against companies with different levels of debt than other earnings multiples (Damodaran A., 2012). However, it is worth noting that EV/EBITDA can be cumbersome to calculate for businesses with cross holdings (Damodaran A., 2012). This multiple can be derived as follows:

Equation 15: EV-EBITDA ratio

$$EV/EBITDA = \frac{\text{Market value of equity} - \text{Market value of debt} - \text{Cash}}{EBITDA}$$

⁷ PE ratios can be calculated using current, trailing, forward, fully diluted and, primary EPS (Damodaran A., 2012)

Chapter 2: Industry Overview

2.1 Macroeconomic Environment

Before proceeding with the valuation of Sage, it is important to first contextualize and provide a view of the broader macro environment where the company operates, including trends and challenges that could have direct impact into its performance.

Coming off a Black Swan event in the form of COVID-19 described by profound structural shifts and lingering uncertainties, the world economy now faces a new period where despite challenges such as inflation, labour shortages and geopolitical uncertainties persisting, there are also emerging positive outlooks shaping the path forward. Positive news are emerging from various sources, suggesting the global economy might be turning a corner, though substantial risks remain (McKinsey).

Global economic growth is expected to remain stable with world GDP growth projected to be 3.2% this year and 3.3% in 2025 and 2026 (OECD). In OECD countries, GDP growth is expected to be modest vis-à-vis the pre-pandemic period at 1.9% for each of the next 2 years while the aggregate growth of non-OECD countries is to maintain stable regarding its current trajectory with emerging Asia continuing to contribute the most to global growth.

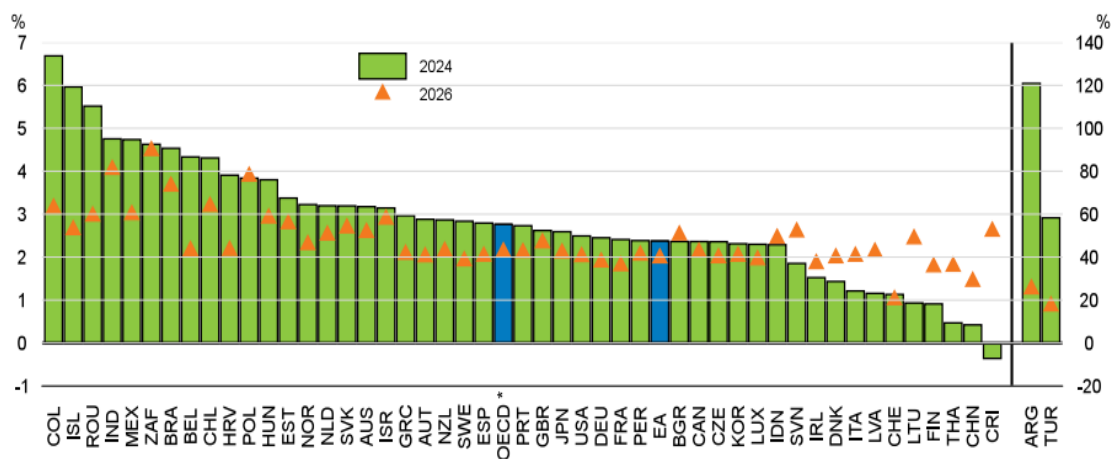
Figure 4: Global GDP growth, percentage

	Average 2013-2019	2023	2024	2025	2026	2024 Q4	2025 Q4	2026 Q4
Per cent								
Real GDP growth¹								
World ²	3.4	3.2	3.2	3.3	3.3	3.3	3.3	3.2
G20 ²	3.5	3.6	3.3	3.3	3.2	3.3	3.2	3.1
OECD ²	2.3	1.8	1.7	1.9	1.9	1.8	2.0	1.8
United States	2.5	2.9	2.8	2.4	2.1	2.5	2.2	2.0
Euro area	1.9	0.5	0.8	1.3	1.5	1.1	1.4	1.5
Japan	0.8	1.7	-0.3	1.5	0.6	0.6	1.3	0.3
Non-OECD ²	4.4	4.4	4.4	4.4	4.3	4.5	4.3	4.3
China	6.8	5.2	4.9	4.7	4.4	4.7	4.6	4.3
India ³	6.8	8.2	6.8	6.9	6.8			
Brazil	-0.4	2.9	3.2	2.3	1.9			

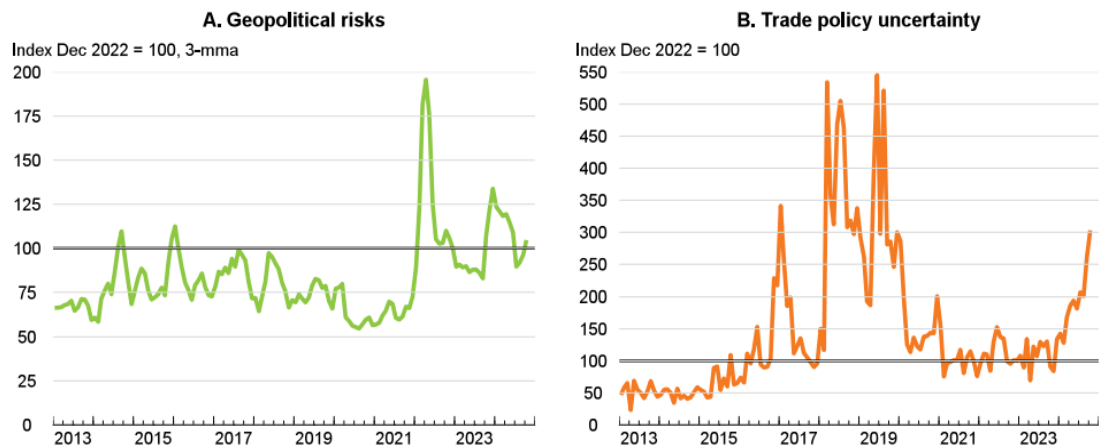
Furthermore, after a period of rampant price hikes, inflation has continued to ease in many economies, driven by a reduction in energy, goods and price inflation. Central

banks are expected to continue implementing lower monetary policy rates as inflation continues to fall and labour market pressures ease (OECD) which will aid in boosting real household income while allowing for an increase in saving ratios, thus providing headroom for private consumption expansion. However, central banks should remain cautious as ineffective implementation of initiatives to contain inflation would only heighten the risks to growth and real incomes.

Figure 5: Headline consumer price inflation (CPI), percentage



On the other hand, geopolitical risks remain high with the ongoing conflicts the Middle East and Russia's war in Ukraine potentially leading to market repricing of sovereign risks in affected region and the disruption of global energy markets as well as damage to critical infrastructure. Further, trade protectionism is a growing threat with underlying uncertainty continuously rising but not yet at the peak of 2018-19. G20 economies are pivoting to import-restrictive measures, now impacting 12.7% of imports vis-a-vis the 4% observed in 2015 (OECD) and investment policy reforms designed to for national security are imposing headwinds to cross-border investment. Lastly, though there has been easing in labour markets, shortages in supply and skills remain exceptionally high driven by structural factors such as aging population and technological transition depicted by the adoption of AI and green and/or digital shifts. While the demand side is impacted via substantial changes in skill requirements, on the supply side the increasing participation of underrepresented groups can aid in offsetting population aging but is viewed as insufficient.

Figure 6.a / 6.b: Geopolitical risks and trade policy uncertainty, Index 100

2.2 Enterprise Resource Planning (ERP) Market Analysis

Enterprise Resource Planning (ERP) is a software domain used by organizations to holistically manage day-to-day business activities from core accounting, HR, procurement and supply chain management, to risk, project management and other operational lines. ERP goes back over 100 years, originating in 1913 when engineer Ford Harris introduced the economic order quantity model (EOQ) and later evolving to material requirements planning (MRP) by 1964 when toolmaker Black and Decker became the first organization to combine EOQ with mainframe computing. As computing technology evolved, MRP began to handle activities beyond manufacturing and by 1990, a new category of business management came to fruition and commonly referred to as ERP.

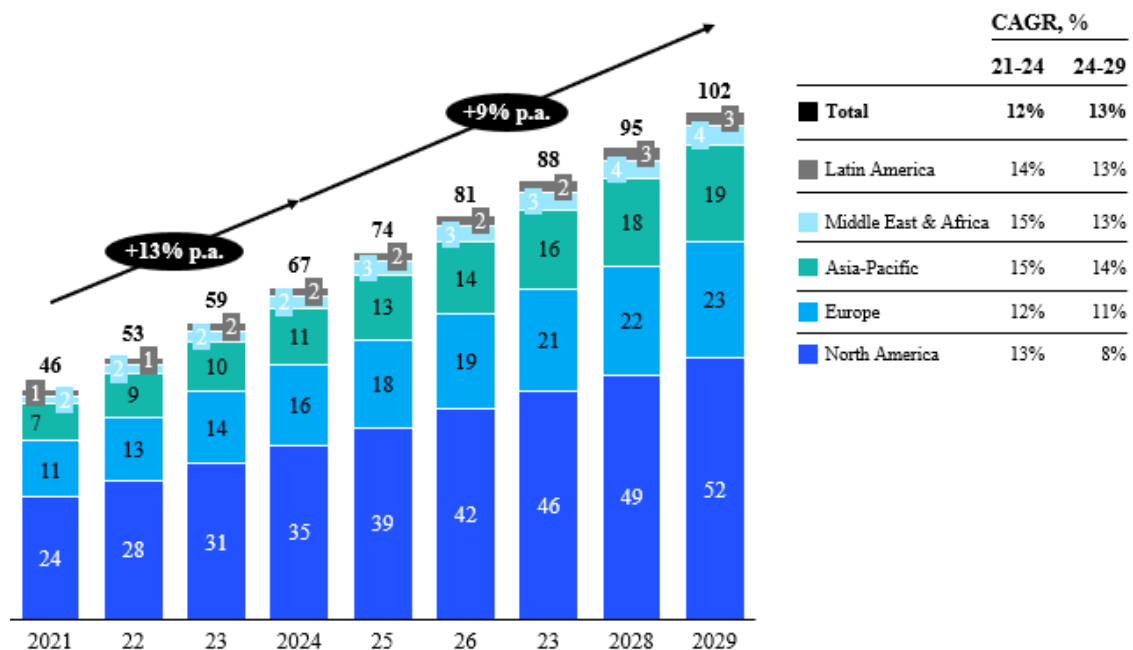
In this new digital day and age, the impact of ERP is undeniable and widely considered a horizontally mission critical software domain. ERP creates value for businesses through (i) business process capabilities, (ii) master data backbone, (iii) system of record, (iv) reporting & analytics, (v) compliance:

- i. *Business process capabilities:* Digitizes and automates business process capabilities across finance, accounting, procurement, manufacturing, and sales while seamlessly integrating all transactional flows (both physical and financial).
- ii. *Master data backbone:* Provides a centralized master data framework to run businesses consistently across functions.

- iii. *System of record*: Established a core system of record for transaction data across critical business functions, particularly back office.
- iv. *Reporting & analytics*: Provides real-time operational reports and analytics capabilities to support day-to-day operations and enable informed strategic decisions.
- v. *Compliance*: Integrates regulatory and financial compliance needs with the business processes to ultimately manage risk.

The global ERP market is sized at EUR 67bn in 2024. It has historically grown at 12% p.a. FY2021-24. Today, North America is the largest region, representing ~52% of the global market, followed by Europe with a ~24% share. Forward-looking, the global ERP market is expected to grow at 13% p.a. FY2024-29E. This growth is underpinned by 10 secular trends⁸ – (1) switch towards SaaS model and cloud deployments, (2) increased ERP replacement, (3) growth in data volume and migrations, (4) software decoupling and specialization, (5) increased regulation, (6) rising cyber threats, (7) increasing use of mobile apps, (8) shorter implementation timelines, (9) broader ERP ecosystem, (10) artificial intelligence.

Figure 7: Mordor Intelligence ERP Software Market by region, EUR bn, FY2021-29E



⁸ Please consult appendix 7 for a detailed description

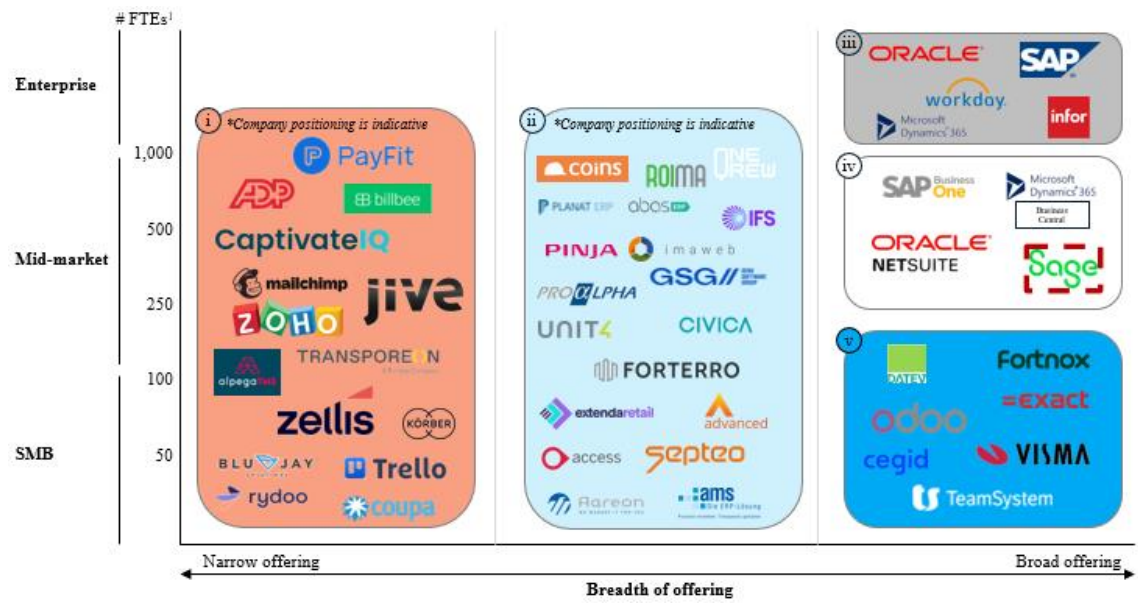
2.3 Competitive Landscape Analysis

The ERP market is highly fragmented with numerous competitive archetypes serving different parts of the market. The competitive landscape is segmented into five main archetypes among which (i) functional single-application specialists, (ii) industry vertical specialists, (iii) large global end-to-end ERP players, (iv) generalist ERP players for mid and upper mid-market, (v) local players for SMBs:

- i. *Functional single-application specialists:* Players covering exclusively a single module typically offered by end-to-end ERP players (e.g., expense reimbursement management).
- ii. *Industry vertical specialists:* Players developing specific offerings for a determined or selected verticals whilst including solutions beyond accounting (e.g., project management and bidding for construction).
- iii. *Large global end-to-end ERP players:* Players operating globally and offering a broad range of software solutions targeted at the enterprise segment, typically with limited industry vertical-specific add-ons, often requiring custom development.
- iv. *Generalist ERP players for mid and upper mid-market:* Players operating internationally, offering core ERP solutions and typically a broad range of customizable solutions for mid and upper mid-market companies.
- v. *Local players for SMBs:* Players serving the lower end of the market, often present in a single or few local geographical domains with offerings which have started with accounting but are now developing broader integrated solutions to cover a wider range of processes.

The Sage Group is positioned amongst generalist ERP players for mid and upper-mid market (archetype iv) and faces intense competition from large players such as SAP and Oracle which despite mainly competing in the enterprise segment have also rolled out modules tailored to smaller end-customers which benefit from its renowned overarching brands. Nevertheless, Sage continues well positioned to capture customers graduating from less sophisticated small enterprise segment solutions as well as SMBs which seek more cost-effective yet still robust solutions relative to SAP and Oracle.

Figure 8: ERP Competitive Landscape by customer size and breadth of offering



Chapter 3: Company Overview

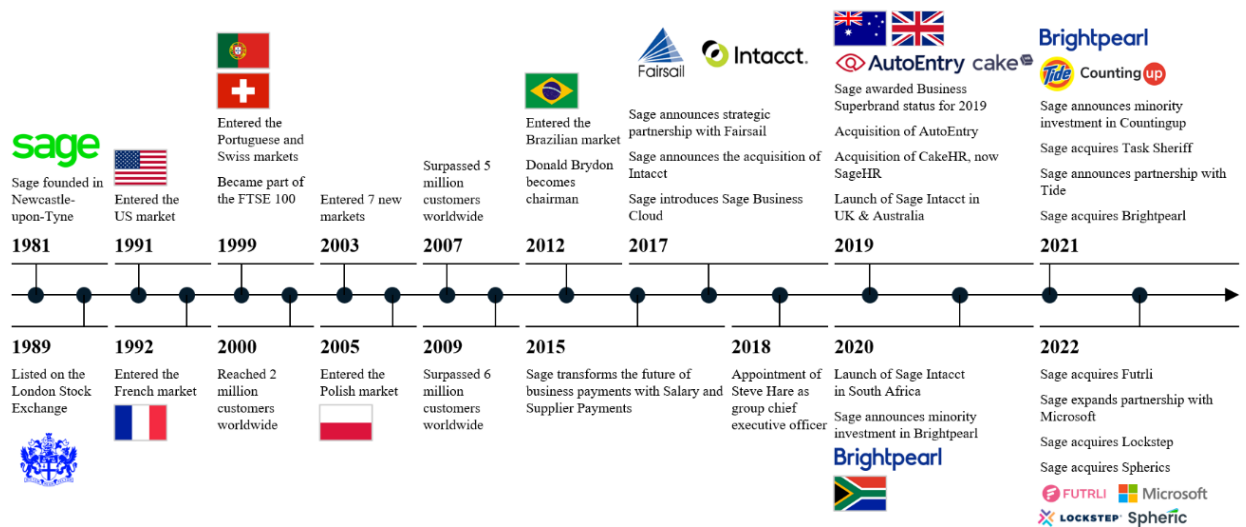
3.1 Business Background

As many of its future customers Sage began as a start-up business off the back of many conversations amongst its founders David Goldman, Paul Muller and Graham Wylie in a Newcastle pub. At first, the founders were aiming to automate the print estimating and basic accounting process of their own business, working with a team of Newcastle University students to create software to manage these activities in an efficient manner. After successfully developing the solution, the founders quickly realized that it could also add value to many other businesses and formed Sage in 1981 to begin commercializing the software. Sage was able to grow exponentially off the back of the proliferation of desktop PCs which also enabled the expansion of its product portfolio.

The company achieved a major milestone in December 1989 when it debuted in the London stock exchange under the ticker symbol of SGE at only GBX 2.96 per share (compared to GBX 1303 as of November 27th 2024). A decade later and after entering the US, French, Portuguese and Swiss markets, Sage has entered the FTSE 100 where it remains until today. After the IPO, Sage was able to create a robust M&A engine, growing mainly inorganically through a bolt-on-acquisition strategy⁹ with over 100 buy-side investments to date, most recently Tritium Software, a developer of mobile workforce management solutions for field-based sales teams.

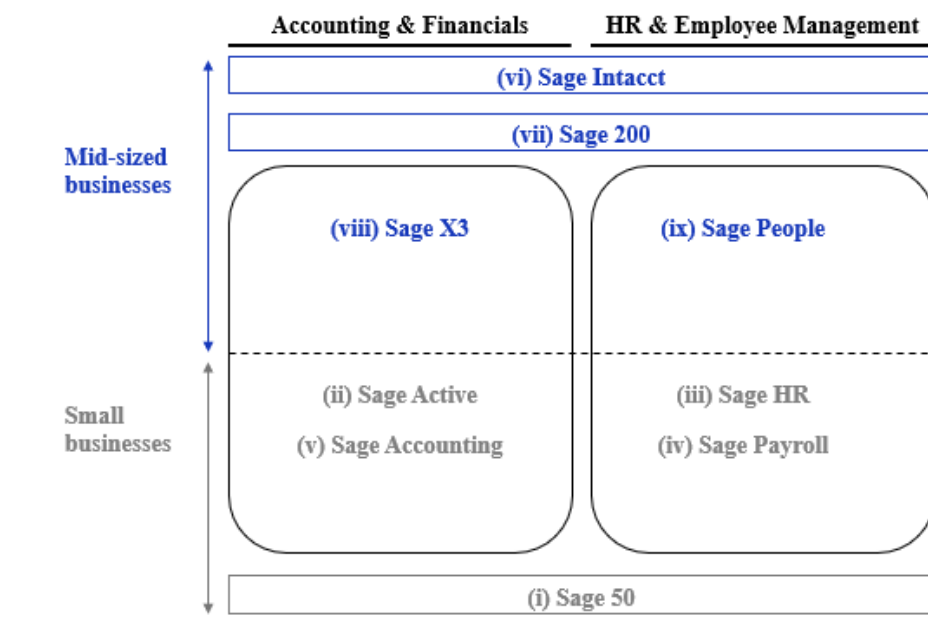
Today, Sage is one of the largest players globally, providing integrated ERP software solutions for finance, HR and payroll to over 2 million customers (including companies and individual accountants) across 19 countries through 95 subsidiaries. The company remains headquartered in Newcastle-upon-Tyne in the United Kingdom with 10,789 employees globally and GBP 2,332mn in revenue FY2024. Beyond its workforce, the company also partners with over 80,000 accountants, 40,000 value-added resellers and 700 independent software vendors, globally selling, implementing and customizing Sage products for end-customers.

⁹ Transactions where the larger organization acquires and integrates a smaller company into its business with the objective of scaling operations, adding new products without investing in the capabilities required to build them, or entering new markets

Figure 9: Sage Company Milestones, FY1981-2024

3.2 Business Model

Sage's business model mainly revolves around the commercialization of its ERP software products. Its product portfolio spans across 9 solutions¹⁰ aimed at streamlining accounting & financials and HR & employee management business processes, targeting both small and mid-sized businesses. For small businesses, Sage offers (i) Sage 50, (ii) Sage Active, (iii) Sage HR, (iv) Sage Payroll, (v) Sage Accounting, whereas mid-sized businesses targeted with (vi) Sage Intacct, (vii) Sage 200, (viii) Sage X3, (ix) Sage People:

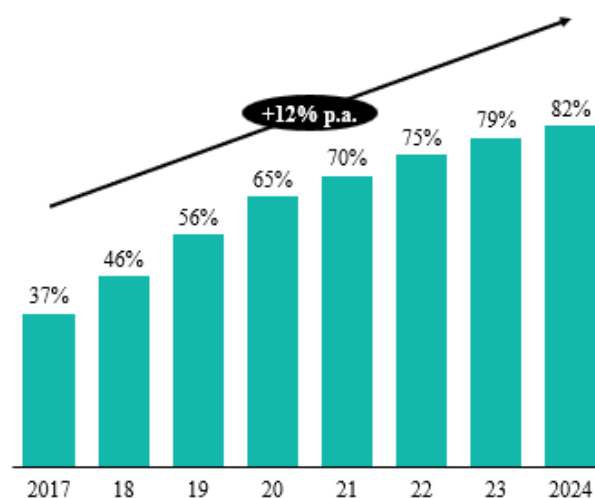
Figure 10: Sage Product Portfolio by business process and customer size

¹⁰ Consult Appendix 8 for a detailed description of each product

Beyond software, Sage also offers software-related services which include hardware sales, professional services and training, in large attributed to legacy fully on-premises products. However, in early 2019 Sage pivoted its strategy towards Software-as-a-Service (SaaS), prioritizing recurring revenue avenues in detriment of commercializing licenses and software-related services. Today, this revenue segment stands at an all-time low (GBP 75mn FY2024) and only accounts for only 3% of total revenue, reflecting Sage's move away from the category and higher reliance on 3rd party channel partners to serve customers on this front.

As many other software companies, Sage has historically been delivering its software through perpetual licenses and deployed on-premises¹¹. However, since 2017 the company has been strategically pivoting to a SaaS model given that it provides a predictable, recurring revenue stream through subscription. Furthermore, it streamlines software updates and the launch of new features, while enabling greater long-term customer retention and opportunities for up and cross-selling. For customers, it shrinks entry barriers as it reduces upfront costs mostly related to infrastructure and allows them to dynamically scale usage in line with their needs. Today, Sage largely serves its customers through cloud and cloud connected solutions¹² and accounts for 82% subscription penetration as share of total underlying revenue, which grew at 12% p.a. FY2017-24.

Figure 11: Sage Subscription Revenue, FY2017-24



¹¹ In the on-premises deployment model applications are implemented, hosted and maintained in the customer organizations' servers.

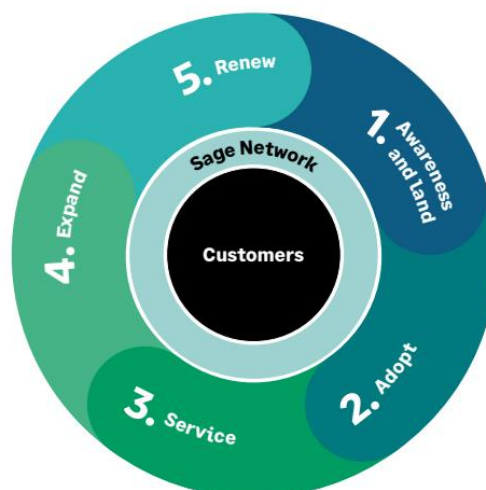
¹² Cloud connected solutions are Sage's designation for hybrid deployments where the infrastructure remains on-premises but a significant level of functionalities are delivered through cloud.

To enable this business model, Sage employs a 5-step land and expand go-to-market strategy. This strategy entails (1) awareness and land, (2) adopt, (3) service, (4) expand, (5) renew:

1. *Awareness and land*: Utilize targeted campaigns, company website, and channel partners to attract new customers through brand awareness. Offer guides, whitepapers and trials to prospective customers.
2. *Adopt*: New customers sign up through subscription with Sage or channel partners providing training and onboarding to ensure a swift start.
3. *Service*: Offer both digital and human customer support to enhance customer experience, including regular check-ins and feedback surveys.
4. *Expand*: Empower customers to leverage Sage's growing portfolio of cloud solutions and services, enhancing the value of its offering while strengthening customer relationships.
5. *Renew*: Deliver a seamless customer experience which enhances satisfaction, improves retention, and drives greater adoption of products while new customers are drawn to the network through recommendations and advocacy, or brand awareness (step 1).

This strategy is underpinned by the Sage Network. Expanding the customer base and ecosystem participants strengthens network effects, enabling Sage to scale new value propositions, with ecosystem participants amplifying growth through increased customer volumes. Moreover, with larger volumes of data and data typologies from network participants, Sage is able to capture flows of data and transactions within and outside the network.

Figure 12: Sage Land and Expand Motion



3.3 Strategy

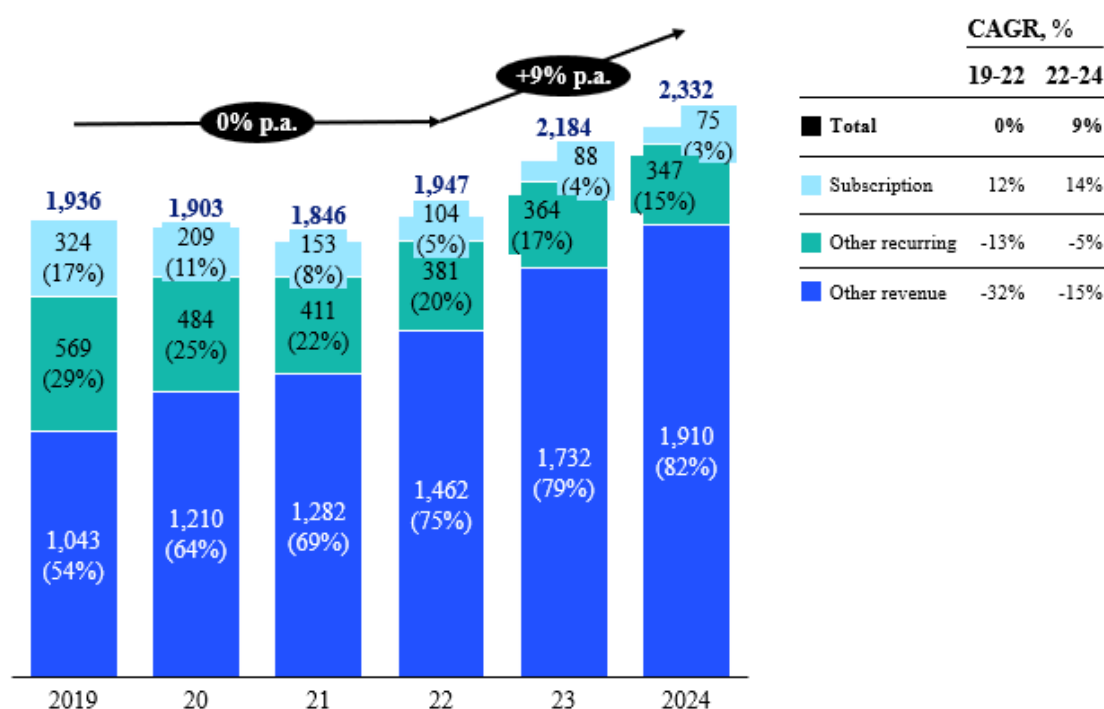
The purpose of Sage “is to knock down barriers so everyone can thrive” with the ambition “to create the world’s most trusted and thriving network of SMBs, powered by Sage Copilot” (The Sage Group, 2023). To fulfil its purpose and ambition, Sage defines 5 strategic priorities to guide operational and investment decisions – (i) scale Sage Intacct, (ii) expand medium beyond financials, (iii) build the small business engine, (iv) scale the network, (v) learn and disrupt:

- i. *Scale Sage Intacct*: Drive growth of Sage Intacct across both existing and new markets. In the future Sage aims to deepen vertical-specific capabilities, drive expansion into new verticals and new markets, with Intacct to launch in Germany.
- ii. *Expand medium beyond financials*: Expand the value proposition to mid-market customers through the release of new (and integrated) products, including AI-powered tools and modules to drive renewal rates.
- iii. *Build the small engine business*: Build a digital engine with scalability to attract and serve small businesses. To fulfil this priority, Sage will focus on helping accountants in their digital transition journey and grow Sage Active in continental Europe.
- iv. *Scale the network*: Bolster participation in the Sage Network to ultimately accelerate the network effect. Sage has continuously been expanding participation through AI-powered software such as accounts payable automation and increasing 3rd party software usage to generate consumption-based revenue.
- v. *Learn and disrupt*: Develop innovative software driven by a culture of continuous learning and disruption. Sage continues to progress towards this goal by continuing to invest in disruptive technologies and by expanding the deployment of AI-powered services into its cloud products.

3.4 Operating Segments

The Sage Group's revenues are segmented by (i) software subscription revenue and (ii) other recurring revenue, part of the larger recurring revenue bucket, as well as (iii) other revenues (SSRS):

- i. Software subscription revenue:* Revenue from the provision of software products where the risk and rewards are transferred to the client over the contract term. During the COVID-19 period (FY2019-22), the account grew at 5% p.a. mostly attributed to the migration of existing customers from perpetual licences to subscription and cloud. In the subsequent recovery period, Sage continued to migrate existing customers while also benefiting from a boost in new customers as the economy recovered, resulting in 11% p.a. growth FY2022-24.
- ii. Other recurring revenue:* Revenue earned from maintenance and support provided over the contractual term. The account has been declining in the last 5 years, albeit at a steeper rate during the COVID-19 period at -13% p.a. FY2019-22 (vs. -5% p.a. FY2022-24), reflecting the migration of customers from maintenance and support to subscription contracts. While it remains Sage's second largest revenue stream, its weight as share of total revenues decreased from 29% in 2019 to only 15% in 2024.
- iii. Other revenue (SSRS):* Comprised by perpetual licenses and software related services, including hardware sales, professional services and training. In line with the strategy to transition away from license sales and professional services implementations, other revenue decreased at -32% p.a. FY2019-22 and continued declining, albeit at a lesser rate of -15% p.a. FY2022-24 in the recovery period.

Figure 13: Sage Functional Revenue, FY2019-24¹³

Furthermore, The Sage Group also reports the geographical split of its revenues across 4 segments - (1) North America, (2) Northern Europe, (3) Central and Southern Europe, (4) Africa, Middle East (ME) and APAC:

- (1) *North America*: Comprised by the United States of America and Canada, North America represents Sage's largest turnover region, weighing 45% of total revenue FY2024. Moreover, it is also the steepest growing region across periods, registering 16% CAGR FY2017-19, relatively robust performance during the COVID-19 period at 8% p.a. FY2019-22, and returning to healthy 13% p.a. FY2022-24 in the recovery period.
- (2) *Northern Europe*: Comprised by the United Kingdom and Ireland, Northern Europe is the second fastest growing region for Sage at 5% p.a. pre-COVID 19 (FY2017-19), and even higher at 8% p.a. in the recovery period (FY2022-24). Moreover, it is also the only region besides North America with positive growth in the COVID-19 period at 2% p.a. stemming from robust performance in new customer acquisition in Sage Accounting and Sage People, coupled

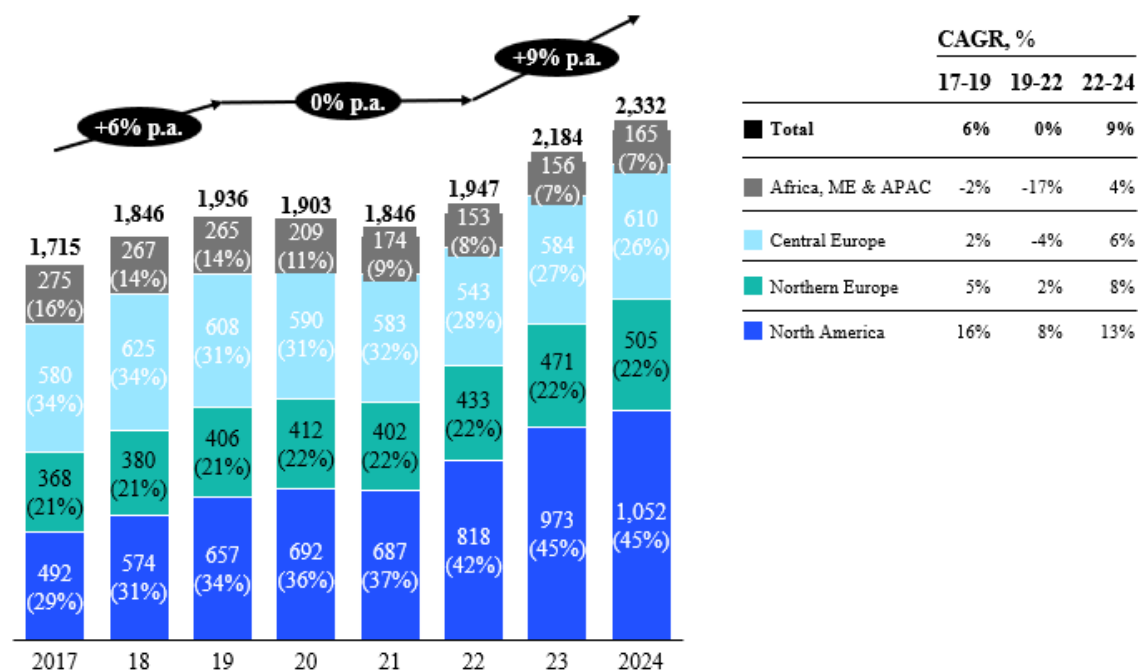
¹³ Sage only began reporting its functional revenue split in 2019

with migrations to Sage HR, while also rapidly growing Sage Intacct in the geography.

(3) *Central and Southern Europe*: Composed by France, Iberia and other countries in Central Europe¹⁴, Central and Southern Europe is Sage's second largest region at 26% of total revenue, although declining in detriment of North America and Northern Europe since 2017. This evolution results from lower growth rates relative to the aforementioned, with only 2% p.a. FY2017-19, declining at -4% p.a. during COVID-19 (FY2019-22), and 6% p.a. in the last two years.

(4) *Africa, ME & APAC*: Historically Sage's smallest region and continuously shrinking from 16% in 2017 to 7% of total revenue in 2024. While already on declining prior to COVID-19 (-2% p.a. FY2017-19), Africa, ME and APAC was the region most affected by the pandemic during which revenue shrunk at -17% p.a. 2019-22. In the last two years, the region has recovered to 4% per annum growth as the result of good levels of new customer acquisition in Sage Accounting, Sage Payroll and Sage HR, while Sage Intacct performed well, albeit off a small base.

Figure 14: Sage Geographical Revenue, FY2017-24



¹⁴ Sage does not report the countries comprising Central Europe

Chapter 4: Company Valuation

4.1.a Forecasts & Assumptions - Revenues

Sage Group's sales forecast encompasses 2 main vectors – geographical market and revenue nature. Sage reports sales across North America (USA and Canada), Northern Europe (UK and Ireland), Central and Southern Europe and Africa, Middle East (ME) & APAC. The nature of the revenues for is split into recurring revenues, largely composed by SaaS subscription revenues, customer migrations from maintenance, and support to subscription contracts, and non-recurring revenues, constituted by on-premises-deployed software licenses, software related services such as consulting and implementations, as well as processing revenues.

As previously described, Sage has been striving to move customers towards subscription models and currently detains 97% of revenues FY2024 recurring in nature, based on 1-to-3-year contracts, thus providing a robust base for the forecast. Recurring revenues are driven by (i) the renewal rate by value¹⁵, which tracks the growth of existing the existing customer base over the period corresponding to up-sell, cross-sell, renewals and migration, offset by customer churn, and (ii) net add, comprising new customer acquisitions (NCA) and SaaS reactivations. The recurring revenues forecast for each period is provided by the following:

Equation 16: *Recurring Revenue forecast*

$$\text{Recurring revenue}_{t+1} = \text{Recurring revenue}_t \times \text{Renewal rate}_{t+1} + \text{Net add}_{t+1}$$

- i. The renewal rate has been standing at 101-102% under normal business-as-usual conditions (FY2022-24) attributable to strong retention from customer success strategy leading to minimal churn (<1%), as well as up-selling and targeted price hikes after the COVID-impacted periods (FY2020-21) where Sage experienced extraordinary levels of customer attrition stemming from stricter IT budgeting

¹⁵ Renewal rate by value is represented by a base of 100%, corresponding to a net churn (sum of up-sell, cross-sell, renewals and migration, subtracted by churn). Figures above 100% refer to periods where the value from up-selling, cross-selling, renewing and migrating the existing customer base is superior to the value lost from churned customers.

control strategies widely shared across companies globally. The Group has defined five strategic priorities to drive business growth of which three directly relate to customer retention, particularly broadening the value proposition for mid-sized customers beyond HR and accounting including vertical-specific products, scaling the participation in Sage's digital network to accelerate network effects and building innovative solutions to drive cross-and up-sell including AI-driven products. In line with the strategy, Sage has been progressing in the construction vertical, complemented by the acquisition of Corecon (now Sage Construction Management), already launched an AI-driven service to automate accounts payable processes and is currently trialling other products among which Sage Copilot that aims to significantly streamline the work of operators and smoothen the onboarding of new employees, while continuing to up-sell graduating cohorts to Sage Intacct from small business-focused products. In light of this information, it is assumed a conservative and progressive growth in the renewal rate linked to the continuous progress in terms of strategy execution, unburdened by the macroeconomic shocks of COVID-19. Consequently, the renewal rate by value is expected to grow linearly to 104% by FY29e, corresponding to a +3pp change relative to FY24. Since Sage does not report the measure geographically, a global renewal rate is applied across each of the forecasted markets.

- ii. The customer base expansion metric net add was forecasted in close relation to the growth of the relevant segments of the global ERP market, linked to Sage's historical ability to capture market growth given the limited disclosure regarding historical reactivations and NCA. This assumption considers the tie between new business formations and the criticality of ERP software as the backbone of accounting, supply chain management, compliance, etc and the pillar of integrated decision-making, which Sage provides for small and medium businesses. Ergo, for each forecasted market the growth of the net add weight share is a function of ERP software growth in the respective geography, small and medium-sized enterprises, and deployment model. For the latter, the growth of the ERP software market is captured in line with the share of Sage's revenues related to cloud relative to on-premises deployments in each region. While the ERP market has been growing at 13% p.a. FY2021-24, Sage has only been able to capture approximately 60% of this growth, varying by region, nevertheless. Although the

company has an increasingly defensible revenue base, the continuous intensification of the competitive environment is expected to condition the ability of Sage to capture an additional share of market expansion relative to historical levels. Therefore, the expected customer base expansion is calibrated downwards in line with the historical ability to capture growth in market size.

Conversely, as part of its strategy, Sage has continuously been transitioning away from perpetual licenses and software related services given the unattractive margins, increasingly externalized to channel partners. Therefore, in general terms other revenues non-recurring in nature are forecasted to continue pursuing the downwards sloping trend from the three last financial years, except for Africa where it is assumed a steady state with the figures having already reached its floor¹⁶. All in all, the forecasts for each region of operations by revenue nature summarize as follows:

- (1) *North America*: Sage Group's largest turnover-contributing region is expected to grow at 18.2% p.a. FY2024-29E to GBP 2,426mn by 2029E, maintaining its historical positive upwards trajectory. Despite a lesser share of cloud products penetration (88% FY24) than its Northern Europe counterpart and thus lower deployment-model driven growth, the superior ERP market growth in North America as well as Sage's outstanding historical ability to outperform the market provides key upside for expansion in the region. This results in recurring revenues forecasted to grow at 18.5% p.a. FY2024-29E, accounting for GBP 2,407mn in 2029E and corresponding to roughly 99% of total turnover in North America. Conversely, non-recurring revenues are to keep declining at CAGR FY2021-24 in 2025 where stability is achieved in line with management's expectations of continuing to provide minimal, yet direct professional services to key customers in the region, tracking Northern Europe which poses a ~2x smaller market and has reached stability. Consequently, non-recurring turnover is expected to reach GBP 19mn by 2029E, corresponding to -4.2% p.a. shrinkage FY2024-29E.

¹⁶ Some clients will still require and demand maintenance and consulting services directly from Sage representatives due to the prevalence of hybrid/on-premises solutions

Figure 15: Sage Revenue Forecast, North America, FY2024-29E¹⁷

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total North America	GBP, mn	657	692	687	818	973	1052	1254	1490	1759	2059	2426
Organic Recurring Revenues	GBP, mn	574	634	641	786	944	1028	1234	1471	1739	2040	2407
Other revenues / SSRS	GBP, mn	83	58	46	32	29	24	19	19	19	19	19

		CAGR 19-22	CAGR 22-24	CAGR 24-29E
Total North America	Change, pp	8%	13%	18%
Organic Recurring Revenues	Change, pp	11%	14%	19%
Other revenues / SSRS	Change, pp	-27%	-13%	-4%

Figure 16: Sage Revenue Stream Weights and Deltas, North America, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total North America	Change, pp	14%	5%	-1%	19%	19%	8%	19%	19%	18%	17%	18%
Organic Recurring Revenues	Change, pp	23%	10%	1%	23%	20%	9%	20%	19%	18%	17%	18%
Other revenues / SSRS	Change, pp	-22%	-30%	-21%	-30%	-9%	-17%	-19%	0%	0%	0%	0%

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total North America	% total sale	34%	36%	37%	42%	45%	45%	48%	50%	53%	55%	57%
Organic Recurring Revenues	% North	87%	92%	93%	96%	97%	98%	98%	99%	99%	99%	99%
Other revenues / SSRS	% North	13%	8%	7%	4%	3%	2%	2%	1%	1%	1%	1%

Figure 17: Sage Cloud and On-premise Penetration, North America, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total North America	On-prem, %	34%	29%	27%	21%	14%	12%	10%	8%	6%	5%	5%
Total North America	Cloud, %	66%	71%	73%	79%	86%	88%	90%	92%	94%	95%	95%

(2) *Northern Europe*: Revenue to total GBP 824mn in 2029E, corresponding to 10.3% growth p.a. FY2024-29E and positioning the segment as the 2nd largest by turnover (19%). This stems from the higher exposure to the faster growing ERP market for cloud-deployed solutions, significantly captured by Sage in this leading region for cloud product penetration (91%) and flat non-recurring revenues, although burdened by lower growth of ERP in Europe relative to North America and Sage's ability to capture market growth in the region (67%). Recurring revenues are expected to account for GBP 812mn in 2029E, growing at 10.5% p.a. FY2024-29E, whilst non-recurring revenues have been flat (0.9% p.a. growth FY 21-24e) and thus assumed to have reached the minimum threshold i.e., management has fulfilled its strategy to reduce its weight relative to total revenues and therefore assumed stable across the forecasting period due to the

¹⁷ Chart includes historical revenues FY2019-24E for context.

prevalence of Sage X3 for which Sage provides in-house maintenance and consulting services.

Figure 18: Sage Revenue Forecast, Northern Europe, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Northern Europe	GBP, mn	406	412	402	433	471	505	558	615	677	745	824
Organic Recurring Revenues	GBP, mn	341	377	391	427	466	494	546	603	666	733	812
Other revenues / SSRS	GBP, mn	65	35	11	6	5	11	11	12	12	12	12

		CAGR 19-22	CAGR 22-24	CAGR 24-29E
Total Northern Europe	Change, pp	2%	8%	10%
Organic Recurring Revenues	Change, pp	8%	8%	10%
Other revenues / SSRS	Change, pp	-55%	37%	1%

Figure 19: Sage Revenue Stream Weights and Deltas, Northern Europe, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Northern Europe	Change, pp	7%	1%	-2%	8%	9%	7%	10%	10%	10%	10%	11%
Organic Recurring Revenues	Change, pp	15%	11%	4%	9%	9%	6%	11%	10%	10%	10%	11%
Other revenues / SSRS	Change, pp	-22%	-46%	-69%	-45%	-17%	126%	1%	1%	1%	1%	1%

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Northern Europe	% total sales	21%	22%	22%	22%	22%	22%	21%	21%	20%	20%	19%
Organic Recurring Revenues	% Northern Europe	84%	92%	97%	93%	93%	98%	98%	98%	98%	98%	93%
Other revenues / SSRS	% Northern Europe	16%	8%	3%	1%	1%	2%	2%	2%	2%	2%	1%

Figure 20: Sage Cloud and On-premise Penetration, Northern Europe, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Northern Europe	On-prem, %	33%	18%	14%	10%	10%	9%	8%	8%	7%	6%	5%
Total Northern Europe	Cloud, %	67%	82%	86%	90%	90%	91%	92%	93%	93%	94%	95%

- (3) *Central and Southern Europe*: The region is expected to generate GBP 808mn in revenue by FY2029E, commensurate with a 5.8% p.a. growth FY2024-29E. Despite recent positive developments, Central and Southern Europe remains Sage Group's 2nd least cloud-penetrated region at 75% FY2024 and thus unable to capture market growth for cloud-deployed ERP products at the degree of other regions. Moreover, the development of sales FY2024-29E is also impacted by Sage's relatively poor historical ability in capturing ERP market growth in the region (34% L3Y). Lastly, although in decline, non-recurring revenues are still expected to constitute roughly 3% of regional revenues, a larger share relative to other regions due to a larger existing customer base for Sage X3, requiring maintenance and consulting services which is expected to prevail. Consequently, recurring revenues are to total GBP 788mn whilst its non-recurring counterpart GBP 20mn by FY2029E, placing the region as the third largest by turnover (19%), although only marginally behind Northern Europe (-0.02pp).

Figure 21: Sage Revenue Forecast, Central and Southern Europe, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Central & Southern EU	GBP, mn	608	590	583	543	584	610	641	675	714	757	808
Organic Recurring Revenues	GBP, mn	490	508	509	490	541	574	608	646	688	734	788
Other revenues / SSRS	GBP, mn	118	82	74	53	43	36	32	29	26	23	20

		CAGR 19-22		CAGR 22-24		CAGR 24-29E	
Total Central & Southern EU	Change, pp	-4%		6%		6%	
Organic Recurring Revenues	Change, pp	0%		8%		7%	
Other revenues / SSRS	Change, pp	-23%		-18%		-11%	

Figure 22: Sage Revenue Stream Weights and Deltas, Central & South. EU, FY24-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Central & Southern EU	Change, pp	-3%	-3%	-1%	-7%	8%	4%	5%	5%	6%	6%	7%
Organic Recurring Revenues	Change, pp	3%	4%	0%	-4%	10%	6%	6%	6%	6%	7%	7%
Other revenues / SSRS	Change, pp	-21%	-31%	-10%	-28%	-19%	-16%	-11%	-11%	-11%	-11%	-11%

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Central & Southern EU	% total sales	31%	31%	32%	28%	27%	26%	24%	23%	21%	20%	19%
Organic Recurring Revenues	% Central & Southern EU	81%	86%	87%	90%	93%	94%	95%	96%	96%	97%	97%
Other revenues / SSRS	% Central & Southern EU	19%	14%	13%	10%	7%	6%	5%	4%	4%	3%	3%

Figure 23: Sage Cloud and On-premise Penetration, Central & South. EU, FY2024-29E

		2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Central & Southern EU	On-prem, %	73%	65%	53%	41%	27%	25%	22%	19%	17%	14%	11%
Total Central & Southern EU	Cloud, %	27%	35%	47%	59%	73%	75%	78%	81%	83%	86%	89%

(4) *Africa, ME and APAC*: Sage's smallest revenue-generating region is expected to grow at 4.0% p.a. FY2024-29E to GBP 201mn by 2029E. A substantial share of turnover derives from Africa and ME (~90%), a region where the market for ERP software products is more prevalently deployed on-premises, resulting in slower growth exposure relative to geographies where cloud deployment is more widely adopted. The expected growth is further halted by Sage's lacking focus in the region, reflected in its ability to capture market growth which stood at only 13% FY2021-24. Consequently, recurring revenues are forecasted to expand at a slower pace than in other regions. Conversely, non-recurring revenues are assumed to be in a stable state across the remainder of the forecasting period given the figure has reached an all-time low at only GBP 4mn FY2024, compared to GBP 74mn FY2017.

Figure 24: Sage Revenue Forecast, Africa, ME and APAC, FY2024-29E

	2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Africa, ME and APAC	265	209	174	153	156	165	170	176	183	191	201
Organic Recurring Revenues	207	175	152	140	145	161	166	173	180	188	197
Other revenues / SSRS	58	34	22	13	11	4	4	4	4	4	4

	CAGR 19-22	CAGR 22-24	CAGR 24-29E
Total Africa, ME and APAC	Change, pp	-17%	4%
Organic Recurring Revenues	Change, pp	-12%	4%
Other revenues / SSRS	Change, pp	-39%	0%

Figure 25: Sage Revenue Stream Weights and Deltas, Africa, ME & APAC, FY2024-29E

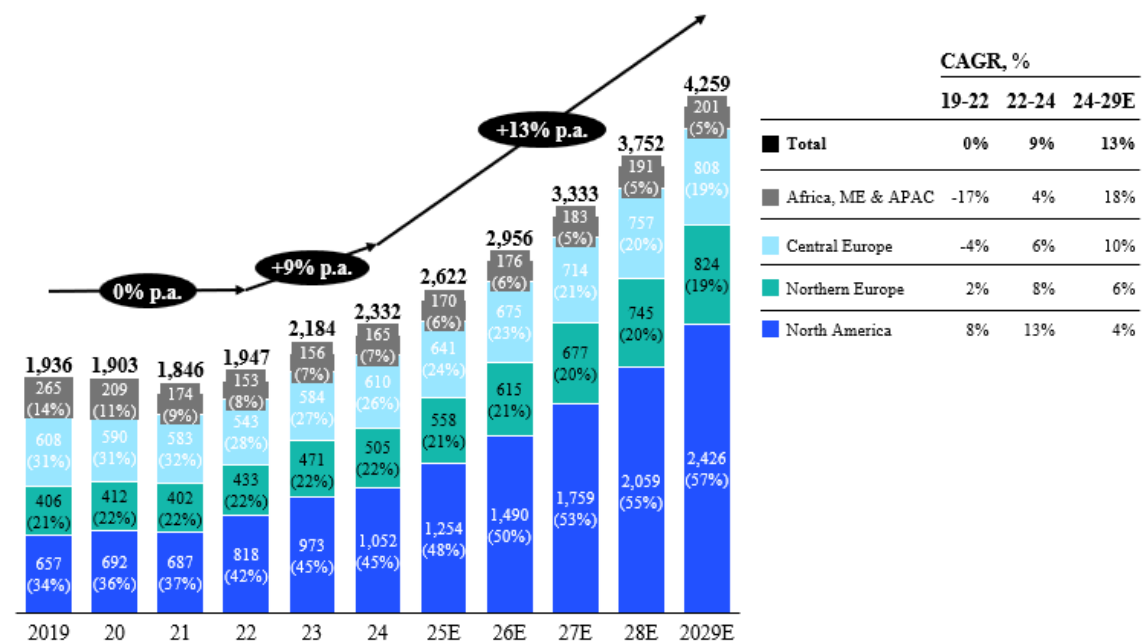
	2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Africa, ME and APAC	Change, pp	-1%	-21%	-17%	-12%	2%	6%	3%	4%	4%	5%
Organic Recurring Revenues	Change, pp	5%	-15%	-13%	-8%	4%	11%	3%	4%	5%	5%
Other revenues / SSRS	Change, pp	-17%	-41%	-35%	-41%	-15%	-66%	0%	0%	0%	0%

	2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Africa, ME and APAC	% total sales	14%	11%	9%	8%	7%	7%	6%	5%	5%	5%
Organic Recurring Revenues	% Africa, ME and APAC	78%	84%	87%	92%	93%	98%	98%	98%	98%	98%
Other revenues / SSRS	% Africa, ME and APAC	22%	16%	13%	8%	7%	2%	2%	2%	2%	2%

Figure 26: Sage Cloud and On-premise Penetration, Africa, ME & APAC, FY2024-29E

	2019	20	21	22	23	24	25E	26E	27E	28E	2029E
Total Africa, ME and APAC	On-prem, %	89%	86%	85%	84%	83%	81%	79%	77%	74%	68%
Total Africa, ME and APAC	Cloud, %	11%	14%	15%	16%	17%	19%	21%	23%	26%	32%

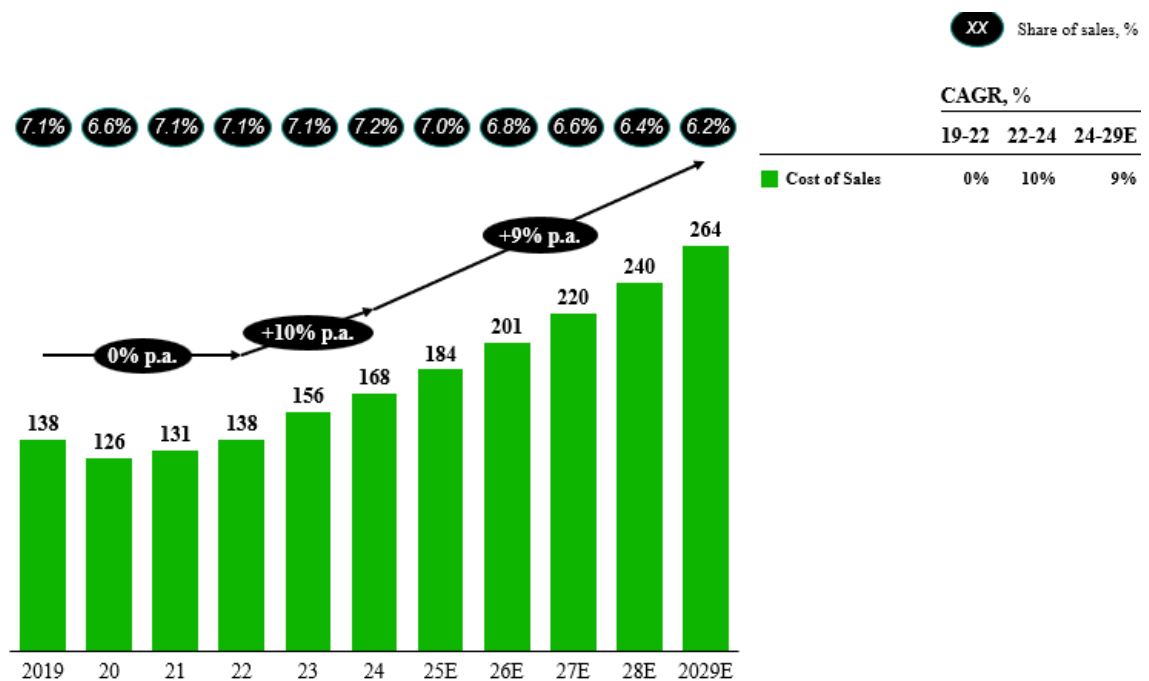
With turnover forecasted across nature by region, the global consolidated revenues for the Group account for GBP 2,622mn in FY2025E, a 12.2% YoY change, and are expected to grow at 12.4% p.a. FY2024-29E totalling GBP 4,259mn by FY2029E with North America and Northern Europe constituting the main drivers.

Figure 27: Sage Revenue Forecast, FY2024-29E

4.1.b Forecasts & Assumptions – Cost of Sales

Cost of sales includes items such as third-party royalties, hosting costs, transaction, and credit card fees related to the provision of payment processing services and the cost of hardware and inventories. These also include the third-party costs of providing training and professional services to customers. The historically observed cost of sales share as percentage of total sales has remained relatively stable at roughly 7%. However, in the latest Q&A regarding the 2024 full-year results with investment analysts covering the company, management mentions the aim to improve the gross margin after undertaking cost optimization efforts in selling & general expenses in recent years, an account where headroom for improvement has been exhausted. As such, it is taken the conservative assumption that cost of sales will decline by 1pp relative to its share of sales across the forecasted period, from 7.2% in 2024 to 6.2% by 2029e.

Figure 28: Sage Cost of Sales Forecast, FY2024-29E

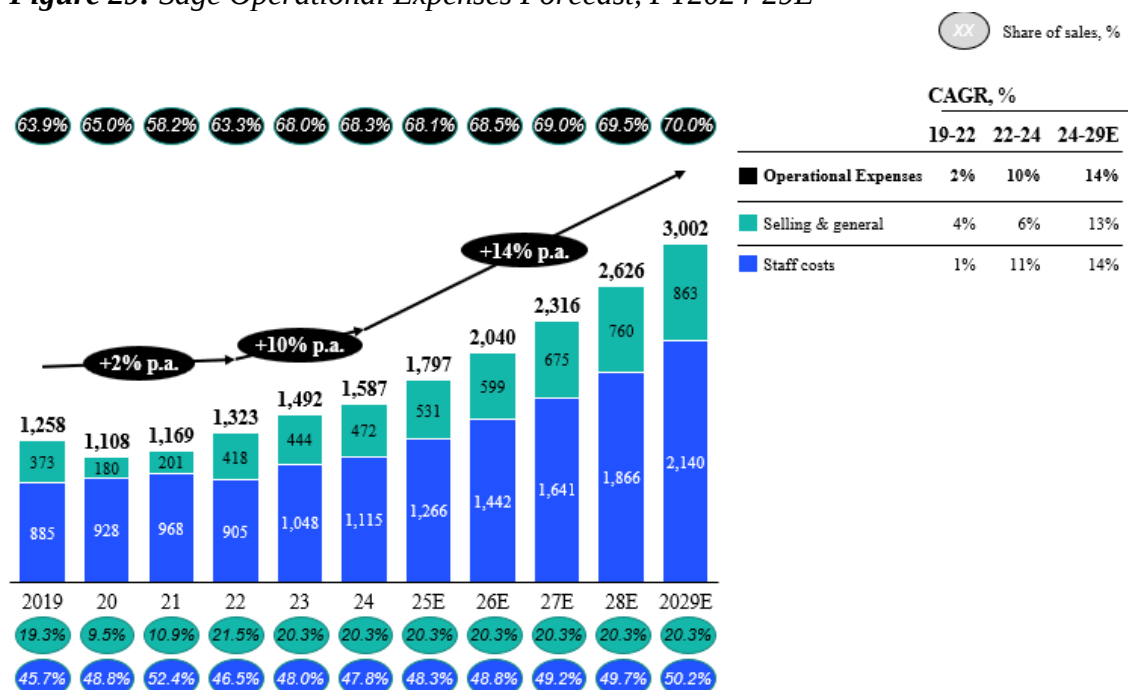


4.1.c Forecasts & Assumptions – Operational Expenses

Sage underwent restructuring efforts focused on controlling the cost base, in part aiming the staff pool. In 2021, there has been a structural change in the nature of the Sage staff with approximately 700 jobs cut. Since the restructuring, the company has been strategically hiring more technical profiles to sustain product innovation in cloud-native solutions, vertical-tailored products and AI. This strategy encompasses considerable investment in R&D staff, which is typically more costly, offset by a lower cost resourcing model which entails hiring in lower cost locations such as Barcelona and Newcastle. As a result and given that the strategy has been in place for the last 3 years, the weight of staff costs as a percentage of sales is expected to grow at the at the historical CAGR FY2021-24 (1% p.a.) from 47.8% in 2024 to 50.2% by FY2029E.

Selling & general expenses have significantly expanded in FY2021-22 growing at 108% YoY, attributable to Sage's marketing efforts aiming to refresh its brand and unveiling its first-ever purpose statement, resulting in increased marketing expenses. While the account has been growing at roughly 6% YoY in absolute since, the company has been successful in driving operating cost savings which reflected in its decreasing weight in share of revenues from 21.5% in 2022 to 20.3% in 2024. However, in the 2024 full-year Q&A, Sage's management expressed satisfaction with the results but saw no further savings potential, expecting selling and general expenses to remain stable at 20.3% of sales throughout the forecast period.

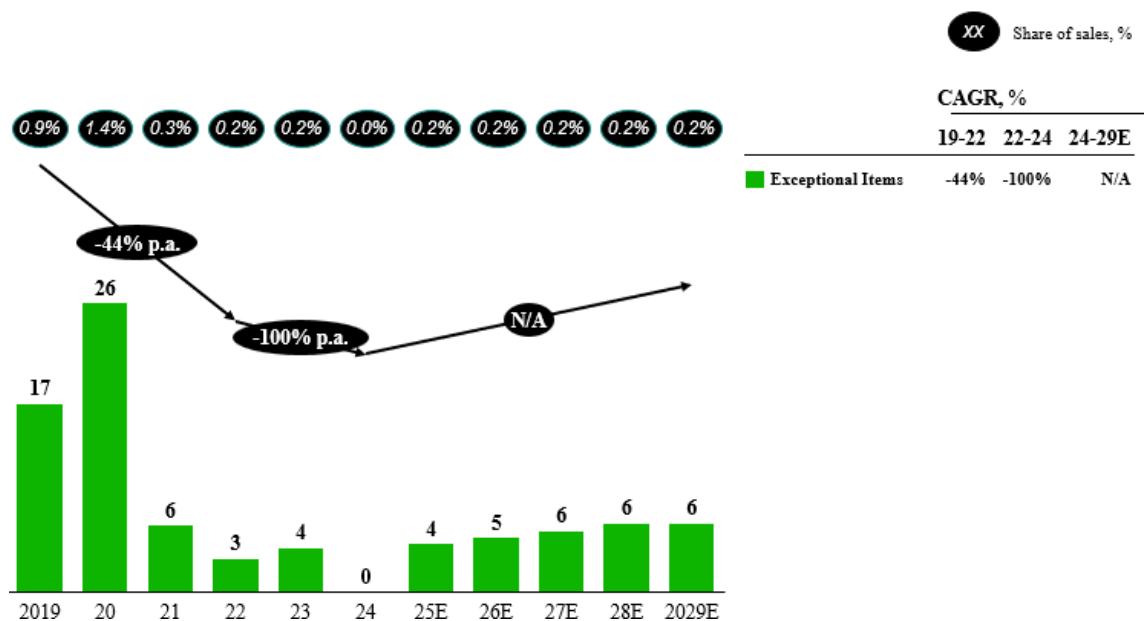
Figure 29: Sage Operational Expenses Forecast, FY2024-29E



4.1.d Forecasts & Assumptions – Exceptional Items

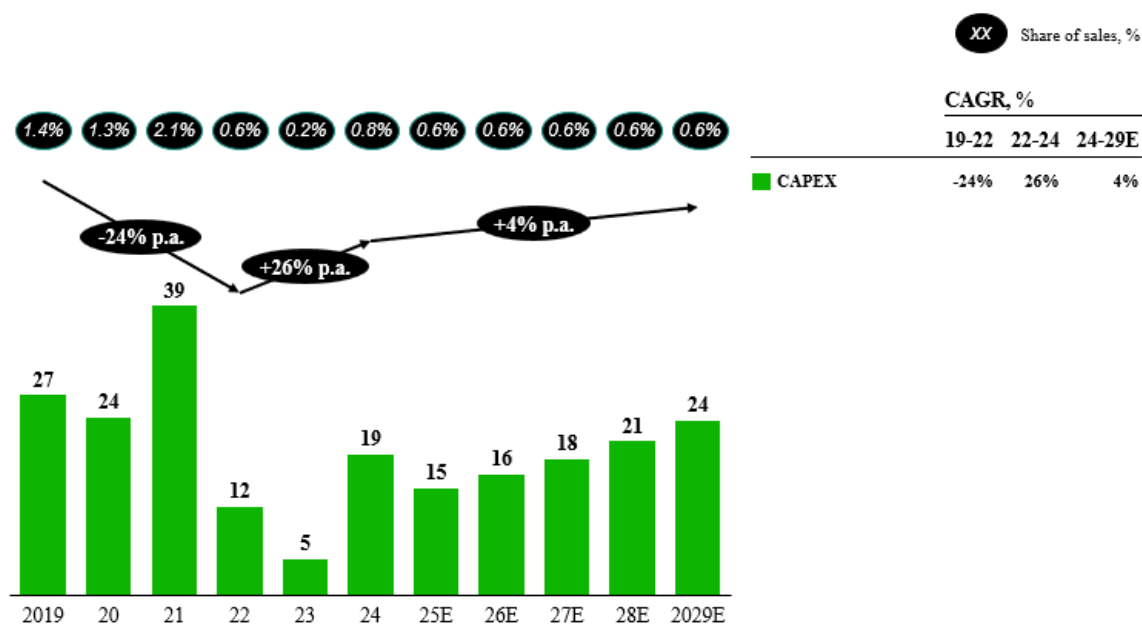
Other (non-recurring) expenses refer to bad and doubtful debt provision charges. While the Group has decreasingly credited this account over the last three years as it reassessed and eventually concluded lower requirements in the post-COVID period, the efforts to expand NCA while operating in the SMB segment inherently carry higher volatility in terms of customer payments. Therefore, this account is expected to remain at mean historical levels FY2021-24 as share of total sales, across the forecasting period.

Figure 30: Sage Exceptional Items Forecast, FY2024-29E



4.1.e Forecasts & Assumptions – CAPEX and D&A

In parallel with other software companies, Sage has historically reported low levels of capital expenditures relative to sales due to lesser investment requirements in physical infrastructure. Significant investments are typically canalized towards operational expenditures, particularly R&D to improve existing digital products and develop new offerings. Sage's capital expenditures have been typically stable, and management has not revealed any plans that would lead to volatility in this account, hence it is expected to maintain its weight relative to revenues across the forecast period.

Figure 31: Sage CAPEX Forecast, FY2024-29E

Depreciation expenses were calculated as a share of gross carrying property, plant and equipment (PPE) at the end of each period. To forecast this item, it is used a PPE schedule bridge in function of additions (or disposals) and other adjustments.

Sage has endured an extended 2-year relocation plan of its UK flagship office from to Cobalt Business Park, resulting in accelerated depreciation across FY2020-21, with further disposals relative to the reorganization of several leased properties. As of 2024, the Group reviewed the estimates of the useful lives and residual value of the assets related to the relocation and completed the disposal program of those assets that were deemed relevant for that effect. Considering this information, FY2024 was considered the first year where depreciation expenses relative to gross PPE, additions (or disposals) and other adjustments were considered stable and therefore expected to continue its course across the forecasting period based on the YoY change in FY2023-24, reflecting the evolution of the components net of restructuring efforts. Consequently, depreciation is forecasted to weigh 15.5% of EoP gross carrying PPE.

Figure 32: Sage PPE Schedule Bridge, FY2024-29E

PPE Schedule Bridge	2019	2020	2021	2022	2023	2024	2025e	2026e	2027e	2028e	2029e
Net PPE	117	173	164	152	104	108	84	71	58	45	33
Additions to PPE	6	87	-56	-8	-6	5	5	6	7	8	9
% Sales	0.3%	4.6%	-3.0%	-0.4%	-0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Depreciation of PPE	34	79	43	41	39	48	49	50	51	52	53
% EoP Gross carrying PPE	11.8%	21.1%	13.5%	13.2%	12.8%	15.5%	15.5%	15.5%	15.5%	15.5%	15.5%
Adjustments	(16)	(48)	(90)	(37)	3	(29)	(30)	(30)	(31)	(32)	(33)
% EoP Gross carrying PPE	-5.6%	-12.8%	-28.2%	-11.9%	1.0%	-9.4%	-9.4%	-9.4%	-9.4%	-9.4%	-9.4%
BoP Net carrying PPE	129	117	173	164	152	104	108	84	71	58	45
BoP Gross carrying PPE	282	288	375	319	311	305	310	315	321	328	336
Additions, disposals & adjustments	6	87	(56)	(8)	(6)	5	5	6	7	8	9
EoP Gross carrying PPE	288	375	319	311	305	310	315	321	328	336	345
BoP Accumulated depreciation	153	171	202	155	159	201	212	231	251	271	291
Depreciation expense	34	79	43	41	39	47	49	50	51	52	53
Adjustments	(16)	(48)	(90)	(37)	3	(29)	(30)	(30)	(31)	(32)	(33)
EoP Accumulated depreciation	171	202	155	159	201	212	231	251	271	291	312
EoP Net carrying PPE	117	173	164	152	104	108	84	71	58	45	33

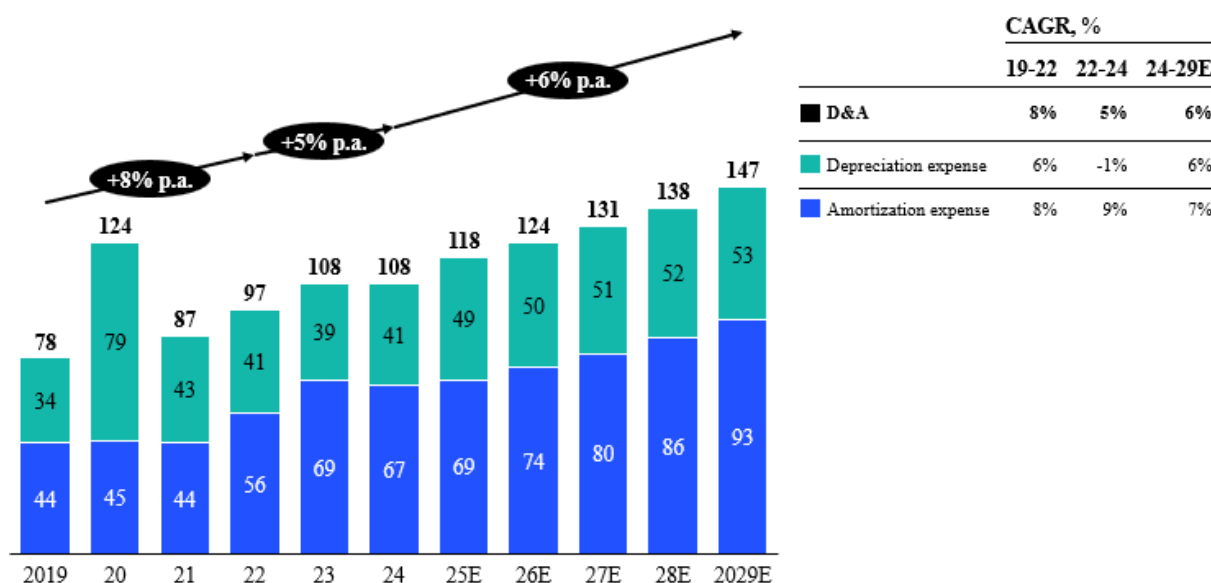
Amortization expenses were forecasted under the same methodology. Additions to intangibles are estimated based on its historical weight as percentage of revenue, while amortizations for each period are calculated using their historical weight as percentage of EoP gross carrying intangibles.

Additions to gross intangibles were typically low except for years in which Sage accounts for those stemming from the acquisition of subsidiaries, particularly regarding technology and customer relationships. As the Group plans more opportunistic bolt-on acquisitions, the weight of these additions in total sales is expected to align with the FY2019-24 average to reflect this potential effect¹⁸. In line with the straight-line amortization methodology employed by management, the historically observed amortization expense in percentage of gross intangibles proved to be very stable, hence assumed the historical average across the period at 8.2% (share of EoP gross intangibles).

Figure 33: Sage Intangibles Schedule Bridge, FY2024-29E

Intangibles Schedule Bridge	2019	2020	2021	2022	2023	2024	2025e	2026e	2027e	2028e	2029e
Intangibles	245	212	190	294	274	219	240	240	242	248	259
Additions to Intangibles	8	-8	4	191	25	26	54	60	68	77	87
% Sales	0.4%	-0.4%	0.2%	9.8%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%
Amortisation of Intangibles	44	45	44	56	69	67	69	74	80	86	93
% EoP Gross carrying intangibl	7.9%	8.2%	7.9%	7.5%	9.0%	8.4%	8.2%	8.2%	8.2%	8.2%	8.2%
Adjustments	(21)	(20)	(18)	31	(24)	(11)	(12)	(13)	(14)	(15)	(16)
% EoP Gross carrying intangibl	-3.8%	-3.6%	-3.2%	4.2%	-3.1%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%
BoP Net carrying intangibles	260	245	212	190	294	274	219	240	240	242	248
BoP Gross carrying intangibles	550	558	550	554	745	770	796	849	910	978	1 055
Additions, disposals & adjustments	8	-8	4	191	25	26	54	60	68	77	87
EoP Gross carrying intangibles	558	550	554	745	770	796	849	910	978	1 055	1 142
BoP Accumulated amortization	290	313	338	364	451	496	552	609	670	736	807
Amortizations expense	44	45	44	56	69	67	69	74	80	86	93
Adjustments	(21)	(20)	(18)	31	(24)	(11)	(12)	(13)	(14)	(15)	(16)
EoP Accumulated amortization	313	338	364	451	496	552	609	670	736	807	883
EoP Net carrying intangibles	245	212	190	294	274	219	240	240	242	248	259

¹⁸ This period includes two years where the figure spiked due to corporate acquisitions

Figure 34: Sage Depreciation and Amortization (D&A) Forecast, FY2024-29E

4.1.f Forecasts & Assumptions – Working Capital

The operating working capital needs projections are given by the difference between current assets and current liabilities. The components within these two groups were based on a thorough evaluation of historical developments and other publicly disclosed information given the limited disclosure on future strategy.

In terms of receivables, short-term trade & other receivables were estimated leveraging the previously discussed sales forecasts in conjunction with the days that the receivables remain outstanding. With no major discrepancies in the L5Y figures and no indication regarding future strategy, days receivables outstanding are forecasted to be a rolling average of the performance seen in 2019-24. Current tax assets are tied to operations, particularly revenue recognition timing differences and NOLs, therefore assumed to grow in line with sales over the forecasting period. Lastly, assets held for sale were kept null given that Sage's restructuring has been finalized while inventories follow the same path given the nature of the company's business anchored on software products.

In terms of payables, short-term trade & other payables were forecasted using the same methodology as for its counterpart in receivables. However, despite the aim of considering the L5Y rolling average, FY2021 was excluded given the sub-component of other payables which inflated the account by including GBP 249mn in relation to an

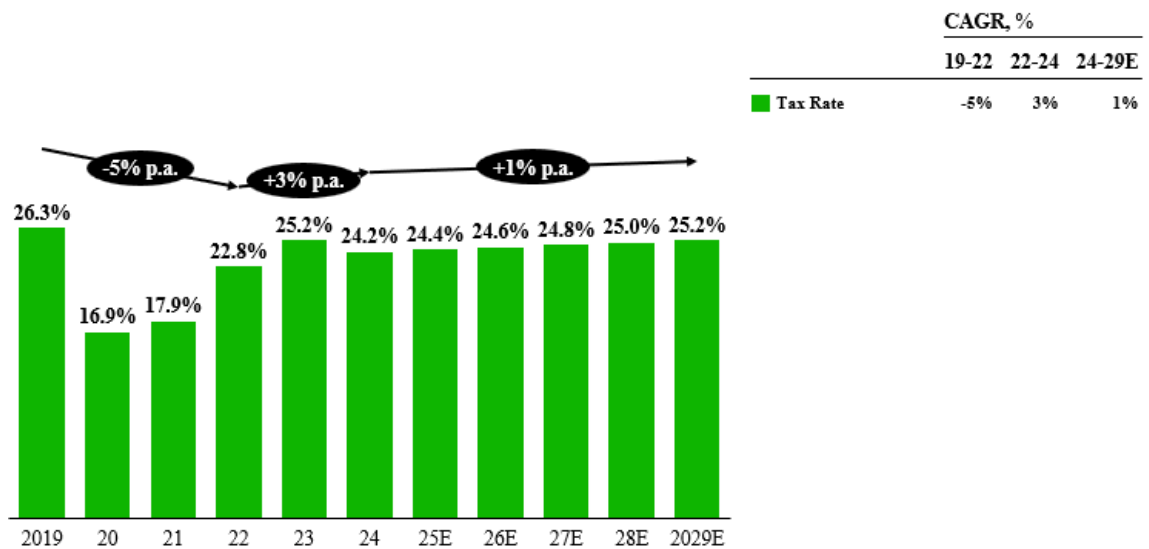
outstanding commitment for a share repurchase under the non-discretionary buyback programme announced in September 2021. Similarly, other liabilities follow the same path, assumed as the L3Y average excluding 2021 where extraordinary provisions were added to account for employee severance stemming from the restructuring activities. Moreover, current tax liabilities were forecasted in line with the growth of sales, parallel to its counterpart in receivables. Lastly, deferred income refers to contract liabilities which reflect invoices due, or payments received in advance of revenue recognition. Given the close links of this account to Sage's SaaS model and given the growth in subscription penetration which stood at an all-time high of 82% in the last reported financial year, the weight of deferred income as share of revenue is kept constant at the FY24 level (33%) across the forecasting period.

Figure 35: Sage NWC Forecast, FY2024-29E

	2019	2020	2021	2022	2023	2024	2025e	2026e	2027e	2028e	2029e
Net working capital (NWC)	(574)	(580)	(944)	(754)	(753)	(791)	(879)	(1 006)	(1 136)	(1 258)	(1 430)
Changes in net working capital (ΔNWC)	154	6	364	(190)	(1)	38	88	127	129	122	172
Current operating assets	430	415	371	394	418	420	470	522	595	677	762
Short-term trade & other receivables	364	302	295	355	376	404	452	502	572	651	733
Current tax assets	3	5	37	39	42	16	18	20	23	26	29
Assets held for sale	63	108	39	-	-	-	-	-	-	-	-
Inventories	-	-	-	-	-	-	-	-	-	-	-
Current operating liabilities	1 004	995	1 315	1 148	1 171	1 211	1 349	1 529	1 730	1 935	2 192
Short-term trade & other payables	291	297	592	368	378	405	442	509	584	647	734
Current tax liabilities	32	13	31	13	25	26	29	33	37	42	47
Deferred income / Contract liabilities	637	593	611	734	745	758	852	961	1 083	1 220	1 384
Other short-term liabilities	44	92	81	33	23	22	26	26	26	26	26

4.1.g Forecasts & Assumptions – Tax Rate

The effective tax rate for the forecasting period is determined based on management's expectations in relation to upcoming legislative developments. The main UK corporation tax rate has increased from 22% to 25% for the year ended 2024 and therefore accounted for. On the other hand, management expects its effective tax rate to increase by 1% in the medium term depending on the future geographic revenue mix. Furthermore, the OECD's global tax reform is expected to be applied for Sage from the financial year ended 30 September 2025 onwards. While an initial assessment concluded that it is not expected to substantially impact Sage's effective tax rate in future periods, it is worthwhile considering it a potential volatility factor in the valuation. In line with management's expectations, the effective tax rate observed in FY2024 (24.2%) is linearly scaled across the period to 25.2% by 2029E (+1pp).

Figure 36: Sage Net Tax Rate Forecast, FY2024-29E

4.1.h Forecasts & Assumptions – Weighted Average Cost of Capital (WACC)

As indicated in the literature review section, WACC corresponds to the weighted average of the demanded return on invested capital in a business financed by both debt and equity, representing the “opportunity cost of capital or what an investor would expect to earn in an alternative investment with a similar risk profile” (Rosenbaum J. et al., 2013).

Applying the adequate formula (Equation 10) with the required inputs, Sage’s weighted average cost of capital is estimated to be 8.72%:

Figure 37: Sage WACC calculation, FY2024

Total Market Value of Debt and Equity, GBP m		14 305
Market Value of Debt, GBP mn	1 184	Market Value of Equity, GBP mn 13 121
Weight, percentage	8%	Weight, percentage 92%
After-tax cost of debt ($K_d \cdot (1 - T_c)$), percentage	3.40%	Cost of equity (K_e), percentage 9.20%
Cost of debt (K_d), percentage	4.55%	
Tax rate, percentage	25.2%	
Weighted Average Cost of Capital (WACC)		8.72%

4.1.h.i WACC inputs – Cost of Debt

The yield-to-maturity (YTM) method was applied to determine Sage's cost of debt. The selection of this methodology is anchored on the fact that it better reflects the market's current view of the company's risk and is often most accurate for actively traded debt.

Sage currently has 3 different bonds outstanding, of which 2 are denominated in GBP and 1 in EUR, with 5 to 12 years to maturity. By computing the weighted average YTM¹⁹ anchored on the market value of each bond, calculated as the product of the amount outstanding and the current price, the estimated cost of debt²⁰ stands at 4.55%.

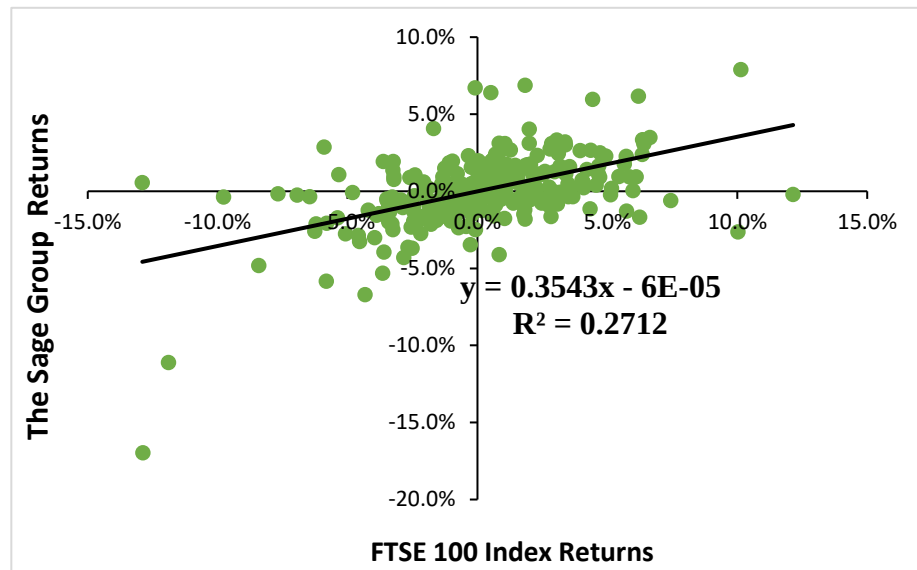
4.1.h.ii WACC inputs – Cost of Equity

Sage's cost of equity was estimated leveraging the CAPM model which is given as a function of three factors (Equation 12) – risk-free rate, (adjusted) beta and market risk premium.

The risk-free rate is assumed in line with the denomination of cashflows and the length of the forecasting period. As such, given that Sage is headquartered in the UK with GBP-denominated cashflows and the forecasting period contains 5 years followed by a perpetual growth period, the selected proxy for the risk-free rate corresponds to the UK Gilt 10-year rate which amounts to 4.52%.

¹⁹ The YTM of all bonds is provided in USD by CapitalIQ and converted to GBP using the spread between 5 and 10-year T-Bills and UK Gilts, based on each bond's maturity

²⁰ Consult Appendix 10 for details on alternative methodologies

Figure 38: Regression Analysis, Sage and FTSE 100 Index, 15/11/2019 – 14/11/2024

The (adjusted) beta figure was determined through a linear regression followed by the widely employed Blume adjustment. In practice, the raw beta is derived from the slope of linear regression containing Sage's returns as the independent variable and the FTSE100 variations as the dependent variable, both spanning across the last 5 years on a weekly basis, resulting in a raw beta of 0.77. Finally, the raw beta is then transformed into the adjusted beta through the Blume adjustment to account for the forward-looking risk profile of Sage, amounting to 0.84.

The global market risk premium was estimated by leveraging Damodaran's country-level market risk premium database, adjusted to Sage's regional revenue mix. Since Sage provides notes on recurring revenues by country (for top sales countries), a mix of country and regional market risk premiums was used to estimate the global figure. This approach results in 8 segments where North America is broken down into USA and Canada, Northern Europe is kept on an aggregate level assuming a 75-25% split between the UK and Ireland, Central and Southern Europe split into France, Central Europe²¹ and Iberia, Africa, ME & APAC split into Africa & ME and APAC. In the latter segment, it is assumed that Africa & ME represents 90%²² of revenues in the region and the equity

²¹ Sage does not report the countries included in Central Europe, the EQRP for the region is given by the average across the figures of Austria, Czech Republic, Germany, Hungary, Liechtenstein, Poland, Slovakia, Slovenia, Switzerland.

²² Sage last reported the revenue split of Africa & APAC in 2022 with Africa last representing 89.5%, coming off a 8% p.a. growth trajectory FY2018-22.

risk premium corresponds to a standard average across all countries in the region present in the database while 10% for APAC of which 90% attributable to Australia and the remainder across all countries in Asia in the database. This methodology results in a global market risk premium of 5.54%.

Figure 39: Sage Global Equity Risk Premium

Global ERP		5.54%	
Country	Underlying Recurring Revenue FY2024	Weight	ERP
United States	918	39%	4.60%
Canada	134	6%	4.60%
Northern Europe (UK & Ireland)	505	22%	5.48%
France	309	13%	5.32%
Central Europe	148	6%	5.44%
Iberia	153	7%	6.65%
Africa & Middle East	148	6%	11.93%
Australia & Asia	17	1%	5.17%

Finally, applying the adequate formula with the required inputs, Sage's cost of equity is estimated to be 9.20%:

Figure 40: Sage Cost of Equity

Risk-free rate	4.52%
Adjusted Beta	0.84
ERP	5.54%
Cost of Equity	9.20%

4.1.h.iii WACC inputs – Cost Capital Structure

The methodology used to estimate the market value of equity is relatively straightforward and results from the product between the current stock price which stands at GBP 13.03 (November 27th 2024) and the number of shares outstanding which amounts to 1,007mn. Applying the aforementioned approach, Sage's market value of equity totals GBP 13,121mn.

Figure 41: Sage Market Value of Equity

Stock price	GBP	13.03
Shares outstanding	mn	1,007
Market Value of Equity	GBP mn	13,121

For the market value of debt, the selected approach is given by Damodaran's bond pricing formula which treats the total amount of long-term debt which includes both bonds and loans as a single bond with a coupon where the latter represents the latest interest expense while the weighted average maturity across debt instruments represents this single bond's maturity:

Equation 17: Market Value of Debt

$$\text{Market Value of Debt} = C \left[1 - \left(\frac{1}{(1 + kd)^t} \right) \right] + [FV((1 + kd)^t)]$$

where,

C = interest expense in GBP mn

kd = cost of debt in percentage

t = weighted average maturity in years

FV = total debt in GBP mn

Factoring in GBP 1,246mn as total debt, a weighted average maturity of 6.27 years across 6 debt instruments, and GBP 45mn in interest expenses, the practical application of Damodaran's bond pricing formula results a market value of debt amounting to GBP 1,191mn.

Figure 42: Sage Market Value of Debt

Total Debt	GBP mn	1246
Weighted average maturity	years	6.27
Interest expense	GBP mn	45
Market Value of Equity	GBP mn	1191

Finally, the assessment of Sage's capital structure implies weights of 92% and 8% based on the market value of debt and equity, respectively, which are used as inputs for the calculation of WACC.

4.1.i Forecasts & Assumptions – Terminal Growth

Terminal growth refers to the constant rate at which Sage is assumed to grow in perpetuity after the forecasting period and constitutes an important input for the DCF valuation. The widely recognized rule of thumb restricts the metric to values below or equal to the GDP growth rate or, alternatively, the inflation rate.

The calculation of terminal growth starts with scaling the 8 regional and country-level segments (previously mentioned in section 4.1.h.ii) by the forecasted sales growth curve by segment to obtain the implied weights in 2029. These weights are then used to compute a weighted average terminal growth rate based on the IMF nominal GDP forecast for each country or region for FY2024-2029E, assumed as the long-term rate due to lack of forecasts beyond this period. Finally, applying the methodology the resulting terminal growth rate amounts to 3.11%.

Figure 43: Sage Terminal Growth Rate Forecast

Terminal growth rate			3.11%
Country	Implied Weight FY2029E	Nominal GDP Growth	
United States	50%	3.12%	
Canada	7%	2.78%	
Northern Europe (UK & France	19%	2.97%	
Central Europe	10%	2.89%	
Iberia	5%	3.05%	
Africa & Middle East	5%	2.90%	
Australia & Asia	4%	4.88%	
	0%	4.88%	

4.2 Discounted Cashflow Valuation (DCF)

The inputs listed in the sections above culminate in the discounted cashflow valuation which aims to outline the estimation of Sage's fair share price as of November 27th 2024, with the explicit forecasting period anchored on FY2025E-29E.

In the first part of the approach, the net operating profit after taxes (NOPAT) for FY2025–29E is calculated by applying tax effects to each period's EBIT. Once the NOPAT is determined, D&A are added back, and investments in fixed and net working capital are subtracted to derive the free cash flow to the firm (FCFF) for each period. The sum of FCFF across the explicit forecasting period is then discounted to its present value leveraging the previously estimated WACC. This calculation is used to estimate the terminal value (TV) by scaling the final FCFF for 2029E with the WACC and applying perpetual growth based on the WACC and the terminal growth rate. Finally, by adding back cash and cash equivalents, the EV amounts to GBP 14,523.67mn.

In the latter stage of the DCF valuation the equity value must be determined by deducting the value of debt. The resulting equity value totals GBP 13,340.11mn which at last, is divided by the diluted weighted average number of shares (1,007mn) to obtain the implied price per share. The resulting price per share amounts to GBX 1,324.

Figure 44: Sage DCF Valuation

	2025E	2026E	2027E	2028E	2029E	
EBIT	534.7	539.8	671.8	750.6	845.0	
% Effective tax rate	24.4%	24.6%	24.8%	25.0%	25.2%	
NOPAT	404.34	452.36	505.32	563.11	632.24	
D&A	102.5	110.3	119.0	128.8	140.5	
CAPEX	(14.5)	(16.4)	(18.4)	(20.8)	(23.6)	
Δ Net Working Capital	86.2	127.2	129.3	122.0	172.1	Terminal Value
Free Cash Flow to Firm (FCFF)	580.50	673.44	735.16	793.16	921.33	16 956.55
Discount factor	0.92	0.85	0.78	0.72	0.66	0.66
PV(FCFF)	533.96	569.79	572.14	567.79	606.66	11165.32
Cash	508.00					
Enterprise Value (EV)	14 523.67					
Debt	(1183.56)					
Equity value	13 340.11					
Diluted weighted average shares	1007					
Implied value per share, GBX	1 324.74					

Given the substantial impact of WACC and terminal growth rate assumptions on the valuation, as well as the resulting volatility, conducting a sensitivity analysis is crucial. This analysis provides deeper insights into how variations in these key assumptions influence the valuation and helps establish a range for the target price, considering the inherent difficulty in accurately forecasting the vast multitude of inputs.

The analysis incorporates a range of +/- 1 pp for WACC and +/- 0.5 pp for the terminal growth rate. The results reveal that an increase in WACC leads to a lower target share price, while a higher terminal growth rate exerts the opposite effect. Furthermore, it is determined that within these ranges, the target share price for Sage fluctuates between GBX 1039.61 and GBX 1,817.53. This represents a variation of -22 pp to +37 pp relative to the estimated target price of GBX 1,324.

Figure 45: Sage DCF Valuation Sensitivity Analysis

		WACC										
		7.72%	7.92%	8.12%	8.32%	8.52%	8.72%	8.92%	9.12%	9.32%	9.52%	9.72%
Terminal Growth	2.61%	1 492.89	1 432.11	1 375.76	1 323.38	1 274.56	1 228.96	1 186.26	1 146.20	1 108.54	1 073.07	1 039.61
	2.71%	1 519.51	1 456.56	1 398.29	1 344.19	1 293.83	1 246.84	1 202.89	1 161.70	1 123.02	1 086.62	1 052.31
	2.81%	1 547.22	1 481.97	1 421.66	1 365.75	1 313.77	1 265.32	1 220.07	1 177.69	1 137.94	1 100.57	1 065.37
	2.91%	1 576.09	1 508.40	1 445.93	1 388.10	1 334.42	1 284.44	1 237.81	1 194.20	1 153.33	1 114.94	1 078.82
	3.01%	1 606.18	1 535.91	1 471.16	1 411.31	1 355.82	1 304.24	1 256.16	1 211.25	1 169.20	1 129.75	1 092.67
	3.11%	1 637.58	1 564.56	1 497.39	1 435.40	1 378.01	1 324.74	1 275.15	1 228.87	1 185.59	1 145.03	1 106.93
	3.21%	1 670.37	1 594.43	1 524.69	1 460.44	1 401.04	1 345.98	1 294.79	1 247.09	1 202.52	1 160.79	1 121.64
	3.31%	1 704.66	1 625.59	1 553.13	1 486.48	1 424.96	1 368.01	1 315.14	1 265.93	1 220.01	1 177.06	1 136.81
	3.41%	1 740.53	1 658.14	1 582.78	1 513.58	1 449.81	1 390.88	1 336.23	1 285.44	1 238.09	1 193.86	1 152.45
	3.51%	1 778.12	1 692.17	1 613.72	1 541.81	1 475.66	1 414.62	1 358.10	1 305.64	1 256.80	1 211.23	1 168.60
	3.61%	1 817.53	1 727.79	1 646.03	1 571.24	1 502.56	1 439.29	1 380.80	1 326.57	1 276.16	1 229.18	1 185.28

4.3.a Relative Valuation – Peer Group

In line with the literature, the comparable peer set was selected by combining both business and financial profile dimensions (Figure 1) resulting in a solid framework (Rosenbaum J. et al., 2013). In line with this framework, Sage's peer group selection was performed in a four-step process:

- A long-list of top 15 ERP software players (including Sage) was extracted from Pitchbook alongside its respective metrics regarding size (market capitalization and latest revenues), growth profile (L3Y CAGR), key financial ratios (ROA, ROIC, ROE), profitability (EBITDA margin), and risk (Altman Z-score), present in Capital IQ.
- Across metrics, the percentual delta to Sage's figures was calculated for each of the players. Subsequently the percentual deltas are transformed into a normalized proximity score on a 0 to 1 scale, where 1 indicates closest proximity to Sage's profile.
- While the proximity score indicates how close each player's financial profile is to Sage, it is insufficient to determine the adequate peer group, requiring further analysis their business profiles. Taking this into account, any companies where ERP is part of a broader set of solutions such as Dassault Systèmes, renowned for

its suite of software solutions enabling 3D design and simulation, vertical ERP offerings such as SmartCraft, offering ERP solutions for construction, or operating mainly in regions where Sage is not as present such as Xero in New Zealand, were excluded from the list.

- iv. The short-list of is then determined by selecting the 5 players with the highest proximity score to Sage, net of inadequate business profile exclusions. This results in a peer group composed by Lemonsoft, Asseco Group, K3 Business Technologies, Workday, and Intuit.

Figure 46: Sage Peer Group Selection

Company Name	Type	Country of HQ	Size		Growth	Returns			Profitability		Risk	Proximity score
			Market capitalization (GBP mn)	Revenue (GBP mn)		L3Y CAGR	ROA	ROIC	ROE	EBITDA margin	Altman Z-score	
Sage Group	-	UK	10 110	2 184	8%		6.8%	10.0%	15.0%	21.1%	3.12	-
Workday	Horizontal	USA	37 760	5 086	20%		-1.2%	-1.8%	-7.3%	2.3%	3.8	1.000
Xero	Horizontal	New Zealand	7 320	665	24%		2.4%	2.7%	-10.3%	7.6%	6.98	0.989
Asseco Group	Horizontal	Poland	939	3 234	10%		5.2%	7.4%	12.6%	12.4%	1.32	0.989
Lemonsoft	Horizontal	Finland	96	23	24%		9.5%	12.1%	18.0%	26.8%	6.13	0.982
SmartCraft	Vertical	Norway	293	31	24%		7.8%	9.8%	13.4%	38.9%	9.11	0.969
Comarch SoftM	Horizontal	Poland	339	348	4%		2.6%	3.8%	7.2%	9.2%	2.77	0.933
PSI Software	Horizontal	Germany	341	235	7%		15%	2.8%	-0.6%	4.8%	3.08	0.921
Dassault Systemes	Horizontal	France	50 570	5 181	9%		5.6%	7.3%	13.8%	25.0%	6.02	0.907
Wolters Kluwer	Vertical	Netherlands	29 030	4 861	6%		8.9%	14.5%	49.6%	30.4%	3.57	0.901
K3 Business Technologies	Horizontal	UK	51	44	0%		3.1%	5.0%	-8.2%	6.7%	2.04	0.899
Intuit	Horizontal	USA	111 500	11 673	22%		7.1%	8.2%	14.1%	26.3%	8.54	0.691
Salesforce	Horizontal	USA	136 030	25 651	19%		1.2%	1.6%	0.4%	18.0%	3	0.622
SAP	Horizontal	Germany	141 800	27 166	4%		5.8%	7.5%	8.3%	23.5%	5.18	0.594
Oracle	Horizontal	USA	230 460	41 613	11%		7.0%	10.5%	243.9%	38.0%	1.39	0.000

4.3.b Relative Valuation - Multiples Valuation

To determine Sage's target price per share through the relative valuation it is crucial to factor-in adequate multiples. For this purpose, the forward Price to Earnings (P/E), Enterprise Value to Sales (EV/S) and Enterprise Value to EBITDA (EV/EBITDA) were selected in line with the approach most commonly adopted by practitioners (Morgan Stanley, 1999). For the short-listed peer group, the multiples were extracted from Capital IQ with the target price per share given by the average value of the median across the three resulting figures.

The forward P/E ratio yields a target price per share of GBX 746 for Sage. Conversely, the forwards EV/S approach results in GBX 1132 per share, while forward EV/EBITDA in GBX 926, both adjusted for the net debt figure. As a result, the average Sage stock price achieved through relative valuation amounts to GBX 935.

Figure 47: Sage Relative Valuation

Peer Group	Forward P/E	Forward EV/S	Forward EV/EBITDA
Workday	39.32	6.99	25.48
Asseco Group	12.42	0.58	4.07
Lemonsoft	22.50	4.63	15.35
K3 Business Technologies	18.15	1.05	107.62
Intuit	30.86	8.90	22.58
Median	22.50	4.63	22.58
Average	24.65	4.43	35.02
Min.	12.42	0.58	4.07
Max.	39.32	8.90	107.62
Enterprise Value (EV)	-	10 797.16	8 693.30
Net Debt	-	(745.49)	(745.49)
Equity Value	-	11 542.65	9 438.79
Shares outstanding (mn)	-	1019.90	1019.90
Price per share (GBX)	746.4	1 131.7	925.5
Average Price per share (GBX)			
934.55			

4.5 Target Price

As of November 27, 2024, the target price for Sage's shares reflects a comprehensive synthesis of the estimated figures derived from the valuation methodologies outlined in the preceding sections²³.

This target price is calculated using a weighted average approach, prioritizing the DCF valuation at 80% due to its granular assumptions and inherent flexibility, which allow for a more precise reflection of Sage's intrinsic value. The remaining 20% weight is allocated to relative valuation methodologies, distributed equally among them. The DDM, in contrast, yielded a notably lower valuation of GBX 330.19 per share. This figure was deemed to significantly understate Sage's fair share value and growth potential, and as such, it was excluded from the final calculation. Consequently, the resulting target price for Sage's shares is determined to be GBX 1,246.

Figure 49: Sage Final Target Price

Valuation methodology	Weight (%)	Share price (GBX)
DCF	80%	1 324.74
Multiple (Forward P/E)	6.67%	746.44
Multiple (Forward EV/Sales)	6.67%	1 124.89
Multiple (Forward EV/EBITDA)	6.67%	918.61
DDM	0%	362.07
Target share price	100%	1245.79

²³ The DDM methodology was excluded. Please consult Appendix 11 for details

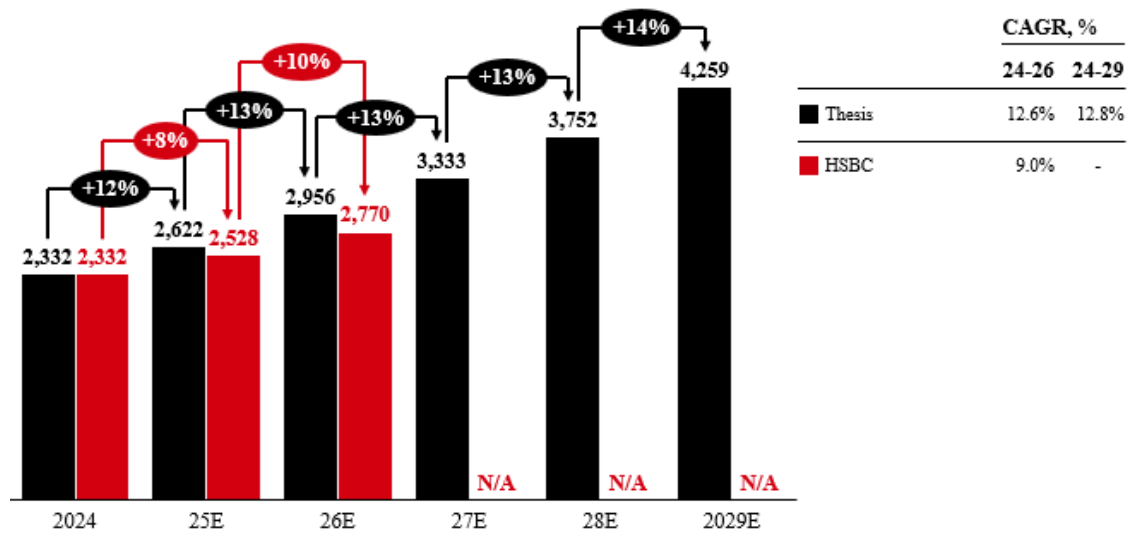
4.6 Investment Bank Report Benchmarking

This chapter compares the valuation of Sage presented in this thesis with the target price provided by a leading investment bank's equity research division. The analysis utilizes HSBC's equity report dated November 7th 2024, authored by UK MidCap Equity Analyst Raul Chopra and supervised by Matthew Lloyd, Head of UK MidCap Equity Research. The detailed comparison aims to highlight differences in methodologies and assumptions, offering insights into potential drivers behind the target price variance.

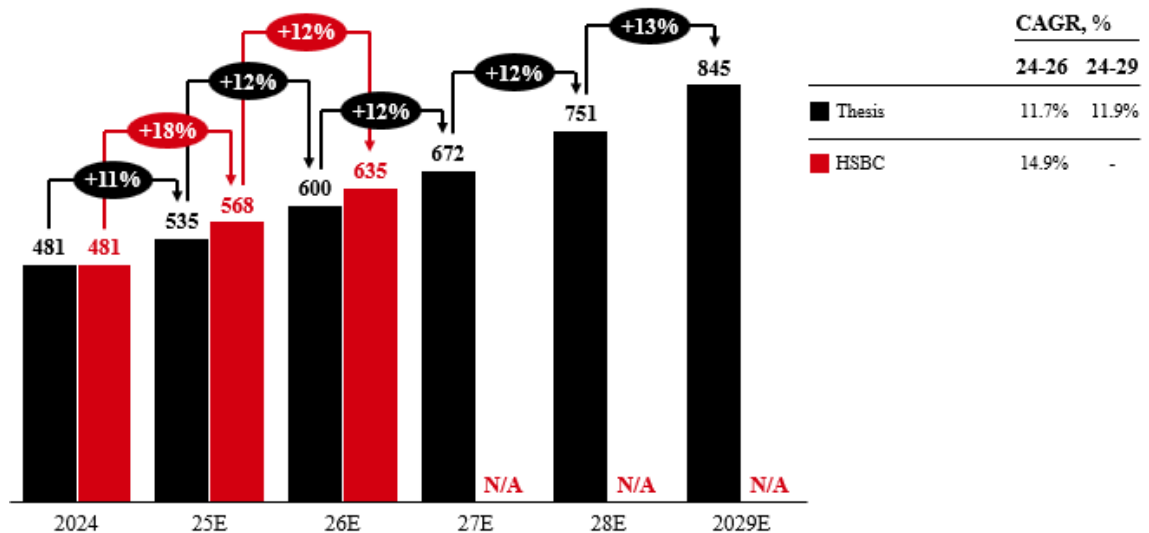
The methodology represents the first major divergence between this thesis and the equity research report. HSBC employs a rolling forward P/E multiple from FY2024 to FY2025E of 30.1x, applying a 5% discount to account for Sage's slower organic growth compared to its peer group, resulting in a final multiple of 28.6x based on a projected FY2025 EPS of GBX 45.1. In contrast, this thesis assigns a significantly lower weighting to relative valuation methodologies (20% vs. 100% in HSBC's analysis) while attributing significantly larger weighting to the DCF (80% vs. 0% in HSBC's analysis). Furthermore, the forecasting period used in this thesis (5 years) differed from the one used by HSBC which only accounts for 2 years (FY2025-26e). Lastly, replicating HSBC's approach using the 28.6x P/E multiple on the FY2025 EPS estimate of GBX 32.5 calculated in this thesis yields a target price of GBX 930 per share - a -39pp delta compared to HSBC's valuation.

In terms of assumptions, given the divergence in approaches, only selected comparable metrics influencing valuation parameters were used, limited to the level of disclosure in HSBC's equity valuation report. The selected assumptions to be discussed below are (i) revenues, (ii) EBIT, (iii) net income:

- i. *Revenue*: The figures estimated in the dissertation proved to be more optimistic, forecasted to grow at 13% p.a. FY2024-26E, 4pp higher than the figures expected by HSBC. The divergence can be partially explained by the renewal rate by value, which is assumed to be higher in this dissertation, linearly scaled to 104% FY2024-29E while HSBC assumes a constant and more conservative 102% across the forecasting period. This stems from a more bullish view regarding Sage's customer retention-focused strategic initiatives where AI plays a significant role. On the other hand, given the limited disclosure regarding NCA estimates, it was not possible establish a comparison.

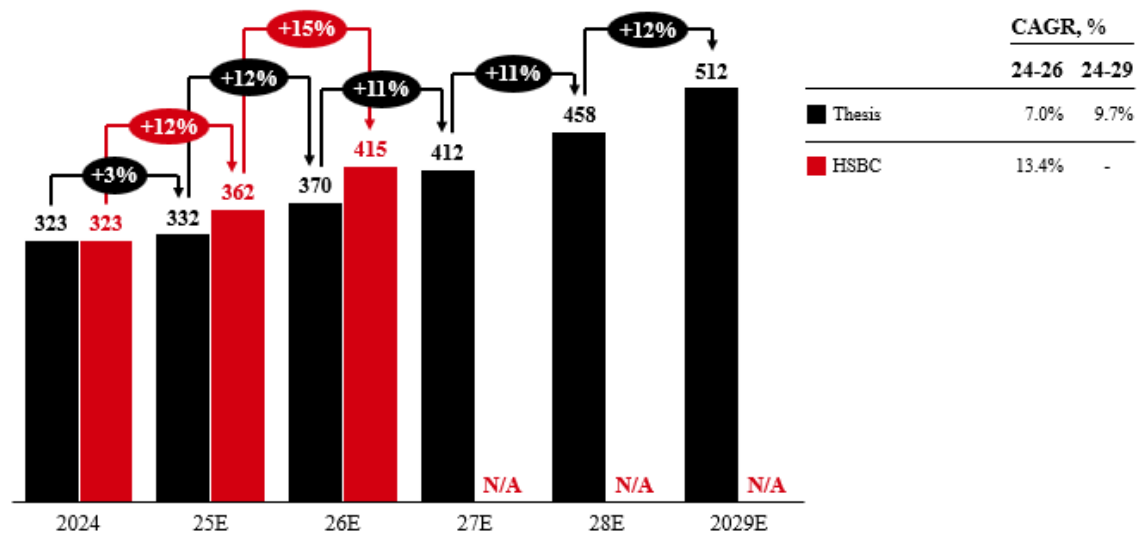
Figure 50: Sage Revenue Forecast comparison with HSBC estimates, FY2024-26E

- ii. *EBIT*: Conversely to revenue assumptions, HSBC is more optimistic regarding EBIT which is expected to grow at 15% p.a. FY2024-26E, 3pp higher than the estimation in this dissertation. While operational expenses were not disclosed in HSBC's report, it is clear that the forecasted sum of the items is higher than the assumed in this thesis.

Figure 51: Sage EBIT Forecast comparison with HSBC estimates, FY2024-26E

- iii. *Net income*: HSBC's projection is more bullish with net income expected to reach GBX 455 by 2026E, growing at 19% p.a. FY2024-26E while only GBX 370 FY2026e outlined in this thesis at 7% p.a. FY2024-26e. The divergence is partially explained by higher (negative) net interest and income tax assumptions outlined in this thesis.

Figure 52: Sage Net Income Forecast comparison with HSBC estimates, FY2024-26E



It is worth noting that HSBC's reliance on the relative valuation approach omits key inputs such as the WACC, its underlying components, and the terminal growth rate - factors critical to valuation - representing a significant limitation in the comparison analysis.

In conclusion, HSBC recommends a target price of GBX 1,290 for Sage, implying approximately 3% upside to the estimated price per share of this thesis (GBX 1,246).

5. Conclusion

The objective of this dissertation is to estimate the share price of The Sage Group's, a leading enterprise resource planning software player for SMBs.

Following a careful consideration of macroeconomic, market, competitive landscape, and company analysis, as of November 27th 2024 the recommended price for Sage's stock was established at GBX 1,246, implying -3% downside relative to the current GBX 1,303 trading price and -4% to the GBX 1290 recommendation from HSBC, resulting in a **hold recommendation** relative to both comparison avenues.

The recommended target price was determined by relying on 4 different approaches – DCF valuation, forward P/E multiple, forward EV/S multiple, forward EV/EBITDA multiple – where the former constitutes the main driver (80% weighting). The DCF valuation yields a target share price of 1,324 with its underlying assumptions tested through a sensitivity analysis where the intrinsic value fluctuates between GBX 1039.61 and GBX 1,817.53, a variation of -22% to +37%. Conversely, amongst the relative methodologies the forward P/E ratio yields a target price per share of GBX 746 for Sage, while forward EV/S at GBX 1,132 per share, and forward EV/EBITDA at GBX 926.

Lastly, this dissertation acknowledges certain limitations that may affect the precision of Sage's valuation. The inability to forecast currency exchange rate fluctuations introduces potential variability, particularly given Sage's significant exposure to foreign markets. Additionally, as of the valuation date, only the 2024 full-year results report, providing summarized information ahead of the forthcoming annual report, was available. This limited financial and strategic disclosure constrained the accuracy of certain assumptions and required greater reliance on estimations.

Appendix 1 - Concept of Value

Since the dawn of time the concept of value has taken a central role in the mind of each individual. This concept has inevitably evolved over time and although assumed as common knowledge by many, it takes multiple lenses across different disciplines to assess its definition, and none goes without its inherent limitations.

Archaic Greek philosophy linked value to the concept of “goods” and was seen as a objective universal standard, later challenged by arguments of value containing subjective matters of sentiment and that there is no rational basis for objective moral or aesthetic judgments (Hume D., 1739-40). On the other hand, in other disciplines such as marketing value is associated with customer satisfaction whilst accounting links the concept to financial performance.

In early valuation practices the focus was largely on estimating value of assets based on physical characteristics. The approach was informed by classical economics and labour theories of value, which stated that the value of a given asset was directly linked with the level of labour consumed to produce it (Smith A., 1776). In the early 20th century, the market approach to valuation disrupted the space by emphasizing market prices and transactions as key determining factors for valuation and seeking to infer value based on the prices of comparable assets or businesses (Damodaran A., 2012). In recent years the trend has been shifting towards the recognition of intangible assets and non-financial factors in determining value (Lev B. et al., 2016). However, the question remains – why does one value value?

In finance “value is the defining dimension of measurement in a market economy” (Koller T. et al., 2015) and it “is a particularly helpful measure of performance because it takes into account the long-term interests of all stakeholders in a company, not just the shareholders”. Recent equity valuation literature compartmentalizes the concept of value across (i) intrinsic value, (ii) going-concern value and liquidation value, (iii) fair market value and investment value (Pinto J. et al., 2010):

- i. Intrinsic value is associated with the value of an asset under a hypothetical perfect information scenario and remains a critical assumption of valuation related with the identification of mispricing.

- ii. Going-concern value is tied to the value of a company assuming the continuation of its operations in the foreseeable future whilst liquidation value appraises a business based on the worth of its assets if sold individually.
- iii. Fair market value is the intersection between the price at which a seller non-obliged to sell and a buyer non-obliged to buy would be willing to exchange an asset. Investment value adds a complexity layer by referencing cases in which an asset is of higher value for a particular buyer's characteristics relative to others although long-term market prices should converge towards fair market value.

Nonetheless, it is important to state that value and price are different concepts. Price is associated with the pre-agreed amount of currency required to exchange an asset between buyer and seller. On the other hand, the value of a particular good or business can differ and is conditioned by the conflicting perceptions of the company and the market, economies of scale or economies of scope (Fernández P. 2007).

Appendix 2 – Valuation Use Cases

The scope of valuation is dependent on the particular issue or challenge that one intends to address. There are seven main use cases for equity valuation notions and methodologies, namely in order to (i) pick stocks, (ii) extract market expectations, (iii) assess corporate events, (iv) render fairness opinions, (v) appraise strategic decisions and initiatives, (vi) communicate with stakeholders and, (vii) appraise private businesses (Stowe J. et al., 2007):

- i. Identify mispricing in stocks and provide an appraisal based on the distance between intrinsic and market value, resulting in an over, true to, or under value assessment.
- ii. Detect potential deviations between investor outlook of the company's future performance and the price of its shares.
- iii. Evaluate the effect of corporate events such as M&A, spin-offs, divestures, which in turn affect the dynamics of future cash-flows, hence impacting the valuation of a particular asset or group of assets
- iv. Provide an impartial third-party quantitative view of a particular business decision, often associated with underwriting activities
- v. Assess the impact of implementing determined business strategies, initiatives or projects on the company's share price

- vi. Utilize valuation notions to support discussions across stakeholders, including top management, investors and analysts over internal and external dynamics potentially affecting the value of the business
- vii. Estimate the value of a business in a private setting with very limited available information, associated with private equity transactions or initial public offerings (IPOs)

Further applications referred by academia lie in inheritances and wills, compensation schemes based on value creation and identification of value drivers (Fernández P., 2007). All in all, valuation is used for a very broad spectrum of objectives and its results should be interpreted based on the dimensions under analysis.

Appendix 3 - Dividend Discount Model (DDM)

The general model has its foundation on the traditional premise of asset value tied to the future expected cash flows it generates discounted to the present at a discount rate directly linked to its riskiness. In this case future expected cash flows correspond to the dividends expected by investors whilst the discount rate matches the cost of equity, with value being a function of the two (Damodaran A., 2012):

Equation 18: *DDM general model*

$$Value = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1 + k_e)^t}$$

where,

Value = value per share of stock

E (DPS)_T = expected dividends per share

k_e = cost of equity

However, this model is limited by the fact that dividends in currency terms cannot be forecasted in perpetuity. In fact, several variations of the model have been created to overcome the issue by tailoring the patterns of future dividend growth to the specific business circumstances.

Firstly, the Gordon Growth model assumes constant and indefinite dividend growth (Gordon M. et al., 1956). As the Constant Growth FCFE, this model is often used for businesses in steady and mature growth stages – “companies in such industries as electric and telephone utility, beverage, tobacco and food processing, retailing (...) and household products industries” (Farrell J., 1985). The engine of the model is also a function of expected dividends and cost of equity, coupled with a perpetual growth rate (Damodaran A., 2012):

Equation 19: *Gordon Growth model*

$$Value = \frac{E(DPS)_1}{k_e - g_n}$$

where,

Value = share value today

E(DPS)₁ = expected free cash flow to equity next year

k_e = cost of equity of the firm

g_n = expected firm dividend growth rate in in perpetuity

However, it is worth noting that “the formula must be modified substantially to deal with companies that have highly cyclical operating patterns of exceptionally high rates of earnings growth” (Farrell J., 1985). Furthermore, this model proves to be very sensitive to assumptions in regard to its growth drivers when other inputs such as payout ratio or cost of equity remain constant (Damodaran A., 2012). Consequently, and similarly to the Two-Stage FCFE model, a Two-Stage Dividend Discount model (Two-Stage DDM) is also present in literature and defined as follows:

Equation 20: Two-Stage DDM

$$Value = \sum_{t=1}^{t=n} \frac{E(DPS)_t}{(1 + k_{e,hg})^t} + \frac{P_n}{(1 + k_{e,st})^n}$$

where,

Value = value per share of stock

$$\frac{P_n}{(1 + k_{e,st})^n} = \frac{DPS_{n+1}}{(k_{e,st} - g_n)}$$

$E(DPS)_t$ = expected dividends per share in year t

k_e = cost of equity in high growth (hg) and stable growth (st) periods

P_n = price at the end of year n

g_n = growth rate in perpetuity after year n

Despite overcoming some limitations of the Gordon Growth model, the Two-Stage DDM relies on an extraordinary growth rate followed by a constant which can lack accuracy if there is high discrepancy between the two (Stowe J. et al., 2007). Furthermore, the length of the initial growth stage can be complex to define, and the model may yield inaccurate valuations in circumstances where there is disparity between the company's ability to pay a given level of dividends and the actual dividend payout to shareholders (Damodaran A., 2012). The available literature also accounts for the aforementioned limitations and presents further solutions with increased granularity among which (i) H-model and (ii) Three-Stage DDM (Stowe J. et al., 2007):

- i. Variation of the two-stage model with additional degrees of freedom for fluctuating growth rates across the timeframe by applying linear properties (Fuller R. et al., 1984).
- ii. Combines the H-model and the Two-Stage DDM to create a more granular three-period scenario of high stable growth, followed by a period of declining growth before third perpetual stable growth period corresponding to a low, increasing, and high payout ratio, respectively (Damodaran A., 2012).

All in all, DDM models and FCFE models share several similarities. Nonetheless, the key differences lie in the implicit assumptions and the expected growth (Damodaran A., 2012). Firstly, DDM infers earnings are split across dividends and reinvestments in operating assets and cash & securities whilst FCFE leverages the same assumptions with

the key difference being in reinvestments, which are only related to operating assets. Secondly, DDM appraises growth in remuneration from both cash and operating assets whilst FCFE in only the latter.

Appendix 4 – Adjusted Present Value (APV)

"The biggest challenge in valuation is assessing the sustainability of a company's competitive advantage, and that requires a deep understanding of its operations and business model" (McKinsey & Company, 2016). The complexity in appraising a business is the main reason why several approaches to the task at hand exist.

The Adjusted Present Value (APV) approach was formally introduced as an alternative method to evaluate investment projects, especially those involving large amounts of debt financing (Myers S. et al., 1977), although prior literature began shaping the concept in the context of exploring the relationship between investment and financing decisions (Myers S., 1974). It is often referred to as a specialized DCF, particularly when it comes to attributing value to a business with a fluctuating capital structure. This model seeks to estimate the value of the business as a sum of parts, namely the (i) unlevered value of the company, (ii) the present value of expected tax benefits, net of (iii) expected bankruptcy costs (Viebig J. et al., 2008):

Equation 21: *Adjusted Present Value (APV)*

$$Value = V_u + PV(Tax\ benefits) - PV(Bankruptcy\ costs)$$

=

$$\frac{FCFF_1}{(\rho - g)} + t_c D - \Pi_a BC$$

- v. Estimating the unlevered value can be achieved by computing the present value of FCFF growing at a constant rate in perpetuity, discounted at the unlevered cost of equity (Damodaran A., 2006):

Equation 22: Unlevered Firm Value

$$V_u = \frac{FCFF_1}{(\rho - g)}$$

where,

V_u = unlevered value of the firm

$FCFF_1$ = expected free cash flow to firm next year

ρ = unlevered cost of equity

g = growth rate

- vi. Calculating tax benefits from lending corresponds to the product of the tax rate and cost of debt (i.e., the dollar debt level which corresponds to the product between the interest rate and level of firm debt), discounted at the cost of debt (Damodaran A., 2012)

Equation 23: Present Value of Tax Benefits:

$$Value = \frac{(Tax\ rate \times Cost\ of\ debt \times Debt)}{Cost\ of\ debt}$$

=

$$Value = Tax\ rate \times Debt = t_c D$$

where,

$Value = t_c D$ = value of tax benefits

- vii. Computing the present value of expected bankruptcy costs requires estimating the probability of the firm defaulting on its interest payments and the present value of the costs of bankruptcy and calculating the product of the two (Damodaran A., 2006):

Equation 24: *PV of Bankruptcy Costs*

$$PV(\text{Bankruptcy costs}) = \text{Probability of bankruptcy} \times PV(\text{Bankruptcy costs})$$

=

$$PV(\text{Bankruptcy costs}) = \Pi_a BC$$

where,

Π_a = probability of bankruptcy

BC = present value of bankruptcy costs

It is important to note that calculating the present value of (ii) tax benefits and (iii) bankruptcy costs have caveats that are further explored by the literature:

- ii. There is in fact contradicting literature that argues that the value of tax benefits should rather correspond to the value of the firm in a leveraged state net of interest tax shields (Fernández P., 2004). However, this was later refuted due to inflated tax savings results and other authors argued that the equation should rather achieve the value of the tax shield by discounting interest tax savings at the cost of debt (Cooper I., 2006). Furthermore, the equation used above assumes a stable tax rate. Nonetheless, if any fluctuations in the tax rate are expected the perpetual growth formula will not be valid (Damodaran A., 2012).
- iii. Discounting bankruptcy costs to the present can be severely complex. Nevertheless, the literature suggests approaching this question by computing the probability of bankruptcy by either obtaining an approximation leveraging bond ratings, or by recurring to statistical approaches (Damodaran A., 2006). The suggested approach to costs of bankruptcy is to leverage previous literature some of which suggests that on average direct costs of bankruptcy can amount to 2.5% of total assets, whilst indirect can be approximately 15% of total assets (White M., 1998).

All in all, the APV approach yields several benefits among which allowing to account for different discount rates for each part of the sum of parts and overcoming the issues of a stable capital structure inferred by the WACC approach (Damodaran A.,

2012). However, it is worth noting that the complexity of the items constituting the equation should not be underestimated.

Appendix 5 – Contingent Claim Valuation (CCV)

Contingent claim valuation (CCV) is a valuation method used to value assets with payouts dependent upon certain contingencies or events. Its foundations were first established in the Black-Scholes model which aimed to value European call options as a function of the price of the underlying asset, strike price, time until expiration and volatility (Fischer B. et al., 1972).

The model used today indicates that an asset can be valued as an option if the payoffs link directly to the value of an underlying asset i.e., a call option if when the value exceeds a pre-determined level the asset is worth the difference; a put option if the asset increases in value as the value of the underlying asset decreases below a pre-determined level (Damodaran A., 2012).

Option theory-based models seek to overcome the limitation of DCF models which tend to undervalue assets whose payoffs are dependent on the occurrence of determined events. These assets can be pure options such as futures contracts, catastrophe bonds, long-term equity anticipation securities (LEAPS) or, those with option characteristics such as the value of equity that can be viewed as a call option on the value of the business or patents (Damodaran A., 2012).

However, as other valuation methodologies contingent claim has its limitations. Firstly, businesses typically operate in longer timeframes than the usual duration of an option which in turn significantly increases the complexity in justifying constant variance and dividend yields assumptions. Moreover, in circumstances where the underlying asset is not publicly traded it is required to compute the model inputs resulting in larger scope for estimation errors than if the asset was valued relying on other methodologies (Damodaran A., 2012).

Appendix 6 – Literature Review Application

This dissertation will aim to appraise the concept of value (i) intrinsic value of The Sage Group under a hypothetical perfect information scenario and (ii) in line with the use case which corresponds to identifying potential mispricing in the aforementioned stock based on the distance between the intrinsic and market value.

Furthermore, the dissertation will leverage the valuation procedure depicted by Stowe J. et al (2007) for its structure, where we begin with by analyzing and understanding the key dimensions influencing the performance of Sage from a top-down perspective, descending from a macroeconomic outlook to market, competitive landscape and company-specific caveats, before forecasting individual items across the three financial statements. Lastly, the company's will be appraised, and the assumptions of the underlying model dully tested in order to provide an actionable recommendation to investors.

The Sage Group's intrinsic value will be determined through two methodologies, (i) discounted cash flow method, particularly the FCF DCF which is widely used and adequate to the stable capital structure of the company, further by complemented a Two-Stage DDM and (ii) relative valuation based on trading multiples, in line with Damodaran A. (2012). Conversely, the APV methodology will not be covered in this dissertation since the company's capital structure is not expected to deviate significantly from current levels. Furthermore, the contingent claim valuation method will not be utilized due to the fact that it is primarily useful for valuing assets that are dependent on other assets or events, and relies heavily on complex assumptions and inputs that can be challenging to accurately estimate.

Regarding the essential WACC inputs for the FCF DCF, cost of equity (k_e) will be estimated in line with the CAPM model with the underlying beta (β_i) based on the historical market betas methodology. In parallel, the cost of debt (k_d) assessment will leverage the company's publicly traded bonds whilst the terminal value (TV) will be determined through the perpetuity growth model, supported by Rosenbaum J. et al (2013).

Appendix 7 – Secular ERP trends

1. *Switch towards SaaS and cloud:* Shift from traditional on-premises to cloud-based and SaaS implementations.
2. *Increased system replacement:* Numerous organizations are still using old ERP systems from the first wave of implementation in the late 1990s with upgrades expected in the following years.
3. *Big data / data migration:* Growth in volume of data being collected resulting in richer data sets for analysis while data migration viewed as critical activity for IT departments, requiring more automated approaches to shrink implementation timelines.
4. *Decoupling and specialization:* Breakdown of the software stack in larger companies into a thin layer software solution integrated with best-of-breed, custom solutions.
5. *Stringent regulation:* European-wide push of increased regulation, data compliance and e-invoicing to drive ERP penetration in less penetrated segments such as SMBs and micro companies.
6. *Cyber security threats:* Increasing volume of cyber security attacks and higher disclosure requirements are leading to concerns over security and modernization of business-critical ERP systems.
7. *Increasing usage of mobile apps:* Rising use of mobile phones to operate enterprise applications, typically launched simultaneously in desktop and mobile versions to bolster end-user convenience.
8. *Implementation speed:* Greater emphasis on out-the-box functionality to mitigate reliance on custom code and accelerate ERP software rollouts.
9. *Broader ERP ecosystem:* Organizations are increasingly considering ERP as part of a broader ERP ecosystem with vendors developing more vertical or domain-specific solutions (e.g., craftsmen, individual accountants), especially for smaller companies.
10. *Artificial intelligence:* Growing adoption of AI to unlock additional value through enabling new functionalities while easing and enhancing the productivity of ERP operations.

Appendix 8 – Sage Detailed Product Portfolio

- i. *Sage 50*: Enables businesses to control cash flow, automate bank reconciliation, control job costs, track inventory and real-time reporting. Moreover, it also covers employee management through the automation of processes such as providing payslips, tracking hours and scheduling, as well as time-off requests.
- ii. *Sage Active*: Solution centred on accounting & financials, designed to automate accounting, sales, and purchasing processes.
- iii. *Sage HR*: Solution centred on HR & employee management, offering core record management, leave management, staff scheduling, and expenses modules.
- iv. *Sage Payroll*: Solution anchored on a sub-segment of HR & employee management – payroll – with capabilities such as pensions filing, HRMC submissions, and compliance.
- v. *Sage Accounting*: Enables small businesses across verticals, in addition to accountants and bookkeepers, to manage customer data and accounts.
- vi. *Sage Intacct*: AI-powered end-to-end solution to automate accounting, optimize HR and payroll management, with robust API integrations, out-the-box real-time, multi-dimensional dashboards and reports, and spend monitoring against budget.
- vii. *Sage 200*: While addressing similar processes to Sage 50, it goes a step further with additional capabilities aimed at companies with multiple entities, multiple locations, featuring multi-currency and multi-lingual interface with end-to-end tools for finance, sales order and inventory management, as well as payments processing.
- viii. *Sage X3*: Aimed at product-centric organizations, it covers the entire process from production to sales. Sage X3 offers product management capabilities such as BOM planning, shop control, etc, supply chain management, and financial management. Similar to Sage 200, it features a multi-currency, multi-lingual interface.
- ix. *Sage People*: Addresses end-to-end HR & employee management processes, from core HR record management, to timesheets, performance, expenses, recruitment, onboarding, and reporting.

Appendix 9 – Sage Valuation Introduction

This chapter of the dissertation seeks to provide a valuation of The Sage Group. All valuation methodologies present in this section were applied as of November 27th 2024, with all underlying assumptions based on publicly available information up to the aforementioned date. Before reaching the target price and final recommendation a thorough deconstruction of the valuation, its underlying assumptions and forecasts will be provided and, later stress-tested by leveraging an equity research report of the company from industry-leading Hong Kong and Shanghai Banking Corporation (HSBC).

The approach to appraising Sage's business relies on a core FCF DCF valuation, further supported by a Two-Stage DDM²⁴ and Multiples valuation. The share price recommendation will consequently be provided by the combination of the approaches under an importance-based weighted average estimation. The initial projection period spans from November 2024 up to November 2029 after which the company is expected to fulfil its full potential concerning 3 out of 5 key strategic KPIs, regarding renewal rate by value, software subscription penetration and business cloud penetration, and thus considered in a stable state.

Appendix 10 – Alternative Cost of Debt Methodologies

Nevertheless, alternative methodologies were also used to better understand potential nuances. Leveraging the synthetic rating method, Sage displays an interest coverage ratio of 10.7 which in conjunction with Damodaran's Interest Coverage Ratios and Ratings table implies a spread of 0.59%. Conversely, using the credit rating method and recurring to Bank of America's ICE BofA BBB Corporate Index Option-Adjusted Spread which calculates the spreads between a computed OAS index of all BBB-rated bonds and a spot treasury curve, the estimated it is implied a spread of 1.02% as of November 27th 2024. Further, given the weighted average maturity of 8.6 years for Sage's bonds, the assumed risk-free rate corresponds to the UK Gilt 10-year yield which totals 4.52%. Lastly, the cost of debt derived from the alternative methodologies amounted to 5.11% and 5.54% for the synthetic rating and credit rating methods, respectively. However, these methodologies were not taken into account given that these may constitute lagging indicators as real-time market changes may not be reflected.

²⁴ The DDM was excluded from the target price

Appendix 11 – Sage Dividend Discount Model (DDM) Valuation

The Dividend Discount Model (DDM) was used as a third avenue to estimate the fair value of Sage's shares. This approach encompassed forecasting dividends per share (DPS) across the same period used in the DCF model (FY2025-29E) and discounting them to the present by leveraging the previously estimated cost of equity. However, given the high valuation sensitivity stemming from the assumptions regarding the growth drivers when other inputs such as cost of equity and DPS growth remain constant (Damodaran A., 2012), the Two-Stage Dividend Discount Model (Two-Stage DDM) was used.

The valuation begins with forecasting the DPS across FY2025-29E. Sage has a progressive dividend policy in place which aims to grow dividend over time while considering future capital requirements. This policy is corroborated by the DPS growth which stood at 4.1% p.a. FY2019-24. Given that this policy is expected to remain in place for upcoming years, Sage's DPS growth was forecasted to grow at the historical 4.1% p.a. CAGR from GBX 20.45 in 2024 to GBX 25.02 by 2029E. In conjunction with cost of equity which is kept constant at 9.2% across the forecasting period, the sum of DPS discounted to the present total GBX 88.84.

The terminal growth rate used in the DCF model (3.11%) is leveraged to achieve the TV, which discounted to the present amounts to GBX 273.23. Finally, summing the present value of stage 1 and stage 2 DPS, the target share price for Sage through the DDM totals GBX 362.07 per share.

Figure 48: Sage Relative Valuation

DDM Stage 1	2025E	2026E	2027E	2028E	2029E
Dividend per share (DPS)	21.29	22.17	23.08	24.03	25.02
% Change	4.1%	4.1%	4.1%	4.1%	4.1%
Cost of Equity (Ke)	9.2%	9.2%	9.2%	9.2%	9.2%
PV (DPS) Stage 1	19.50	18.59	17.73	16.90	16.12
Total PV (DPS) Stage 1	88.84				
DDM Stage 2					
DPS 2030E	25.80				
Stage 2 Terminal Value	424.18				
Cost of Equity (Ke)	9.2%				
PV (Stage 2 Terminal Value)	273.23				
Implied value per share (GBX)	362.07				

Appendix 12 – Sage Forecasted Income Statement

CONSOLIDATED P&L (£m)	2018	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E
Revenue	1 846.0	1 936.0	1 903.0	1 846.0	1 947.0	2 184.0	2 332.0	2 622.1	2 956.4	3 332.6	3 752.3	4 259.2
% Change	7.6%	4.9%	-1.7%	-3.0%	5.5%	12.2%	6.8%	12.4%	12.7%	12.7%	12.6%	13.5%
Cost of sales	(130.0)	(138.0)	(126.0)	(131.0)	(138.0)	(156.0)	(168.0)	(183.7)	(201.2)	(220.1)	(240.3)	(264.2)
% Change	14.0%	6.2%	-8.7%	4.0%	5.3%	13.0%	7.7%	9.3%	9.5%	9.4%	9.2%	10.0%
% Sales	7.0%	7.1%	6.6%	7.1%	7.1%	7.1%	7.2%	7.0%	6.8%	6.6%	6.4%	6.2%
Gross profit	1 716.0	1 798.0	1 777.0	1 715.0	1 809.0	2 028.0	2 164.0	2 438.5	2 755.3	3 112.6	3 512.0	3 995.0
Gross profit margin	93.0%	92.9%	93.4%	92.9%	92.9%	92.9%	92.8%	93.0%	93.2%	93.4%	93.6%	93.8%
% Change	7.2%	4.8%	-1.2%	-3.3%	5.5%	12.1%	6.7%	12.7%	13.0%	13.0%	12.8%	13.8%
Staff costs	(837.0)	(885.0)	(928.0)	(968.0)	(905.0)	(1 048.0)	(1 114.7)	(1 266.0)	(1 441.6)	(1 641.3)	(1 866.5)	(2 139.8)
% Change	9.0%	5.7%	4.9%	4.3%	-6.5%	15.8%	6.4%	13.6%	13.9%	13.9%	13.7%	14.6%
% Sales	45.3%	45.7%	48.8%	52.4%	46.5%	48.0%	47.8%	48.3%	48.8%	49.2%	49.7%	50.2%
Selling & general expense	(342.0)	(373.0)	(180.0)	(201.0)	(418.0)	(444.0)	(472.3)	(531.0)	(598.7)	(674.9)	(759.9)	(862.6)
% Change	6.9%	9.1%	-51.7%	11.7%	108.0%	6.2%	6.4%	12.4%	12.7%	12.7%	12.6%	13.5%
% Sales	18.5%	19.3%	9.5%	10.9%	21.5%	20.3%	20.3%	20.3%	20.3%	20.3%	20.3%	20.3%
D&A	(68.0)	(78.0)	(124.0)	(87.0)	(97.0)	(108.0)	(96.0)	(102.5)	(110.3)	(119.0)	(128.8)	(140.5)
% Change	17.2%	14.7%	59.0%	-29.8%	11.5%	11.3%	-11.1%	6.7%	7.6%	7.9%	8.2%	9.1%
% Sales	3.7%	4.0%	6.5%	4.7%	5.0%	4.9%	4.1%	3.9%	3.7%	3.6%	3.4%	3.3%
Operating income - recurring (EBIT)	469.0	462.0	545.0	459.0	389.0	428.0	481.0	539.0	604.7	677.3	756.8	852.1
EBIT margin (recurring)	25.4%	23.9%	28.6%	24.9%	20.0%	19.6%	20.6%	20.6%	20.5%	20.3%	20.2%	20.0%
% Change	3.1%	-1.3%	18.0%	-15.8%	-15.3%	10.0%	12.4%	12.1%	12.2%	12.0%	11.7%	12.6%
Exceptional items	(16.0)	(17.0)	(26.0)	(6.0)	(3.0)	(4.0)	0.0	(4.3)	(4.9)	(5.5)	(6.2)	(7.1)
% Change	33.3%	6.3%	52.0%	-76.9%	-50.0%	33.3%	-100.0%	-	12.7%	12.7%	12.6%	13.5%
% Sales	0.9%	0.9%	1.4%	0.3%	0.2%	0.2%	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%
Operating income (EBIT)	453.0	445.0	519.0	453.0	386.0	424.0	481.0	534.7	599.8	671.8	750.6	845.0
EBIT margin	24.5%	23.0%	27.3%	24.5%	19.8%	19.4%	20.6%	20.4%	20.3%	20.2%	20.0%	19.8%
% Change	2.3%	-1.8%	16.6%	-12.7%	-14.8%	9.8%	13.4%	11.2%	12.2%	12.0%	11.7%	12.6%
Financial expense	(33.0)	(29.0)	(28.0)	(27.0)	(31.0)	(45.0)	(45.0)	(46.4)	(53.5)	(61.6)	(71.0)	(81.9)
% Change	22.2%	-12.1%	-3.4%	-3.6%	14.8%	45.2%	0.0%	3.1%	15.2%	15.2%	15.2%	15.2%
% EBIT	7.3%	6.5%	5.4%	6.0%	8.0%	10.6%	9.4%	8.7%	8.9%	9.2%	9.5%	9.7%
Financial income	4.0	6.0	3.0	1.0	1.0	12.0	19.0	7.3	8.2	9.1	10.2	11.5
% Change	100.0%	50.0%	-50.0%	-66.7%	0.0%	1100.0%	58.3%	-61.7%	12.2%	12.0%	11.7%	12.6%
% EBIT	0.9%	1.3%	0.6%	0.2%	0.3%	2.8%	4.0%	0.3%	0.3%	0.3%	0.3%	0.3%
Other financial income / expense	(26.0)	(61.0)	(121.0)	(80.0)	(19.0)	(109.0)	(29.0)	(56.8)	(63.7)	(71.4)	(79.8)	(89.8)
% Change	-65.8%	134.6%	98.4%	-33.0%	-76.3%	473.7%	-73.4%	95.0%	12.2%	12.0%	11.7%	12.6%
% EBIT	5.7%	13.7%	23.3%	17.7%	4.9%	25.7%	6.0%	10.6%	10.6%	10.6%	10.6%	10.6%
Net non-operating income / expense	(53.0)	(84.0)	(146.0)	(106.0)	(49.0)	(142.0)	(53.0)	(96.0)	(109.1)	(123.9)	(140.6)	(160.2)
Net income before taxes (EBT)	398.0	361.0	373.0	347.0	337.0	282.0	426.0	438.7	490.7	547.9	610.0	684.8
EBT margin	21.6%	18.6%	19.6%	18.8%	17.3%	12.9%	18.3%	16.7%	16.6%	16.4%	16.3%	16.1%
% Change	16.4%	-9.3%	3.3%	-7.0%	-2.9%	-16.3%	51.1%	3.0%	11.8%	11.7%	11.3%	12.3%
Income taxes	(103.0)	(95.0)	(63.0)	(62.0)	(77.0)	(71.0)	(103.0)	(107.0)	(120.6)	(135.8)	(152.4)	(172.4)
% Effective tax rate	25.9%	26.3%	16.9%	17.9%	22.8%	25.2%	24.2%	24.4%	24.6%	24.8%	25.0%	25.2%
% Change	21.2%	-7.8%	-33.7%	-1.6%	24.2%	-7.8%	45.1%	3.8%	12.8%	12.6%	12.2%	13.2%
Net income	295.0	266.0	310.0	285.0	260.0	211.0	323.0	331.8	370.1	412.1	457.6	512.4

Appendix 13 – Sage Partially Forecasted Balance Sheet

	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E
Goodwill	2 083	1 962	1 877	2 416	2 245	2 130	N/A				
Other intangible assets	245	212	190	294	274	219	240	240	242	248	259
Net PPE	117	173	164	152	104	108	84	71	58	45	33
Long-term investments	4	1	21	4	5	35	N/A				
Long-term trade & other receivables	73	86	113	128	138	137	N/A				
Deferred tax assets	31	35	40	19	56	81	N/A				
Total non-current assets	2 553	2 469	2 405	3 013	2 822	2 710	-	-	-	-	-
Short-term trade & other receivables	364	302	295	355	376	404	452	502	572	651	733
Current tax assets	3	5	37	39	42	16	18	20	23	26	29
Cash and cash equivalents	371	831	553	489	696	508	713	804	906	1 020	1 158
Assets held for sale	63	108	39	-	-	-	-	-	-	-	-
Inventories	-	-	-	-	-	-	-	-	-	-	-
Total current assets	801	1 246	924	883	1 114	928	-	-	-	-	-
TOTAL ASSETS	3 354	3 715	3 329	3 896	3 936	3 638	-	-	-	-	-
Long-term debt	643	970	749	1 044	1 243	1 231	1 333	1 561	1 787	2 066	2 418
Pension & other benefits	25	23	22	19	19	23	N/A				
Deferred tax liabilities	26	14	5	16	18	18	N/A				
Long-term trade & other payables	7	3	3	6	13	3	N/A				
Deferred income / Contract liabilities	8	7	10	8	7	6	N/A				
Other long-term liabilities	15	31	49	80	44	38	N/A				
Total non-current liabilities	724	1 048	838	1 173	1 344	1 319	-	-	-	-	-
Short-term debt	122	20	65	178	14	15	103	94	120	132	116
Current tax liabilities	32	13	31	13	25	26	29	33	37	42	47
Short-term trade & other payables	291	297	592	368	378	405	442	509	584	647	734
Deferred income / Contract liabilities	637	593	611	734	745	758	852	961	1 083	1 220	1 384
Other short-term liabilities	44	92	81	33	23	22	26	26	26	26	26
Total current liabilities	1 126	1 015	1 380	1 326	1 185	1 226	-	-	-	-	-
TOTAL LIABILITIES	1 850	2 063	2 218	2 499	2 529	2 545	-	-	-	-	-
Ordinary shares	12	12	12	12	12	11	N/A				
Share premium	548	548	548	548	548	548	N/A				
Retained earnings	760	908	448	570	658	446	N/A				
Comprehensive income & others	184	184	103	267	189	88	N/A				
TOTAL EQUITY	1 504	1 652	1 111	1 397	1 407	1 093	-	-	-	-	-
TOTAL EQUITY + LIABILITIES	3 354	3 715	3 329	3 896	3 936	3 638	-	-	-	-	-

Appendix 14.A – Sage Alternative Cost of Debt Estimation: Interest Coverage Ratio

For larger firms (market cap > \$5 billion)			
If interest coverage ratio is		Rating is	Spread is
>	≤ to		
-100000	0.199999	D2/D	20.00%
0.2	0.649999	C2/C	17.00%
0.65	0.799999	Ca2/CC	11.78%
0.8	1.249999	Caa/CCC	8.51%
1.25	1.499999	B3/B-	5.24%
1.5	1.749999	B2/B	3.61%
1.75	1.999999	B1/B+	3.14%
2	2.249999	Ba2/BB	2.21%
2.25	2.49999	Ba1/BB+	1.74%
2.5	2.999999	Baa2/BBB	1.47%
3	4.249999	A3/A-	1.21%
4.25	5.499999	A2/A	1.07%
5.5	6.499999	A1/A+	0.92%
6.5	8.499999	Aa2/AA	0.70%
8.5	100000	Aaa/AAA	0.59%

Interest coverage ratio	10.7
Implied credit rating	Aaa/AAA
Implied spread	0.59%

Risk-free rate	4.52%
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Cost of Debt	5.11%
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Appendix 14.B – Sage Alternative Cost of Debt Estimation: Interest Coverage Ratio



Implied spread	1.02%
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Risk-free rate	4.52%
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Cost of Debt	5.54%
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Appendix 15 – Sage Debt Analysis

	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E
Total debt	814	1 222	1 257	1 246	1 436	1 655	1 907	2 198	2 533
Change, pp	-17.8%	50.1%	2.9%	-0.9%	15.2%	15.2%	15.2%	15.2%	15.2%
Long-term debt	749	1044	1243	1231	1333	1561	1787	2066	2418
Short-term debt	65	178	14	15	103	94	120	132	116
Average Debt	902	1018	1240	1252	1341	1545	1781	2053	2366
Average Interest rate	3.0%	3.0%	3.6%	3.6%	3.2%	3.2%	3.2%	3.2%	3.2%
Interest expense	(27)	(31)	(45)	(45)	(46)	(53)	(62)	(71)	(82)

Appendix 16 – Sage Working Capital Estimations: Days Receivables / Payables

	2021	2022	2023	2024	2025E	2026E	2027E	2028E	2029E
Days short-term trade & other receivables	58	67	63	63	63	62	63	63	63
Days short-term trade & other payables	117	69	63	63	61	63	64	63	63

Sources – Figures

Figure 1: Rosenbaum J. et al., 2013

Figure 2: Fernandez P., 2001

Figure 3: Morgan Stanley Dean Witters, 1999

Figure 4: OECD Economic Outlook 16 database

Figure 5: OECD Economic Outlook 16 database; and OECD calculations

Figure 6: Caldara and Iacoviello (2022); Caldara et al. (2020); and OECD calculations

Figure 7: Mordor Intelligence. "Enterprise Resource Planning Market (2023-2028)", 2023

Figure 8: Author's assessment, Pitchbook, Mordor Intelligence

Figure 9: Company website

Figure 10: Sage Annual Report, Sage website, Author's assessment

Figure 11: Sage Annual Report

Figure 12: Sage Annual Report

Figure 13: Sage Annual Report

Figure 14: Sage Annual Report

Figure 15: Author's assessment, Sage Annual Report

Figure 16: Author's assessment, Sage Annual Report

Figure 17: Author's assessment, Sage Annual Report

Figure 18: Author's assessment, Sage Annual Report

Figure 19: Author's assessment, Sage Annual Report

Figure 20: Author's assessment, Sage Annual Report

Figure 21: Author's assessment, Sage Annual Report

Figure 22: Author's assessment, Sage Annual Report

Figure 23: *Author's assessment, Sage Annual Report*

Figure 24: *Author's assessment, Sage Annual Report*

Figure 25: *Author's assessment, Sage Annual Report*

Figure 26: *Author's assessment, Sage Annual Report*

Figure 27: *Author's assessment, Sage Annual Report*

Figure 28: *Author's assessment, Sage Annual Report*

Figure 29: *Author's assessment, Sage Annual Report*

Figure 30: *Author's assessment, Sage Annual Report*

Figure 31: *Author's assessment, Sage Annual Report*

Figure 32: *Author's assessment, Sage Annual Report*

Figure 33: *Author's assessment, Sage Annual Report*

Figure 34: *Author's assessment, Sage Annual Report*

Figure 35: *Author's assessment, Sage Annual Report*

Figure 36: *Author's assessment, Sage Annual Report*

Figure 37: *Author's assessment, Sage Annual Report*

Figure 38: *Author's assessment, Capital IQ, Sage Annual Report*

Figure 39: *Author's assessment, Sage Annual Report*

Figure 40: *Author's assessment, Damodaran, Capital IQ, Bloomberg, Sage Annual Report*

Figure 41: *Author's assessment, Google, Sage Annual Report*

Figure 42: *Author's assessment, Google, Sage Annual Report*

Figure 43: *Author's assessment, OECD, Sage Annual Report*

Figure 44: *Author's assessment, Sage Annual Report*

Figure 45: *Author's assessment*

Figure 46: *Author's assessment, Pitchbook, Capital IQ*

Figure 47: *Author's assessment, Pitchbook, Capital IQ*

Figure 48: *Author's assessment, Pitchbook, Capital IQ*

Figure 49: *Author's assessment*

Figure 50: *HSBC, Author's assessment*

Figure 51: *HSBC, Author's assessment*

Figure 52: *HSBC, Author's assessment*

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