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Equity Valuation: Adobe Inc.

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June, 2024



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Resumo

Esta dissertação teve como objetivo o cálculo do justo valor das ações da Adobe Inc., tendo como referência a data de 1 de janeiro de 2024. Com base no valor justo estimado, procedeu-se à comparação deste com o valor de mercado no final de 2023, com o intuito de determinar se a empresa se encontrava subavaliada ou sobreavaliada no mercado à data em questão.

Para tal, foram utilizadas duas técnicas de avaliação: o método dos fluxos de caixa descontados e a avaliação por múltiplos. A avaliação segundo a ótica dos fluxos de caixa descontados tem como base a análise detalhada dos dados históricos da empresa, entre 2018 e 2023, bem como projeções de 2024 a 2030, incorporando tendências macroeconómicas e tendências específicas ao setor onde esta opera.

A avaliação pelo método dos fluxos de caixa descontados revelou o potencial da Adobe para um crescimento sustentado das receitas, sendo este impulsionado pelo seu domínio no segmento de *digital media*. Demonstra-se uma potencial subvalorização em comparação com o seu preço de mercado atual, realçando as perspetivas de crescimento futuro da empresa. A avaliação por múltiplos reforça esta conclusão, comparando favoravelmente os indicadores financeiros da Adobe com os dos seus concorrentes na indústria.

Os resultados obtidos através das duas metodologias de avaliação selecionadas apontam para uma possível subvalorização das ações da empresa em análise, na ordem dos 4.43% e 16.37%, segundo o método dos fluxos de caixa descontados e o método da avaliação por múltiplos, respetivamente.

Deste modo, emitiu-se a recomendação de compra.

Palavras-Chave: Adobe Inc., Avaliação, Fluxo de caixa descontados, Múltiplos Classificação JEL: G30, O22

Abstract

This dissertation aims to calculate the fair value of Adobe Inc. shares as of January 1, 2024. Based on the estimated fair value, it was then compared to its market value at the end of 2023 to determine whether the company is undervalued or overvalued in the market on the date in question.

To this end, two valuation techniques were employed: the discounted cash flow (DCF) method, supplemented by a multiples valuation. The DCF method is based on a detailed analysis of the company's historical data from 2018 to 2023, as well as projections from 2024 to 2030, incorporating macroeconomic trends and industry-specific trends.

The DCF valuation revealed Adobe's potential for sustained revenue growth, driven by its dominance in the digital media segment. It demonstrated a potential undervaluation compared to its current market price, highlighting the company's future growth prospects. The multiples valuation reinforces this conclusion, comparing Adobe's financial indicators favorably with those of its industry peers.

The results obtained through the two selected valuation methodologies indicated a possible undervaluation of the company's shares by approximately 4.43% and 16.37%, according to the DCF method and the multiples valuation method, respectively.

Thus, a buy recommendation is issued.

Keywords: Adobe Inc., Valuation, Discounted Cash Flow, Multiples. **JEL Classification:** G30, O22

Table of Contents

Introduction		1
1. Literatu	re Review	3
1.1 Intr	oduction	3
1.2 Val	uation Methods	3
1.2.1	Discounted Cash Flow Valuation	4
1.2.1.	1 Firm Approach	5
1.2.	1.1.1 Cost of Equity	6
1.2.	1.1.2 Cost of Debt	7
1.2.1.	2 Equity Approach	7
1.2.2	Relative Valuation	8
1.2.3	Contingent Claim Valuation	. 10
2. Compar	y Overview	. 13
2.1 Cor	npany Background	. 13
2.2 SW	OT Analysis	. 15
2.2.1	Strengths	. 15
2.2.2	Weaknesses	. 16
2.2.3	Opportunities	. 17
2.2.4	Threats	. 18
2.3 Por	ter's Five Forces Analysis	. 19
2.4 Bus	siness Segments	. 22
2.4.1	Digital Media	. 22
2.4.2	Digital Experience	. 23
2.4.3	Publishing and Advertising	. 23
2.5 Ind	ustry Outlook	. 24
3. Macroeo	conomic Outlook	. 27
3.1 Gro	oss Domestic Product Growth	. 27
3.2 Une	employment Rate	. 28
3.3 Infl	ation Rate	. 29
4. Perform	ance Indicators	. 31
4.1 Rev	venue Breakdown	. 31
4.1.1	Segment Breakdown	. 31
4.1.2	Geographical Breakdown	. 33

4.2	C	Cost Breakdown	34
4	.2.1	Cost of Revenue	34
4	.2.2	Research and Development	35
4	.2.3	Sales and Marketing	36
5. F	Finan	cial Analysis	37
5.1	Р	rofitability Analysis	37
5.2	L	iquidity Analysis	38
5.3	S	olvency Analysis	40
5.4	S	tock Performance	41
6. V	Valua	tion	43
6.1	V	aluation Assumptions	43
6	5.1.1	Revenue	43
6	5.1.2	Depreciations and CAPEX	14
6	5.1.3	Effective Tax Rate	45
6	5.1.4	Changes in Net Working Capital	46
6.2	D	Discounted Cash Flow Valuation	46
6	5.2.1	Free Cash Flow to the Firm	46
	6.2.	1.1 Estimating Cost of Capital	17
	6	.2.1.1.1 Cost of Equity	17
	6	.2.1.1.2 Cost of Debt	48
	6	.2.1.1.3 Weighted Average Cost of Capital	48
	6.2.	1.2 Terminal Growth Rate	18
	6.2.	1.3 Enterprise Value	49
	6.2.	1.4 Equity Value	49
6	5.2.2	Sensitivity Analysis	50
6.3	R	elative Valuation	51
6.4	V	aluation Results	53
Conc	lusio	n	55
Refer	rences	S	57
Anne	xes		51

Table Index

Table 1.1: Fundamental Determinants of Equity Multiples	9
Table 3.1: GDP growth in the US and the world (2012-2023)	27
Table 3.2: Expected GDP growth in the US and the G7 (2024-2029)	28
Table 3.3: Unemployment rate in the US and the world (2012-2023)	28
Table 3.4: Inflation rate in the US and the world (2012-2023)	29
Table 3.5: Expected inflation rate in the US (2024-2029).	30
Table 4.1: Digital Media revenue breakdown (2019-2023)	31
Table 4.2: Digital Experience revenue breakdown (2019-2023)	32
Table 4.3: Publishing and Advertising revenue breakdown (2019-2023)	32
Table 4.4: Geographical revenue breakdown (2019-2023)	34
Table 4.5: Cost of revenue breakdown (2019-2023)	34
Table 4.6: Research and Development expenses in absolute value and % of rev	venue
(2019-2023)	35
Table 4.7: Sales and Marketing expenses in absolute value and % of revenue (2019-2023))36
Table 5.1: Adobe's profitability ratios (2019-2023)	37
Table 5.2: Adobe's Net Working Capital (2018-2023)	39
Table 5.3: Adobe's liquidity ratios (2019-2023)	40
Table 5.4: Adobe's solvency indicators (2019-2023)	41
Table 6.1: Adobe's Revenue Projections (2024-2030)	44
Table 6.2: Adobe's Capital Expenditures (2024-2030)	44
Table 6.3: Adobe's D&A and cost of capitalized operating leases (2024-2030).	45
Table 6.4: Adobe's effective tax rate (2018-2023)	45
Table 6.5: Adobe's change in NWC projections (2024-2030)	46
Table 6.6: Adobe's FCFF Forecasts	46
Table 6.7: Adobe's capital structure at the end of 2023	47
Table 6.8: Adobe's cost of equity	47
Table 6.9: Adobe's WACC	48
Table 6.10: Adobe's TGR	48
Table 6.11: Adobe's Enterprise Value	49
Table 6.12: Adobe's Share Price (1/1/2024)	49
Table 6.13: Sensitivity Analysis (\$ per share).	50
Table 6.14: Adobe's Relative Valuatio	51

Table 6.15: Adobe's Relative Valuation. Results	52
Table 6.16: Adobe's Share Fair Price	53

Table of Annexes

Annex A: Now-or-never decision rule under the static NPV approach.	61
Annex B: Porter's five forces.	61
Annex C: Software industry market size (Billion USD)	62
Annex D: Adobe's share price analysis (2019-2023).	62
Annex E: Adobe's historical gross and operating profit margins (2019-2023)	63
Annex F: Adobe's historical balance sheet (2019-2023)	63
Annex G: Adobe's historical CAPEX expenses (2018-2023).	64
Annex H: Credit risk rating	64
Annex I: Adobe's relative valuation selection process.	65
Annex J: Adobe's relative valuation computation process.	65

Introduction

This dissertation, submitted in partial fulfillment of the requirements for a Master's degree in Finance, aims to establish a reliable share price value for Adobe Inc. and offer insight into the most commonly used valuation practices. This project aims to equip prospective investors with the necessary tools to make informed decisions regarding potential investments in the company. To achieve this objective, historical data on Adobe was compiled to determine a target price for its shares by the start of 2024.

Adobe Inc., founded in 1982 by John Warnock and Charles Geschke, has been a leader in digital innovation. Its flagship products, such as Photoshop, Illustrator, Acrobat, and the Adobe Creative Cloud suite, significantly influence various industries. The company's deliberate transition from perpetual licenses to a subscription-based model in 2013 marked a critical transformation, resulting in a stable and expanding revenue stream.

Operating through its three business segments — Digital Media, Digital Experience, and Publishing and Advertising — Adobe has consistently performed well in the market, offering sustainable and distinct solutions.

This dissertation is organized into several chapters, each addressing different facets of Adobe Inc.'s equity valuation. Initially, the literature review chapter explores various valuation methods, including DCF, relative valuation, and contingent claim valuation, focusing on their theoretical foundations and practical applications. The company overview chapter provides a SWOT analysis and Porter's Five Forces analysis to evaluate Adobe's competitive position and industry dynamics.

Subsequently, the macroeconomic outlook chapter considers broader economic indicators, such as unemployment and inflation rates, which may affect Adobe's performance. The performance indicators chapter analyzes Adobe's revenue by segment and geography, as well as its costs.

The financial analysis chapter examines profitability, liquidity, and solvency ratios, along with stock performance. The valuation chapter details the key assumptions used by the DCF model, followed by a sensitivity analysis of the most prominent variables and a relative valuation model that complements the DCF model, leading to the final valuation results.

Finally, in the conclusion, the findings are summarized, and a final recommendation is provided based on the comprehensive analysis conducted throughout this dissertation.

1. Literature Review

In the first chapter of this dissertation, we will present an overview of the theoretical foundations and practical applications of three key valuation models: DCF valuation, Relative valuation, and Contingent claim valuation.

This chapter aims to clarify the principles and methodologies of each model, highlighting their importance in modern finance and setting the stage for the subsequent analysis in this dissertation.

1.1 Introduction

Knowing what an asset is worth and what determines that value is a prerequisite for intelligent decision-making. Therefore, valuation occupies a pivotal position within the domain of finance, assuming the role of a fundamental instrument for a diverse spectrum of stakeholders, including investors, corporations, financial institutions, and regulatory authorities.

Valuation is an indispensable source of information, offering critical guidance for investment decisions, facilitating the implementation of sound risk management strategies, enabling judicious capital allocations, and underpins a multitude of financial transactions.

Every asset's value, whether financial or tangible, is a critical consideration. Successfully investing in and managing these assets requires a deep understanding of their assessed value and the factors driving that value. It is worth noting that while all assets can be assigned a value, the process can vary significantly between distinct types of assets. For instance, valuing a real estate property entails a separate set of data and methodologies compared to valuing publicly traded stocks. However, according to Damodaran (2012), what may be surprising is not the variation in techniques across asset types but rather the striking similarity in the fundamental principles of valuation that underpins them all.

Lastly, it is important to acknowledge that valuation inherently involves uncertainty, which stems from the nature of the asset itself and may be further heightened by the complexities of the valuation model used.

1.2 Valuation Methods

According to Damodaran (2006), it is imperative to delineate three core methodologies for asset valuation.

Firstly, the DCF valuation approach establishes a nexus between an asset's intrinsic value and the value of envisaged future cash flows associated with it. Secondly, the relative valuation method involves assessing an asset's value through a comprehensive examination of analogous assets vis-à-vis a shared metric, such as earnings, cash flows, book value, or sales.

Thirdly, contingent claim valuation involves applying option pricing models to assets with option-like attributes, thereby providing a precise and reliable means of determining their value.

1.2.1 Discounted Cash Flow Valuation

The DCF valuation method is commonly acknowledged as one of the most dependable and precise valuation models available in the financial field. According to Mauboussin and Callahan (2021), the discounted cash flow model is the second most popular approach to valuation, following the relative valuation approach, albeit more popular in regions outside the Americas.

Its blueprint values a company essentially by its potential to generate wealth. Thus, its value depends neither on its current situation nor on its past performance but on the cash flows it can generate in the future.

Henceforth, when assessing the value of a company employing the aforementioned model, it is imperative to factor in the present value of anticipated cash flows. This calculation dictates the need to apply an appropriate discount rate that accurately mirrors the cost of capital essential for generating said cash flows. This fundamental principle, elucidated within the framework of DCF valuation, may also be construed as encapsulating the inherent risk associated with the investment.

Under this model's scope, the value of a given company is given by the following formula:

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

where,

 CF_i = cash flow generated by the company in period i.

r = the rate at which the company's estimated cash flows will be discounted, albeit adjusted to their inherent risk.

 TV_n = the terminal value of the company in year n.

n =last period of the explicit forecasting period.

A simplified procedure for considering an indefinite duration of future flows after year n is to assume a constant growth, by the terminal growth rate (TGR), of flows after that period (Fernández, 2007). This concept accounts for the influence of long-term cash flows on the valuation process. It achieves this by discounting these perpetual cash flows that grow at the rate denoted as TGR back to their present value, utilizing an adequate discount rate. As per Damodaran (2006), it is worth noting that this stable growth rate, denoted as g, should not exceed the growth rate of the economy within which the company operates.

Thus, the terminal value in year n is:

$$TV_n = \frac{CF_n(1+g)}{(r-g)} \tag{2}$$

The DCF model has two main versions. Those versions depend upon the nature of the cash flows being discounted: either free cash flow to the firm (FCFF) or free cash flow to equity (FCFE).

1.2.1.1 Firm Approach

Under the DCF approach, the preferred method among experts for firm valuation is the FCFF (McKinsey & Company Inc., et al., 2020). This measure accounts for the cash flow available to all of the company's claim holders after all operating expenses (including taxes) have been paid and necessary investments in working capital and fixed capital have been made. It is obtained by equation (3), presented below:

$$FCFF = EBIT(1-t) + D&A - \Delta NWC - CAPEX$$
(3)

After computing the FCFF value, we will arrive at the first of this model's two stages.

The first stage is computing the enterprise value (EV) by discounting the yearly FCFF by the weighted average cost of capital (WACC) while also considering the terminal value (TV) at perpetuity. To do so, one should follow equation (1) by replacing the cash flows generated by its FCFF, which must now be discounted at the appropriate rate, the WACC.

We are now in a position where we can compute the EQV (equity value), the second stage of the FCFF model, a reflection of what the company's equity is worth:

$$EQV = EV + NOA - Debt \tag{4}$$

The component labeled "NOA" refers to the firm's non-operating assets, i.e., all types of assets, non-current or current, owned by the company and that are not employed in its business. Debt refers to all company liabilities except the items included in the working capital.

When computing a company's value under the firm approach, the FCFF will be discounted by the WACC because it encompasses the cost of capital from all sources, including common stock, preferred stock, bonds, and other forms of debt.

The WACC can be computed by the following equation:

$$WACC = \frac{E}{E+D} * r_E + \frac{D}{E+D} * r_D * (1-t)$$
(5)

where,

E – Market value of equity.

- *D* Market value of debt.
- r_E Cost of equity.
- r_D Cost of debt.
- *t* Corporate tax rate.

As observed in the preceding equation, one of its notable advantages is its computational simplicity.

Nonetheless, as Peterson and Peterson (1996) pointed out, this method is most suitable for companies with stable capital structures. Therefore, the downside presented by the authors determines that the WACC's applicability in the process of valuing companies can be limited since it may introduce subjectivity and bias into the valuation process.

Despite these drawbacks (Luehrman, 1997), the WACC approach still holds value, even though more recent methods may outperform it in certain situations. To correctly compute the WACC's value, one first needs to calculate the cost of equity and debt, topics that will be developed in the following subchapters.

1.2.1.1.1 Cost of Equity

According to Bukvic and investigators (2016), the CAPM (capital asset pricing model) is often used in finance to estimate the cost of equity capital.

The CAPM model, first developed by Sharpe (1964, as cited in Fama & French, 2004) and Lintner (1965, as cited in Fama & French, 2004), did not account for the risk of investment in a foreign country with potential adverse effects stemming from a country's geopolitical environment and economic conditions. Over time, the model suffered several adjustments, and to account for the risk embedded in investing in foreign countries, the CRP (country risk premium) variable was introduced.

Thus, we now arrive at the CAPM formula attributed to Damodaran (2008), where the cost of equity is dependent upon four variables:

- The risk-free rate (r_f) : rate of return of a riskless investment.
- The market risk premium $(MRP = r_M r_f)$: the expected market return is deducted from the risk-free rate.
- The company's beta (β): a measure of the relationship between the expected return of the stock under analysis and the expected return of the stock market.

• *CRP*: the additional premium is required to compensate investors for the higher risk of investing in a country not classed as an AAA country (the highest rating attributable to any country).

Having described the components of the CAPM, we are now able to present its equation.

$$CAPM = r_f + \beta * (r_M - r_f) + CRP$$
(6)

An asset is bestowed with the classification of being risk-free when it has a certain future return and virtually no possibility of rendering the investor a loss.

One tends to associate the risk-free rate with the yield of a government default-free security, usually the yield on the country's 10-year Treasury bonds.

1.2.1.1.2 Cost of Debt

The current cost to the firm of borrowing funds to finance projects is measured by the cost of debt. According to Damodaran (2012), the cost of debt of a given firm is dependent upon a range of variables, namely:

- The risk-free rate: As the risk-free rate increases, the cost of debt for firms will also increase.
- The company's default risk: There is also a positive relation between a company's default risk and its cost of debt.
- The tax advantage associated with debt: Interest is tax deductible. Therefore, the tax benefit that arises from paying interest makes the after-tax cost of debt lower than the pre-tax cost. Similarly, as the tax rate increases, this benefit will also increase.

Considering the tax benefit of debt, it is generally accepted that the best formula to compute the cost of debt is equation (7), i.e., the after-tax cost of debt, dependent upon the pre-tax cost of debt depicted in equation (8).

$$After_tax \ cost \ of \ debt = Pre_tax \ cost \ of \ debt * (1-t)$$
(7)

where,

$$Pre_tax \ cost \ of \ debt = r_f + default \ spread \tag{8}$$

One can estimate the default spread of a publicly traded company either by using its rating or by using a traded bond issued by the company.

1.2.1.2 Equity Approach

In the previous subchapters, we explored the firm approach to valuing a given company. Alternatively, one could opt to use the equity approach, where the cash flows available to the company's shareholders will be considered, i.e., (Fernández, 2007) "the cash flow remaining available in the company after covering fixed asset investments and working capital requirements and after paying the financial charges and repaying the corresponding part of the debt's principal." (p.21).

This is presented in equation (9):

$$FCFE = Net Income + D&A - CAPEX net of disposals - \Delta Working capital + \Delta Debt$$
(9)

Additionally, the formula stated above could be presented using the existing relation between the company's FCFF and its FCFE (Fernández, 2007):

$$FCFE = FCFF - [Interest \, Expenses * (1 - tax)] + \Delta Debt$$
(10)

Having computed the firm's FCFE for the period under analysis, one must now compute its present value using a similar methodology to the firm approach, bearing in mind that the adequate discount rate is now the cost of equity instead of the WACC.

Therefore, the company's equity value is computed using the following equation:

$$EQV = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1+r_E)^t} + \frac{\frac{FCFE_n^*(1+g)}{r_E - g}}{(1+r_E)^n} + NOA$$
(11)

After summarizing the key aspects and methodology to consider in the DCF valuation, both within the Firm and Equity approaches, the upcoming subchapter will shift its focus to a different Valuation Approach: the relative valuation approach.

1.2.2 Relative Valuation

Financial analysts often employ a method known as relative valuation so as to get a grasp on the value of a security or company. A survey with over 2,000 respondents regarding the most popular valuation methods conducted by Mauboussin and Callahan (2021) showed that the relative valuation approach is by far the most prominent and popular approach to valuation.

This approach entails comparing the asset to its counterparts within the industry or market. By examining the asset's price, financial metrics, and performance metrics in relation to similar assets, analysts can better understand its true worth. According to Damodaran (2006), "In relative valuation, we are making a judgment on how much an asset is worth by looking at what the market is paying for similar assets." (p.57)

There are three major steps involved in the relative valuation process.

Firstly, one must find a set of listed companies that possess similar fundamental elements to those of the company under analysis – a peer group – bearing in mind that the degree of similarity will determine the inclusion or exclusion of a given company in that group. The sector

of activity and the geographical markets where the businesses are developed, the asset volume, and the number and profile of employees are examples of the fundamental elements that might be analyzed to choose an accurate peer group.

Secondly, one must convert the market prices to a common variable to enable direct comparison between them. Even though this step can be ignored when considering identical assets, it is of extreme importance when comparing assets that vary in size. Within the stock market context, this equilibrium is typically reached by converting the firm's market value of equity or the entire company into multiples based on earnings, book value, or revenues (Damodaran, 2006).

Thirdly, differences across assets must be considered when analyzing their standardized values. When considering stocks, one should consider the fact that higher-growth companies should display a higher multiple than companies in the same sector that grow at a slower rate. Analysts tend to adjust these fundamental differences qualitatively, implementing a storytelling narrative during the process of valuing a specific company (Damodaran, 2006).

The main advantages of using multiples are that they are relatively simple and straightforward and that they provide a framework for making judgments and establishing a range of values for the true value of the company being analyzed.

Despite the advantages stated above, it is worth noting that multiples carry certain disadvantages. Namely, its simplistic approach of condensing a large set of information into a single number. Its static approach also presents a disadvantage, failing to capture the quick dynamism and ever-changing nature of today's business world.

In Table 1.1, we can observe the most generally accepted valuation multiples, an assumption supported by the statistical evidence provided by the previously mentioned survey. In addition to the underlying ratio, the fundamental determinants and formulas are presented. Namely, the P/E ratio and EV/EBITDA ratio are used 88% and 77% of the time, respectively. Table 1.1:

Multiplas	EQV Multiples		EV Mu	EV Multiples	
Multiples	P/E Ratio	P/B ratio	EV/EBITDA	EV/Revenue	
Determinants	Payout, Risk, Expected Growth	Risk, ROE, Payout and Expected Growth	Reinvestment Rate, Tax rate, and Expected Growth	Operating Margin, Reinvestment rate, and Expected Growth	
Formula	EQV Net Income	EQV Book value of equity	EV EBITDA	EV Revenue	

Fundamental Determinants of Equity Multiples

Source: Adapted from Damodaran (2006)

When compiling a list of common multiples used in business analysis, it is crucial to consider a range of factors that impact their effectiveness. These factors include the unique characteristics of the company being analyzed and the composition of its peer group. Some examples will follow:

- When analyzing a peer group that exhibits significant differences in its capital structure, it is imperative to utilize multiples based on the company's value rather than its market capitalization. Adopting this approach assists in mitigating the impact of varying degrees of indebtedness that may be presented within the group (Custódio & Mota, 2012).
- When considering a peer group comprised of companies from various countries, it is advisable to utilize a multiple based on the company's turnover, specifically the EV to Revenue ratio. This method is not influenced by local regulations or laws, therefore providing a reliable metric for comparison (Custódio & Mota, 2012).

Careful consideration of these factors is essential to derive accurate and meaningful insights from using multiples in financial analysis.

1.2.3 Contingent Claim Valuation

According to Damodaran (2006), the last approach to valuation is the contingent claim approach. This method involves assessing contractual claims on tangible assets by analyzing their option-like features, utilizing option pricing theory.

In the field of finance, contingent claims valuation techniques have been developed to provide a novel perspective on investment and divestment decisions across various industries. These techniques offer significant advantages by enabling the incorporation of flexibility, uncertainty, irreversibility, and timing into the decision-making process, which may not be accounted for by traditional net present values (NPV) approaches. As such, these methods represent a valuable tool for professionals seeking to make informed and strategic decisions in the context of complex financial environments (Dixit & Pindyck, 1994).

On the one hand, the conventional computation of the NPV is predicated upon the premise that a company is steadfastly devoted to a particular investment strategy and cannot adjust to shifting circumstances. Nevertheless, relying exclusively on the DCF methodology may lead to an underestimation of a multitude of potential outcomes, both advantageous and disadvantageous, by concentrating solely on the most likely upcoming cash flows. One potential issue with utilizing standard DCF valuation models is that they may not fully capture the value of flexibility in investment opportunities. This can result in undervaluing such opportunities, which may have a negative impact on overall investment performance.

The term "static NPV" is a critical metric used by traditional DCF methods to assess the financial feasibility of an investment opportunity, and it is computed as the difference between the present value of operating assets and the associated investment costs, as stated by Dias (in press):

Under the static NPV approach, a firm should decide to undertake a specific investment when its NPV is positive because it will increase its asset value. Conversely, when the NPV is negative, the company is better off not making the investment.

Thus, under the above-explained approach, corporate managers face a now-or-never decision-style rule (See Annex A for a graphic depiction).

On the other hand, under the real options approach, the firm has the opportunity to change an investment or operational strategy in the future, thereby allowing itself to make the most of good news and avoid the consequences of bad news. That inherent flexibility implies that the firm can make more profits on the upside and avoid losses on the downside.

Under the real options approach, it is often used the expanded NPV metric so as to reflect both sources of value of a project;

- The static NPV, directly obtained by discounting the expected cash flows.
- A premium for the flexibility embedded in its operating options.

Therefore, the expanded NPV should be computed as;

$$Expanded NPV = Static NPV + Option premium$$
(13)

As previously mentioned, when confronted with operational flexibility, which includes management's ability to postpone, expand, reduce, or terminate a project, it is important to acknowledge that the conventional NPV approach may prove inadequate in addressing the resultant imbalances.

This inadequacy can potentially lead to a significant underestimation of a project's value, as it tends to disregard the inherent option premium element and may consequently provide misleading guidance for capital budgeting.

Having established the differences between both approaches, it is worth noting that the static NPV is a requirement for valuing projects under the real options approach, which implies that there is an underlying relationship between both. In the absence of managerial flexibility, i.e., when the option premium is zero, both approaches boil down to the same number and, therefore, the same investment decision.

Nonetheless, it is important to note that the resemblance between these approaches is not consistently confirmed in all scenarios. To illustrate, when the option to delay an investment decision exists, it introduces two supplementary sources of value.

Firstly, there is a general inclination to prefer deferring payments to incurring them immediately, assuming all other factors remain constant. This preference arises due to the time value of money, which is linked to the postponed expenditure.

Secondly, there is a discernible value in waiting for new information. By delaying a decision, the firm retains the ability to exercise its investment options. However, by holding off until uncertainty is resolved, the firm can avoid making an ill-advised investment, thereby realizing a positive outcome.

2. Company Overview

This chapter aims to provide the reader with a thorough and informative overview of Adobe Inc., a well-known American multinational corporation. We present a concise background of the company, highlighting its primary business segments and their contributions to the overall business. Additionally, we conduct a SWOT analysis to evaluate Adobe's strengths, weaknesses, opportunities, and threats. We will also perform Porter's Five Forces analysis to obtain a better understanding of the competitive forces that impact not only Adobe but the entire software market.

Lastly, we provide a brief overview of the software industry, which will help one better comprehend the competitive environment in which Adobe operates.

2.1 Company Background

Adobe is a prominent American multinational computer software company established in December 1982 by John Warnock and Charles Geschke. The company's name, Adobe, was inspired by the Adobe Creek, which flowed behind Mr. Warnock's residence.

The company has consistently demonstrated an unwavering commitment to technological advancements, emphasizing the development of the PostScript page description language introduced in 1984. This groundbreaking innovation has had a profound impact on the printing and publishing sectors, empowering the production of text and images with unparalleled precision and quality. "(...) This groundbreaking technology allowed users to create high-quality content on laser printers, unleashing a new era of professional-grade graphic design and print media." (Danh, 2023, Revolutionizing Desktop Publishing section).

The impact of PostScript on Adobe's subsequent growth and success is of paramount significance and cannot be overstated. It has played a pivotal role in establishing a solid foundation, enabling the company to achieve numerous milestones over the years. Adobe's continued focus on technological progress indicates its unwavering dedication to excellence and its commitment to delivering innovative solutions to its customers.

Adobe established its position in the market through its pioneering software, including Adobe Illustrator (1987), Adobe Photoshop (1988), and Adobe Acrobat (1993). The company's business operations and product range experienced significant growth until the early 2000s. However, with the advent of the digital era, Adobe shifted from selling boxed software to a subscription-based model. In the year 2013, Adobe launched Adobe Creative Cloud, which provided users with access to its suite of creative software on a subscription basis. This

transition brought about a consistent revenue stream and allowed users to stay up to date with the latest updates and features. Hence, Adobe's shift towards a subscription-based model proved to be a significant milestone in its history.

The company has demonstrated a resolute commitment to bolstering its market position by selectively acquiring companies that contribute to augmenting its product offerings. The most notable acquisitions include Macromedia Inc. in 2005, which brought Adobe products such as Flash and Dreamweaver into the portfolio; Omniture Inc. in 2009 for analytics and marketing software; and Marketo in 2018 for marketing automation (Adobe Inc., 2019).

Adobe's story can also be classed as one of adaptation. In 2011, it transformed from a provider of one-time purchase products to a Software as a Service (SaaS) model. According to the company's CEO, Shantanu Narayen, in an interview with The Wall Street Journal, "A unique opportunity was identified, enabling the company to reinvent the creative space and provide access to the entire suite of Adobe's software at an affordable price to a wider set of customers." (Jones, 2013). The proposed change was considered financially risky, as at the time, most of Adobe's revenue came from physical products and was met with a lot of resistance from the company's consumers due to the magnitude of the transformation proposed by the company's leadership. A decade later, the gamble paid off immensely, as subscriptions are now the company's main revenue driver, further contributing to the establishment of Adobe as the leader in the creative software space.

Most recently, competition authorities blocked Adobe's prospective acquisition of Figma, a topic explained in further detail in subchapter 5.4. While Adobe has earned widespread recognition for its creative software, it has diversified its portfolio by introducing Adobe Document Cloud for efficient document management and Adobe Experience Cloud for advanced marketing solutions.

Adobe is a corporation that places a paramount emphasis on cultivating innovative software technology. Through substantial investments in research and development, the company has persistently sought to expand the horizons of what can be achieved. As a result of these efforts, Adobe has established itself as a preeminent innovator within the industry.

In recent years, to enhance the functionality of its products, the company decided to integrate AI (artificial intelligence) and ML (machine learning) technologies. By leveraging these technologies, Adobe has successfully developed advanced features such as Adobe Sensei, an AI and ML framework. This development highlights Adobe's unwavering commitment to ongoing innovation and its steadfast focus on providing solutions for its customers.

Through an unwavering dedication to extensive research and development, coupled with the seamless integration of cutting-edge technologies, Adobe has successfully emerged as a trailblazer in the software industry. Its profound and enduring influence on various creative sectors, including graphic design, photography, video production, and web development, is irrefutable. As explicitly stated on Adobe's official website (Adobe Inc., 2024), their offerings have become an indispensable resource for experts in these domains and continue to play an instrumental role in the evolution of digital and creative landscapes, with Adobe Photoshop being used by over 90% of the world's creative professionals.

As of April 30th, 2024, Adobe is publicly traded on the NASDAQ, valued at \$473.07 per share, with a market cap of \$211.93 billion. At the end of 2023, the company delivered a total revenue of \$19.41 billion and a net income of \$5.43 billion. Regarding its operational vector, the company has more than 30,000 employees worldwide, and its corporate headquarters are located in San Jose, California, US.

2.2 SWOT Analysis

Understanding the business environment is central to a strategic planning process (Phadermrod et al., 2019). The SWOT analysis is a pivotal instrument for comprehending an organization's internal and external environment. It serves as a strategic decision-making aid by meticulously analyzing its resources and environment and classifying them under four categories – strengths, weaknesses, opportunities, and threats.

This meticulous process provides crucial insights into an organization's current standing, thus facilitating prudent decision-making and effective planning for the future. The first stage when conducting a SWOT analysis is to identify the company's main strengths, which are presented next.

2.2.1 Strengths

Adobe has several competitive advantages that differentiate it from its competitors. These advantages comprise:

• *Brand Recognition:* Adobe is a widely recognized and esteemed global leader in the creative software and document management industry. Its brand is renowned for its proven quality and innovative prowess. Due to its unwavering commitment to excellence and customer satisfaction, it has earned the trust and respect of countless individuals, with over 400 billion PDFs opened and 16 billion documents edited in

Adobe Acrobat during 2023, and entities worldwide, with companies such as Pfizer, IBM, TSB, and Best Buy being examples of companies that were able to optimize their business models using Adobe's software, according to the company's official website (Adobe Inc., 2024).

- *Diverse and innovative portfolio:* Adobe boasts an innovative and varied portfolio featuring some of the top products in the industry, including Photoshop, Illustrator, InDesign, Acrobat, and Creative Cloud. These offerings cater to a broad and diverse range of customers, including creative professionals, businesses, and marketers, providing a reliable source of revenue. Through their successful shift to a subscription-based model with Creative Cloud, Adobe has cultivated a recurring revenue stream, promoting financial stability and customer loyalty.
- User-friendly interfaces: Adobe has garnered a reputation for developing software applications that boast intuitive and user-friendly interfaces. These interfaces have been designed to cater to an audience encompassing both experienced professionals and novices, ultimately expanding Adobe's customer base. Furthermore, with a robust global presence and a diverse clientele across various regions, Adobe has successfully adapted to regional preferences and demands, thus cementing its position as a dominant industry player.
- *Commitment to innovation:* Adobe is committed to innovation and channels a significant amount of funds into research and development, ensuring that its products remain at the forefront of technology and continue to meet the evolving needs of its users.

2.2.2 Weaknesses

During the subsequent stage, our focus is directed toward the company's weaknesses as we transition from our initial examination of its strengths. As part of this process, we have identified areas of concern, as presented in the following paragraphs:

• Dependence on its Creative Cloud: Adobe's dependence on its Creative Cloud suite renders the company vulnerable to changes and shifts within the creative industry. Any notable changes, including amplified competition or significant shifts in the industry, could substantially impact Adobe's revenues. Therefore, it is essential for the company to maintain a vigilant watch on industry developments and be proactive in responding to them to ensure the continuity and longevity of its business.

- *Piracy and security issues:* Adobe software has a well-documented history of facing piracy issues, which, in addition to resulting in potential revenue diminution, poses severe security concerns. Pirated software may harbor malware or other malicious programs that can compromise the integrity of the user's system.
- *Customer resistance:* Adobe encountered a certain degree of resistance from its clientele upon transitioning to a subscription-based model. As stated in the article published by Finley (2013), certain customers displayed a preference for the previous perpetual licensing model. This expression of preference prompted some customers to seek alternative software options, which caused a decline in Adobe's market share. The company was then able to regroup and become the leader it is today, but it still faces some resistance from its customers, especially due to the announced subscription cost increase (Clark, 2024).

2.2.3 **Opportunities**

The third stage involves the analysis of the company's opportunities. In the specific case of the company under analysis, we believe that the ones presented below accurately reflect the company's prospects:

- *Expansion into emerging markets:* One area of strategic interest for Adobe is expanding its product offerings into emerging markets, such as augmented reality (AR), virtual reality (VR), and industries beyond its core creative and design markets. Furthermore, Adobe can capitalize on the increasing adoption of cloud computing by continuing to provide cloud-based services and products that offer greater flexibility to its users.
- *AI and ML integration:* Another potential growth area is the integration of AI and ML technologies into its software, which can enhance user experiences, automate repetitive tasks, and assist in content creation. In recent months and according to Adobe Video & Motion (2024), the company has taken significant steps to seize this opportunity, enhancing Premier Pro not only with Adobe Firefly, its in-house AI video model, but also with third-party models such as Open AI's Sora, specializing in the generation of b-roll footage through simple text prompts, and Pika, a model that assists with the generative extend feature thereby helping to expand scenes and enhance flow within the footage seamlessly. Lastly, Adobe has also announced the

incorporation of Runway AI's video model so as to add new video clips to an editor's timeline swiftly.

• *Mobile base expansion:* As the prevalence of mobile devices and tablets continues to proliferate, it is of utmost importance that Adobe adapts its products to these platforms. Doing so would enable the company to cater to the expanding mobile user base and the on-the-go needs of creatives and professionals alike. By optimizing its products for mobile devices, Adobe can assert its relevance and competitiveness in the rapidly evolving digital landscape.

2.2.4 Threats

The final phase of a SWOT analysis comprises the meticulous identification and comprehensive elucidation of factors that may potentially threaten the organization. This essential step is critical to mitigate the impact of potential risks and to ensure that the corporation attains long-term sustainability. Next, we present some of those factors:

- *Significant competition:* Adobe faces significant competition from industry players such as Autodesk, Corel, and various open-source alternatives. Some of these competitors provide similar products at lower prices, thereby threatening Adobe's market share and pricing power.
- *Data breaches:* Given the nature of Adobe's handling of sensitive data and documents, it is exposed to a multitude of threats related to data breaches and security vulnerabilities. The occurrence of any security lapses could have severe repercussions, including reputational damage and potential legal issues. Therefore, it is of utmost importance for Adobe to prioritize and ensure the privacy and security of its client's data through the implementation of rigorous security measures.
- *Consumer preferences:* It is of utmost importance for Adobe to maintain a mindful awareness that consumer preferences have the potential to shift rapidly and significantly impact the demand for its products and services. Therefore, it is incumbent upon Adobe to recognize with due diligence the critical significance of remaining highly adaptable and responsive to these constantly evolving preferences to sustain and expand its user base effectively.
- *Environment regulation:* Adobe inhabits a regulatory environment marked by strict legal frameworks. Taking this into account, it is non-negotiable that the company

adheres to the constantly evolving copyright, data privacy, and digital rights management laws that hold considerable sway over its operations.

• *Economic downturns:* During periods of economic decline, it is possible that organizations may reduce their spending on software and subscriptions, which could potentially have an unfavorable impact on Adobe's revenue. As such, Adobe's financial resilience may be put to the test during such times.

2.3 **Porter's Five Forces Analysis**

The Five Forces model was introduced by the highly esteemed Harvard professor, Dr. Michael E. Porter, around the year 1979. It has become a globally recognized and celebrated concept in formulating corporate, business, and organizational strategies. For more than 25 years, it has remained one of the most fundamental and frequently taught strategic concepts in business education. Porter's earliest and most indispensable strategic framework, the model, fosters a more systematic and rigorous understanding of industry structure, competitive advantage, and the multifaceted aspects of strategy and business competition (Roman, 2015).

The model indicates that five forces are crucial in generating competitive pressures within an industry. In the following paragraphs, we will provide a detailed analysis of these five forces, taking a broad and in-depth approach. Furthermore, a score of 1 to 5 will be attributed to each force dependent upon our analysis of the relevant factors presented for each. By classifying forces on a scale – 1 for *low, 2* for *moderate to low, 3* for *moderate, 4* for *moderate to high, and* 5 for *high* – we can visually represent them, making it easier to visualize and comprehend. This approach allows us to display the information clearly and succinctly, ensuring that our audience can easily understand it.

The initial step towards evaluating a business's industry environment entails a comprehensive analysis of its competitive landscape under the "Industry competition" force purview. This includes a meticulous assessment of the industry's competition level, as this factor significantly impacts business profitability. High competition, characterized by a substantial number of firms, slow growth, and minimal differentiation, can result in price wars and reduced profitability. Conversely, low competitive rivalry can create an amenable environment for companies to compete and generate profits.

In Adobe's context, the level of industry competition is *high*, attributable to a myriad of factors, including numerous competitors and price competition. Adobe operates in a highly competitive industry with a vast number of competitors, ranging from Autodesk and Corel to

Microsoft, who compete through Office and cloud services. The software industry is characterized by incessant innovation, and thus, Adobe must perpetuate its high spending on research and development. The advent of subscription-based models has significantly increased the level of price competition. Consequently, companies have adjusted their strategies to attract new and retain existing customers, leading to price wars.

These factors contribute to a score of 5 when evaluating the industry competition force.

The "Threat of New Entrants" refers to how easy or difficult it is for new companies to enter a market. If there are high barriers to entry, like hefty capital requirements, a loyal customer base, or strict government regulations, it can make it less attractive for newcomers. This can be an advantage for existing companies. Conversely, if barriers to entry are low, it can increase the likelihood of new competitors. In the software industry, there are significant obstacles to entry, which can discourage potential newcomers. These barriers include the large financial investment required for research and development to maintain cutting-edge software products.

Due to its size and scale, Adobe can take advantage of economies of scale, leading to cost benefits that new entrants would find difficult to emulate. Furthermore, Adobe's expanding portfolio enables it to spread its research and development costs across a wide range of products, allowing it to maintain competitive pricing.

Considering all of these factors, the possibility of new entrants in the market poses a *low* threat, scoring only *l* on the threat scale.

The "Bargaining Power of Suppliers" is a critical aspect that determines suppliers' influence over an industry. It involves suppliers' ability to increase prices, reduce the quality of supplies, or impose unfavorable terms, directly affecting an industry's profitability. The degree of supplier power can be higher in cases where alternative suppliers are limited.

In the case of Adobe, the threat posed by supplier power is *moderate to low*. The company's in-house development of a wide range of software products allows it to maintain a high degree of control over its software development process, thereby reducing dependence on external suppliers for core components. Additionally, Adobe's position as one of the largest software companies in the market, according to Anjum (2024), provides it with a considerable scale and production volume, further strengthening its bargaining power during supplier negotiations. From the supplier's perspective, having Adobe as a client is a testament to their reliability, which reduces their willingness to exert pressure on pricing or terms.

The above-mentioned factors collectively contribute to a score of 2 when assessing suppliers' bargaining power.
To evaluate potential market risks accurately, it is essential to consider the "Bargaining Power of Customers." This pertains to customers' influence on an industry by demanding favorable terms such as lower prices and higher quality. The degree of bargaining power that customers possess is directly correlated with the industry's competitiveness. Industries with numerous fragmented buyers typically see lower customer bargaining power than those with a few concentrated buyers. After a thorough evaluation, we classified customers' bargaining power as moderate based on factors such as switching costs and competing products. The same analytical methodology employed earlier will be utilized to assess the possible threats that the bargaining power of customers could pose.

Adobe's software is renowned for its seamless integration into users' workflows. Therefore, any potential shift from Adobe's software to an alternative carries significant risk for end-users, including possible disruptions and constraints on their workflows. This could lead to customers having reduced bargaining power and flexibility. Nevertheless, the market offers a wide range of competing software options, providing customers with a plethora of choices. This allows customers to exert pressure on Adobe and demand adjustments to its services and prices, which the company must consider in order to maintain its competitiveness.

In conclusion, based on the factors presented, we assign a score of 3 to the bargaining power of customers.

The last force is titled "The Threat of Substitute Products" which analyzes the potential for customers to choose alternative products. The availability of numerous substitutes can render an industry less attractive as it exerts downward pressure on prices and profitability. Close substitutes increase the threat to an industry. The threat level emanating from substitute products is *moderate to high*, which can be attributed to various factors such as the inherent learning curve and the availability of online alternatives.

Mastering Adobe's products and maximizing their utility requires a considerable amount of time investment. Replacing Adobe's software with alternative solutions would demand significant changes and adjustments to an already established workflow, which can represent a significant barrier.

For a vast majority of individuals, Adobe's software features intricate complexities that are beyond their understanding. Consequently, free online alternatives pose a substantial threat in most scenarios. Considering all these factors, the threat of substitute products scores a *4* out of 5 (See Annex B for a graphic depiction of Porter's Five Forces).

2.4 **Business Segments**

Adobe has implemented a business model predicated upon the subscription framework, consisting of three distinct and separate segments: Digital Media, Digital Experience, and Publishing and Advertising.

2.4.1 Digital Media

According to the latest report on the company's official website (Adobe Inc., 2023), the digital media segment contributes significantly to the company's revenue. The company provides, as stated in its latest report (Adobe Inc., 2023), an "extensive range of products, services, and solutions that empower individuals, teams, and enterprises to create, publish, and promote their content across multiple platforms easily and conveniently" (p. 40). Furthermore, the company is committed to revolutionizing how its clients view, share, engage with, and collaborate on documents and creative content to enhance their productivity and streamline their operations.

Adobe has a profound and exceptional opportunity to capitalize on the current digital landscape, where the global economy is propelled by content, design, and creativity. These dimensions have never been more critical and provide a significant market opportunity for Adobe in digital media. The company's strategic approach is rooted in its product and service offerings, which aim to facilitate the seamless and consistent delivery and design of content to a diverse range of customers, including individuals, teams, small and medium-sized businesses, and government institutions, according to its latest report (Adobe Inc., 2023). The ultimate objective of this approach is to enable these customers to create and disseminate content with maximum efficiency.

Adobe's Digital Media portfolio comprises two primary categories of products: Creative Cloud and Adobe Document Cloud.

As stated in the company's official reports, Adobe Creative Cloud is a cloud-based subscription service that provides creative professionals with access to a comprehensive suite of applications and services for photography, design, video, and web. These applications and services facilitate user's creative expression and collaboration with others across an array of devices, platforms, and locations. Adobe Photoshop, Adobe Lightroom, and Adobe Illustrator, among others, are some of the software available in the Creative Cloud (Adobe Inc., 2023).

Adobe Document Cloud is a cloud-based subscription service that provides dependable and automated digital documents and signature workflows. It operates across desktop, mobile, web, and third-party enterprise applications to streamline productivity for individuals, teams, small businesses, and enterprises. Adobe Acrobat, Acrobat Web, Adobe Acrobat Reader, and Adobe Scan, among others, are some of the software programs available in Adobe Document Cloud.

2.4.2 Digital Experience

The digital experience segment is Adobe's second-largest revenue contributor. The company's goal is to deliver an all-inclusive platform that encompasses a wide range of applications and services, facilitating brands and businesses in the creation, management, execution, measurement, monetization, and optimization of customer experiences across various channels.

The digital experience segment caters to a diverse customer base that comprises marketers, advertisers, agencies, publishers, web analysts, and data scientists. In the current era, businesses and governments alike are undergoing digital transformation. Customers demand personalized experiences that extend beyond product offerings and encompass the overall experience. Adobe has acknowledged this paradigm shift and is committed to providing secure and engaging experiences that span various channels and devices. Adobe Experience Cloud is a collection of products and solutions that empower organizations to manage the customer experience.

These solutions are integrated into a cloud-based platform and come with service, support, and an open ecosystem. The Experience Cloud encompasses Adobe Experience Platform, Data, Insights, Audiences, Content and Commerce, Customer Journeys, Marketing Workflow, and Digital Enrollment and Onboarding (Adobe Inc., 2023).

2.4.3 Publishing and Advertising

While ostensibly the least significant segment of Adobe's revenue, publishing and advertising encompasses a range of products and services that cater to a diversity of market opportunities, including, but not limited to, technical document publishing, eLearning solutions, web conferencing, and Adobe's Advertising Cloud offerings. Notably, given the recent and significant evolution of high-end printing systems towards full digitization, Adobe is uniquely positioned to provide top-tier software and technology based on the industry's Adobe PostScript and Adobe PDF standards.

Furthermore, it warrants noting the considerable significance of Adobe Advertising Cloud, a service that affords an end-to-end, demand-side platform. It enables advertising management across digital formats and streamlines the delivery of video, display, and search advertising across channels and screens.

2.5 Industry Outlook

As per the North American Industry Classification System (NAICS), Adobe is categorized within the subsector commonly referred to as "Software Publishers". As stated on their website (NAICS Association, n.d), the industry in question encompasses establishments that are principally engaged in software publishing. These establishments undertake the necessary operations to produce and distribute computer software, including but not limited to designing, providing documentation, assisting in installation, and furnishing support services to software publishing subsector constitutes a significant and dynamic element of the wider software and information technology (IT) industry.

The United States of America has established a preeminent presence in the global IT market. According to the Official Website of the International Trade Administration (n.d.), the market under analysis commands a share of one-third of the \$5 trillion global IT market, thereby securing its position as the world's largest tech market. The sector's noteworthy contribution to the US value-added GDP exceeds 10% of the national economy, amounting to \$1.9 trillion, and providing employment to 12.1 million individuals. This industry encompasses a diverse range of professions, including software publishers, custom computer programming service providers, computer systems design firms, and facilities management companies, all of which benefit from a highly skilled and well-educated workforce, which includes 1.6 million software and web developers.

According to the same source (International Trade Administration, n.d.), in 2019, the tech industry in the USA generated 307,000 new jobs, bringing the total number of tech occupation job postings to 4.9 million.

The global software industry market size was estimated at \$589.6 billion in 2022, and it is anticipated that it will reach a value of around \$1,789.14 billion by 2032. A compound annual growth rate (CAGR) of 11.74% is expected during the forecast period of 2023 to 2032 (Precedence Research, n.d.) (See Annex C).

Adobe is a renowned player in the software industry, widely acknowledged for its creative software products, document management solutions, and marketing automation tools. The company's Creative Cloud suite, which comprises software such as Photoshop and Illustrator, is expected to remain a crucial element for creative professionals and businesses globally. The company also successfully transitioned into a subscription model, where the inherent revenue stream is expected to remain stable over time.

Furthermore, it is worth noting that the company boasts a significant international presence and is expected to continue expanding its global footprint, focusing on emerging markets where the demand for creative and document management solutions is growing.

According to Rana and Patel (2023), companies less exposed to small and medium businesses, such as Adobe, are expected to continue in their growth trajectory. Large software providers have seen a spike in valuations contrasting to that of smaller companies, which have experienced a drop in returns fueled by negative revisions in sales-growth estimates due to the pressure felt by their greater level of exposure to small and medium businesses. Another variable that positively influences the valuation of large-cap software companies is the possibility that the US Federal Reserve (Fed) is nearing the end of its rate-hike cycle.

Furthermore, Adobe is the seventh-biggest software company in the world behind corporations such as SAP, Salesforce, Oracle, Alphabet, Apple, and Microsoft (Anjum, 2024).

3. Macroeconomic Outlook

The study of macroeconomics is pivotal in today's global environment. Understanding the macroeconomic outlook is essential for informing policy decisions, strategic planning, and economic direction. This chapter provides an analysis of the macroeconomic outlook, specifically focusing on the United States (US).

The G7, comprising some of the US's major trading partners, significantly influences market dynamics and policy coordination, informs strategic decision-making, and shapes global investor sentiment. Adobe, as stated in its official reports for 2023 (Adobe Inc., 2023), derives a substantial portion of its revenues from these economies, serving as the reason behind the decision to use G7 performance as a benchmark for evaluating US economic performance,

3.1 Gross Domestic Product Growth

The GDP constitutes a pivotal economic measure that represents the comprehensive market value of all goods and services generated within the territorial jurisdiction of a nation-state during a specified temporal interval, typically a fiscal year or a quarter, serving as a crucial gauge of a nation's economic performance and is indispensable for evaluating the scale and vitality of an economy. The analysis shall encompass the period starting from the year 2012 and continuing through the year 2023.

Table 3.1:

GDP growth in the US and the G7 (2012-2023)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
US	2.30%	2.10%	2.50%	2.90%	1.80%	2.50%	3.00%	2.50%	-2.20%	5.80%	1.90%	2.50%
G7	1.40%	1.50%	2.00%	2.20%	1.60%	2.40%	2.10%	1.70%	-4.10%	5.50%	2.20%	1.70%
		-										

Source: IMF DataMapper

The economic recovery after the 2008 subprime crisis, set off by the collapse of Lehman Brothers, was not uniform across nations. This was due to disparities in their economic and financial stability and the impact of asymmetric shocks affecting countries in varying degrees of magnitude. The report released by Chen et al. (2018), found that countries with sound fiscal conditions, well-regulated and supervised banks, and flexible exchange rates were confronted with less damage.

From 2009 to 2019, the US economy demonstrated positive growth, indicating a positive recovery from the subprime crisis. Nonetheless, the COVID-19 pandemic resulted in a decline of -2.20% in 2020. In 2021, the US's GDP ascended to 5.80%, in line with the values displayed for the G7, around 5.50%.

	2024	2025	2026	2027	2028	2029
US	2.70%	1.90%	2.00%	2.10%	2.10%	2.10%
G7	1.70%	1.60%	1.60%	1.60%	1.60%	1.60%

Expected GDP growth in the US and the G7 (2024-2029)

Source: IMF DataMapper

Table 3.2:

The expected GDP growth for the US and the G7 reveals distinct trends. The US GDP growth will fluctuate between 1.90% and 2.70%, starting strong in 2024 at 2.70% before stabilizing around 2.10% annually. In contrast, G7 growth is expected to remain consistently around 1.60% throughout the period. The US consistently outperforms the G7 average, indicating greater dynamism and resilience. However, the gap narrows over time as US growth stabilizes and G7 rates remain steady. While the US demonstrates stronger growth, the consistent but slower growth of the G7 suggests broader global economic challenges.

3.2 Unemployment Rate

The determination of the unemployment rate during the period under analysis, from 2012 to 2023, is ascertained by the division of the population of individuals without gainful employment but actively seeking work by the total labor force. This ratio is a crucial indicator of the labor market's vitality and the nation's economic well-being.

Unemployment rate in the US and the G7 (2012-2023)

1	-			`	/							
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
US	8.10%	7.40%	6.20%	5.30%	4.90%	4.40%	3.90%	3.70%	8.10%	5.40%	3.60%	3.60%
G7	7.40%	7.10%	6.40%	5.80%	5.40%	5.00%	4.50%	4.30%	6.50%	5.20%	4.10%	4.10%
Courses	IME Data	lannan										

Source: IMF DataMapper

Table 3.3:

When analyzing the evolution of a country's GDP and its associated variables, it is often possible to establish a direct relationship between them. Specifically, the unemployment rate may be classified as a counter-cyclical variable, indicating a negative and direct correlation with the GDP; hence, an increase in unemployment is observable during periods of economic downturn and a decrease during periods of economic expansion.

Consequently, this supports the conclusions derived from the GDP analysis, in which during the period of recovery after the subprime crisis, the unemployment rate in the US and the G7 declined from 8.10% and 7.40% to 6.20% and 6.40%, respectively.

As previously mentioned, the COVID-19 pandemic inflicted significant harm on economies, resulting in an abrupt surge in the unemployment rate. The maximum unemployment rate for both economies coincided with the period when the risk of contamination by the COVID-19 virus was at its highest, which happened in 2020.

3.3 Inflation Rate

The analysis of the inflation rate, i.e., the yearly percentage alteration in the mean price level of a collection of commonly procured goods and services in an economy over a specified period (Fernando, 2024), is of paramount significance when analyzing macroeconomic conditions. In accordance with the methodology deployed when analyzing the preceding variables, the data set spans from 2012 to 2023.

Table 3.4:

Inflation rate in the US and the	the G7 (2012-2023)
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	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
US	2.10%	1.50%	1.60%	0.10%	1.30%	2.10%	2.40%	1.80%	1.20%	4.70%	8.00%	4.10%
G7	1.90%	1.30%	1.50%	0.30%	0.80%	1.80%	2.10%	1.50%	0.80%	3.30%	7.30%	4.70%
Source:	IMF DataN	Aapper										

Initially, and excluding the year 2015 from consideration, the inflation rate remained relatively stable until the years 2021 and 2022. The year 2022 commenced with promising indications of global economic recovery from the COVID-19 pandemic in the last quarter of 2021 and the first quarter of 2022. However, the global economic scenario underwent an abrupt transformation in the second quarter of 2022 as a result of Russia's invasion of Ukraine perpetuated in February 2022, resulting in a significant surge in the inflation rate to 8% and 7.30% in the US and in the G7, respectively. This resulted in a worldwide cessation of economic growth and a significant escalation in energy and food prices, further exacerbating the inflationary pressures that had already been triggered by the pandemic's impact on the global economy over the past two years.

It is noteworthy that the International Monetary Fund (IMF) has recommended continuing the present monetary policy to restore price stability. Additionally, fiscal policy must align with monetary policy, focusing on reducing the cost of living.

When considering the inflation rate, it is imperative to consider its pertinent forecasts. As per the data presented in Table 3.5, the inflation rate in the United States is expected to decrease from 4.1% in 2023 to approximately 2.9% in 2024. After the drop, the inflation rate is predicted to continue its downward trajectory until it reaches a value of around 2%, in line with the medium-term price stability goal.

Table 3.5:

	2024	2025	2026	2027	2028	2029
US	2.90%	2.00%	2.10%	2.10%	2.10%	2.10%
G7	2.60%	2.00%	2.00%	2.00%	2.00%	2.10%

Expected inflation rate in the US (2024-2029)

Source: IMF DataMapper

4. Performance Indicators

In this chapter, we will examine Adobe's financial performance in detail, focusing on revenue and cost drivers, with the ultimate purpose of assessing its health and long-term sustainability. With that in mind, we aim to provide a comprehensive analysis of the various sources of income crucial for its growth and the costs affecting its profitability and operational efficiency.

4.1 Revenue Breakdown

This section aims to provide a detailed explanation of the various revenue sources that are crucial for supporting the company's expansion. It also includes a comprehensive analysis of the geographic regions in which Adobe operates. Our main goal is to gain a deeper understanding of Adobe's business practices and identify the key markets in which it operates.

4.1.1 Segment Breakdown

As previously stated, Adobe has structured its business operations into three distinct segments: Digital Media, Digital Experience, and Publishing and Advertising.

Table 4.1:

Million USD	2019	2020	2021	2022	2023
Creative Cloud	6,482	7,736	9,546	10,459	11,517
YoY Growth		19.3%	23.4%	9.6%	10.1%
Document Cloud	1,225	1,497	1,974	2,383	2,699
YoY Growth		22.2%	31.9%	20.7%	13.3%
Total Digital Media Revenue	7,707	9,233	11,520	12,842	14,216
YoY Growth		19.8%	24.8%	11.5%	10.7%

Digital Media revenue breakdown (2019-2023)

Source: Adapted from Adobe's Form 10-K

The digital media segment encompasses the Creative Cloud and Document Cloud offerings, both of which experienced significant and continuous growth over the period under analysis. The greatest shift in revenue for both product offerings was registered in fiscal year 2021, with annual growth of 23.4% and 31.9% for the Creative Cloud and Document Cloud offerings, respectively. Additionally, in fiscal year 2023, Creative Cloud revenue rose to \$11.52 billion, up from \$10.46 billion in fiscal year 2022, indicating a year-over-year (YoY) growth of 10.1%. Similarly, Document Cloud revenue increased to \$2.70 billion in fiscal year 2023, up from \$2.28 billion in fiscal year 2022, with a YoY growth of 13.3%.

Overall, the digital media segment recorded a significant revenue increase, reaching \$14.22 billion in fiscal year 2023, up from \$12.84 billion in fiscal year 2022, representing a 10.7% YoY growth. According to Adobe's Form 10-K (Adobe Inc., 2023), this continuous and significant growth is mainly attributed to amplified demand for the company's Creative and Document Cloud subscription offerings in a progressively digital environment, robust engagement across customer segments, and customer migration to higher-valued subscription offerings with increased revenue per subscription.

Table 4.2:

8 1	/				
Million USD	2019	2020	2021	2022	2023
Subscription Revenue	2,280	2,660	3,379	3,880	4,331
YoY Growth		16.7%	27.0%	14.8%	11.6%
Others	515	465	488	542	562
YoY Growth		-9.7%	4.9%	11.1%	3.7%
Total Digital Experience Revenue	2,795	3,125	3,867	4,422	4,893
YoY Growth		11.8%	23.7%	14.4%	10.7%

Digital Experience revenue breakdown (2019-2023)

Source: Adapted from Adobe's Form 10-K

Regarding the digital experience segment, Adobe's revenue has exhibited consistent growth over the period under analysis due to the continued growth in subscription revenue across the company's offerings and the strategic acquisitions carried out by the company, as highlighted in subchapter 2.1, according to Adobe's Form 10-K (Adobe Inc., 2023). The greatest increase occurred in the fiscal year 2021, where the revenue for the company's digital experience segment amounted to \$3.87 billion, registering a year-over-year growth of 23.7% attributed to the significant increase in terms of subscription revenue from the acquisition of Workfront, a company best known for its leading work management platform for marketers. In the fiscal year 2023, the revenue for Adobe's Digital Experience amounted to \$4.89 billion, representing a 10.7% increase from the preceding year's revenue of \$4.42 billion.

Table 4.3:

Publishing and Advertising revenue breakdown (2019-2023)

	1				
Million USD	2019	2020	2021	2022	2023
Publishing and Advertising	669.0	510.0	398.0	342.0	300.0
YoY Growth		-23.8%	-22.0%	-14.1%	-12.3%

Source: Adapted from Adobe's Form 10-K

The third and least significant revenue segment for Adobe is publishing and advertising, which registered an impressive decrease in revenue starting in 2019. Although the reasons behind the abrupt and continuous drop in revenues are not disclosed by the company in its annual report, one can assume that they are twofold.

Firstly, the company may have experienced a drop in its publishing revenues due to a decrease in the number of licensing agreements for its technology used by OEMs (Original Equipment Manufacturers) that produce workflow software, printers, and other output devices.

Secondly, the company may have experienced a drop in its advertising revenues due to a drop in its usage-based offerings (where the company charges its customers based on their actual usage of Adobe's legacy products and services rather than a fixed subscription fee).

4.1.2 Geographical Breakdown

Adobe is an esteemed multinational corporation with a worldwide presence. Over the period under analysis, from fiscal year 2019 to fiscal year 2023, it was able to achieve a remarkable surge in overall revenue across all regions, with their respective weights in terms of total revenue remaining relatively stable over time. This commendable upward trend in revenue can be primarily attributed to a significant increase in Digital Media revenue and a relatively less substantial growth in Digital Experience revenue (Adobe Inc., 2023). Another one of the factors contributing to Adobe's sustained expansion across all geographical regions was the implementation of its foreign currency hedging program. This program effectively manages currency risk by locking in exchange rates for upcoming transactions, thereby stabilizing financial performance. To conclude, this initiative is crucial for maintaining financial stability and competitiveness within the worldwide market.

According to Adobe's Form 10-K (Adobe Inc., 2023), from 2022 to 2023, the US dollar strengthened against foreign currencies in the EMEA and APAC regions, leading to a decrease in the company's revenue of \$371 million in US dollar terms. However, it is important to note that during fiscal 2023, a portion of the adverse foreign currency impacts on revenue were offset by the company's net hedging gains realized through the cash flow hedging program, amounting to \$41 million.

Table 4.4:

Million USD	A	mericas		EMEA	APAC		
	\$	% Revenue	\$	% Revenue	\$	% Revenue	
2019	6,506	58.2%	2,975	26.6%	1,690	15.1%	
2020	7,454	57.9%	3,400	26.4%	2,014	15.7%	
2021	8,996	57.0%	4,252	26.9%	2,537	16.1%	
2022	10,251	58.2%	4,593	26.1%	2,762	15.7%	
2023	11,654	60.0%	4,881	25.1%	2,874	14.8%	

Geographical revenue breakdown (2019-2023)

Source: Adapted from Adobe's Form 10-K

Upon examining Table 4.4, which displays the weights of all regions in relation to the company's total revenue, it becomes apparent that the Americas region has remained a vital market, consistently hovering at approximately 60%, followed by the EMEA region at around 25%, while the APAC region consistently contributes approximately 15%.

4.2 Cost Breakdown

Following the same rationale presented in subchapter 4.1, we aim to conduct a comprehensive analysis of Adobe's expenses, focusing on discerning the constituent elements that impact profitability and operational efficiency.

4.2.1 Cost of Revenue

The expenses directly associated with the production or acquisition of goods and services sold by a company are referred to as the cost of revenue. Adobe has opted to categorize its total revenue cost into three distinct sections: subscription, product, and service and support. Table 4.5:

Million USD	2019	2020	2021	2022	2023	
Subscription	1,223	1,108	1,374	1,646	1,822	
Product	40	36	41	35	29	
Services and support	411	578	450	484	503	
Total cost of revenue	1,673	1,722	1,865	2,165	2,354	
						-

Cost of revenue breakdown (2019-2023)

Source: Adapted from Adobe's Form 10-K

As per Adobe's Form 10-K for fiscal year 2023 (Adobe Inc., 2023), revenue costs are categorized as follows: Subscription-related costs encompass third-party hosting services, data center expenses, and operational costs for the company's network infrastructure. Product-related costs mainly comprise third-party royalties and localization expenses. Lastly, service and support-related costs encompass compensation and contracted expenses for consulting

services, training, and product support. The overall cost of revenue has shown a consistent rise over the years, primarily driven by increases in hosting and data center expenditures, alongside escalated base and incentive compensation, as indicated by the company (Adobe Inc., 2023).

4.2.2 Research and Development

Research and development (R&D) expenses encompass expenditures associated with creating novel products, processes, or services. We aim to review R&D expenses and explore the factors that impact them. As a company operating in the technology sector, the continued differentiation of its products is of significant importance, which is why R&D is the second-largest expense in the company's income statement.

Table 4.6:

Million USD		R&D					
	\$	% Revenue	YoY				
2019	1930	17.3%					
2020	2188	17.0%	13.4%				
2021	2540	16.1%	16.1%				
2022	2987	17.0%	17.6%				
2023	3473	17.9%	16.3%				

Research and Development expenses in absolute value and % of revenue (2019-2023)

Source: Adapted from Adobe's Form 10-K

After a quick glance at the historical period under analysis, one can infer that the relative weight of R&D expenditure hovers around 17% of total revenue, thereby highlighting the close relationship between the two variables. The increase in expenses is directly linked with the continuous hire of software developers to maintain the competitive advantage that Adobe was able to conquer in its early years.

Therefore, the company must uphold a steadfast dedication to substantial investments in R&D, as this significantly influences the company's adaptability to changes in customer needs and market dynamics. Insufficient allocation to research and development may result in a tardy response to market demands, thereby impacting revenue streams. Given the paramount importance of R&D investment in facilitating Adobe's growth, the company is anticipated to increase its expenditures commensurate with its revenue expansion.

4.2.3 Sales and Marketing

According to the company's annual Form 10-K (Adobe Inc., 2023), "Sales and marketing (S&M) expenses consist primarily of compensation costs, amortization of contract acquisition costs, including sales commissions, travel expenses and related facilities costs for our sales, marketing, order management, and global supply chain management personnel." (p.43) Table 4.7:

8 1	5						
Million USD		S&M					
	\$	% Revenue	YoY				
2019	3,244	29.0%					
2020	3,591	27.9%	10.7%				
2021	4,321	27.4%	20.3%				
2022	4,968	28.2%	15.0%				
2023	5,351	27.6%	7.7%				

Sales and Marketing expenses in absolute value and % of revenue (2019-2023)

Source: Adapted from Adobe's Form 10-K

S&M represents the greatest expense in Adobe's income statement, hovering around the 28% mark as a percentage of total revenue. Starting in 2019, a sustained increase in absolute terms has transpired, with the increase in the level of expenses associated with marketing campaigns and incentive compensations (stock and cash-based) as its main contributors.

We decided to highlight 2021, where a 20% increase was registered, the greatest over a five-year span. According to Adobe Form 10-K (Adobe Inc., 2021), the enormous increase was justified by a 10% increase in marketing expenses related to campaigns and events and a 5% increase in incentive compensation, whether cash or stock-based.

In conclusion, S&M is still expected to remain the expense leader on Adobe's income statement, with the caveat that its recent evolution, barring 2021, shows a tendency to stabilize around the 13% mark in terms of YoY growth and a relative decrease in terms of its weight as a percentage of the company's revenue.

5. Financial Analysis

Throughout this chapter, we will employ an extensive array of metrics, serving as valuable instruments to gain precious insights into the various facets of the company's profitability. We aim to acquire a greater level of knowledge about Adobe's financial performance, identifying areas where the organization excels, and potential challenges may arise.

Ultimately, this analytical approach provides all stakeholders with a thorough and informative overview of Adobe's financial standing.

5.1 **Profitability Analysis**

Assessing a company's financial position and performance is of the utmost importance. This process requires a methodical analysis of its profitability ratios, which provides invaluable insights into a corporation's resource utilization, profit generation, and return on investment for its shareholders.

In this context, we shall delve into three significant profitability ratios: return on assets (ROA) as a function of the asset turnover ratio and the return on sales (ROS), return on equity (ROE), and return on invested capital (ROIC).

Table 5.1:

	2019	2020	2021	2022	2023
(1) ROS	26.42%	40.88%	30.55%	27.01%	27.97%
(2) Asset Turnover	0.57	0.57	0.61	0.65	0.68
(1x2) ROA	14.93%	23.35%	18.72%	17.48%	19.06%
ROE	29.67%	44.21%	34.37%	32.97%	35.51%
ROIC	21.04%	33.44%	27.73%	25.26%	25.50%

Adobe's profitability ratios (2019-2023)

Source: Bloomberg Terminal

The ROS, as the first component of the company's ROA, displayed a growth trend over the first two years of the historical period under analysis, from 26.42% (in 2019) to 40.88% (in 2020), implying that during this period Adobe's ability to turn sales into profit was increasing. The trend was shortly interrupted over the next two years when revenue grew at a slower pace than the company's operational expenses. Lastly, in 2023, the registered growth in the company's revenue more than offset the growth in its operational expenses, which led to an increase in the ROS, from 27.01% (in 2022) to 27.97% (in 2023).

Adobe's ROA displayed a similar trend to the ROS, with a general increase in all years in the historical periods, except for the drops registered in 2021 and 2022. In 2020, the growth in operational revenue surpassed the growth in total assets, meaning that Adobe was able to

increase its operational profits with less capital deployed into assets. Analyzing the asset turnover ratio, a slight increase within the period under analysis can be verified, from 0.57 in 2018 to 0.68 in 2023, thereby implying that the company was more effective in terms of being able to turn asset investment into revenue. Overall, the ROA's evolution was majorly boosted by the variations of the ROS rather than by the variations registered for the asset turnover ratio, particularly from 2019 to 2020, where the ROA increased by 8.42 percentage points while the asset turnover ratio remained steady around 0.57 over the same period.

Secondly, the ROE gauges a company's profitability from the standpoint of its equity investors. It is calculated by dividing a company's net income by its equity. In 2023, Adobe's ROE stood at 35.51%, indicating that the company earned a 35.51% return on each dollar of shareholder equity. In general terms, one can infer that Adobe efficiently utilizes the funds provided by its shareholders to generate returns.

Lastly, ROIC measures the efficiency with which a company uses its invested capital to generate profits, regardless of its financing structure. It is calculated by dividing a company's NOPLAT by its invested capital. In 2023, Adobe's ROIC stood at 25.5%, implying that the company generates 25.5 dollars in profit for every 100 dollars invested. This ratio provides insights into Adobe's increasing efficiency in turning capital deployed into its operations into operational revenue, as evidenced by the rise from 21.65% in 2019 to 25.5% in 2023, despite the drops registered in 2021 and 2022.

5.2 Liquidity Analysis

Analyzing a company's liquidity is essential for understanding its financial position. It offers crucial insights into its capacity to fulfill short-term obligations and withstand financial uncertainties. To do so, we will perform a quick analysis of Adobe's net working capital and an analysis of the company's current ratio, quick ratio, and cash ratio, which, according to Hayes (2024), are the most commonly used metrics for conducting a company's liquidity analysis.

A company's net working capital (NWC) is a financial measure used to assess a company's current financial health. It is determined by calculating the difference between the company's current operating assets and current operating liabilities. A company's current operating assets consist of accounts receivable, inventories, prepaid expenses, and other current assets. On the other hand, the operating current liabilities include accounts payable, accrued expenses, and other current liabilities.

Table 5.2:

Million USD	2018	2019	2020	2021	2022	2023
Current Assets (Less Cash)	1,628	2,318	2,154	2,871	2,900	3,242
Current Liabilities (Less Debt)	4,301	5,042	5,420	6,835	7,541	8,178
Net Working Capital	-2,673	-2,724	-3,266	-3,964	-4,641	-4,936
Change in Working Capital	-574	-51	-542	-698	-677	-295

Adobe's Net Working Capital (2018-2023)

Source: Own Estimates

After analyzing the data presented above, a set of conclusions can be drawn.

Firstly, the company maintains substantial cash reserves, indicating strong liquidity and the ability to cover short-term obligations, according to the company's official report (Adobe Inc., 2023). This evidence is substantiated by its robust operational cash flows, reflecting profitable operations.

Secondly, negative NWC, excluding cash and debt, suggests an aggressive working capital management strategy, minimizing investments in inventory and receivables while maximizing supplier credit. This indicates prudent financial planning and risk management.

We will now present and analyze the historical values for the previously mentioned liquidity ratios: current ratio, quick ratio, and cash ratio.

Firstly, the current ratio is a key financial metric used to assess an organization's ability to meet its short-term obligations within a year. It is calculated by dividing current assets by current liabilities. A closer examination of Adobe's current ratio over the period under review reveals significant fluctuations, with the most substantial shift occurring between 2019 (0.79) and 2020 (1.48). This significant shift can be attributed to an increase of 25% in Adobe's current assets, complemented by a decrease of 33% in its current liabilities.

Secondly, the quick ratio, alternatively recognized as the acid-test ratio, constitutes a financial metric designed to assess a company's capacity to fulfill its short-term obligations through its most liquid assets. Distinguished by its more rigorous evaluation of liquidity compared to the current ratio, this metric deliberately overlooks inventory from its computation. By analyzing the trend over time, one can identify a high degree of positive correlation with the evolution of the current ratio, with the biggest shift occurring from 2019 (0.70) to 2020 (1.34) due to a decrease of 33% in the company's current liabilities followed by an increase of 44% and a decrease of 9% in its cash and equivalents and account receivables, respectively.

Thirdly, the cash ratio functions as a measure to assess a company's capability to fulfill its short-term obligations using its most liquid assets, specifically in the form of cash and cash equivalents. In accordance with the two previously analyzed ratios, the cash ratio has experienced significant fluctuations, with the greatest shift occurring between 2019 (0.51) and 2020 (1.09), where the increase of the company's cash and equivalents by 44% was enough to offset the decrease in the company's current liabilities.

Table 5.3:

Adobe's liquidity ratios (2019-2023)

	2019	2020	2021	2022	2023
Current Ratio	0.79	1.48	1.25	1.11	1.34
Quick Ratio	0.70	1.34	1.11	1.00	1.22
Cash Ratio	0.51	1.09	0.84	0.75	0.95

Source: Bloomberg Terminal

Overall, from 2019 to 2023 Adobe's liquidity standing improved notably, reaching its peak in 2020 in all three liquidity ratios. Regardless of slight declines after 2020, the ratios remained strong, indicating that Adobe consistently had sufficient short-term assets, excluding inventory, and cash to cover its short-term liabilities. This trend suggests that Adobe sustained a healthy liquidity position during the period under analysis.

5.3 Solvency Analysis

Conducting a solvency analysis is a crucial aspect of financial analysis that offers valuable insights into a company's long-term financial health and ability to meet its obligations. Solvency ratios are used to determine whether a company can meet its long-term debt obligations without jeopardizing its ongoing operations.

In this context, we shall examine two significant solvency ratios, the debt-to-equity ratio, and the interest coverage ratio, depicted in Table 5.4.

Firstly, the debt-to-equity ratio is a financial metric that provides insight into a company's capital structure by comparing its total debt to shareholders' equity. It is computed by dividing the company's total debt by its total equity. The displayed trend of a consistent decrease over the historical period can be attributed to an increase in Adobe's equity, primarily due to capital injection, which can be interpreted as a positive development since the company relies less on debt.

Secondly, the interest coverage ratio is a fundamental financial metric that evaluates a company's capacity to meet its interest payments on outstanding debt obligations. This ratio is computed by dividing the company's EBIT by its total interest expenses. Adobe's interest expenses have been relatively stable over time, implying that the rise of the ratio under analysis is mainly due to an increase in the company's EBIT, from \$3.27 billion in 2019 to \$6.65 billion

in 2023, inferring that Adobe's financial health is strengthening since it has more earnings available to cover its interest expenses.

Table 5.4:

Adobe's solvency	indicators	(2019-2023)
------------------	------------	-------------

	2019	2020	2021	2022	2023
Debt to Equity Ratio	39.30%	35.49%	31.58%	32.97%	24.70%
Interest Coverage Ratio	20.79	36.53	51.35	54.45	58.85

Source: Bloomberg Terminal

5.4 Stock Performance

Adobe Inc. (ADBE) has been listed on the NASDAQ stock exchange since August 1986. The company debuted with an opening price of \$0.22 and is currently included in the S&P 500 index as a part of the 503 leading publicly traded companies in the US.

Over the last decade, Adobe's stock performance has been robust and consistent, thanks to the company's strong revenue growth, strategic acquisitions, and expanding market share in its key markets on the financial side. It also has the ability to adapt to evolving technology trends, such as cloud computing and artificial intelligence. It has successfully shifted towards a subscription-based model on the operational side, according to Moorman (2018). Overall, the changes perpetuated by the company's management team instilled a positive outlook among investors.

Despite the strong growth trend, there have been periodic fluctuations due to market conditions and macroeconomic factors, especially in 2019 when the price reached its lowest point, \$262.50, on the 1st of February. From that point on, the stock price recovered up until the start of the pandemic, a period of great instability. On September 15th, 2022, Adobe announced on its official website a \$20 billion acquisition of Figma with the aim of using Figma's software to cover the gaps that Adobe XD was unable to fill in the market. Investors reacted extremely poorly to the announced valuation of the target, characterizing it as "outlandish" (Meyer, 2023), knocking the company's share price by 20%.

However, after a thorough year-long investigation by the Department of Justice (DOJ), the European Commission, and the UK's Competition and Markets Authority (CMA), the deal was blocked, and the companies decided to part ways.

According to Peters (2023) and Weatherbed (2023), the CMA cited two reasons for its decision to block the deal: firstly, it would have eliminated competition between Adobe and Figma in the product design, image editing, and illustration software markets, and second, the

merger had the potential to reduce choices, innovation, and the development of new competitive products in the UK's digital design industry.

Throughout the period under analysis, the stock's performance was far more volatile than that of the ETF "iShares S&P 500 Information Technology Sector" designed to track the U.S. information technology sector. In this index, the weight of the largest company is capped at 35%, and the weight of all other companies is at 20%. We decided on this ETF over the S&P500 due to its higher degree of complementarity and relevancy to the company under analysis (See Annex D).

It is worth noting that Adobe has not undergone any stock split or reverse stock split in recent times. The most recent instance of this was in May 2005, when Adobe carried out a 2:1 stock split. This entailed giving each shareholder one additional share for every share they already held, leading to a rise in the number of outstanding shares and a consequent drop in the share price.

Overall, and to serve as a conclusion for chapter 5 of our dissertation, after analyzing the company's profitability, liquidity, and solvency, we are comfortable in stating that Adobe is a stable and reliable company for several reasons. We chose to highlight the following:

- *Profitability:* Adobe maintains healthy profitability metrics, with strong gross profit margins and operating margins (See Annex E). Its subscription-based business model has contributed to stable recurring revenue streams and sustainable profitability.
- *Strong Balance Sheet:* Adobe's balance sheet is characterized by ample cash reserves and manageable debt levels, providing stability and flexibility for strategic investments, research and development initiatives, and potential acquisitions (See Annex F).
- Market Leadership: Adobe is a market leader in several segments of the software industry, including digital media, digital marketing, and document solutions. Its innovative products and strong brand recognition contribute to its competitive advantage and market dominance.
- Investor Confidence: Adobe enjoys high investor confidence, as reflected in its stock performance and analyst recommendations. Due to its consistent financial performance and growth prospects, investors typically view Adobe as a reliable longterm investment.

6. Valuation

Our valuation model assesses Adobe's financial performance, considering historical data from 2018 to 2023 and projecting cash flows from 2024 to 2030. For perpetual cash flows beyond 2030, we utilize a terminal value calculation method, assuming a fixed nominal growth rate. By integrating projected and perpetual cash flows, we provide a reliable estimate of Adobe's intrinsic value. This is achieved through a DCF valuation method, which is widely regarded as the most efficient approach (Mielcarz & Mlinarič, 2014). We supplement this with a relative valuation analysis, further boosting the reliability of our estimate.

6.1 Valuation Assumptions

In the next subchapters of our thesis, we will provide a concise overview and clear explanation of the rationale behind all key assumptions necessary for Adobe's accurate valuation.

6.1.1 Revenue

Our valuation process assesses revenue projections, acknowledging their impact on key parameters. To avoid oversimplification, we examine Adobe's distinct operational segments, scrutinizing past performance and forecasting future growth.

Adobe's Digital Media segment is a cornerstone of the company's revenue, boasting an impressive CAGR of 17.58% from 2018 to 2023. This, combined with Adobe's leadership in the creative software industry and its unwavering commitment to research and development, positions the company for sustained growth. The anticipated industry growth, driven by the integration of Adobe Firefly into customer workflows, further strengthens this trajectory.

The Digital Experience segment has shown a solid CAGR of 14.90% from 2018 to 2023. While historical data suggests this sector will maintain its relative weight of roughly 25% of Adobe's revenue, it's important to note that any potential growth could be curtailed by the ongoing trend of significant investment in AI and ML.

Lastly, the Publishing and Advertising segment has exhibited a CAGR of 2.82% during the historical period. However, it is important to note that this segment represents the least significant contributor to the company's overall revenue. While the growth of this segment is not anticipated to be substantial, the relative contribution of approximately 2-3% to Adobe's total revenue is expected to remain stable.

Overall, Adobe's revenue is expected to grow over the next six years, driven not only by a stable macroeconomic environment, barring any negative developments in geopolitical matters

or the US presidential elections in 2025, but also by the company's unique position as one of the "few software companies that has a tangible GenAI product and is positioned to monetize it in the near and long term. When paired with a best-in-class operating profile and large TAM opportunity, we view the company as one of the more attractive large-cap software companies." (Turrin et al., 2023, p.1).

Table 6.1:

Adobe's Revenue Projections (2024-2030)

8							
Million USD	2024	2025	2026	2027	2028	2029	2030
Digital Media	15,998	18,110	20,699	23,859	27,725	32,471	38,319
Digital Experience	5,260	5,871	6,616	7,519	8,613	9,943	11,566
Publishing & Advertising	366	376	386	396	403	406	402
Total Revenue	21,624	24,357	27,701	31,773	36,741	42,820	50,287

Source: Own Estimates

6.1.2 Depreciations and CAPEX

Capital Expenditure (CAPEX) refers to the financial allocation and disbursement of monetary resources to acquire, enhance, or sustain long-term assets such as property, plant, and equipment with the explicit aim of advancing operational efficiency. The value of this item increased steadily over the historical period (2018-2023), registering an average value of 2.72% of Adobe's total revenue (See Annex G).

To estimate the company's future capital expenditures, we assumed that in 2030, it would grow by 8.5%, whereas in 2024, it is expected to grow by 17.14% to maintain a weight of 2% relative to Adobe's total revenue. For the years in between, we developed a formula that enables the values to smooth out over time until they reach the value for the year 2030.

Table 6.2:

Adobe's Capital Expenditures (2024-2030)									
Million USD	2024	2025	2026	2027	2028	2029	2030		
% Total revenue	1.95%	2%	2.01%	1.98%	1.91%	1.80%	1.66%		
YoY	17.14%	15.70%	14.26%	12.82%	11.38%	9.94%	8.50%		
CAPEX	422	488	557	629	701	770	836		
CAPEX	422	488	557	629	701	770	836		

Source: Own Estimates

Depreciation and Amortization (D&A) refers to accounting costs associated with the depreciation of property and equipment and the gradual expensing of intangible assets. Adobe's annual report specifies that D&A is computed using the straight-line method over the anticipated useful life of these assets. Besides the values for Adobe's D&A, and according to the company's official reports (Adobe Inc., 2023) and with data retrieved from the Bloomberg terminal we chose to include the cost of capitalized operating leases.

The average historical values for Adobe's D&A as a percentage of total revenue and as a percentage of CAPEX were 5.11% and 193%, respectively. In 2024, Adobe's D&A is expected to grow by 1.65%. This value will then be smoothed out until reaching the fixed value of 6%, which is assumed to represent the YoY growth in 2030.

Table 6.3:

	U		1				
Million USD	2024	2025	2026	2027	2028	2029	2030
% CAPEX	210%	186%	168%	154%	145%	139%	136%
YoY	2%	2%	3%	4%	5%	5%	6%
D&A	886	907	936	971	1,016	1,069	1,133
Cost of capitalized operating leases	83	80	74	74	62	56	56

Adobe's D&A and cost of capitalized operating leases (2024-2030)

Source: Own Estimates and Bloomberg Terminal

6.1.3 Effective Tax Rate

Across the historical period, Adobe's effective tax rate has been significantly lower than the statutory federal corporate income tax rate, set at 21%. According to Adobe's Form 10-k, its "income tax expense has differed from the U.S. federal statutory income tax rate mainly due to tax credits, net tax benefits from trading structure changes, tax benefits from stock-based compensation and settlements of tax examinations, and net tax on earnings from foreign operations." (Adobe Inc., 2020, p.35)

Considering Adobe's tax benefits, it can be assumed that the company will be subject to an effective tax rate lower than 21%. Consequently, we opted to compute the average tax rate from fiscal year 2018 to fiscal year 2023, where a significant tax benefit can be observed. Table 6.4:

11000e's effective tax rate (2010-2025)						
Million USD	2018	2019	2020	2021	2022	2023
EBT (Net Income Before Taxes)	2,794	3,204	4,176	5,705	6,008	6,799
Income Taxes	203	253	-1,084	883	1,252	1,371
Effective Tax Rate	7.3%	7.9%	-26.0%	15.5%	20.8%	20.2%
Average						7.62%

Adobe's effective tax rate (2018-2023)

Source: Own Estimates

The effective tax rates varied over the years, averaging 7.62%. This average rate will then be used as the effective tax rate for the forecasting period.

6.1.4 Changes in Net Working Capital

To forecast the values for Adobe's changes in NWC in the future, we computed the average of its value in relation to the company's total revenue due to its positive correlation over the following period: from the fiscal year 2018 to the fiscal year 2023, which yielded a value of - 3%. As per our earlier assumptions, we have applied the average ratio to the projected revenues and have derived the results presented in Table 6.5:

Table 6.5:

8 1 5	/						
Million USD	2024	2025	2026	2027	2028	2029	2030
Revenue	21,624	24,357	27,701	31,773	36,741	42,820	50,287
Change in NWC/Revenue	-3%	-3%	-3%	-3%	-3%	-3%	-3%
Change in NWC	-625	-704	-801	-919	-1,062	-1,238	-1,454

Adobe's change in NWC projections (2024-2030)

Source: Own Estimates

6.2 Discounted Cash Flow Valuation

The first step in undertaking a comprehensive DCF valuation is to estimate Adobe's FCFF, followed by determining the appropriate discount rate and terminal growth rate. Once these steps are completed, we can calculate the company's equity value, allowing us to determine the value per share. Lastly, we will present a concise sensitivity analysis.

6.2.1 Free Cash Flow to the Firm

Having determined Adobe's main value drivers in previous subchapters, we can now accurately estimate its Free Cash Flow to the Firm using equation (3).

Table 6.6:

	00000						
Million USD	2024	2025	2026	2027	2028	2029	2030
EBITDA	8,601	10,060	12,022	14,603	17,944	22,270	27,845
EBIT	7,631	9,073	11,013	13,558	16,867	21,145	26,655
Taxes	581	691	839	1,033	1,285	1,610	2,030
NOPLAT	7,050	8,382	10,174	12,525	15,582	19,534	24,625
Operational CF	8,019	9,369	11,184	13,570	16,660	20,660	25,815
Changes in WC	-625	-704	-801	-919	-1,062	-1,238	-1,454
CAPEX	422	488	557	629	701	770	836
FCFF	8,223	9,586	11,427	13,860	17,021	21,127	26,433

Adobe's FCFF Forecasts

6.2.1.1 Estimating Cost of Capital

The overarching goal of the following subchapter is to accurately estimate the adequate discount rate for the FCFF approach, i.e., the WACC. To accurately assess Adobe's capital structure, we must compute the market value of debt and the market value of equity. The market value of equity results from the product between Adobe's share closing price, as of January 31st, 2024, by the number of outstanding shares at the end of fiscal year 2023.

Regarding the market value of debt, we used the book value of debt reported at the end of fiscal year 2023 as an accurate proxy, which yielded a value of \$3,634 million. Table 6.7:

Million USD	Capital Structure
Outstanding shares (million)	455
Share price	617.78
Market Value of Equity	281,090
Market Value of Debt	3,634
Equity/Capital	98.72%
Debt/Capital	1.28%

Adobe's capital structure at the end of 2023

Source: Own Estimates

6.2.1.1.1 Cost of Equity

In analyzing Adobe's cost of equity, we employed the CAPM model, elucidating a linear correlation between the required return on an investment and its inherent risk.

Firstly, concerning the risk-free rate, we decided to use as a proxy the yield of the US 10year treasury bond due to a high degree of market acceptability, with a value of 4.31% registered in January 2024.

Secondly, regarding Adobe's levered beta, we relied upon the average of the data provided by three different sources: CNBC, with a value of 1.255; Market Watch, with a value of 1.26; and finally, Yahoo Finance, with a value of 1.4; yielding a value for the levered beta of 1.31.

Lastly, according to Damodaran (2024), the market risk premium stood at 4.18% at the end of January 2024. Using equation (6) and the calculated inputs, we derived the cost of equity. **Table 6.8**:

Adobe's cost of equity

Risk-free rate	Beta	MRP	Cost of Equity
4.31%	1.31	4.18%	9.77%

6.2.1.1.2 Cost of Debt

To compute Adobe's cost of debt, we followed the process presented in the literature review chapter of this thesis. We thereby used the risk-free rate and added it to the default spread on bonds associated with the company's rating. The default spread will be computed dependent upon Adobe's interest coverage ratio at the end of 2023, 58.85, which yields a default spread of 0.59% (See Annex H).

Following equation (7), by adding up both components, we get a pre-tax cost of debt of 4.90%. Considering the assumed corporate tax rate of 7.62%, we get an after-tax cost of debt of 4.53%.

6.2.1.1.3 Weighted Average Cost of Capital

Having computed the value of all the required components, we can now compute the value for the adequate discount rate, that is, the WACC, by following equation (5).

Table 6.9:

Adobe's WACC

Equity/Capital	Cost of Equity	Debt/Capital	After-tax Cost of Debt	WACC
98.72%	9.77%	1.28%	4.53%	9.70%

Source: Own Estimates

6.2.1.2 Terminal Growth Rate

With the purpose of accurately estimating the company's TGR, we chose to follow the presented rationale: compute the geometric mean of the weights as a percentage of Adobe's total revenue presented by the three geographical regions where the company operates from 2018 to 2023, which will then be multiplied by the geometric mean of the expected GDP growth of those regions from 2024 to 2028. The TGR will then be equal to 2.52%, the sum of the three variables, as presented in Table 6.10:

Table 6.10:

Adobe's TGR

Region	% Revenue (1)	GDP Growth (2)	TGR (1) x (2)
Americas	58.01%	2.05%	1.19%
Asia and Pacific	15.40%	4.08%	0.63%
EMEA	26.56%	2.66%	0.71%
TGR			2.52%

6.2.1.3 Enterprise Value

Now that we have calculated Adobe's FCFF, WACC, and TGR, we can determine its Enterprise Value. We do this by discounting each projected FCFF using the WACC to find its present value. For the period beyond 2030, when the company is assumed to grow indefinitely, we use the TGR to compute its TV before discounting it to its present value. Adding the present value of both FCFF and TV gives us Adobe's Enterprise Value.

Table 6.11:

Adobe's	Enterprise	Value
---------	------------	-------

Million USD	2024	2025	2026	2027	2028	2029	2030	Perpetuity
FCFF	8,223	9,586	11,427	13,860	17,021	21,127	26,433	27,100
WACC								9.70%
PV of FCFF	7,496	7,965	8,655	9,570	10,713	12,121	13,824	
TGR								2.52%
TV								377,537
PV of TV								197,447
EV	267,791							1

Source: Own Estimates

6.2.1.4 Equity Value

To fulfill this dissertation's goal, one must compute Adobe's shares' fair price, and to do so, its equity value must be computed.

Adobe's non-operating assets include two items from its fiscal year 2023 balance sheet: Cash and Equivalents and Goodwill. Regarding the value of the company's debt, we decided to use its book value as a good proxy for its market value.

Finally, we will divide the equity value by the number of outstanding shares to reach the share's fair price, as shown in Table 6.12. Under the DCF valuation method, Adobe's implied share price is \$623.04, registering an upside potential of 4.43% compared to its current market price at the end of December 2023.

Table 6.12:

Million USD		
EV	267,791	
NOA	19,328	
Debt	3,634	
EQV	283,485	
Outstanding shares (Million)	455	
Fair price (USD)	\$623.04	

Adobe's Share Price (1/1/2024)

6.2.2 Sensitivity Analysis

The accuracy of the discounted cash flow method is widely recognized to rely heavily on the precision of the estimated variables (Vayas-Ortega et al, 2020). Reasonable assumptions lead to more accurate valuations. Consequently, a sensitivity analysis will be conducted to ascertain how changes in key variables affect Adobe's stock price.

Adobe's terminal value accounts for 70% of its estimated equity value, a contribution that is in line with most cases, where the values hover around the 70 to 80 percent mark (Nissim, 2019). The reasons why we decided to conduct a sensitivity analysis on the company's TGR and its WACC are two-fold.

Firstly, the TGR is a (Behr et al., 2018) "stochastic variable with a significant embedded volatility, has an inherent element of uncertainty, and exercises a considerable impact on the terminal value estimates" (p. 29).

Secondly, the Fed's interest rate decisions significantly affect a company's WACC, thereby influencing its overall financing expenses. The Fed's adjustments to interest rates directly affect companies' borrowing costs, as these costs fluctuate in line with market interest rate changes. An increase in the Fed's interest rates results in higher borrowing costs for companies, consequently elevating their WACC. Moreover, it is important to note that interest rate fluctuations can also impact other components of WACC, including the cost of equity, as investors reevaluate risk premiums in light of changing economic circumstances. Table 6.13:

\$ per share								
					TGR			
		0.27%	1.02%	1.77%	2.52%	2.77%	3.02%	3.27%
	9.25%	541.17	575.86	617.50	668.42	688.02	709.18	732.12
	9.40%	531.20	564.42	604.19	652.62	671.20	691.24	712.91
	9.55%	521.55	553.41	591.40	637.51	655.14	674.13	694.63
WACC	9.70%	512.23	542.78	579.12	623.04	639.80	657.81	677.22
	10.45%	469.91	494.92	524.25	559.12	572.26	586.29	601.29
	11.20%	433.65	454.36	478.37	506.54	517.04	528.18	540.03
	11.95%	402.27	419.61	439.50	462.57	471.09	480.09	489.62

Sensitivity Analysis (\$ per share)

Source: Own Estimates

Upon further analysis, it has become apparent that the variables TGR and WACC carry significant weight in the valuation outcome. The target price can fluctuate greatly, ranging from a minimum of \$402.27 (-35.43%), highlighted in red, to a maximum of \$732.12 (17.51%), highlighted in green, underscoring the sensitivity of these variables. As such, precision is of crucial importance in the estimation process.

Under the ceteris paribus condition, one can infer that the higher the WACC, the lower the implied share price, and the higher the terminal growth rate, the higher the implied share price.

6.3 Relative Valuation

As previously mentioned, the relative valuation approach attempts to establish a nexus between an asset's value and the value of its counterparts within the industry or market. It is carried out to complement the DCF valuation.

The first step involves the selection of an appropriate peer group. To do so, we decided to choose the companies that fall into Bloomberg's industry classification benchmark on a subsector level, considering companies that operate all around the world but that are traded in the US. To carry out this analysis, we chose four different multiples, two equity value multiples, and two enterprise value multiples, namely: P/E ratio, P/B ratio, EV/EBITDA ratio, and finally, EV/Revenue ratio. For the equity value multiples, no further adjustments are required, which contrasts with the required adjustments when considering enterprise value multiples regarding the need to account for the company's NOA and its debt. Having reached Adobe's estimated equity value, we must now divide it by the number of outstanding shares to reach the implied share price under the four chosen multiples.

Table 6.14:

Comparable Companies	P/E	P/B	EV/EBITDA	EV/Revenue
ServiceNow Inc	82.35	19.53	84.73	16.4
Intuit Inc	68.46	11.1	44.07	12.77
Cadence Design Systems Inc	76.26	22.34	54.43	19.46
Synopsys Inc	63.26	13.11	49.82	14.16
Salesforce Inc	67.58	4.62	27.52	7.86
Workday Inc	49.88	8.53	85.67	8.88
Roper Technologies Inc	40.19	3.29	23.51	10.35
CrowdStrike Holdings Inc	933.57	36.46	276.75	26.61
SAP SE	88.39	4.84	35.74	6.45
Oracle Corp	32.88	60.9	20.19	8.01
Palantir Technologies Inc	176.42	12.49	123.98	18.63
Palo Alto Networks Inc	44.59	22.36	77.65	12.65
Mean	143.65	18.30	75.34	13.52
Standard Deviation (SD)	251.52	16.46	70.57	5.93
Lower bound	-44.99	5.95	22.41	9.07
Upper bound	332.29	30.64	128.27	17.97

Adobe's Relative Valuation

Source: Bloomberg Terminal and Yahoo Finance

After compiling the first peer group and the respective data, we decided to formulate a range for the values to be considered in the analysis in order to not account for outliers; that is, for the companies to be considered in the following stage, the values must be within the following range;

$$Range = [Mean - 0.75 \times SD, Mean + 0.75 \times SD]$$
(14)

The exclusion process decreased our sample size, and the results are presented in Table 6.15 (See Annex I to view the companies considered for each multiple and the implied calculation process). After consideration, CrowdStrike Holdings Inc. was excluded from the analysis in light of the fact that none of its ratios respected the previously determined bounds.

To reach the equity value of the first two ratios, we multiplied the average of the respective values by the average of the company's net income and equity book value from 2021 to 2023 for the P/E and P/B ratios, respectively.

On the contrary, to reach the enterprise value for the last two ratios, we multiplied the average of the respective values by the average of the company's EBITDA from 2021 to 2023 and its revenue from 2022 to 2023 to better reflect the company's growth prospects on the back of the AI expansion. Having computed its enterprise value, we are now able to compute Adobe's equity value by adding its NOA (\$19,328) and subtracting its long-term debt (\$3,634). Table 6.15:

Results		Ratios		
	P/E	P/B	EV/EBITDA	EV/Revenue
Mean	71.84	16.82	50.33	14.00
Implied EV (\$ million)			359,428	259,012
Implied EQV (\$ million)	359,353	254,377	375,122	274,706
Outstanding Shares (million)	455	455	455	455
Implied Share Price (\$)	789.79	559.07	824.44	603.75
Upside/Downside	32.38%	-6.29%	38.19%	1.20%

Adobe's Relative Valuation. Results

6.4 Valuation Results

In this subchapter of our thesis, we present a brief critical analysis of the results obtained from estimating Adobe's implied share price using the DCF and relative valuation approaches. Table 6.16:

Adobe's Share Fair Price		
\$ per share	Share Price	Potential
(29/12) Price	596.60	
FCFF Approach	623.04	4.43% (upside)
Valuation Multiples	694.26	16.37% (upside)

Source: Own Estimates

After analyzing Table 6.16, one can identify various differences in Adobe's implied share price derived from the two valuation models in use.

Firstly, regarding the FCFF approach under the DCF model purview, one can conclude that Adobe's shares are slightly undervalued, where the implied share price amounts to \$623.04, reflecting a potential upside of 4.43%. Under this approach, the terminal value comprises a significant proportion of the overall value and is greatly influenced by the terminal growth rate and the adequate discount rate. The outcomes obtained from the sensitivity analysis conducted earlier reveal a range of share prices, which encompass several growth rates and discount rates, whilst considering both optimistic and pessimistic forecasts.

However, several factors contribute to the distinguishable distinctions between this model and its counterparts. These differences may stem from inherent limitations within the model, or the assumptions made for the specified forecasting period. Nonetheless, the primary reason for such discrepancies is likely due to investors harboring high expectations in the AI market, leading to optimistic growth assumptions. Provided that these projections fail to materialize, there is a potential for a decline in Adobe's stock price. Based on the DCF method, it appears that Adobe's shares are slightly undervalued, as their implied share price is slightly above the closing price at the valuation date, which is the reason behind our buy recommendation.

When considering the relative valuation multiples, the recommendations vary significantly, with values spanning from \$559.07 to \$824.44. Notably, the P/E, EV/EBITDA, and EV/Revenue multiples present a relatively positive outlook, denoting a potential upside of approximately 32.38%, 38.19%, and 1.20%, respectively. This indicates there could be flexibility for Adobe's stock price to escalate compared to its current level. However, it remains imperative to underscore that the P/B multiple indicates a downside potential of 6.29%, suggesting the possibility of a significant decline in the stock's value relative to its price at the end of 2023.

The disparities when analyzing the values yielded by the ratios chosen can be attributed to a wide range of factors.

Firstly, companies that are asset-light, such as those in the technology sector, often present high returns on equity but relatively low book values. This causes the P/B ratio to appear low compared to other multiples. Additionally, companies with substantial intangible assets, like software firms, may have a market value that is not fully captured by their book value, resulting in high P/E and EV/EBITDA ratios but a low P/B ratio.

Secondly, accounting practices can be behind the verified discrepancies. Variations in how companies depreciate their assets or amortize goodwill can affect the book value, with high amortization potentially reducing the book value without significantly impacting revenue or EBITDA. Similarly, differences in inventory valuation methods and asset revaluation practices can have a substantial impact on the book value.

The financial structure of a company also contributes to these disparities. Companies with higher debt levels may show a lower book value due to increased liabilities, which can depress the P/B ratio without affecting other ratios based on enterprise value or earnings. Furthermore, aggressive share buyback programs can reduce the book value by decreasing equity, thus lowering the P/B ratio while not significantly impacting earnings or revenues.

Finally, market sentiment and perception can cause disparities between multiples. High investor expectations for future performance can inflate earnings and revenue-based multiples without directly affecting the book value. Sector-specific trends and market conditions can also lead to differences, as seen in the technology sector, where companies frequently trade at high P/E and EV/Revenue multiples but have low P/B ratios due to their business nature.

In summary, the P/B ratio can indicate downside potential, while other multiples show upside potential due to differences in how each multiple reflects a company's financials, growth prospects, industry characteristics, and accounting practices.

Understanding these differences and considering various viewpoints and scenarios to fully comprehend the prospective value of the shares is crucial for informed decision-making by individual investors.

Conclusion

The principal objective of this dissertation was to accurately estimate the fair value of Adobe's shares and subsequently compare it with its closing price as of December 31st, 2023. To ensure reliable and trustworthy results, we employed two distinct valuation methodologies, the DCF method, and the relative valuation method, with the purpose of supplementing the analysis.

Under the DCF purview, the rationale involved the estimation of the company's future cash flows followed by the process of discounting them to their present value utilizing an adequate discount rate, that is, the WACC. A wide array of assumptions, used as the basis for the DCF model, were carefully computed to portray the competitive landscape in which Adobes operates. On top of that, the computed assumptions had the need not only to reflect current macroeconomic trends and the company's historical data but also the prospective evolution of the software industry and the global economy. To conclude, a sensitivity analysis was conducted to reflect better the volatility and underlying uncertainty embedded in these projections.

Mixed results emerged from the relative valuation approach: the P/E, EV/EBITDA, and EV/Revenue multiples presented an undervaluation of 32.38%, 38.19%, and 1.20%, respectively, while the P/B ratio indicated an overvaluation of 6.29%. Acknowledging that this report's findings are subject to the constraints inherent to the applied valuation methods and the underlying assumptions formulated is paramount. Furthermore, while this analysis provides insightful observations into Adobe's present valuation, it is crucial to recognize that the company's prospects may experience modifications in response to evolving market dynamics. For instance, a continued and growing surge in demand for AI software applications that exceeds the initial projections is conceivable. Such a scenario could boost Adobe's results and, consequently, enforce its standing as a software market leader. Moreover, it could enable Adobe to explore expansion into fresh markets.

Upon the culmination of the valuation process and the presentation of a comprehensive and equitable fair value assessment of Adobe's shares, it is with utmost confidence that we state that our investment recommendation is a buy for Adobe's shares.
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Annexes

Annex A:

Now-or-never decision rule under the static NPV approach.



Annex B:

Porter's five forces.



Source: Own Estimates.

Scale: 1- low, 2- moderate to low, 3- moderate, 4- moderate to high, 5- high.

Annex C:





Source: Precedence Research.

Annex D:





Source: Yahoo Finance and own calculations.

Annex E:

		J			
Million USD	2019	2020	2021	2022	2023
Gross Profit	9,498	11,146	13,920	15,441	17,055
Gross Profit Margin	85.02%	86.62%	88.18%	87.70%	87.87%
Operating Profit	3,268	4,237	5,802	6,098	6,650
Operating Profit Margin	29.25%	32.93%	36.76%	34.64%	34.26%

Adobe's historical gross and operating profit margins (2019-2023).

Source: Own Estimates.

Annex F:

Adobe's historical balance sheet (2019-2023).

Million USD	2019	2020	2021	2022	2023
Assets					
Cash and Short-Term Investments	4,177	5,992	5,798	6,096	7,842
Accounts Receivable	1,599	1,479	1,878	2,065	2,224
Prepaid Expenses	531	497	788	206	362
Other Current Assets	188	178	205	629	656
Total Current Assets	6,495	8,146	8,669	8,996	11,084
Property/Plant/Equipment - Gross	2,862	3,462	3,567	3,884	4,119
Property/Plant/Equipment, Total - Net	1,293	2,004	2,116	2,315	2,388
Goodwill, Net	10,691	10,742	12,668	12,787	12,805
Intangibles	1,721	1,359	1,820	1,449	1,088
Other Long-Term Assets	563	2,033	1,968	1,618	2,414
Total Assets	20,762	24,284	27,241	27,165	29,779
Liabilities					
Accounts Payable	209	306	312	379	314
Accrued Expenses	1,283	1,415	1,714	1,760	1,893
Other Current liabilities	3,549	3,791	4,906	5,489	6,044
Current Port. of LT Debt/Capital Leases	3,149	0	0	500	0
Total Current Liabilities	8,191	5,512	6,932	8,128	8,251
Total Long-Term Debt	989	4,117	4,123	3,629	3,634
Total Debt	4,138	4,708	4,673	4,633	4,080
Deferred Income Tax	140	10	5	0	0
Other Liabilities, Total	912	1,381	1,384	1,357	1,376
Total Liabilities	10,232	11,020	12,444	13,114	13,261
Shareholders' Equity					
Total Equity	10,530	13,264	14,797	14,051	16,518
Total Liabilities & Shareholders' Equity	20,762	24,284	27,241	27,165	29,779

Source: Bloomberg Terminal

Annex G:

Million USD	2018	2019	2020	2021	2022	2023
CAPEX	267	395	419	348	442	360
Total Davanua	0.020	11 171	12 949	15 795	17 404	10,400
Total Revenue	9,030	11,1/1	12,808	15,785	17,000	19,409
CAPEX (% revenue)	2.95%	3.53%	3.26%	2.20%	2.51%	1.85%
Average						2.72%

Adobe's historical CAPEX expenses (2018-2023).

Annex H:

Credit risk rating.

For larger firms (market cap > \$5 billio	on)		
If interest coverage	ge ratio is		
>	\leq	Rating is	Spread is
-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	2.2499999	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%

Source: Aswath Damodaran's database.

Annex I:

Company	Forward P/E	Price/Book Value	EV/EBITDA	EV/Revenue
ServiceNow Inc	82.35	19.53	84.73	16.40
Intuit Inc	68.46	11.10	44.07	12.77
Cadence Design Systems Inc	76.26	22.34	54.43	
Synopsys Inc	63.26	13.11	49.82	14.16
Salesforce Inc	67.58		27.52	
Workday Inc	49.88		85.67	
Roper Technologies Inc	40.19		23.51	
SAP SE	88.39		35.74	
Oracle Corp	32.88			
Palantir Technologies Inc	176.42	12.49	20.19	
Palo Alto Networks Inc	44.59	22.36	77.65	12.65
Mean	71.84	16.82	50.33	14.00
Implied Enterprise Value			359,428	259,012
Implied Equity Value	359,353	254,377	375,122	274,706
Number of Outstanding Shares				
(Million)	455	455	455	455
Implied Share Price (\$)	789.79	559.07	824.44	603.75

Adobe's relative valuation selection process.

Source: Own Estimates.

Annex J:

Adobe's relative valuation computation process.

Ratios	Mean	Multiplier	EV	EQV	Share price
P/E	71.84	5,428 (Net Income)		359,353	789.79
P/B	16.82	16,518 (Equity)	6,518 (Equity)		559.07
EV/EBITDA	55.33	6,709 (EBITDA)	359,428	375,122	824.44
EV/Revenue	14.00	19,409 (Revenue)	19,409 (Revenue) 259,012		603.75

Source: Own Estimates.