LISBON SCHOOL OF ECONOMICS & MANAGEMENT
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MASTERS FINAL WORK
PROJECT

Equity Research:

THE DIGITAL REVOLUTION IN REAL ESTATE:
EVALUATING ZILLOW GROUP'S EQUITY PERFORMANCE AT THE CROSSROADS OF FINTECH AND E-COMMERCE

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Abstract

This master project integrates an equity research report on Zillow Group with a comprehensive literature review of fintech valuation methods. The literature review critically examines contemporary valuation techniques tailored to fintech, including pre-revenue methods such as the Risk Summation and VC Methods, as well as revenue-based approaches like Discounted Cash Flow (DCF) analysis and the Multiple Method. By highlighting the strengths and limitations of these methods, the review aims to equip investors with effective tools for valuing fintech companies.

Zillow Group was chosen due to its unique position at the intersection of real estate and fintech, revolutionizing the digital real estate market. The equity research report underscores Zillow's dominance, evidenced by its 224 million unique monthly visitors in 2023. Zillow's strategic shift to an asset-light model has resulted in gross margins exceeding 80%, positioning the company for sustained profitability. The report anticipates favorable market conditions, with decreasing interest rates and increasing homeownership rates among millennials and Gen Z, expected to enhance Zillow's revenue growth.

Utilizing a DCF model, the report values Zillow at $65.8 per share, representing a 21.6% upside from the current price. This valuation, combined with Zillow's robust market position and positive outlook, underpins a buy recommendation.

This project contributes to the academic literature on fintech valuation and provides practical insights for investors, aiming to enhance the accuracy and efficiency of capital allocation within the sector.

Key Words: Fintech Valuation; Equity Research; Zillow Group; Digital Real Estate; Discounted Cash Flow (DCF); Market Dominance; Investment Analysis; Financial Modeling

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1 Introduction

The real estate industry has undergone significant transformation in recent years, driven largely by the advent of financial technology (fintech). One of the most prominent players in this evolving landscape is Zillow Group, a company that has leveraged technology to reshape how consumers buy, sell, and rent homes. This equity research report provides a comprehensive analysis of Zillow Group, offering a detailed evaluation of its financial health, strategic positioning, and future prospects.

This report is structured into eight sections, beginning with an extensive literature review on fintech valuation methods. This section sets the foundation by examining various approaches and models used to assess the value of fintech companies, providing critical insights that inform the subsequent analysis of Zillow Group.

Following the literature review, the report delves into a detailed business description of Zillow. This section explores the company's history, mission, core services, and market positioning, offering a thorough understanding of its operations and strategic objectives.
The third section focuses on the economics of Zillow. It analyzes the company's revenue streams, cost structure, and overall economic model, highlighting key factors that drive its financial performance.

The management section provides an in-depth look at the leadership team behind Zillow. It evaluates their experience, strategic vision, and the roles they play in steering the company towards achieving its goals.

An industry overview is presented next, contextualizing Zillow within the broader real estate and fintech industries. This section examines market trends, competitive dynamics, and regulatory considerations that impact Zillow's business environment.
The risk section identifies and assesses the primary risks facing Zillow. It covers a range of factors, including market volatility, regulatory changes, technological disruptions, and operational challenges, providing a balanced view of potential threats to the company's success.

A comprehensive financial analysis follows, offering a detailed examination of Zillow's financial statements, key performance indicators, and recent financial performance. This section aims to provide a clear picture of the company's financial health and operational efficiency.

Finally, the report culminates in an in-depth valuation of Zillow Group. Utilizing the fintech valuation methods discussed in the literature review, this section presents a rigorous assessment of Zillow's intrinsic value, supported by robust financial modeling and sensitivity analysis.

Through this structured approach, the report aims to provide a holistic and nuanced understanding of Zillow Group, equipping investors and stakeholders with the insights needed to make informed decisions.

2 Literature Review

2. 1 Introduction

The valuation of Fintech companies gains further relevance, as these companies disrupt the current state of the financial service industry with their highly scalable and cost-efficient business models (Gomber et al., 2018). This draws in substantial attention from various Investors, who are attracted by the major growth opportunities and the ever-increasing market share of fintechs in the traditional financial services market. As investors seek to assess the worth of fintech companies accurately, the development and refinement of valuation methods tailored to the unique characteristics of their business and revenue models becomes essential (Lee & Shin, 2018). This literature review dives into current state of the art valuation methods and tailors them specifically to the Fintech sector, aiming to provide value for investors seeking to allocate capital into Fintech markets.

A primary emphasis is placed on providing a clear and structured overview of different Fintech valuation methods. While recognizing the importance of understanding the Fintech (Investment) ecosystem, the main focus of the review lies on evaluating the relevance and efficiency of different valuation methods employed within the sector.

Therefore, the review begins with a conceptual definition of the fintech term and the respective business models before it dives into the fintech investment landscape and its various players. The main part of the review begins by describing the current pre-revenue and revenue-based valuation methods. Pre-revenue valuation methods, including the Risk Summation Method, VC Method, Berkus method and Payne Scorecard Method, are analysed and assessed in their potential of valuing early stage fintech companies. Subsequently the focus shifts towards revenue valuation methods, in particular the DCF analysis and the Multiple Method. These methodologies offer insights into how established revenue streams and growth projections are used to determine the intrinsic value of mature Fintech firms, while also considering fintech market dynamics and margins, among other factors. In the final conclusion part, the transition to the practical part of the Master thesis is spun. Based on the knowledge gained from this literature research, the most suitable evaluation methods for Zillow Group are derived.

In the course of our literature review, it became evident that, with only a few exceptions, the current state of research on fintech valuation methods is notably limited and lacks specificity. By critically analysing current valuation methods, consolidating existing literature, and evaluating their respective strengths and limitations, this literature review aims to equip investors and analysts, with the knowledge needed to navigate the difficulties of valuing Fintech companies effectively. In pursuing this goal, it seeks to contribute to the ongoing academic discussion surrounding Fintech valuation while also supporting the practical aspect of efficient capital allocation within the sector.

2. 2 Fintech Definition

Within academia, consensus has yet to be reached regarding a standardized definition of the term "Fintech." Nonetheless, many researchers acknowledge fintech as a compound word derived from "financial" and "technology," describing the application of technology in the delivery of financial services and products (Gai et al., 2018; Leong, 2018; Zavolokina et al., 2016). Legislation and legal documents also fail to offer a precise definition for "Fintech", as Fintech companies navigate a landscape of diverse legal and regulatory obligations, shaped by the multitude of business models and extensive offer of products and services they provide (Arner et al., 2015).

Typically, newly established companies entering the market introduce products that are internet-based and application-oriented, with the objective of attracting customers through offerings that emphasize user-friendliness, efficiency, transparency, and automation (Nicoletti, 2017).

While shared characteristics exist among most Fintech companies, numerous exceptions hinder efforts to create a comprehensive definition (Giglio, 2021). For example, while many Fintech firms are in their startup phase, not all fall into this category, making it non-essential for defining Fintech. Similarly, factors such as widespread investor participation ("crowd") or the incorporation of social-media elements, while significant in certain Fintech sectors like crowdfunding or social trading, hold no relevance in others such as innovative payment services (Dorfleitner et al., 2017).

The future relationship between Fintechs and traditional financial institutions remains unclear in the current academic discussion. While Fintechs are acknowledged for enhancing competition and delivering more efficient services (Calzolari, 2018), it is not expected that they will entirely replace traditional financial Institutions (Elsaid, 2021). Instead, they are likely to engage in strategic partnerships and collaborations (Elsaid, 2021). Fintechs are reshaping traditional financial institutions, both positively and negatively (Liu, 2021), forcing the latter to adapt by integrating new technologies such as AI and machine learning (Sharbek, 2022). The future landscape of banking is expected to be significantly impacted by the complex interaction between Fintechs and traditional financial institutions (Suprun, 2020).

To approach a more precise definition and further refine the term fintech, the subsequent sections aim to provide a comprehensive overview of the fintech ecosystem, and diving into an array of fintech categories and their respective business models.

2. 2.1 Types of Fintechs

The business models of traditional banks and typical Fintechs exhibit notable distinctions evident in their balance sheets and income statements; while banks rely on interest rate differentials and commissions, Fintechs and typically report EBITDA and EBIT, reflecting differing revenue strategies and scalability prospects between the two sectors (Moro Visconti, 2020).

In recent academic publications within the fintech sector, various business models are frequently discussed, notably Payment Services, Lending Platforms, Personal Finance including Wealth Management, Insurance Technology, Regulatory Technology, Digital Banking and the application of blockchain or distributed ledger technology (Allen et al., 2020; Giglio, 2021; Siddiqui & Rivera, 2022). The Proptech business model, despite its limited coverage in scientific literature (Friedman, 2021), bears considerable relevance to this master thesis. Therefore, it will be thoroughly discussed later in this chapter.

It is important to acknowledge that the fintech industry undergoes rapid evolution, with business models consistently adapting, new ones emerging, and others diminishing in relevance (Golubev & Ryabov, 2020).

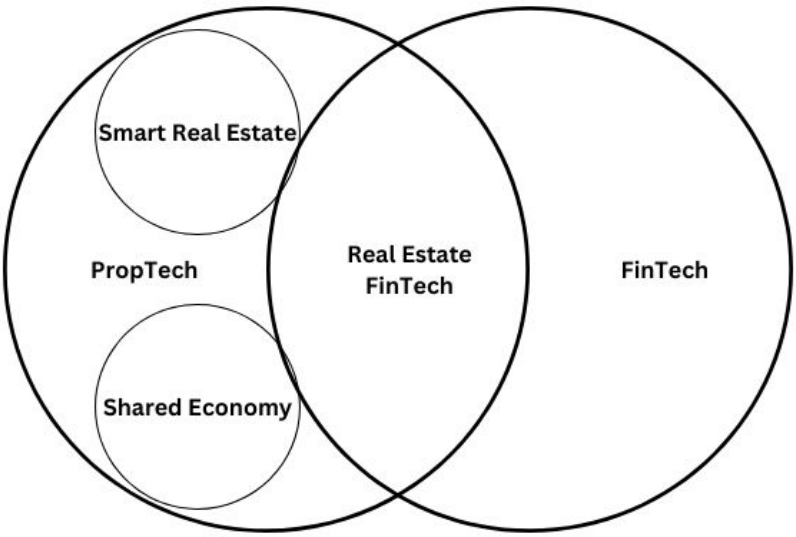
Digital banking providers focus on a comprehensive range of services including account management, payment processing, lending, budgeting tools, and investments, with diversified revenue streams such as fees and spreads (Mallat et al., 2004; Mbama, 2018; Odei-Appiah et al., 2022). Payment-focused fintechs like PayPal and Stripe provide secure payment processing, generating revenue primarily from transaction fees (Dorfleitner et al., 2019; Petrova, 2008). Platform-based lending services, such as LendingClub and SoFi, earn revenue through interest and origination fees (Liu et al., 2022; Havrylchyk et al., 2016). Robo-advisors automate investment management, deriving revenue from management fees and subscription-based options (Fisch et al., 2019; Pomykalski, 2019). Insurtech uses AI and digital platforms for personalized insurance, while regtech focuses on compliance and risk management for traditional financial institutions and policy makers, with revenue earned from premiums and subscription-based models (Jamaltul Nizam Shamsuddin et al., 2023; Rafay, 2019; Butler & O'Brien, 2019; Kavassalis et al., 2018). Blockchain technology introduces decentralized alternatives for transactions, offering solutions for both B2B and B2C customers, generating revenue through various means such as service fees, spreads and interest (Chen, 2018; Swan, 2017; Tama et al., 2017).

2.2.2 Proptech

According to Feth (2021) Proptech represents the combination of the two terms property and technology and revolutionizes the way real estate customers and professionals interact with real estate assets (Feth, 2021). Digitalization is used to assist landlords, builders, owners, and property managers in handling and trading their properties (Klee, 2021). The proptech business model is characterized by a convergence of traditional and online real estate brokerage procedures, leading to a hybrid model (Asensio-Soto & Navarro-Astor, 2022).

It is essential to understand that the terms proptech and fintech are not to be used interchangeably. Rather, the term proptech can be divided into 3 sub-terms, each of which has varying degrees of similarity associated with traditional fintech models. As can be seen in the figure below, the overlap between the two terms proptech and fintech is referred to in academic literature as real estate fintech, while smart real estate and shared economy are subsets of proptech, as these do not focus on the financing aspects of real estate.

Figure 1: Classification of the proptech term



Source: Baum, 2017

Proptech encompasses various business models including marketplaces connecting clients with services, mortgage platforms facilitating loans, leaseback options for homeowners, iBuying intermediaries in property transactions, workplace management tools, landlord insurance services, smart home solutions, virtual tour software, energy tracking platforms, real estate crowdfunding, and home service management software. Each model addresses specific aspects of real estate and related services (Cherif & Grant, 2014).

Zillow Group strategically capitalized on its first mover advantage and consolidated various components of the proptech business models through acquisitions and own ventures under its umbrella (Shaw, 2020). The company intends to integrate its diverse subsidiaries and sub brands into a comprehensive superapp in the foreseeable future, with the aim of further strengthening its dominant position within the US real estate market and long-term goal of global expansion (Zillow, 2023). Due to this diverse set of individual business models, Zillow Group exhibits characteristics of all three sub-categories, whereby Zillow's core business is most closely associated with the real estate fintech category, while its other ventures can be interpreted as supplementary. The author has therefore assumed that the valuation methods that are best suited to the financial valuation of fintech companies are also the most suitable for Zillow Group. Moreover, it was hypothesized that Zillow Group operates within a comparable investment landscape to fintech companies and encounters similar investment stakeholders.

2.2.3 Fintech Investment Landscape

2.2.3.1 Fintech Market

Despite a temporary setback in 2022, the fintech market is poised for significant growth (Goyal et al., 2023). A report from May 3, 2023, by BCG and QED Investors forecasts a sixfold increase in fintech revenues globally from $245 billion to $1.5 trillion by 2030, which represents an increase from 2% of global financial services revenue to 7%, with Asia-Pacific (42% of Fintech Market share) leading the expansion. Fintechs are anticipated to constitute 25% of worldwide banking valuations by then. The next phase of fintech development will focus on B2B and B2B2X services, targeting SMEs with around $5 trillion in unmet credit needs annually. Within the fintech sector, there is a discernible trend towards “all-in-one” business models, which further increase cost reduction and operational efficiency. Examples like Revolut showcase this shift already today, offering a wide array of services including banking, insurance, trading, mobile payments, and various travel and leisure amenities under one platform. However, challenges exist, particularly in the regulatory environment and for spread-based fintech businesses, which may need to acquire banking licenses for stability in developed markets (Goyal et al., 2023).

2.2.3.2 Investment Landscape

According to a report from KPMG in 2023, global fintech investment activity in 2023 was significant across various fronts. Venture capital injections into fintech startups totaled $46.3 billion, spanning 3,819 deals, indicating strong investor confidence in the sector's potential for growth and innovation. Private equity investments amounted to $11.0 billion through 116 deals, providing alternative financing options for established fintech firms. The total value of global fintech investments reached $113.7 billion, with an average deal size of $12.9 million. Additionally, M&A transactions within the fintech sector totaled $56.4 billion across 612 deals (Ruddenklau & Haji, 2023).

2.2.3.3 Investment players

The fintech investment landscape displays a range of investors who invest in fintech companies according to their growth stages. Each investor follows a specific objective, leading to focussing on different metrics and valuation approaches to evaluate the investment attractiveness of these firms (Saphyra et al., 2021). According to McAdam and Marlow (2007) Incubators provide support and resources to entrepreneurs to help them develop and grow their early stage fintech companies, while accelerators offer intensive programs aimed at rapidly scaling fintech startups (Mcadam & Marlow, 2007). Angel Investors, Venture capital firms and Corporate Venture Capital arms specialize in funding fintechs at earlier developmental stages, while private equity investors provide financing to established fintech companies, often restructuring operations for optimization (Bertoni et al., 2013). Institutional players, including pension funds and insurance companies, allocate capital to fintech enterprises to diversify investment portfolios and drive growth (Cornelli et al., 2021). M&A

activity and IPOs offer investors exit opportunities while fuelling strategic growth for fintech firms through capital infusion and expanded market presence (Ball et al., 2008).

Table 1 is intended to provide a clear overview of the various company stages and the associated investment rounds, spanning from seed stage to IPO. The table outlines various aspects including product stages, most important metrics, typical investors, and average investment amounts at each stage. This data is derived from academic sources including those by Block et al. (2019), Sohl (1999), Bonini & Capizzi (2019), Anderson & Huang (2017), Trachenko et al. (2019), and Belka (2019).

Table 1: Company stages linked to respective product stage, metrics, typical investor and investment sum

Company Stage	Product Stage	Main Metrics	Typical Investors	Investment
Seed Stage	Prototype Development, Testing	Market Validation, Team Strength, Product Development,	Crowdfunding, Angel investors, friends and family, seed-stage venture capital firms	$50,000 - $500,000
Series A	MVP Launch, Validation (Pre/Early-Revenue)	Revenue Growth, Market Expansion, User Engagement and Retention	Crowdfunding, Venture capital firms, corporate venture capital arms, angel investors,	$1 million - $10 million
Series B	Traction, Expansion (Revenue)	Revenue Growth and Profitability, Market Share, Scalability	Venture capital firms (growth-stage), private equity firms, hedge funds, corporate venture capital arms	$10 million - $50 million
Series C	Scaling, Optimization (Revenue)	Revenue Growth and Market Expansion, Profitability and Cash Flow, Customer Lifetime Value	Venture capital firms (late-stage), private equity firms, hedge funds, banks, institutional investors	$50 million - $100 million
Series D & E	Market Leadership, Growth (Revenue)	Market Leadership and Growth, Profitability and Efficiency,	Private equity firms, hedge funds, sovereign wealth funds, banks, institutional investors	$100 million - $500 million
IPO	Public Listing	Market Performance, Financial Stability, Growth Potential	Institutional investors, retail investors, mutual funds,	Varies widely

Source: Author

According to Fox (2008) Investors typically assess the investment potential of fintech companies through the consideration of seven criteria or value drivers (Fox, 2008). The significance of each criteria varies depending on the growth phase of the fintech firm and the chosen valuation method. Early-stage fintech startups face challenges in assessing their market values due to the scarcity of quantitative data. This often requires the estimation or forecasting of numerous metrics, leaving significant room for interpretation. (Festel et al., 2013). Table 2 outlines the evaluation methods employed for different aspects and the nature of data utilized. The methodologies and data types outlined draw from several scholarly sources, including Festel et al. (2013), Hall and Hofer (1993), Nemtseva and Vorozhbickaya (2021), and Ilyash et al. (2020).

Table 2: Assessment Aspects linked to primary Valuation Methods and Type of Data used

Aspects	Valuation Methods	Type of Data
Uniqueness	- Comparative analysis of technology and market positioning - Analysis of patent/ trade secret densibility - Evaluation of business model scalability and sustainability	Mainly Qualitative
Market Position	- Comparative market analysis - Evaluation of market share + brand strength - Assessment of growth potential + market saturation	Mixed Qualitative / Quantitative
Growth Potential	- Forecasting based on regulatory developments, technological disruptions and market shifts - Analysis of Scalability and adaptability to shifts in the market	Mainly Qualitative
Financials	-Analysis of CF, Cost Structure and Revenue streams - Construction of financial projections rooted in historical financial performanc and market developments	Mainly Quantitativ
Team	- Evaluation of leadership quality, historical track record and industry experience	Mainly Qualitative
Risk	- Identification and assessment of regulatory, technological, market and competitive risks - Analysis of risk mitigation strategies	Mainly Qualitative
Valuation	Valuation Methods discussed in detail in the next chapter	Mixed Qualitative / Quantitative

Source: Author

Given the primary emphasis of this thesis on economic fintech valuation methodologies, these aspects are given little consideration in the table, as they are comprehensively discussed in subsequent chapters.

2. 3 Fintech Valuation Methods

In contemporary academic discourse, there is considerable discussion surrounding the evolution of fintech valuation from an art to a more precise scientific process, particularly in relation to a fintechs growth stage (Wieczorek & Woźniak, 2019). This perspective implies that early-stage fintechs, which often lack extensive data, require valuation methods that incorporate innovative approaches. Conversely, established fintech firms typically demand a structured and systematic valuation process (Montani et al., 2020). As fintech companies progress through various stages of growth, there tends to be a transition in valuation methodologies, moving away from reliance on qualitative and externally sourced quantitative market data toward a greater emphasis on the company's internal financial data (Hail, 2013). This shift is influenced by factors such as the presence of stable revenue streams, potential profitability, and established historical financial and accounting records commonly associated with mature fintech firms (Black, 2003).

To provide a clear overview, this chapter categorizes fintech valuation methods into pre-revenue and revenue stages.

2.3.1 Fintech Valuation Approaches for Pre-Revenue Companies

2.3.1.1 Payne Scorecard Method

The Scorecard Valuation Methodology, conceived by Bill Payne, provides a structured approach for determining the valuation of pre-revenue fintech startup ventures, particularly within the angel investing and venture capital domain (Payne, 2011). This method involves comparing the fintech company to similar ventures that have secured angel funding, using the average valuation of recent deals in the region as a reference point for establishing a pre-money valuation (economic value of the company before an investment) (Navas & Bentes, 2023). The valuation process incorporates various qualitative factors, including the strength of the management team, market opportunity size, product/technology attributes, competitive landscape, marketing/sales strategies, partnership potential, anticipated funding needs, and other relevant considerations (Nanjundaiah, 2023).

According to a scientific paper by Payne (2011), the application of the scorecard methodology works in four subsequent steps:

Benchmarking Pre-money Valuation: The process begins with a calculation of the average pre-money valuation prevailing in the region, drawn from recent angel investments into similar fintech companies.

Comparative Analysis: The target fintech company is systematically compared to similar fintech entities in the region, considering qualitative factors. These Factors include: Management Team Evaluation, Market Opportunity Analysis, Product/Technology Assessment, Competitive Landscape Review, Marketing/Sales Strategy Review, Future Funding Needs Consideration (Navas & Bentes, 2023).

Weighted Evaluation: Each factor undergoes a weighted evaluation to distinguish its influence on the company's valuation, considering its relative importance and impact (Navas & Bentes, 2023).

Valuation Calculation: The culmination involves aggregating the weighted impact scores across all factors and multiplying them by the average pre-money valuation to derive the target companies pre-money valuation (Payne, 2011).

Example valuation of fictive fintech company XYZ:

Table 3: Ficitve Example Calculation of payne scorecard method

Angel Group	Valuation (in Mio $)
Cosmic Capital	$1.30
Stellar Ventures	$1.45
Orion Investment Club	$1.52
Galactic Angels	$1.52
Solar Angel Network	$1.85
Nova Angel Group	$1.90
Mean	**$1.60**
Mode	**$1.52**

Factor	RANGE	TARGET	FACTORS
Strength of Entrepreneur and Team	30%	150%	0,45
Size of the Opportunity	25%	100%	0,25
Product/Technology	15%	125%	0,19
Competitive Environment	10%	75%	0,08
Marketing/Sales/Partnerships	10%	125%	0,13
Need for Additional Investment	5%	100%	0,05
Other factors	5%	150%	0,08
Sum			**1,21**

Company Value
Mode * Sum 1,52 * 1,21
1,84 Mio $

Step 1: Listing of investments into similar fintechs

Table 3 shows the listing of recent investments into similar fintechs within the same geographic region as the example company. Based on these values the mean and mode are calculated to derive the average valuation of a comparable fintech – the examples case arrives at a mean valuation of $1.52 M

Step 2: Weighing of Factors

Factors are weighted and compared to a benchmark which represents a valuation of 100%.

The strength of the entrepreneur and team is weighted with 30% as the strongest Factor within the valuation. It is assumed that fintech company XYZ is founded by a serious entrepreneur with CEO experience within a big international group and therefore receives a valuation of 150% which is significantly above average. Factor: 30% * 150% = 0,45

Size of the opportunity (25% weighted) is considered average and therefore receives a valuation of 100%. Factor: 25% * 100% = 0,25

Product and Technology (15% weighted) are assessed and considered very promising, which leads to a valuation of 125%. Factor: 15% * 125% = 0,19

The Competitive environment (10% weighting) is characterized by strong competitors and is therefore valuated at 75%. Factor: 10% * 75% = 0,08

It is assumed that Company possess strong sales channels (10% weighting) which are considerably above average and valuated at 125%. Factor: 10% * 125% = 0,13

No additional funding (5%) is needed in the subsequent funding round, which leads to a valuation of 100%. Factor: 5% * 100% = 0,05

Additionally (5%) the company received outstanding customer Feedback which was evaluated at 150%. Factor: 5% * 150% = 0,08

Step 3: Summation of Factors and Company Value

All previously calculated Factors are summed up which leads to a total Factor of 1,21. The calculated Factor is then multiplied with the average fintech valuation, computed in step 1 (1,52 Mio $). In the examples case this leads to a pre-money pre-revenue valuation of 1,84 Mio $ for fintech company XYZ.

The main limitations of the Payne scorecard method are related to the challenges of identifying comparable early stage fintech companies and the subjective nature inherent in its execution. Furthermore, it neglects financial ratios which are an important indicator of a company's economic value, even in early and pre-revenue stages.

2.3.1.2 Berkus Method

The Berkus method, developed by Angel Investor Dave Berkus in the 1990s, is a valuation approach that can be used to evaluate the pre-revenue value of fintech startups (Akkaya, 2020). This method employs quantitative factors to assess a fintech startup's potential. It involves assigning monetary values to five critical elements: the soundness of the idea, the presence of a prototype, the quality of management, strategic partnerships, and the progress in product development. As shown in Table 4 each of these elements is assigned a value within a range of $0 to $500,000, resulting in a maximum pre-revenue valuation of $2.5 million (Achimská, 2020).

Table 4: Application scheme for the Berkus method

Aspect	Valuation Range	Description
Innovative Concept	$0 - $500,000	The company possesses a promising business concept.
Competent Management Team	$0 - $500,000	The company has established a skilled management team.
Prototype Development	$0 - $500,000	The company has developed a robust product or prototype with customer appeal.
Strategic Partnerships	$0 - $500,000	The company has cultivated strategic alliances, partnerships, or an expanding customer base.
Product Launch or Sales	$0 - $500,000	The company demonstrates indications of revenue growth and a clear path to profitability.
Valuation	**$0 - $2,500,000**	

Source: (Akkaya, 2020)

While the Berkus method offers a straightforward framework for evaluating early-stage fintech startups. Fintech ventures commonly operate in high growth environments with strong regulation, face significant competition, and are subject to rapid technological advancements, market demand shifts and business risks which may be oversight by the berkus method. As such, it is often supplemented with other valuation methods, such as the Venture Capital Method, to provide a more comprehensive analysis (Montani et al., 2020).

2.3.1.3 Risk Factor Summation Method

This approach focuses on evaluating the risks associated with establishing a fintech startup within a specific market and or business model (Nasser, 2016). Like the Scorecard method, it begins by determining a base value derived from averaging the valuations of comparable fintech startups in the same niche and geographic area. The valuation is then adjusted by comparing the target fintech start up against 12 common risk factors (Babu et al., 2023).

As shown in Table 5 the assessment of risks encompasses considerations such as management competency, business stage, legislative and political factors, manufacturing challenges, sales and marketing uncertainties, funding constraints, competitive landscape, technological disruptions, legal liabilities, international complexities, reputation management, and the potential for lucrative exit strategies (Nekrasov & Shroff, 2009).

Table 5: Overview of risks used in the risk assessment method

Risks	
1. Management competency	7. Competitive landscape
2. Business stage	8. Technological disruptions
3. Legislative and political factors	9. Legal liabilities
4. Manufacturing challenges	10. International complexities
5. Sales and marketing uncertainties	11. Reputation management
6. Funding constraints	12. Potential for lucrative exit strategies

Source: Author

Each factor is assigned a score ranging from negative 2 to positive 2 based on its impact on the fintech startup's potential success. The score is multiplied by the predetermined monetary factor and added to the average valuation to obtain the final valuation (Nasser, 2016).

Table 6: Application Scheme for Risks within the Risk Factor Summation Method

Risk Evaluation	Valuation Adjustment	Description
2	+$500,000	Highly favorable outlook for growth and successful exit strategy.
1	+$250,000	Positive assessment.
0	$0	Neutral evaluation.
-1	-$125,000	Negative impact on growth potential and exit strategy execution.
-2	-$250,000	Extremely unfavorable assessment.

Angel Group	Valuation (in Mio $)
Cosmic Capital	$1.30
Stellar Ventures	$1.45
Orion Investment Club	$1.52
Galactic Angels	$1.52
Solar Angel Network	$1.85
Nova Angel Group	$1.90
Mean	**$1.60**
Mode	**$1.52**

Source: Author

Table 6 shows the approach in more detail, where the average valuation of pre-revenue fintech companies within the relevant geographical area is adjusted upwards by $250,000 for every point increase on the positive side of the scale (+$500K for a +2) and downwards by $250,000 for every point decrease on the negative side of the scale (-$500K for a -2) (Köseoğlu, 2023). This evaluation is repeated for each of the 12 risk factors and leads to a final valuation of the fintech (Köseoğlu, 2023).

Despite its simplicity and potential to identify overlooked risks, the Risk Factor Summation method may lack precision in evaluating fintech startups, as it incorporates irrelevant risk factors like manufacturing challenges (Akkaya, 2020). Additionally, its uniform weighting of risk factors might fail to account for the disproportionate impact of regulatory compliance and technological disruptions. Notably, cybersecurity risks, significant for fintech startups, are not addressed within this method. Moreover, the method faces challenges in identifying comparable early-stage companies and subjective aspects in assessing each risk's monetary value. (Derindere Köseoğlu, 2023). To address these limitations, the author suggests complementing the risk factor summation method with a fintech specific risk assessment method or the development of a modified approach, which covers the characteristics of the fintech industry with weighted and more specific risk factors.

2.3.1.4 Venture Capital Method

The Venture Capital Method is a structured approach used to value businesses, particularly suited for early-stage and pre-revenue fintechs. It is widely recognized in the venture capital industry due to its alignment with the investment strategies commonly employed by venture capitalists worldwide (Miloud et al., 2012). This method revolves around predicting a specific rate of return on investment (RoI) and determining the exit value, which is the anticipated worth of the company upon its sale or liquidity event (Cumming, 2012).

In contrast to previously discussed methodologies, the Venture Capital (VC) method incorporates various factors specific to fintechs, such as, market dynamics, and investor preferences (Cumming, 2012). Another difference to the other pre-revenue valuation methods discussed in this chapter is that the venture capital method calculates the post-money value of a company (value of the company after an investment) first, from which the pre-money valuation is then derived (Seppä & Laamanen, 2001).

The exit value (EV), also known as the terminal value, is typically calculated as a multiple of the Net Income at the time of sale. Estimating the exit value of fintech startups can be challenging due to limited data availability, particularly in the early pre-revenue stage (Köhn, 2018). To address this, a combination of publicly available data and databases within the private equity and venture capital sectors is typically utilized to estimate the exit multiple and the respective Terminal Value(Cumming, 2012).

The RoI represents the rate of return sought by investors and is expressed as a multiple of the initial investment (Köhn, 2018). Given the high-risk nature of fintech startups and the expectation that many may not achieve profitability, the targeted RoI for early-stage fintechs is typically quite high, often reaching multiples of the initial investment in the range of 10x – 30x (Moro Visconti, 2020).

In practical terms, the Venture Capital Method allows for the calculation of the post-money valuation based on the anticipated exit value and expected RoI (Carver, 2012). This valuation then is used to determine the investors stake in the company. Future dilution effects, which can occur as a company undergoes subsequent rounds of fundraising, aren't considered within the approach (Köhn, 2018).

Example Calculation of fictive fintech company XYZ:

Step 1: Estimation of Investment Sum

Series A:	$4M

In a first step the required Investment is estimated, which serves as the base for ownership structure calculations in subsequent steps. For the example company it is assumed that an initial Investment of $4M in the Series A funding round is required.

Step 2: Net Income Forecast

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	0.5M	5M	12.5M	25M	50M
EBITDA	0M	1M	2.5M	5M	10M
Net Inome	0M	0.5M	1.5M	2.5M	5M

The second step forecasts the Net income until the anticipated exit period. As companies at this stage typically don't possess established revenue streams, the forecast is based on analyst estimates, industry averages and data from other VC or Angel Investors. The example arrives at a Net Income of $5M in year 5.

Step 3: Exit Time of Investor

Exit Year:	5

The Investor aims to sell his stake in the company within 5 years.

Step 4: Exit Multiple Calculation

Net Inc in Year 5	5M
Multiple	25.0x
Exit Value	$125M

The forecasted Net Income from step 2 is multiplied by a respective exit multiple, at which companies with a similar business model normally trade. In the example the estimated Net Income of $5M is multiplied by the factor of 25 which leads to a terminal value of $125M in year 5.

Step 5: Discount at required Rate of Return

Requ. Rate of Return	50%
Post Money Value	125/(1.5)^5
Post Money Value	16.5M

Due to the high risk, high return nature of fintech company XYZ it is assumed that the investor requires a return of 50% (which is usually the cost of equity). The terminal value is then discounted at the rate of return over the 5 years, which leads to a post money valuation of $16.5M for company XYZ.

Step 6: Valuation and Ownership Structure

Required Investment	4M
Post-Money	16.5M
Pre-Money	11.5M
VC Ownership	24%

In the sixth step the required investment is subtracted from the post-money valuation which leads to a pre-money valuation of $11.5M. Respectively an investment of $4M grants the Investor an ownership stake of 24% in company XYZ.

Despite its simplicity, the Venture Capital Method serves as a foundational framework for valuing early-stage fintech companies, providing a starting point for more sophisticated valuation models (Festel et al., 2013). The limitations arise from the significant interpretational challenges due to the unpredictability of fintech markets, as well as the lack of data and uncertainties associated with pre-revenue fintechs. Predicting net income and terminal value poses substantial challenges as a result (Goldenberg & Goldenberg, 2009). Nevertheless, its widespread use underscores its significance within the investment and entrepreneurial ecosystems (Moro Visconti, 2020).

2.3.2 Fintech Valuation for Revenue-generating Companies

2.3.2.1 DCF-Method

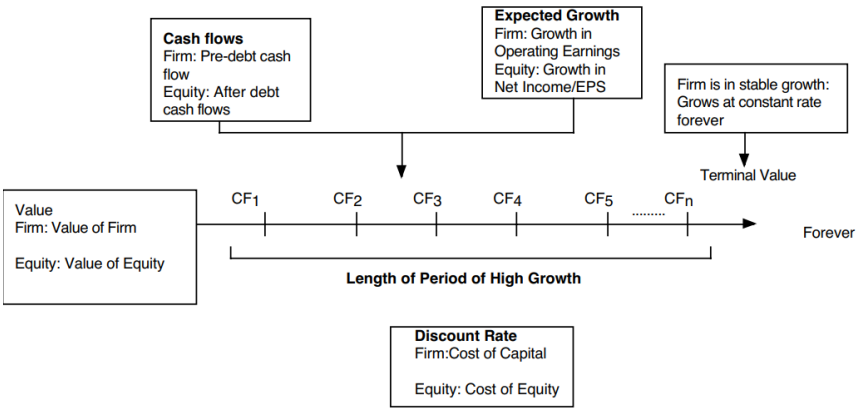
The DCF method is a prominent valuation method particularly relevant to assessing the worth of mature fintech companies by projecting their expected cash flows in the future and the subsequent discounting to their current value via the usage of a specific discount factor (Brotherson et al., 2014).

The DCF-approach is an intrinsic valuation method that aims to estimate the monetary returns investors could potentially derive from investing in a fintech firm, while considering the time value of money (Kruschwitz & Löffler, 2006). Given the rapid evolution and disruptive nature of fintech innovations, accurately estimating future cash flows becomes essential in this analysis (Kalmykova & Ryabova, 2016). In conducting DCF analysis for fintech companies, analysts must carefully evaluate various factors unique to the industry, including market demand for specific fintech solutions, regulatory considerations, competitive landscape dynamics, and technological trends. These factors contribute to the complexity of estimating future cash flows accurately (Moro Visconti, 2020).

In general, the discounted cash flow (DCF) valuation method involves several sequential steps. Firstly, cash flows expected from the investment are projected over a specified period, often spanning 5 to 10 years. In a second step, the terminal value is calculated, representing the value of the investment's cash flows beyond the forecast period (Damodaran, 2012). This estimation typically employs methods such as the perpetual growth method or exit multiples (Damodaran, 2012). The third step involves discounting the forecasted cash flows and the terminal value to their present value using a specific discount rate. Finally, the present values of the cash flows and the terminal value are summed to determine the present value of the investment (Lilford et al., 2018; Tipple & Tipple, 2003).

The contemporary academic literature addresses two primary DCF approaches relevant to fintech valuations (Inselbag & Kaufold, 1997). The first approach employs the free cash flow to the firm (FCFF) methodology which computes the Entity value of a Firm, while the second one builds on the free cash flow attributable to equity owners and calculates the Equity Value of a Firm (FCFE) (Vélez-Pareja, 2007). Analysts must carefully choose the appropriate approach based on investment objectives, the fintech company's financial structure and growth prospects (Moro Visconti, 2020). Figure 1 graphically illustrates the steps of the DCF valuation method described and highlights the distinctions between the FCFF and FCFE approaches in terms of the cash flow utilized, as well as the different growth factors and discount rates applied.

Figure 2: DCF Method - FCFF and FCFE distinctions



Source: (Damodaran, 2000)

2.3.2.1.1 FCFF Approach (unlevered FCFF)

The calculation of the FCFF is commonly preferred in practical applications due to its relative simplicity compared to the computation of the FCFE. This approach disregards the financial structure of the evaluated fintech company, making it particularly applicable for highly indebted or unprofitable fintechs and those lacking a debt amortization plan (Shrieves & Wachowicz Jr, 2001). It relies on operating income before financial charges and after taxes (NOPAT). In Particular the calculation of free cash flow to the firm considers all cash flows available for interest expenses, debt repayment, dividends distribution, or retained earnings. These cash flows are then discounted using WACC (which stands for the weighted average cost of the total employed capital) to conclude the Entity Value of the fintech firm (Kruschwitz & Löffler, 2006). Final, the market value of the company is determined by subtracting the company's debts and adding cash and cash equivalents to the calculated value, which represents the step from Entity value to Equity Value of the Firm. If a fintech in this stage is already publicly listed, the value per share is determined by dividing the equity value by the number of outstanding shares (Al-Zararee & Al-Azzawi, 2014).

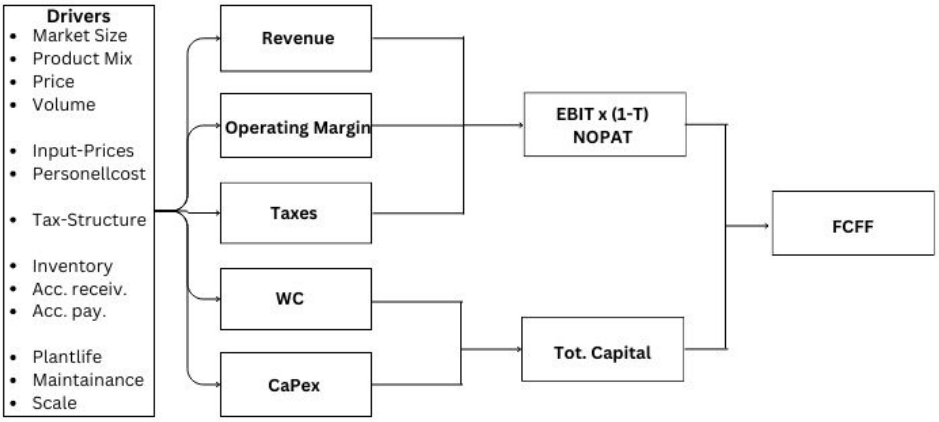
Drivers Influencing FCFF

The computation of Free Cash Flow to the Firm (FCFF) in fintech companies primarily considers five essential line items, as shown in Figure 2: revenue (income statement), operating margin (income statement), taxes (income statement), working capital (balance sheet), and capital expenditures (cash flow statement) (Corelli & Corelli, 2017). These elements are subject to various influences specific to the fintech industry.

For example, revenue generation in fintechs is influenced by market dynamics, such as the adoption rate of digital financial services, the popularity of specific fintech products, and competitive forces, among others. Fluctuations in operating margin may result from changes in technology costs, regulatory compliance expenses, and cybersecurity costs. Tax obligations are determined by the applicable tax structure or shifts in tax legislations. Changes in net working capital are driven by variations in customer acquisition costs, payment processing times (longer processing times can tie up capital in accounts receivable, impacting liquidity),

and changes in churn rates (affecting current assets and liabilities, leading to liquidity shifts). Additionally, R&D costs and scaling of operational infrastructure can significantly affect capital expenditure in fintech companies, as well as traditional drivers such as the longevity of assets and ongoing maintenance needs to sustain existing assets (Klepzig, 2014; Soriano, 2017; Werth et al., 2023; Yao, 2019).

Figure 3: FCFF Drivers



Source: (Basci, 2019)

FCFF Calculation

Figure 3 shows that Free Cash Flow to the Firm (FCFF) is computed by initially deriving the company's Net Operating Income, which considers the earnings from its primary operational activities. From this figure, taxes paid on operating income are subtracted. Following this, adjustments are made by adding back any amortization or depreciation expenses to account for their non-cash nature. Technical dividends or investments are then incorporated into the calculation. Similarly, dividends or investments related to other assets are accounted for, adjusting for their effect on cash flow. Moreover, changes in Working Capital (NWC) are factored in, encompassing both positive and negative variations. Summing up these components yields the Free Cash Flow to the Firm, representing the surplus cash available to equity and debt providers (Moro Visconti, 2020).

Figure 4: FCFF Formula

Net op. Income
- taxes on op. Income
+ amortization / depreciation
+ technical div-/investmens
+ div-/investments other assets
+/- Δ in NWC
Free Cash Flow to the Firm

Source: (Moro Visconti, 2020)

Discount Factor: WACC

The WACC is calculated by averaging the costs of equity and debt financing, weighted by their respective proportions in the company's capital structure. This provides a single rate that

represents the overall capital cost for the company, which serves as the discount rate to compute the EV (Damodaran, 2012; Fernandez, 2010).

Discount-Factor: WACC

$$(E/V) * Re + (D/V) * Rd * (1 - Tc)$$

WACC (Weighted Average Cost of Capital)
Equity Proportion (E/V)
Cost of Equity (Re)
Debt Proportion (D/V)
Cost of Debt (Rd)
Corporate Tax Rate (Tc)

Calculation of Long-Term Sustainable Growth Rate (g) and Terminal Value (TLV)

Long-Term Growth Rate (g):
Within the FCFF approach, the long-term growth rate is typically determined using the Gordon Growth Model, also referred to as the perpetuity growth model. This growth rate signifies the anticipated rate at which free cash flows are expected to expand indefinitely into the future. It is commonly computed as the product of the retention ratio, denoting the portion of earnings retained by the firm for reinvestment, and the return on invested capital (ROIC), reflecting the company's capacity to yield returns on its investments (Damodaran, 2000; Sharma et al., 2018).

Formulas:

$$g = \text{Retention Ration} \times ROIC$$
$$ROIC = (Ebit * [1-Tc]) / \text{Invested Capital}$$

Terminal Value (TLV):
The terminal value in the FCFF approach is calculated through the perpetuity formula. This value represents the present worth of all forthcoming free cash flows beyond the explicit forecast period (Velez-Pareja, 2004). The formula for computing the terminal value is as follows:

Terminal Value

$$TVL = FCFF_{year\ t+1} / (WACC - g)$$

2.3.2.1.2 Free Cash Flow to Equity Holders Approach (FCFE)

In contrast, the cash flow accessible to equity holders focuses solely on the cash flows that can be utilized by equity holders for distribution or retention of profits. Unlike the Free Cash Flow to the Firm (FCFF), the financial structure of a company significantly influences the leveraged cash flow. This metric is determined as the remaining cash flow after the repayment of debt and equity expenses required to sustain existing assets. Unlike the FCFF, this cash flow is not discounted using the WACC, but rather the Re (required equity return). The resulting value represents the equity valuation of a company, already adjusted for debt. If a fintech in this stage is already publicly listed, the value per share is determined by dividing the equity value by the number of outstanding shares (Damodaran, 2012).

FCFE Calculation

As shown in Figure 4, the FCFE is determined by starting with the company's Net Profit (Loss), which indicates the overall profitability of its operations. Amortization or Depreciation expenses are then added back to adjust for their non-cash impact on earnings. Additionally, adjustments are made for dividends or investments in technology equities, as well as dividends or investments related to other assets, considering their respective effects on cash flow. Changes in Net Working Capital (NWC) are factored in, covering both positive and negative changes. Furthermore, changes in loans are taken into account, including both increases and decreases, alongside alterations in equity, whether incremental or decremental. By summing up these components, the Free Cash Flow to Equity is derived, representing the surplus cash available to shareholders (Moro Visconti, 2020).

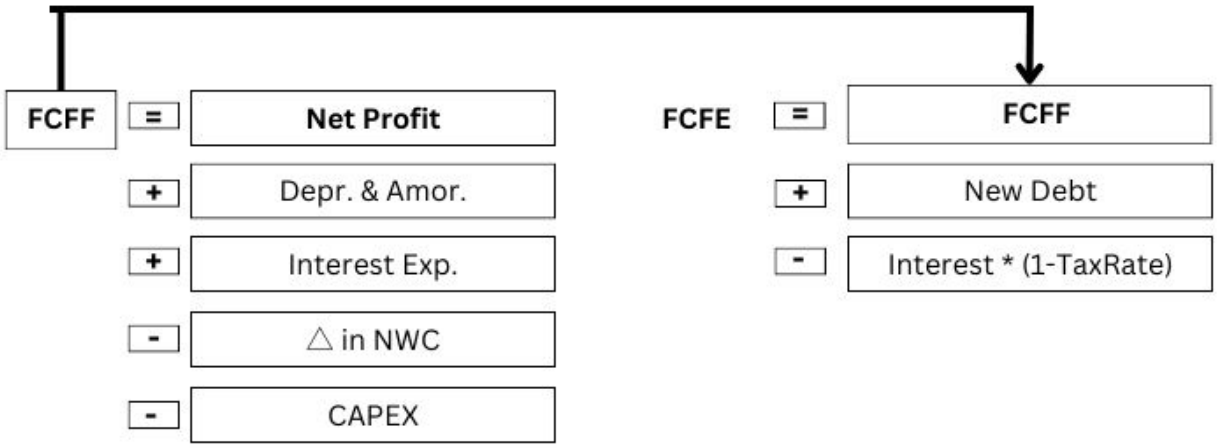
Figure 5: FCFE Formula

Net profit (loss)
+ amortization / depreciation
+/- div-/investments in tech. Equ.
+/- div-/investemtns other assets
+/- in NWC
+/- in-/decreases in loans
+/- equity inc-/decreases
Free Cash Flow to Equity

Source: (Moro Visconti, 2020)

Additionally Figure 5 shows, that if the FCFF has already been determined, additional adjustments can be made to obtain the FCFE. New debt issuance is added to the FCFF, representing the inflow of cash resulting from borrowing activities. Subsequently, the interest payment on the debt is calculated and adjusted for taxes. This adjustment involves multiplying the interest payment by (1 - tax rate), where the tax rate reflects the corporate tax rate applicable to the company. By subtracting the adjusted interest payment from the FCFF, the FCFE is obtained. This represents the cash flow available to equity holders after accounting for debt-related obligations and tax considerations (Klepzig, 2014).

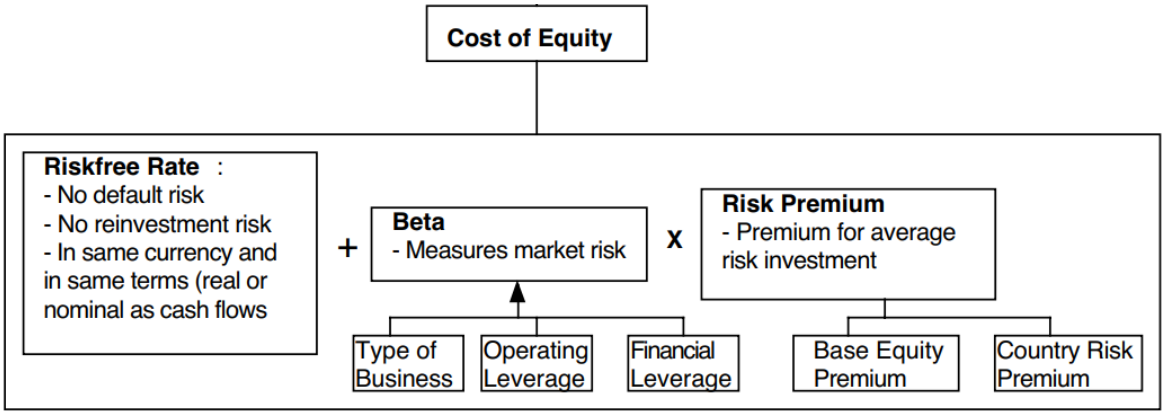
Figure 6: FCFF to FCFF Computation



Source: (Choudhary, 2022)

Discount Factor: Cost of Equity (Re) within CAPM Modell

Figure 7: Cost of Equity within CAPM



Source: (Damodaran, 2000)

Figure 6 shows the Cost of Equity (Re) is calculated within the Capital Asset Pricing Model (CAPM). Three essential components are required: the risk-free rate (Rf), the stock's beta (β), and the market risk premium. The risk-free rate reflects the anticipated return on an investment without any risk, often estimated using long term government bond yields. Beta measures the stock's volatility compared to the broader market, where a beta greater than 1 implies higher volatility and less than 1 indicates lower volatility. Furthermore, the Beta is driven by underlying Factors such as the type of business, the operating leverage, as well as the financial leverage. The market risk premium denotes the extra return investors expect for investing in the stock market over risk-free investments, calculated as the difference between the anticipated market return (Rm) and the risk-free rate (Rf) (Damodaran, 2000; Dimitriou, 2012). These components are then integrated into the CAPM formula:

CAPM: Cost of Equity (Re)

$$Re = Rf + \beta \times (Rm - Rf)$$

It generates the expected equity return, which is synonym to the Cost of Equity (Re). In the FCFE approach The Cost of Equity (Re) is then utilized to discount the Cash Flows to compute the Equity Value of the fintech company (Dimitriou, 2012).

Calculation of Long-Term Sustainable Growth Rate (g) and Terminal Value (TLV)

Within the FCFE approach, the computation of the long-term growth rate (g) and terminal value follows a distinct process:

Long-Term Growth Rate (g):

The long-term growth rate is typically ascertained based on the company's return on equity (ROE). This metric illustrates a business ability to produce profits for equity holders. The long-term growth rate (g) is often estimated as the product of the retention ratio, indicating the proportion of earnings retained by the firm for reinvestment, and the return on equity (ROE) (Dimitriou, 2012).

Formulas:

g = Retention Ration x ROE
ROE = Net Profit / Equity

Terminal Value (TLV):

Similar to the FCFF approach, the terminal value in the FCFE approach is determined using the perpetuity formula. This value symbolizes the monetary value of the future FCFEs, which go beyond the explicit forecast period (Gardner et al., 2012). The formula for computing the terminal value in the FCFE approach is:

Terminal Value

$$TVL = FCFE_{year\ t+1} / r_e - g$$

2.3.2.1.3 Limitations and Challenges of the DCF approach in Fintech valuation

Cost of Debt Estimation

Most Fintech companies are private and lack public ratings, complicating the estimation of their cost of debt. To solve this problem, a potential approach is to generate a synthetic rating by considering the company's interest coverage ratio (Carpenter & Petersen, 2002). However, this method requires a positive operating income. For Fintech firms experiencing negative earnings, the credit rating can be derived from the expected future interest coverage ratio (Alissa et al., 2013). This approach offers an indication of the company's anticipated ability to cover interest expenses, despite its current deficit in earnings.

Stock Beta Estimation

With the limited operating and trading history of many Fintech companies, accurately estimating their stock beta becomes challenging. Typically, beta is calculated by analyzing stock returns in relation to market returns over a specific period (Holthausen & Zmijewski, 2012). Due to the lack of extensive

historical data, this method may fail to deliver robust estimates. Alternatively, a bottom-up approach can be utilized, comparing the financial characteristics of the company to already established fintech firms in the industry. This method relies on identifying comparable companies with longer operating histories to compute plausible beta values (Damodaran, 2000). If comparable firms are unavailable, financial metrics as for example earnings volatility, size, cash flow patterns, and leverage ratios can be analysed to estimate beta values that align with the Fintech company's risk profit (Damodaran, 2005).

Terminal Value

In the DCF valuation of Fintech companies, terminal value plays a major role, often constituting a significant portion, of up to 90%, of the total valuation (Xu et al., 2022). This reliance on terminal value is characteristic for early-stage Fintech companies, where the emphasis lies on capturing market share rather than achieving immediate profitability. While the high proportion of terminal value in the valuation may lead to a level of uncertainty, it also underscores the potential for substantial future growth (Hakim et al., 2020).

Estimation of Free Cash Flows and Operating Margin Assumptions

The estimation of free cash flows for Fintech companies is often challenging due to the uncertainty surrounding their profitability status and outlook. Fintech companies typically require significant upfront expenditures, particularly in areas such as research and development (R&D) and marketing, to support their expansion efforts (Moro Visconti, 2020). These expenses usually decrease over time in a nonlinear matter, leaving room for uncertainties in projecting the “real operating margin” and profitability (Hall & Lerner, 2009).

Fintech companies' business models combine the integration of technology and finance, when estimating the mature operating margin of Fintech companies, it is reasonable to anticipate a margin higher than that of traditional financial companies (Dorfleitner et al., 2019).

Furthermore, it’s important to distinguish between short-term increases in operating margin due to improved efficiency and those resulting from reduced essential expenditures when estimating cashflows (Dorfleitner et al., 2019). Neglecting this distinction could result in overestimating future cash flows (Damodaran, 2000). Furthermore, Fintech firms experiencing negative earnings alongside considerable revenue growth might amass notable net operating losses. The corresponding tax advantages linked with NOLs are an important factor for accurately forecasting cashflows (Atwood & Reynolds, 2008).

2.3.2.1.4 Conclusion

Despite being the most used valuation approach for fintech companies, according to academia, the DCF analysis is not without limitations (Damodaran, 2007). The inherently uncertain nature of fintech markets and business models, coupled with the rapid pace of technological innovation and regulatory changes, poses challenges in accurate projections (Dorfleitner et al., 2019). Additionally, the reliance on estimates and assumptions in DCF analysis underscores the importance of accurate risk assessments and sensitivity analysis to account for potential uncertainties. It also requires a foundational understanding of the industry landscape, technological trends, and regulatory environment by the analyst (Giglio, 2021). By accurately adjusting assumptions, integrating market dynamics, and conducting

comprehensive risk evaluations, the DCF Method can serve as a reliable foundation for investment decisions in fintech companies.

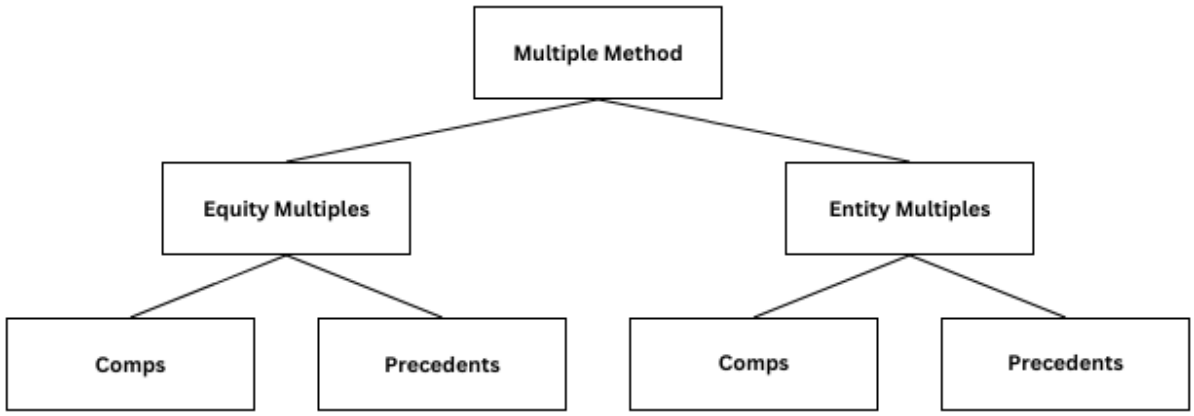
2.3.2.2 Multiple Method

Valuation multiples assess the economic value of fintechs by multiplying a financial metric with a standardized multiple. Multiples express the ratio between distinct financial metrics, such as Share Price and Earnings per Share of similar fintechs within the same sector, geographic region and or niche (Schreiner, 2009).

Using a variety of different multiples in the assessment of a fintech valuation supports analysts in forming accurate evaluations, as these methods are offering valuable insights into a company's financial position. Their significance is rooted in the incorporation of essential financial data and their straightforward nature (Damodaran, 2007).

2.3.2.2.1 Types and Calculation Methods of Multiples

Figure 8: Types and Calculation Methods of Multiples



Source: Author

As shown in Figure 7 scholars categorize valuation multiples into two distinct types, with two corresponding calculation methodologies (Hovestädt, 2022). Equity multiples are used to determine the equity value of a fintech entity, while entity multiples are employed for evaluating the enterprise value. These metrics can be computed using either comparative analysis, known as "comps," where ratios are derived from share prices or market capitalizations of comparable public companies. The second approach requires a transaction-based analysis, referred to as "precedents" which relies on merger and acquisition transaction data from similar companies (Nel et al., 2013).

In academia, the opinion prevails that equity multiples are best suited when the aim is to acquire a minority stake in a fintech company, as the calculated value considers the leverage effect and calculates the economic value of the equity only (Liu et al., 2002). Entity multiples, in contrast, are well-suited for merger and acquisition projects involving the sale or purchase of an entire company, as they include debt in the assessment process (Schueler, 2020).

Equity Multiples

Table 7 presents a selection of Equity multiples and links them to the specifics of fintech companies.

Table 7: Equity Multiples applied to fintech specifics

Equity Multiples	Fintech Specifics
P/E Ratio	most commonly used due to the simplicity of its input data; suitable for fintechs
P/Book Ratio	assumes that assets are largely responsible for earnings; only suitable for fintechs if intangible assets are priced/booked accordingly
P/Dividend yield	relates dividend payouts to share price; usually rather unsuitable for fintechs, as they mostly do not distribute dividends and prioritize market growth and scalability.
P/Sales	well suited for fintechs, as they are often currently unprofitable and within this metric sales are considered rather than profitability

Source: Author

Entity Multiples

As depicted in Table 8, different multiples take into account various aspects of financial performance to assess the economic value of a fintech company.

Table 8: Entity Multiples and Fintech Specifics

Entity Multiples	Fintech Specifics
EV/Revenue	can be affected by differences in accounting principles of different fintech companies
EV/EBITDA	usually suitable for the comparison of fintechs; focuses on operating performance, while disregarding differences in capital structure
EV/FCFF	suitable for fintechs with positive cashflows; considers CAPEX and Changes in NWC; less susceptible to accounting manipulations, compared to other methods
EV/IC	only suitable for capital-intensive fintechs

Source: Author

2.3.2.2.2 Methods of Multiple computation

Comparable Companies Analysis (COMPS)

Figure 8 demonstrates the process of the Comparable Companies Analysis approach, which involves calculating ratios from publicly traded fintech companies operating within the same industry or sector. These ratios are subsequently standardized in a second step using statistical techniques such as the median or mean. The standardized multiples are then employed to determine the economic value of the target company by multiplying them with the corresponding financial ratio of that company. (Chastenet & Marion, 2015; Jindal, 2011).

Figure 9: Fictive Example Calculation of COMP Multiples

	Market			Main Financial Figures				Multiples			
Company	Share Price	Market Cap	EV	Sales	EBITDA	EBIT	Earnings	EV/Sales	EV/EBITDA	EV/EBIT	P/E
FinTechCo1	$50	$500M	$600M	$200M	$50M	$30M	$20M	3.00	12.00x	20.00x	25.00x
FinTechCo2	$45	$450M	$550M	$180M	$40M	$25M	$18M	3.06x	13.75x	22.00x	27.50x
FinTechCo3	$55	$600M	$700M	$220M	$55M	$35M	$25M	3.18x	12.73x	20.00x	24.00x
FinTechCo4	$48	$480M	$580M	$190M	$45M	$28M	$21M	3.05x	12.89x	20.71x	26.67x
FinTechCo5	$52	$550M	$650M	$210M	$52M	$32M	$23M	3.10x	12.50x	20.31x	28.26x
Multiple Type								Entity	Entity	Entity	Equity
Mean								**3.078**	**12.974**	**20.204**	**26.086**
Median								**3.06**	**12.73**	**20.00**	**26.67**

Source: Author

Transaction-based approach (Precedents)

As depicted in Figure 9, the Precedent Transactions Analysis approach shares similarities with the COMPS approach in its procedural steps. However, it differs in that recent prices paid in mergers and acquisitions of comparable fintech firms are used to establish standardized multiples. (Palea, 2016; Plenborg & Pimentel, 2016).

Figure 10: Fictive Example Calculation of Precedents multiples

	M&A Data				Multiples			
Company	Transaction Date	Transaction Sum	Stake %	EV	EV/Revenue	EV/IC	EV/FCFF	EV/EBITDA
FinTechCo1	Jan 1, 2023	$500,000,000	25%	$2,000,000,000	10x	20x	18x	18x
FinTechCo2	Feb 15, 2022	$700,000,000	50%	$1,400,000,000	9x	18x	16x	17x
FinTechCo3	Nov 20, 2024	$1,200,000,000	75%	$1,600,000,000	11x	22x	19x	19x
FinTechCo4	Mar 8, 2023	$900,000,000	100%	$900,000,000	8x	15x	15x	16x
FinTechCo5	Jun 12, 2022	$400,000,000	5%	$8,000,000,000	20x	25x	20x	20x
Multiple Type					Entity	Entity	Entity	Entity
Mean					**11.60**	**20.00**	**17.60**	**18.00**
Median					**10.00**	**20.00**	**18.00**	**18.00**

Source: Author

Both approaches share the common objective of identifying a sufficient number of comparable fintech companies to establish representative averages. This task poses a significant challenge, especially for highly specialized business models (Keun Yoo, 2006).

2.3.2.2.3 Limitations of the multiple approach

The simplicity of the approach may also be perceived as a major drawback, as it consolidates complex financial data into single figures. This simplification can potentially lead to misinterpretations and neglects the consideration of other fintech industry relevant factors, such as growth and adoption rates. Furthermore, multiples only provide a snapshot of a fintech's current state rather than its future potential, which leads to a rather short-term perspective.

Conclusion

It is crucial to acknowledge that there is no universally applicable approach to fintech valuation methods. Rather, each case demands a customized approach, considering factors like the company's business model, growth stage, and investor expectations (Moro Visconti, 2020). Several authors also concur that leveraging a diverse array of valuation methods and deriving a valuation range from them is considered advantageous (Fernández, 2001; Miciuła et al., 2020; Torrez et al., 2006).

In the course of the literature review it became clear that while the comparable approach, the DCF method and even the Venture Capital method can serve as key Pillars in the financial Valuation of Fintechs, other discussed valuation methods including the Payne Scorecard Method, the risk factor summation method, and the Berkus Method, may fall short in fully addressing the Complexities of a Fintechs Business Models, its value drivers and the surrounding market dynamics. The Payne Scorecard Method, for example, relies primarily on subjective evaluations of 7 different business Factors, which are not able to fully capture the specifics of Fintechs and its external business environment. The risk factor summation methods applicability is limited by several factors. Specifically, the 12 risk factors fail to encompass some of the significant risks inherent to Fintechs, include irrelevant factors, and do not adequately prioritize other notable risks. If these limitations would be addressed through a tailored approach that specifically considers the unique risks faced by fintechs and weighs them accordingly, it could serve as a basis for other valuation methods, simillar as the multiple valuation method supplements the DCF valuation as a plausibility check. The Berkus Method proves unsuitable for a company like Zillow, as it imposes a maximum valuation cap of $2.5 million and fails to account for market dynamics and many of Zillow's future value drivers.

Beyond financial valuation methods, other factors have to be included in the evaluation of the attractiveness of a proptech/fintech investment, such as, the regulatory landscape surrounding a specific business modell, its competitive positioning, possible technological disruptions, market adoption rates, management team strength, and macroeconomic developments and trends. For Fintech Valuations in general the author concludes, that if the Comparable approach, the DCF, and the Venture Capital-Method are combined with previously mentioned factors, investors can gain a holistic understanding of a fintech company’s current worth and its future potential.

Regarding the financial valuation of Zillow Group the author follows the prevailing consensus in academia, that investors are advised to employ a combination of the discounted cash flow (DCF) and multiple valuation methods. Within this framework, the multiple valuation method functions as a plausibility check for the DCF analysis (Miciuła et al., 2020; Schueler, 2018; Steiger, 2010). In the Case of Zillow these methodologies align well with its

diverse business model, revenue streams and risk exposure. The final Valuation of Zillow Group also considers all the previously mentioned factors which go beyond the financial valuation and puts a special emphasis on current and future developments within the us

residential real estate market, as heightened transaction volume within this market is considered as the primary revenue driver of Zillow's business model.

Limitations

Limitations of the literature review primarily stem from the fact that, although it possesses the ability to apply existing valuation methods to the characteristics of the fintech industry, it falls short in fully addressing the complexities associated with investments in these firms due to its limited scope and purely theoretical focus.

It is intended to encourage additional research focused on the development of new approaches to fintech valuation, recognizing the need for such efforts to improve efficient capital allocation within the industry.

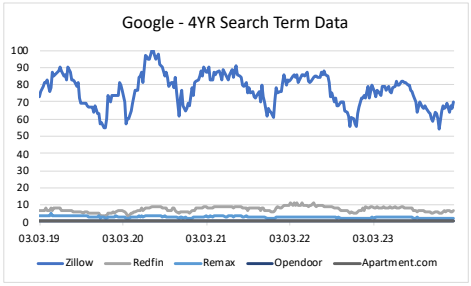
Furthermore, the review represents a snapshot of current knowledge, which may become outdated quickly in rapidly evolving sectors like fintech, where new paradigms and methodologies continually emerge.

3 Research Snapshot

Market dominance and on the right path to Building a Moat

Zillow's leadership in the digital real estate market is a significant advantage, universally beneficial across any industry (Figure 5). In 2023, Zillow experienced a staggering monthly visitation of 224 million unique users, leading to an estimated 867 million visits in total, or about 3.9 visits per user. This starkly contrasts with its primary competitor, Redfin, which sees about 51 million unique visitors monthly. Zillow's dominance goes beyond its market share to include its platform's unique value proposition, which allows landlords and lessees to handle transactions from start to finish. This is further enhanced by potential new features such as insurance and renovation services, setting it apart in the market.

Figure 11: Google Search Term Data

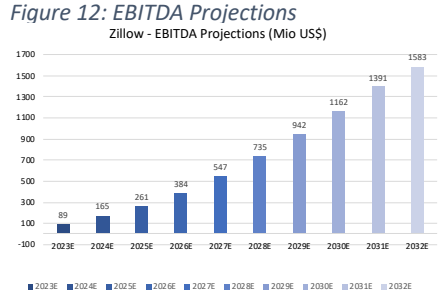


Source: Google, 2024

Asset-light model and gross margin pave the way to consistent profitability

The strategic departure from the less lucrative iBuying venture represents a pivot towards a more streamlined, asset-light model with promising long-term gross margins exceeding 80%, thanks to a focus on IMT and Mortgage segments. This shift positions Zillow for rapid profitability acceleration, with revenues projected to rise annually by 9.9% and an anticipated EBITDA margin growth to 31.1% by 2032, up from the current 3.3% (Figure 1).

Figure 12: EBITDA Projections



Source: Author Estimates

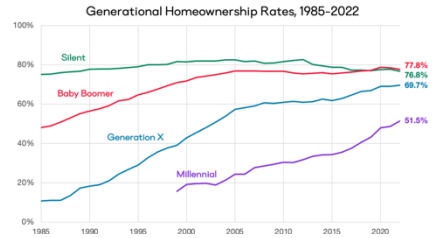
Real Estate Market is moving towards an environment that could help Zillow gain momentum

The anticipated decrease in interest rates signals increased mortgage accessibility, likely enhancing Zillow's revenues substantially in the coming three years. Both millennials and Gen Z are expected to play a critical role in future revenue growth. Millennials have already seen their homeownership rates rise from 40% in 2020 to 51.5% in 2023, with projections indicating further growth over the next decade (Figure 3). Meanwhile, Gen Z has faced challenges, yet the recent drop in home prices, despite offering some temporary relief, has also led to fewer new listings and development projects. This situation suggests an ongoing housing shortage and sustained high prices. However, the expected shift towards lower interest rates could provide Gen Z with the boost needed, through more affordable mortgages and the potential for new construction projects that might help stabilize prices, thus facilitating their path to homeownership.

Figure 13: US Real Estate and Infrastructure Market

Source: Precedence Research, 2023

Figure 14: US - Homeownership Rates



Source: apartmentlist, 2024

Zillow, a Buy with significant upside potential and great risk-reward profile

Zillow's current valuation presents an intriguing investment opportunity. Utilizing a Discounted Cash Flow (DCF) model, we arrive at a share value of $65,8, suggesting a robust 21.6% potential upside from the current $54.14 share price. Even under a conservative scenario analysis, incorporating a high Weighted Average Cost of Capital (WACC) of 12.6% and a modest Terminal Growth Rate (TGR) of 2.3%, Zillow's valuation comfortably exceeds its current market price (Figure 4). In conclusion, Zillow's robust platform, leading market position, optimistic real estate outlook, and attractive valuation underpin a buy recommendation.

Figure 15: Scenario Analysis

Cost of Capital (WACC) vs. Long-run sustainable growth rate (TGR)								
		WACC						
	65,8	11,1%	11,3%	11,6%	11,8%	12,1%	12,3%	12,6%
TGR	2,3%	68,5	66,3	64,1	62,1	60,2	58,4	56,8
	2,5%	70,0	67,6	65,4	63,3	61,3	59,5	57,7
	2,8%	71,6	69,1	66,7	64,5	62,5	60,5	58,7
	3,0%	73,3	70,6	68,1	65,8	63,7	61,7	59,8
	3,3%	75,0	72,2	69,6	67,2	65,0	62,9	60,9
	3,5%	76,9	74,0	71,2	68,7	66,3	64,1	62,1
	3,8%	78,9	75,8	72,9	70,3	67,8	65,5	63,3

Source: Author Estimates

4 Business Description

Zillow Group, a prominent player in the U.S. online real estate sphere, operates an extensive digital platform that garnered 2.2 billion visits in Q423 from individuals seeking residential properties. Facilitating connections through its website and mobile applications, Zillow acts as a facilitator, linking users with a diverse range of real estate partners to streamline processes related to exploring, renting, financing, buying, and selling residential properties. At the heart of Zillow's mission is the simplification of real estate transactions and the promotion of transparency, leading to a remarkable monthly user base averaging 194 million unique users. Key to its offerings is an expansive database housing approximately 160 million U.S. homes, supported by its proprietary Zestimate valuation model (Figure 8). Zillow's primary strength lies in its widespread brand recognition, having established itself as synonymous with online property searches in the U.S., and enjoying unparalleled consumer familiarity, thereby securing its leading position among real estate brands.

The Group offers a diverse array of services and sub-brands, with the majority of its traffic stemming from platforms like Zillow, Hotpads, and StreetEasy (Figure 6). Their customer-centric offerings cater to buyers, sellers, renters, and borrowers, prioritizing convenience and adaptability. For buyers, Zillow provides comprehensive property search functionalities, connects them with real estate agents, facilitates home tours, and offers financing options through Zillow Home Loans. Sellers benefit from multiple listing options and leverage the Group's valuation model, as well as partnerships with Opendoor and the introduction of ShowingTime, which streamline the property viewing process. In the rental market, Zillow supports landlords and renters alike by offering listings, advertising services, leasing assistance, and an application platform. Borrowers can opt for direct financing through Zillow Home Loans or connect with mortgage partners via the mortgage marketplace.

Zillow extends commercial services tailored for real estate professionals (Figure 7), property managers, mortgage lenders, and advertisers. These offerings include the Premier Agent program, Rental Marketplace solutions, lead generation tools, advertising opportunities, a CRM platform, and a recently launched Construction Marketplace. These services are designed to facilitate connections between professionals and potential clients, streamline property management processes, and effectively reach a wide-ranging real estate audience.

Founded 17 years ago, Zillow Group made its Initial Public Offering (IPO) on NASDAQ in July 2011, issuing 3.46 million shares of Class A common stock at $20 per share. Headquartered in Seattle, Washington, the company employs approximately 6,300 individuals primarily across the United States and Canada. Zillow falls within the mid-sized company classification, posting revenues of $2.0 billion and welcoming 9.8 billion visits in fiscal year 2023. Presently, the company boasts a market capitalization of $12.7 billion (Table 1).

Figure 18: Zillow's Investor Relations Stats

Source: Zillow, 2024

Figure 16: Zillow's Flagship Brands

Source: Zillow, 2024

Figure 17: Zillow's Real Estate Software

Source: Zillow, 2024

Table 9 Company Stats

Company Profile	
Ticker	"ZG" & "Z "
Headquater	Seattle, Washington
Market Cap	$12,7B
Revenue FY2023	$2B
Visitors in 2023	9,8B
IPO	07/2011

Source: Yahoo Finance, 2024

Corporate Strategy

Zillow's corporate strategy revolves around the development of an all-encompassing "housing super app" designed to provide customers with a holistic real estate experience, encompassing every facet of home selling, renting, or buying within a single application (Figure 9). Today, Zillow already seamlessly integrates property search, financing options (via Zillow Home Loans), and title and escrow services (through Zillow Closing Services) into a unified platform. Leveraging a combination of internal ventures, acquisitions, and vertical integration, the company aims to consolidate all additional segments of the value chain under its umbrella. This strategic focus is intended to enhance customer engagement, transaction volumes, and revenue per transaction, achieved through targeted investments across five critical growth pillars: property tours, financing, seller solutions, expanding partnerships, and service integration.

Figure 19: Housing Superapp Concept

Source: Zillow, 2024

The quantified goal is to double Zillow's share of customer transactions from 3% to 6% by 2025. This objective stems from recognizing a substantial growth opportunity, given that only 3% of U.S. homebuyers presently engage with Zillow's platform, despite a 25% demand for Premier Agents.

Currently, Zillow operates in five distinct US markets, encompassing residential real estate transactions, mortgage originations, title and escrow services, rentals, and property management software as a service (SAAS) addressing a total market of 210 billion US$ (Table 2).

Table 10: Current TAM

Total Adressable Market	
(in Billion US$)	
Residential real estate transaction fe	$96
U.S. mortgage origination revenue	$76
Title and escrow services fee	$20
Rentals advertising spend	$11
Property management software fee	$7
Total Addressable Market (TAM)	**$210**

Source: Zillow, 2024

Zillow is also exploring additional future opportunities spanning from Home Insurance, to renovation, moving and home appraisal services. These Opportunities are estimated to address a substantial market of 813 billion US$, with most of the revenue originating from home renovation services (Table 3).

Table 11: Future Opportunities

TAM of addittional opportunities	
(in Billion US$)	
Home Insurance	$121
Home Renovation Services	$657
Moving Services	$19
Home appraisal Services	$10
Total Addressable Market (TAM)	**$807**

Source: Zillow, 2024

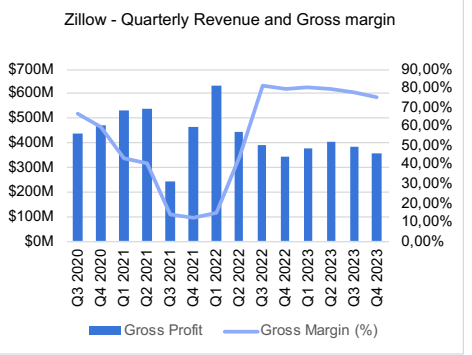
Additionally, Zillow integrates its corporate strategy with an Environmental, Social, and Governance (ESG) strategy, reflecting a commitment to align operations with sustainability and social responsibility objectives. This involves investments in areas such as social impact, equity and inclusion, environmental sustainability, responsible business practices, and employee culture, emphasizing the holistic business approach of Zillow.

The iBuying Dilemma

Notably, "Zillow Offers" marked Zillow's branded entry into the iBuying market, a sector that originated in 2014 with OpenDoor as the market leader. Essentially, iBuying entails large firms acquiring homes with the intention of realizing profits upon resale, similar to market makers in the stock market.

Upon Zillow's entry into the iBuying market in 2017, industry observers perceived this market as a promising growth avenue for Zillow and other industry players. However, Zillow's management quickly grasped the impracticality of "market making" within the housing sector, acknowledging

Figure 20: Revenue vs. Gross-Margin



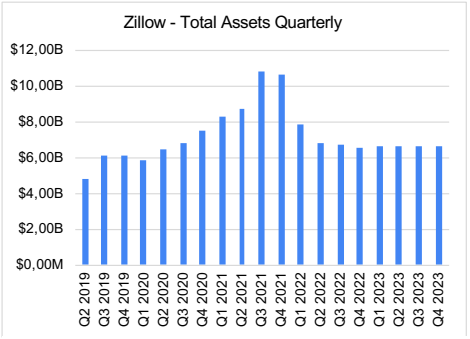
Source: Zillow, 2024

the limitations of algorithmic purchasing in such a unique market. Zillow's Algorithms lacked the ability to predict details like neighborhood disturbances or other non-quantifiable factors which significantly reduced house prices.

The strategic choice to exit the industry is commendable, as it presented a significant risk to profit margins (Figure 10) and deviated from the central goal of establishing a comprehensive "Housing Super App."

In 2022, Zillow made the decision to "fail fast" and discontinue its iBuying operations, resulting in a significant 25% reduction in its workforce, the removal of approximately 10,000 homes from its balance sheet, and a noteworthy decline in share price. This shift necessitated substantial organizational restructuring and a return to the company's internet technology-based business model known for its scalability and cost-efficiency. On the financial side this led to enhanced gross margins and a transition to a more asset-light balance sheet model (Figure 11).

Figure 21: Total Assets Quarterly



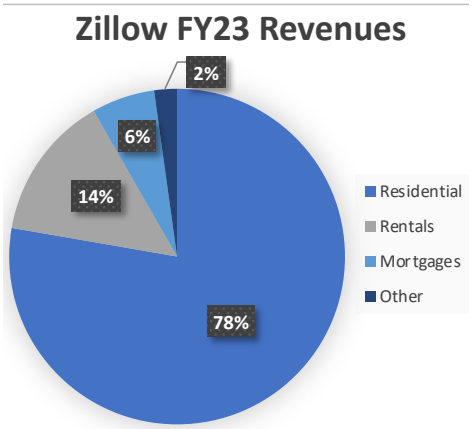
Source: Zillow, 2024

5 Economics of Zillow

Prior to January 1, 2023, Zillow reported its results under three distinct segments: Internet, Media & Technology (IMT), Mortgages, and Homes. The IMT segment was in turn divided into three sub-segments, which included the Premier Agent Program, the Rental segment and other related services.

Starting in 2023, Zillow transitioned to managing its business as a single, unified segment to align reported results with its growth strategy. This consolidated segment consists of four different revenue categories: Residential, Rental, Mortgages, and others.In 2023, Zillow reported total revenue of $1.945 billion, down 1% year-over-year, reflecting a declining trend since exiting the iBuying market (Table 4) (Figure 13).

Figure 22: Revenue Split



Source: Zillow, 2024

Residential

The bulk of Zillow's revenue is derived from the residential category, which encompasses its flagship product, the Premier Agent, along with the new Construction marketplace, and in general income from advertising and technology solutions sold to real estate professionals. Additionally, sub-brands such as ShowingTime+, Listing Showcase, and Follow Up Boss are also reported in this category. In 2023, the Residential Category accounted for 78% of Zillow's total revenue (Figure 12), generating $1.452 billion in revenue, marking a 5% year-over-year decrease.

Table 12: Revenue Breakdown

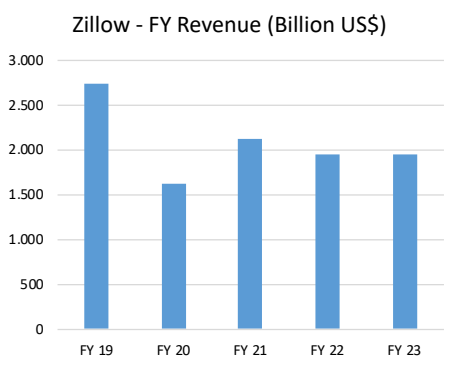
Revenue (in Billion US$)			
Category	**FY 2022**	**FY 2023**	**% Change**
Residential	$1,522	$1,452	-5%
Rentals	$274	$357	30%
Mortgages	$119	$96	-19%
Other	$43	$40	-7%
Total revenue	$1,958	$1,945	-1%

Source: Zillow, 2024

Monetization

The Premier Agent employs a dual monetization strategy distributing leads based on advertising spend or through the "Flex" model, which charges upon successful transactions. New construction revenue arises from home builder advertising. StreetEasy for-sale revenue stems from NYC real estate ads, primarily utilizing cost-per-property or performance fees. ShowingTime+ revenue is driven by its Appointment Center, supported by monthly billed call center services, and includes dotloop, a subscription-based transaction management service.

Figure 23: FY Revenue 19-23

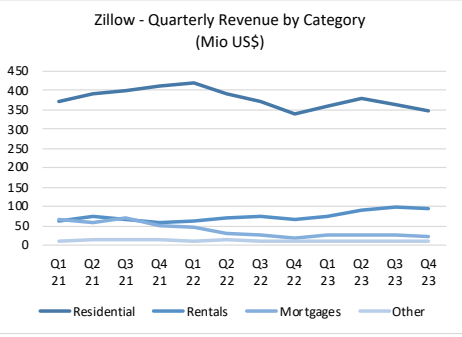


Source: Zillow, 2024

Housing Market Effects

This category is directly related to the health of the US housing market and the macroeconomic environment and primarily benefits from maximum transaction activity within the sector. As the housing market gradually moves towards recovery, this segment is likely to be best placed to immediately capitalize on improvements.

Figure 24: Revenue Breakdown by Category



Source: Zillow, 2024

Rental

The Rental segment represents all income derived from services catering to rental professionals and landlords. Similar to the Residential category, it primarily encompasses various types of advertising and Software as a Service (SAAS) solutions. In 2023, the Rental Category represented 14% of Zillow's total revenue, amounting to $357 million in revenue, reflecting a significant 30% year-over-year increase (Table 4).

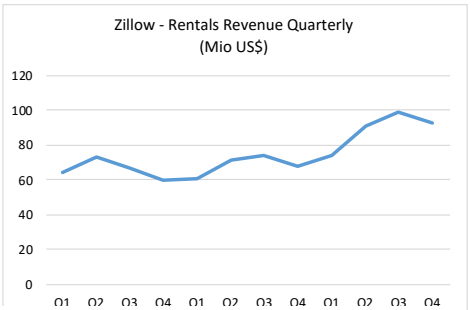
Monetization

revenue is earned through various pricing models, including cost per lead, lease, listing, or impression, as well as fixed fees for specific advertising packages under Zillow and StreetEasy brands. Additionally, revenue is generated from rental applications, allowing potential renters to submit applications to multiple properties for a flat service fee.

Housing Market Effects

Revenue from the Rental category is subject to housing market dynamics, with less sensitivity to interest rate fluctuations as tenants do not require loans. The 30% year-over-year increase in this category increase is mainly due to reduced affordability for homeownership and challenging housing market conditions, leading to heightened demand for rental properties.

Figure 27: Rental Revenue Quarterly



Source: Zillow, 2024

Mortgages

The Mortgage category connects homebuyers with financing options via Zillow's platform, including Zillow Home Loans and lender connections, while also offering advertising solutions for industry professionals. In 2023, the Mortgages Category represented 6% of Zillow's total revenue, amounting to $96 million in revenue, reflecting a significant 19% year-over-year decrease (Table 4).

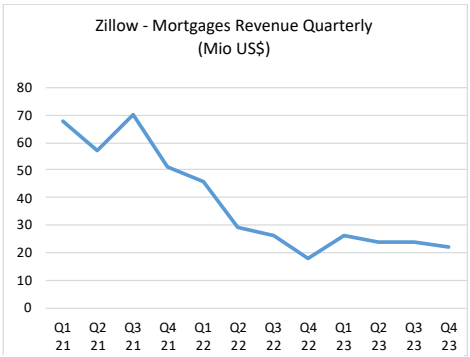
Monetization

Revenue predominantly stems from mortgage originations and the subsequent sale of mortgages on the secondary market, facilitated by Zillow Home Loans. Additionally, advertising revenue is garnered through the sale of advertising to mortgage lenders and other industry professionals, utilizing a cost-per-lead model, which encompasses services such as Custom Quote and Connect.

Housing Market Effects

This category is particularly sensitive to macroeconomic interest rate environments and has thus been on a steady decline since Q3 21 (Figure 15). The interestrate reductions announced by the FED for 2024 are expected to have a significant positive impact on the origination of new mortgages and associated advertising.

Figure 25: Mortgage Revenue Quarterly



Source: Zillow, 2024

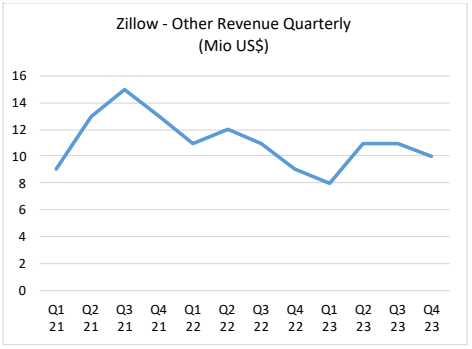
Other

Within the "Other" category, Zillow aggregates all revenue not attributable to previous categories. This encompasses various sources, including Zillow Closing Services and Spruce, among others. In 2023, the Other Category represented 2% of Zillow's total revenue, amounting to $49 million in revenue, reflecting a significant 7% year-over-year decrease (Table 4).

Monetization

Other revenue primarily originates from display advertising, encompassing graphical mobile and web ads sold to advertisers on a cost-per-impression or cost-per-click basis to promote brands on the company's applications and websites. Additionally, revenue is generated from Zillow Closing Service, which includes title and escrow services.

Figure 26: Other Revenue Quarterly



Source: Zillow, 2024

6 Management

Management

The Zillow management team is organized according to 12 distinct areas of expertise, encompassing strategy, design, technology, corporate leadership, finance, economics, legal matters, accounting, industry development, human resources, and operational management. With Zillow's top executives boasting an impressive track record of success and extensive experience in their field. This robust leadership structure ensures that the company is well-prepared to effectively manage its operations and strategies

Richard Barton – Co-Founder and CEO

Richard N. Barton, Zillow's Co-founder and CEO, is an industry expert with a strong background in mobile and internet technologies (Figure 18). He co-founded Zillow, Glassdoor and Expedia and has held leadership positions in various tech companies, such as Microsoft (Figure 19). His current board service includes Netflix, Inc. and Qurate Retail, Inc. Mr. Barton holds a B.S. in General Engineering and Industrial Economics from Stanford University.

Lloyd Frink – Co-Founder, Executive Chairman and President

Lloyd D. Frink is Co-Founder, Executive Chairman, and President at Zillow (Figure 20). He holds a Bachelor's degree in Economics from Stanford University. Prior to his involvement with Zillow, Mr. Frink accrued a 20-year tenure at Microsoft, showcasing a wealth of experience in the tech industry. He also serves as a board member for several technology companies.

Jeremy Hofmann - CFO

Jeremy Hofmann is the Chief Financial Officer (CFO) at Zillow Group, responsible for various functions including finance, accounting, mergers and acquisitions and worked at Goldman Sachs in their investment banking division, covering technology, media, and telecom sectors (Figure 21). Mr. Hofmann holds a Bachelor of Science in Business Administration with a focus on finance from Georgetown University.

Jeremy Wacksmann - COO

Jeremy Wacksmann, the Chief Operating Officer at Zillow Group, oversees various company operations (Figure 22). His extensive career spans roles at Microsoft, Trilogy Software, and board advisory positions within several startup companies. Mr Wacksmann has received multiple honors for his leadership, holds a Bachelor's degree in Computer Engineering from Purdue University, and earned an MBA from Northwestern University's Kellogg Graduate School of Management.

Susan Daimler - President

As Zillows President, Susan Daimler oversees Premier Agent, Mortgage, StreetEasy businesses, and communications (Figure 23). Her previous roles at Zillow Group
include Senior Vice President of Zillow Premier Agent and General Manager of StreetEasy. Susan joined Zillow Group in 2012 after the acquisition of Buyfolio,

Figure 28: Richard N. Barton

Source: Zillow, 2024

Figure 29: Barton's Tech Track Record

glassdoor

Microsoft

Expedia®

Source: Zillow, 2024

Figure 30: Lloyd Frink

Source: Zillow, 2024

Figure 31: Jeremy Hofmann

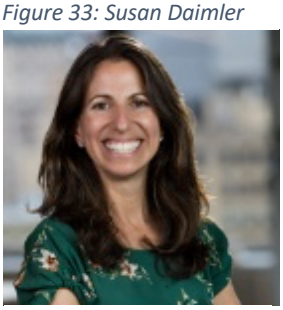
Source: Zillow, 2024

Figure 32: Jeremy Wacksmann

Source: Zillow, 2024

which she co-founded. She was also a co-founder of the travel website SeatGuru, acquired by Expedia in 2007. Mrs. Daimler holds a Bachelor of Arts in English from Johns Hopkins University and serves on its board of trustees. She is also on the board of directors for Pubmatic, a publicly traded digital advertising company.

Figure 33: Susan Daimler



Source: Zillow, 2024

Executive Compensation

The compensation for Zillow Group's top executives ranges from a base salary of $567,000 to $702,000 and is linked to performance metrics, including market data, benchmarks, and other quantitative objectives. Furthermore, all top executives have access to restrictive stock packages, with the distribution of these packages being subject to the decision of the executive board (Table 5). Given the success story of each individual, it can be assumed that the executives are intrinsically motivated, as they have already achieved financial freedom through previous accomplishments and exits.

Table 13: Executive Compensation

Executive Compensation (in Thousand US$)			
Name	**Cash**	**Equity**	**other**
David A. Beitel	$652	$11,247	$21
Richard N. Barton	$702	$10,778	$22
Allen W. Parker	$658	$9,529	$18
Jeremy Wacksman	$689	$13,556	$21
Susan Daimler	$567	$11,810	$13

Source: Zillow, 2023

Board of Directors

The Zillow Group's Board of Directors comprises nine members organized into three classes, contributing to the governance of the organization. Directors are elected to serve three-year terms, and the Nominating and Governance Committee is responsible for screening and recommending nominees. The composition of the Board's standing committees is structured to oversee different aspects of the company's affairs, enhancing the governance framework within Zillow. The board evaluated the independence of each director based on their background, affiliations, and other factors, concluding that seven directors meet the criteria for independence. Various relationships and transactions, including board memberships and co-ownership of assets, were considered in assessing their independence (Table 6).

Table 14: Board of Directors

Zillow Board of Directos			
Name	**Indep.**	**Principal occupatior**	**since**
Class I			
Erik Blachford	x	Blachford Capital	2005
Gordon Stephenson	x	Real Prop. Assoc.	2005
Claire Thielke	x	Hines	2020
Class II			
Richard Barton		Zillow	2004
Lloyd Frink		zillow	2004
April Underwood	x	Adverb Ventures	2017
Class III			
Amy Bohutinsky	x	TCV	2018
Jay C. Hoag	x	TCV	2005
Gregory B. Maffei	x	Liberty Media Corp.	2005

Source: Zillow, 2023

Dividend policy

the company has never issued cash dividends and plans to reinvest all funds into growth, with dividend payments dependend on operational performance, financial stability, and board discretion.

Table 15: Class A Ownership Structure

Z Class A Ownership Structure (in Million US$)		
Name	**%**	**Valuation**
Caledonia Investments Pty Ltd	**21.16%**	$1,953.27
Vanguard Group Inc	**12.29%**	$1,134.43
Independent Franchise Partners	**7.54%**	$696.08
Blackrock Inc.	**6.45%**	$595.34
Capital World Investors	**5.01%**	$461.97

Source: Zillow, 2023

Ownership Structure and Founder Voting Rights

Zillow Group's ownership structure encompasses three classes of common stock, with Class A and C having significant public float while Class B is exclusively owned by the founders.

Class A Common Stock holds one voting right per share and is predominantly held by institutional investors like Caledonia (Private) Investments (Table 7). *Class C* Capital Stock, devoid of voting rights, is mainly owned by institutional investors like The Vanguard Group and *Class B* Common Stock, with 10 votes per share, is solely owned by the founders, Richard Barton and Lloyd Frink, granting them substantial control, as they collectively hold over 50% of the total voting rights (Table 8).

Table 16: Founders Voting Power

Founders total Voting Power				
Name	**Class A**	**Class B**	**Class C**	**total %**
Richard N. Barton	6.9%	60.5%	4.8%	**31.7%**
Lloy D. Frink	5.4%	39.5%	2.8%	**20.6%**

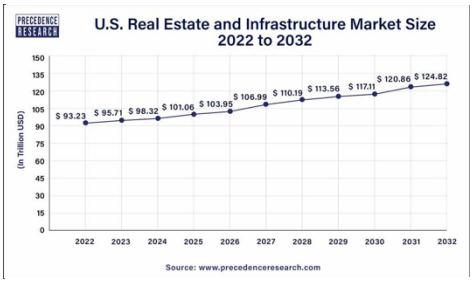
Source: Zillow, 2023

7 Industry Overview

Industry Analysis

The real estate industry encompasses the buying, selling, renting, and development of land and various property types. In 2023, the value of the U.S. real estate and infrastructure market was pegged at USD 95.71 trillion, with projections to climb to USD 124.82 trillion by 2032, advancing at a compound annual growth rate (CAGR) of 3% over the period from 2023 to 2032 (Figure 24).

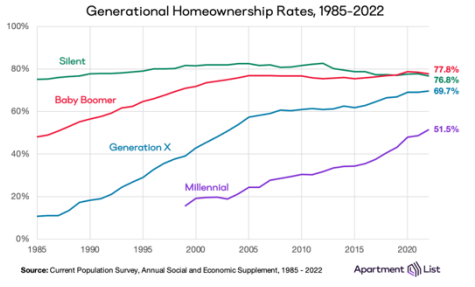
Figure 34: US Real Estate and Inf. Market Size



Source: precedenceresearch, 2024

Driving this market growth is a burgeoning population and escalating demand for residential and commercial properties. Urban living preferences, paired with a strong emphasis on technological and innovative developments in real estate, mark the region's shift. Millennials are a driving force in this expansion, increasingly opting for homeownership. As highlighted by Apartment List's Homeownership report, the rate of homeownership among millennials increased from 40% in 2020 to 51.5% in 2023, and is poised to growth further throughout the next 10 years (Figure 25).

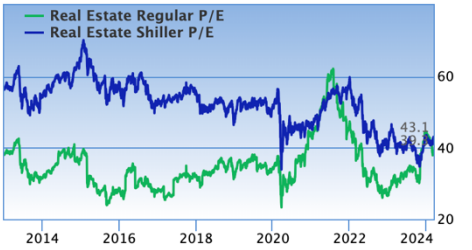
Figure 35: US Homeownership Rates



Source: apartmentlist, 2024

The real estate industry is undergoing a significant transformation driven by technology and changing demographics. Online platforms are revolutionizing how properties are marketed, listed, and searched for. Data analytics, virtual tours, and even online transactions are becoming increasingly commonplace. This trend is challenging the traditional brokerage model and could have significant implications for the industry in the long run.

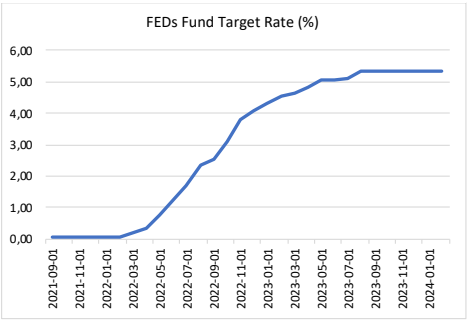
Figure 36: Real Estate Shiller P/E ratio



Source: Gurufocus, 2024

Presently, entities within the stock market's real estate industry are trading at a combined Shiller P/E ratio of 43.10, falling under past decades average (Figure 26). This scenario could indicate potential undervaluation or reflect market concerns or adjustments to raising interest rates or expected reductions in rental earnings.

Figure 37: FEDs Fund Rate

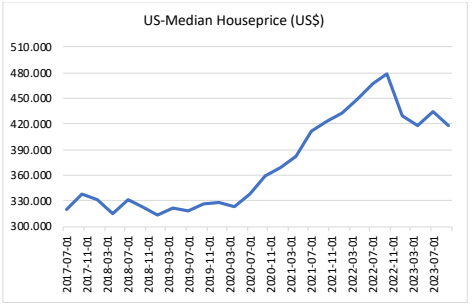


Source: Statista, 2024

A stagnant real estate market

The primary driver of this sector lies in interest rates (Figure 27). Mortgage rates hinge on the prevailing rates of U.S. treasuries, especially the 10- and 30-year rates. These rates are influenced by the federal funds rate, which has recently reached its highest levels since mid-2007, prior to the Global Financial Crisis. Despite the common expectation that rising interest rates would typically decrease home values, the persistent shortage of housing supply has prevented significant declines in home prices.

Figure 38: US Median Houseprice

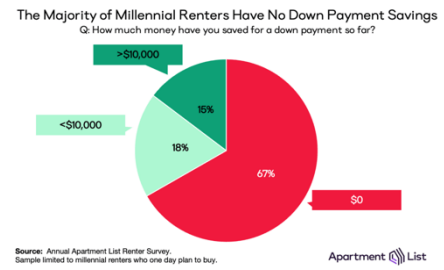


Source: Statista, 2024

These dual factors—high interest rates and low supply—have fostered an environment where transactions have been severely limited for the past two years. Homeowners are hesitant to sell in a market where they would likely face substantially higher mortgage rates. Additionally, there has been a slight decline in home prices, further dissuading selling due to the psychological impact of past peak values (Figure 28).

Persistently high housing costs, now paired with the inflationary surge and increased borrowing expenses post-pandemic, have further squeezed the savings of millennials. The dream of homeownership is a common ambition among millennial renters, yet for numerous individuals, it remains a distant goal. The upward trajectory of property prices presents an ongoing hurdle for these aspiring homeowners, with survey results revealing that two-thirds lack any down payment savings. Furthermore, only about 15 percent have managed to amass in excess of $10,000 in savings (Figure 29).

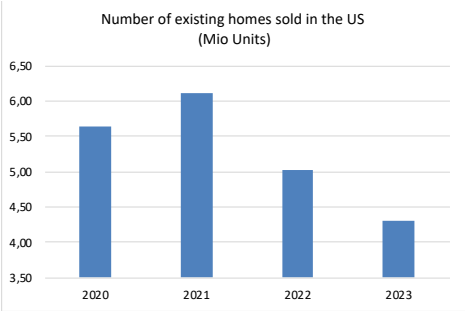
Figure 39: Millenial Downpayment Savings



Source: Apartmentlist,2024

Furthermore, the substantial increase in mortgage rates, particularly since the Federal Reserve began raising rates in March 2022, has dampened the desire to sell homes to historic lows. This has resulted in a significant drop in home sales, from around 6 million existing home sales in 2021 to almost 4 million in 2023. Essentially, homeowners are reluctant to sell at perceived lower values to avoid entering into higher mortgage agreements (Figure 30).

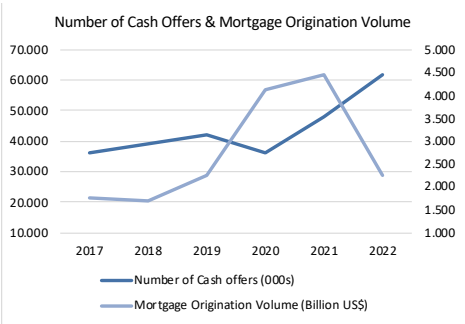
Figure 40: Exisiting Home Sales



Source: Statista, 2024

Conversely, demand for residential real estate in the U.S. is robust, while mortgage origination volume is declining since Q420. Cash offers for homes have surged to levels not seen in approximately a decade, with about one-third of buyers willing to pay in cash (Figure 31). Moreover, over half of homes sold in the first half of 2023 received offers above their listing prices. These trends indicate an enthusiastic demand for U.S. housing. Estimates suggest that an additional 5.5 to 6.8 million homes need to enter the market to meet current demand. The between supply and demand has created a disjointed, stagnant market where transactions occur at lower rates and higher prices than expected. This poses significant challenges for national price discovery, which are exacerbated by varying regional trends across the U.S.

Figure 41: Cash Offers vs. Mortgage Origination Volume

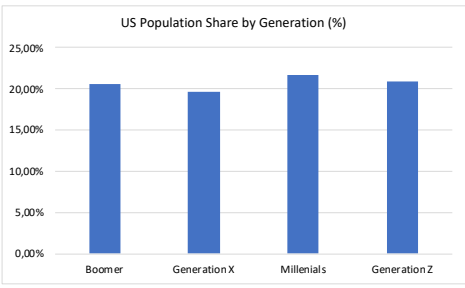


Source: Statista, 2024

Long-term positive outlook shaped by demographic shift

An important consideration for the mid-term outlook of the housing market lies in demographic trends. The millennial cohort, one of the largest in U.S. history, comprises approximately 72 million individuals aged between late twenties and early forties. Given their age distribution, these individuals are typically in prime stages of establishing households. Consequently, demand from this sizable demographic segment is substantial and expected to rise further, with the youngest members around 27 years old. Additionally, older members of Generation Z, numbering around 68 million in 2023, are beginning to consider moving out of parental homes (Figure 32). The long-term demand arising from these generational shifts toward household formation is anticipated to sustain significant housing demand.

Figure 42: US Generation Split



Source: Statista, 2024

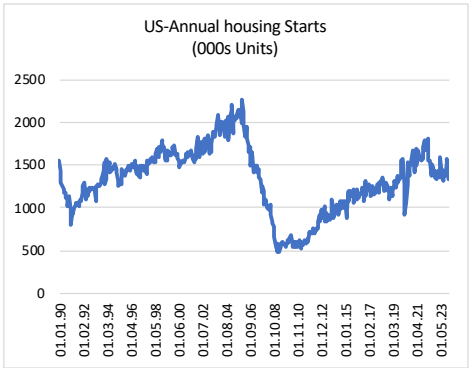
As Generation Z steps into the housing market, they inherit the complexities of securing homeownership that their predecessors, the millennials, grappled with. Predominantly under 25, a significant portion of Gen Z has only experienced a skewed housing market. In surveys conducted by Apartment List, about 20% perceive themselves as lifelong renters. While a recent dip in home prices has offered a degree of respite, it concurrently deters current homeowners from listing and developers from initiating new single-family

projects. This dynamic suggests a sustained shortage in housing supply, likely preventing a drop to more universally affordable prices.

In essence, the U.S. residential real estate market is characterized by significant size alongside severe supply constraints, elevated interest rates, notable demand, and structural demographic patterns poised to maintain heightened demand levels.

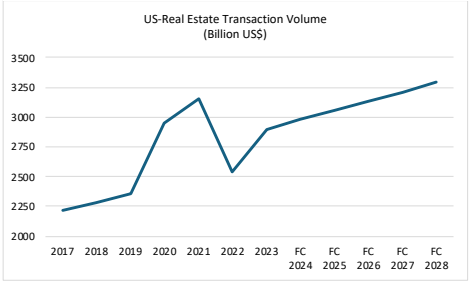
This configuration sets the stage for intriguing market dynamics. The primary factor that could stimulate activity, as desired by Zillow, is the provision of additional housing supply. Analysis of construction spending and building permits indicates progress in this aspect (Figure 33). Following the Global Financial Crisis (GFC), new home construction slowed significantly as concerns about subprime borrowers intensified among homebuilders. However, since the implementation of Dodd-Frank regulations in 2013, conditions conducive to another GFC have largely dissipated. Construction activity hit a post-GFC low in January of the current year, coinciding with the peak impact of Federal Reserve rate hikes. Nevertheless, a gradual resurgence toward pre-pandemic and potentially pre-GFC levels of construction is evident. Examination of recent trends in building permits, a forward-looking indicator of supply, along with construction spending, provides insights into near-term prospects. Notably, homebuilders are increasing spending akin to how oil producers respond to elevated crude prices. This combination of heightened spending and permitting suggests a burgeoning supply of homes in the U.S., poised to address the demand arising from the demographic shifts outlined earlier.

Figure 43: US Annual Housing Starts



Source: Statista, 2024

Figure 44: US Real Estate Transaction Volume



Source: Statista, 2024

In brief, there is an expectation for a gradual turnaround in the housing market in the short to intermediate term. Over the next five years, projections suggest that additional supply will continue entering the market alongside robust or potentially increasing demand. This is expected to contribute to a steady increase in the US Real Estate Transaction Volume, reaching approximately $3.5 trillion by 2028 (Figure 34).

Competitive Positioning

Zillow operates at the crossroads of two industries: Residential Real Estate and Digital Media. This creates the firm's self-described industry of "tech real-estate marketplace". In order to be able to map this unique combination, it is therefore necessary to understand both markets, as well as their drivers and future trends. Due to Zillow's business model and the arrangement of its revenue streams, asset prices hold lesser significance for the company. Zillow derives the biggest benefit from heightened activity and the resultant transactional volume in the residential real estate market of the United States.

Peer Identification

Zillow's main competitors include various companies in the residential real estate sector, offering similar technology, products, and services (Table 9). These competitors encompass single-service providers, new entrants, and other firms in real estate and mortgage industries. They compete with Zillow in areas such

Table 17: Main Competitors

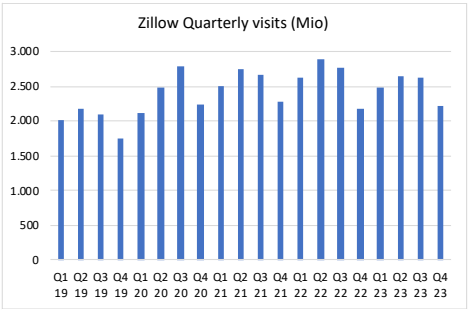
Main Competitors			
Name	**Industry**	**Market Cap**	**Market**
Redfin	Real Estate Services	0.8 $B	US + CAN
Move Inc	Real Estate Services	Private	US + CAN
Opendoor	iBuying	2.0 $B	US + CAN
Apartment.com	Real Estate Market	Private	US + CAN
REMAX	Real Estate Agents	0,26 $B	Worldwide

Source 1: Author Estimates

as advertising, technology solutions, mortgage origination, and attracting industry partners.

Due to Zillow's diverse range of products, it competes directly and indirectly with various firms in the real estate industry. Direct competitors such as Redfin and Move Inc. operate in similar segments, offering online platforms and digital solutions for real estate transactions. Meanwhile, indirect competitors like Opendoor, Apartment.com, and REMAX pose competitive pressures through alternative approaches in the real estate market. These firms may not directly replicate Zillow's business model but provide services that cater to overlapping customer needs, thereby influencing market dynamics and competitive intensity.

Figure 45: Quarterly Visits

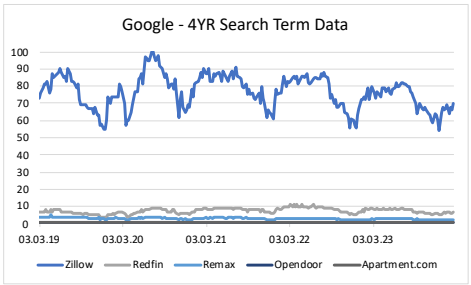


Source: Zillow, 2024

Market Dominance in Search Engine Traffic

In 2023, the company observed an average of 224 million unique users visiting its platform each month. Utilizing this data, it can be inferred that Zillow records approximately 867 million total monthly visits, suggesting an average of about 3.9 visits per user per month. This pattern highlights a notable reliance on the website and its brand recognition, with users checking Zillow's site almost weekly for insights into home values, regardless of their immediate interest in property transactions (Figure 35).

Figure 46: Google Search Term Data



Source: Google, 2024

Zillow's main competitor, Redfin, attracts around 51 million unique users per month. As demonstrated in the Google Search Chart on the right, Zillow consistently commands approximately five times the search traffic of Redfin and its other main competitors, including Realtor.com, OpenDoor, Apartments.com and REMAX among others. This can serve as a clear indicator of Zillows Market dominance within the US consumers real estate marketplace market (Figure 36).

Figure 47: SWOT Analysis

Source: Author Estimates

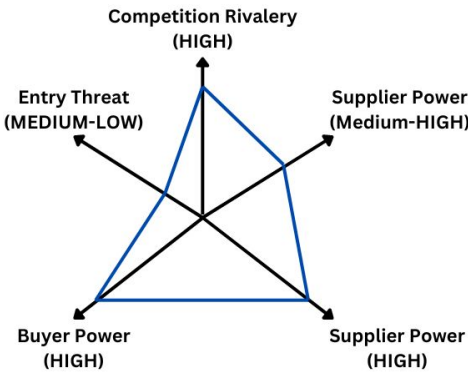
Porters Five Forces

Supplier Bargaining Power (High)
Suppliers wield considerable influence over Zillow Group, especially MLS and tech providers. Zillow counters this by diversifying data sources and investing in technology. Additionally, Zillow develops its own MLS to decrease dependence on third-party providers.

Customer Bargaining Power (High)
In the competitive online real estate marketplace market, Zillow operates among various customer options. To distinguish itself, Zillow aims to offer a unique value proposition and retains its customer base through user-friendly platforms and its Zestimate feature.

Competitive Rivalry (High)
Zillow competes alongside various real estate platforms and industry leaders in a dynamic market. Market concentration is moderate, fostering competition among players. Zillow's brand strength contributes to high customer retention, while industry growth attracts new entrants. Additionally, price sensitivity among millennial users adds to competitive dynamics (Figure 38).

Figure 48: Porters Five Forces



Source: Author Estimates

Threat of Substitution (Moderate-High)
Zillow confronts significant threat from substitutes like Redfin, MoveInc, and Apartment.com, with low switching costs in the real estate market. Through differentiation, Zillow offers a vast real estate database difficult to replicate, encouraging customer retention. Its vertical integration extends into home buying, renting, and mortgage lending, providing comprehensive services. Additionally, Zillow's strong branding fosters customer preference and trust, despite substitutes.

Threat of New Entrants (LOW-Moderate)
Zillow has established itself as a prominent brand in the real estate industry, requiring new entrants to invest heavily in marketing to compete. The company has also built sophisticated technologies and analytics, creating high barriers to entry that necessitate significant investments from potential competitors. Additionally, Zillow benefits from strong network effects, making it challenging for new entrants to attract enough users to reach critical mass. Moreover, the highly regulated nature of the real estate industry poses additional barriers for newcomers, particularly smaller companies, or startups.

8 Risk

The Risk Analysis section provides a detailed examination of the various challenges and uncertainties Zillow faces, delving into a spectrum of risks from operational intricacies to macroeconomic and industry-specific vulnerabilities. This analysis will methodically assess the potential impact of these factors on Zillow's current operations and future outlook (Figure 40).

The table presented below categorizes a spectrum of risks for clear visualization. However, the critical task is to focus on those risks that are not just most probable but also carry the potential to significantly disrupt business continuity.

Table 18: Risk Breakdown

Zillow's Investment Risks		
Risk Group	**Category**	**Description**
Macroeconomic	Economic Vulnerability	Sensitivity to recessions and economic downturn
	Real Estate Market Dynamics	Cyclicality and turnover in the market
	Interest Rate Fluctuations	Impact on mortgage origination
Financial	Advertising Revenue Variability	Tied to ad spend
	Debt and Cash Flow Management	Challenges in liquidity management
Operational	Data Security and Privacy	Risks of Data Breaches
	Supply Chain Relationships	Crucial provider relationships
Management	Strategic Decision-Making	Effectiveness of managerial strategies
Strategic	Market Competition and Innovation	Need for ongoing innovation
	Regulatory and Legal Compliance	Complex regulatory and legal risks
External	Disaster Resilience	Impact from natural events
	Market Predictability	Forecasting from past financials

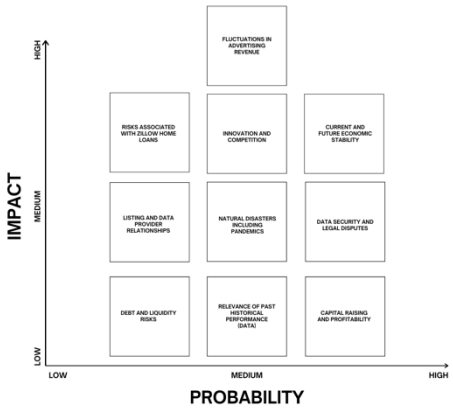
Source: Author Estimates

Macroeconomic risks stand out as one of the most prominent threats that the company faces, largely beyond the control of management's capabilities, innovation, or product excellence. Even with robust management, a downturn in the economy can considerably dampen consumer confidence and spending. Since the notable recession of 2009—and excluding the brief downturn in 2020 mitigated by stimulus measures—the longer the economy expands, the higher the chances become of an eventual recession.

Currently, the Federal Reserve does not anticipate a recession within the next 12 months, yet predicting the economic landscape beyond this period becomes significantly challenging. Yet, again the macroeconomic dynamics will dictate the real estate market, interest rates (affecting the origination of mortgage for Zillow). In addition to recessions, it's important to consider the impact of real estate market cycles on the revenue stream (Figure 39).

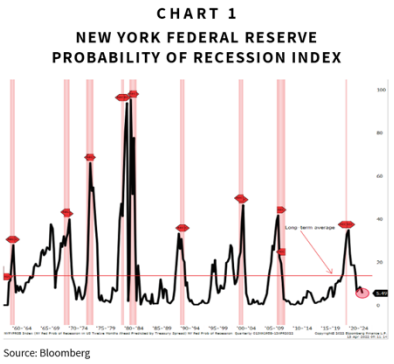
Furthermore, a significant part of Zillow's income is generated from advertisements placed by real estate agents and brokers on its platform. Economic downturns or changes in the housing market could lead to decreased advertising expenditure, adversely affecting their main source of revenue. Furthermore, if debt and cash flow are not effectively managed during such periods, it could severely impact the company's financial agility and liquidity. This might result in business contraction or considerable dilution of shareholder equity as the company strives to fund its operations and maintain its growth trajectory.

Figure 50: Impact / Probability Matrix



Source: Author Estimates

Figure 49: Recession Probability Index

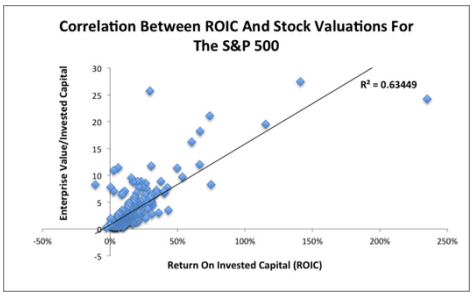


Source: Goelzerinc, 2024

Zillow contends with stiff competition from well-established entities like Redfin and Realtor.com, as well as from newer innovators entering the market. The inability to stand out with unique and appealing offerings could result in a loss of market share and a decline in revenue. This challenge is closely linked to the company's management and strategic directions.

Ineffective management could significantly jeopardize the company, regardless of the current strength of its value proposition. Missteps such as pursuing non-profitable acquisitions, improper capital allocation, failing to foster innovation, or inability to enhance or diversify revenue streams represent critical risks. These issues underline the importance of sound management practices in safeguarding the company's long-term success and stability.

Figure 51: Roic vs Stock Valuation



Source: Linkedin, 2024

Primarily because management's performance is closely linked to Return on Invested Capital (ROIC) which serves as a key indicator of management effectiveness, with a widely recognized correlation: the higher the ROIC, the higher the company valuations and, consequently, the more favorable the returns for investors (Figure 41).

Further on, Zillow's operation hinges on a steady stream of real estate data, with the integrity and continuity of this information being crucial. Any interruption or degradation in the quality of data from key contributors such as real estate agents, brokers, and multiple listing services could impair Zillow's service quality. Concurrently, the competitive landscape could threaten these relationships; if competitors offer more advantageous partnerships or if exclusive agreements block Zillow's data access, the company could find itself at a strategic disadvantage, with a direct impact on its offerings and market position.

Moreover, there exist peripheral risks related to Data Security and Privacy, including potential hacking incidents, theft of personal data, or unauthorized data usage, which could undermine the company's reputation. Additionally, while improbable, natural disasters pose a risk that, in extreme scenarios, could challenge the resilience of both Zillow and the broader US infrastructure.

Lastly, intellectual property concerns, such as patent violations or navigating complex legal and regulatory landscapes, also represent potential risks. An example includes compliance with Fair Housing Laws; should it be found that Zillow's platform or algorithms inadvertently guide users toward or away from certain areas based on protected characteristics like race or religion, it could lead to allegations of discrimination and violations of fair housing regulations.

9 Financial Analysis

Table 19: Q4 23 Financials

Zillow Group Q4 23 Revenue			
(in Million US$)	Q4 23	Q4 22	Δ22 to 23%
Residential	$349	$340	3 %
Rentals	93	68	37 %
Mortgages	22	18	22 %
Other	10	9	11 %
Total revenue	**$474**	**$435**	**9 %**
Other Q4 23 Financial Data:			
(in Million US$)	Q4 23	Q4 22	Δ22 to 23%
Gross profit	$359	$346	4%
Net loss	-$73	-$72	-1%
Adjusted EBITDA	$69	$73	-5%

Source: Zillow, 2024

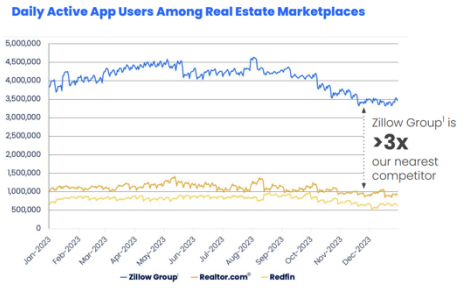
Last Quarter

Zillow Group's fourth-quarter results outperformed its expectations for both revenue and Adjusted EBITDA, with revenue climbing to $474 million, a 9% year-over-year increase that exceeded the midpoint of its forecast by $31 million. Despite a slight annual dip of 1% bringing revenue to $1.9 billion, the company showcased resilience (Table 11).

In the Residential segment, revenue rose by 3% to $349 million, notably surpassing both the industry's overall transaction decline of 4% and company projections. The Rentals segment witnessed a remarkable 37% jump to $93 million, largely fueled by a 52% boost in multifamily revenue, while the Mortgages segment saw a 22% increase to $22 million, thanks to a surge in purchase loan origination volume to $487 million.

On a GAAP basis, the net loss narrowed slightly to $73 million, representing 15% of revenue, improving from the previous year's 17%. The quarter's Adjusted EBITDA reached $69 million, or 15% of total revenue, exceeding forecasts by $19 million, driven primarily by the higher-than-expected performance in Rentals and Residential. Without a one-time partial lease termination expense, Adjusted EBITDA would have been even higher at $83 million.

Figure 52: Daily Active Users



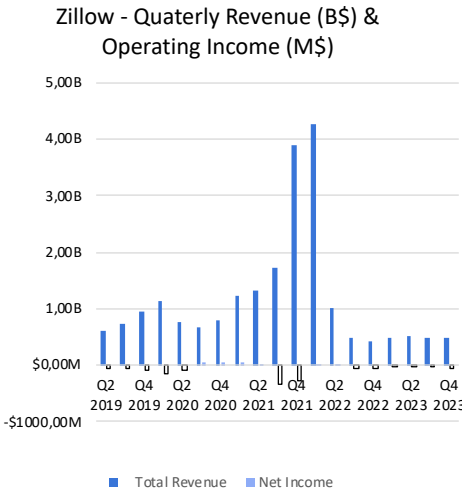
Source: Zillow, 2024

Traffic to Zillow's platforms experienced a slight 2% year-over-year decrease, averaging 194 million monthly unique users, while visits modestly increased by 1% to 2.2 billion. This trend mirrors the broader industry dynamics observed with competitors like Redfin and realtor.com, largely attributable to a decline in housing volumes driven by inflation, rising mortgage rates, and escalating housing prices (Figure 42).

Income Statement

Zillow experienced significant variations in its revenue over the course of last 4 years. It began with $599.58M in Q2 2019 and followed an ascending trajectory, reaching its zenith at $3.88B in Q4 2021. Post-peak, a marked decrease occurred, culminating in revenues stabilizing at a diminished $474.00M in Q4 2023. This trend mirrors the cyclical nature of the real estate market, which, by the end of 2021, faced an oversupply situation due to either increased new construction or a downturn in demand. This environment adversely affected Zillow's business model, which hinged on the quick purchase and resale of homes, leading to substantial net income losses—$261.21 million in Q1 2021 and $328.17 million subsequently. The losses were not just from selling houses at a deficit but also from a strategic contraction of its operations (Figure 43).

Figure 53: Revenue vs. Operating Income



Source: Zillow, 2024

Zillow's move away from "iBuying" to partnering with agents has notably enhanced its gross margin by reducing the high costs and risks associated with fluctuating housing markets (Figure 47). This strategic pivot has lessened direct inventory exposure and operational expenses.

However, it's evident that a considerable portion of this improved gross margin was allocated to Selling, General, and Administrative (SGA) expenses. General and Administrative expenses surged by $55 million, or 11%, primarily due to a $35 million increase in personnel costs, including a significant rise in share-based compensation following staff changes and the August 2022 Equity Award Actions. Rent expenses also grew, mainly because of a notable lease adjustment (Marketscreener, 2024).

Technology and development costs jumped by $62 million or 12%, with a $54 million increase in headcount-related expenses, including share-based compensation, largely due to the August 2022 Equity Award Actions, plus increased travel and technology spending, offset by a reduction in third-party services (Marketscreener, 2024).

Sales and marketing expenses saw a minor reduction of $6 million or 1%, achieved through effective cost management strategies, including reductions in marketing, advertising, and professional service fees, alongside lower depreciation, amortization, and event costs. This was slightly offset by increases in travel and technology expenses.

These spending increases have pressured Zillow's profitability over the last year, a consequence of significant operational shifts. Yet, it appears some expenditures might have been unnecessary, suggesting that with stricter financial management, Zillow could potentially achieve positive net income, boosting investor confidence and potentially invigorating its share price.

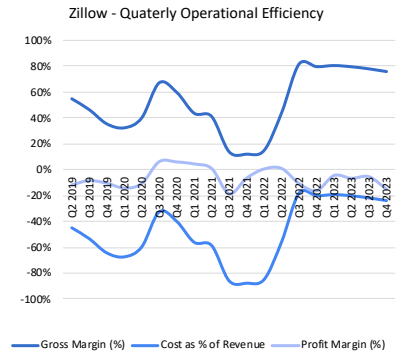
Additionally, while stock-based compensation might not significantly dilute shares due to the company's share repurchase efforts reducing the overall share count—thus likely offsetting dilution—the primary concern remains its role in perpetuating unprofitability.

Balance Sheet

Zillow's balance sheet demonstrates solid financial health, with its cash and equivalents more than adequate to cover current debt and capital lease obligations (Figure 45). The company witnessed a concerning surge in debts and lease obligations in 2021, with figures rising to $1.35 billion in Q2, $2.7 billion in Q3, and $3.54 billion in Q4, which posed significant challenges. Currently, the debt level stands at $737 million, showing a substantial decrease from earlier figures, yet it represents an increase from Q2 2023. Despite this, the situation is manageable, especially when considering Zillow's cash, equivalents, and short-term investment position of $2.81 billion.

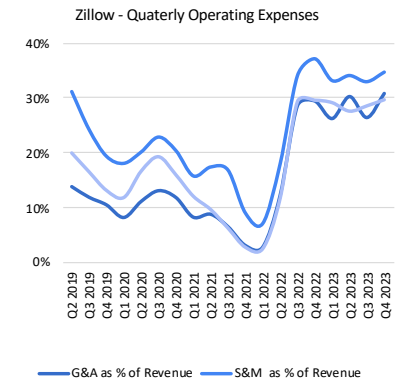
Zillow's liquidity status is favorable, with a quick ratio of 2.89 and a current ratio of 1.48 (Figure 46). This indicates that Zillow is far from experiencing any liquidity crisis, underscoring a strong balance sheet. However, it's important to note the variability in the quick ratio, which has been significantly influenced by shifts in Zillow's business strategy. The company has navigated through periods of high debt and has now achieved commendable cash levels and reduced debt, in part due to strategic divestitures.

Figure 57: Operational Efficiency



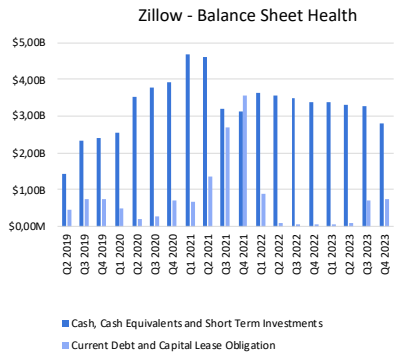
Source: Zillow, 2024

Figure 54: operating Expenses



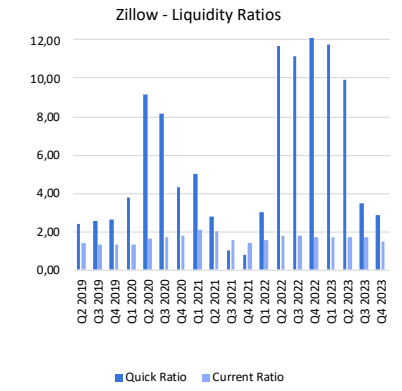
Source: Zillow, 2024

Figure 55: Balance Sheet Health



Source: Zillow, 2024

Figure 56: Liquidity Ratios



Source: Zillow, 2024

Lastly. the comprehensive analysis of the debt composition reveals that a predominant portion is ascribed to convertible senior notes, amounting to $1.6 billion, whereas borrowings under credit facilities stand at $93 million. This scenario, illustrating minimal reliance on credit facilities, mirrors a robust liquidity framework and diminishes vulnerability to interest-related expenditures. Conversely, the convertible notes, with interest rates oscillating between 0.75% and 2.75%, present a pronounced advantage over conventional borrowing mechanisms, particularly pertinent in the context of prevailing high-interest scenarios (Table 12).

Nevertheless, an inherent caveat with convertible notes is the prospective dilution of equity, potentially eroding current investors' proportional ownership. Despite this, the apprehensions surrounding equity dilution are presently deemed negligible when compared against the array of benefits encompassing reduced interest obligations, diminished borrowing costs, and augmented financial flexibility. In essence, the advantages decisively eclipse the potential drawbacks.

Table 20: Debt Breakdown

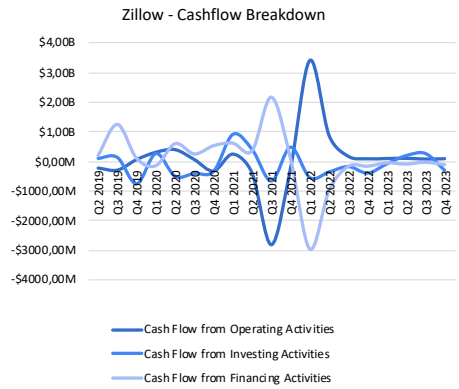
2023 - Debt Breakdown	
(in Million US$)	
Borrowings under credit facilities	
Master repurchase agreements:	
UBS AG	$45
JPMorgan Chase Bank, N.A.	$40
Atlas Securitized Products, L.P.	$8
Total borrowings under credit facilities	$93
Convertible senior notes	
1.375% convertible senior notes due 2026	$496
2.75% convertible senior notes due 2025	$504
0.75% convertible senior notes due 2024	$607
Total convertible senior notes	$1.607
Total debt	**$1.700**

Source: SeekingAlpha, 2024

Cash Flow Statement

In the fiscal period ending December 31, 2023, Zillow reported a net cash inflow from operations at $354 million, despite a net loss of $158 million. This positive cash flow was achieved through adjustments, including a notable $451 million from share-based compensation (SBC) expenses, and $187 million from depreciation and amortization. Other significant adjustments were the $35 million accretion of bond discount, $35 million in amortization of right-of-use assets, $21 million from amortization of contract cost assets, $16 million in impairment costs, and $5 million in amortization of debt issuance costs. The healthy operating cash flow demonstrates Zillow's substantial financial maneuverability in managing its operations. Nevertheless, the notably high SBC expenses emerge as a critical concern, representing a significant point of contention for investors.

Figure 58: Cashflowbreakdown



Source: Zillow, 2024

Furthermore, in 2023, Zillow saw a net cash inflow of $25 million from investing activities, driven by $623 million from matured investments, offset by $433 million on acquisitions and $165 million on property and equipment. This marks a notable turnaround from 2022's $1.5 billion net outflow, primarily from $1.4 billion in investments and $140 million on assets.

This transition from heavy outflows in 2022 to inflows in 2023 reflects Zillow's strategic shift in managing its investments and expenditures. By leveraging matured investments and curtailing spending on acquisitions and assets, Zillow demonstrates a more calculated and sustainable financial strategy aimed at fostering growth and enhancing resource efficiency.

Lastly, Zillow's financing activities have predominantly involved proceeds from issuing Class C capital stock, repurchasing Class A common stock and Class C capital stock, exercising employee option awards, repaying borrowings like the warehouse line of credit and master repurchase agreements for Zillow Home Loans, settling long-term debt including the 2025 Notes repurchases, and, until

September 30, 2022, dealing with Zillow Offers securitization term loans and transactions, plus managing borrowings on credit facilities for Zillow Offers (marketscreener, 2024).

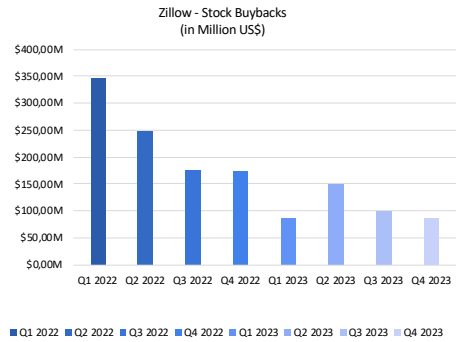
In 2023, financing activities led to a cash use of $352 million, mainly due to $424 million spent on share repurchases (Figure 49) and $56 million on repurchasing 2025 Notes. These outflows were mitigated by $72 million from exercising option awards and $56 million from net borrowings related to Zillow Home Loans.

Contrastingly, in 2022, financing activities resulted in a $4.3 billion cash use, with $2.2 billion going towards repaying credit facility borrowings and $1.2 billion for repaying term loans during the Zillow Offers wind-down, alongside $947 million for share repurchases and $76 million in net repayments for ZillowHome Loans, offset slightly by $46 million from option awards exercises.

Zillow's active repurchase program suggests it sees its stock as undervalued, offering a hopeful sign for investors. However, a balanced view is necessary: while stock-based compensation effectively neutralizing the impact for the time. ZillowHome Loans, offset slightly by $46 million from option awards exercises.

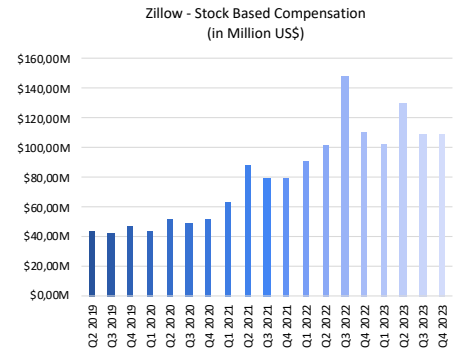
Zillow's active repurchase program suggests it sees its stock as undervalued, offering a hopeful sign for investors. However, a balanced view is necessary: However, a balanced view is necessary: while stock-based compensation dilutes equity (Figure 50), the buybacks strive to compensate shareholders while stock-based compensation dilutes equity

Figure 59: Stockbuybacks



Source: Zillow, 2024

Figure 60: Stockbased Compensation



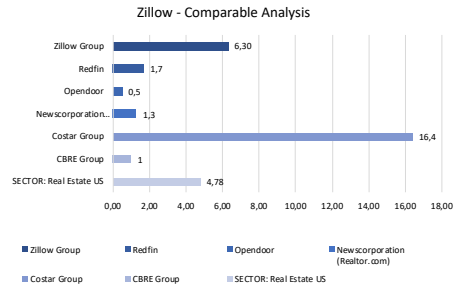
Source: Zillow, 2024

10 Valuation

Relative Valuation – EV / Sales Ratio

Zillow stands apart from companies like Costar, Redfin, and Opendoor due to fundamental differences in their operational motives, including distinct business models and gross margins. While CoStar merges technology with data marketplace, Zillow operates as a Real Estate marketplace. Opendoor distinguishes itself as an iBuyer, focusing on instant buying of homes, and Redfin navigates a middle path as a hybrid of discount brokerage and iBuying. Consequently, comparing Zillow's valuation to these entities might result in a skewed understanding due to these underlying discrepancies.

Figure 61: Comparable Analysis

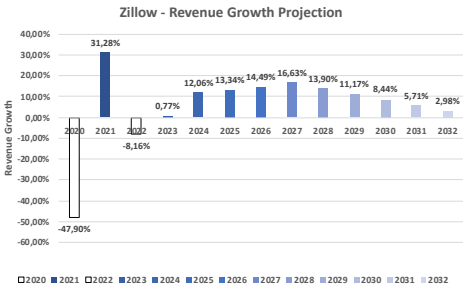


Source: Author Estimates

While a direct comparison is elusive, examining the average valuation of peers within the real estate sector and contrasting it with the industry benchmark provides perspective on Zillow's market positioning. The mean EV/Sales Ratio among competitors stands at 4.5, with the industry benchmark slightly higher at 4.78 (Figure 61). Against this backdrop, Zillow's Enterprise Value (EV) to Sales ratio of 6.30 indicates it may be marginally overpriced, with a market capitalization of $9.73 billion after net debt adjustment, culminating in an estimated value of $40.75 per share.

This preliminary assessment offers a layered interpretation of Zillow's standing in the market, inviting a more in-depth financial examination. A methodical Discounted Cash Flow (DCF) analysis could refine this assessment, offering a more accurate appraisal of the company's true intrinsic value.

Figure 62: Revenue Growth Projections



Source: Stock Analysis and Author Estimates, 2023

Discounted Cash Flow

The model incorporates a revenue growth forecast as per stockanalysis.com, envisioning a peak growth rate of 16.63% in 2027, thereafter transitioning into a linear decrease towards a terminal growth rate of 2.98% (Figure 64). This terminal growth rate is derived from a comprehensive analysis of long-term economic indicators, including the growth of the US GDP, global GDP output, and the US residential real estate market and transaction growth (Table 21).

Revenue is expected to be predominantly driven by IMT Segment, constituting 87.6% of the total by the terminal year (2032), whereas the Mortgages Segment is forecasted to represent 12.4%. Notably, the revenue from the Mortgage Segment is expected to undergo volatility, particularly during 2025 and 2026. This period is anticipated to witness substantial interest rate cuts, which are likely to stimulate a considerable increase in mortgage origination. Such a development is expected to significantly boost Zillow's revenue acceleration.

Table 21: Growth assumptions

Growth assumptions in %	
Economic Factors	**Growth**
US GDP growth	1,9%
World Output GDP growth	2,8%
US Residential Real Estate Market growth	4,7%
US Residential Real Estate Transaction Growth	2,6%
Average	**2,98%**

Source: Author Estimates

A decrease in mortgage rates is poised to benefit not just the Mortgages Segment but also the IMT Segment, which is projected to experience a boost in overall transaction volume. The potential for revenue growth is also shaped by the industry's proximity to historical cyclical lows in terms of current turnover. Additionally, Zillow's increasing customer adoption, leading traffic in rentals, over one million unique listings, the shift from traditional to online listings, and the rapid growth in multifamily property revenues present significant prospects for future expansion. These factors collectively contribute to an expected average annual revenue growth of 8.99% for the IMT Segment and 21.66% for the Mortgages Segment until 2032. It is also vital to acknowledge that the analysis incorporates a range of scenarios from conservative to optimistic, offering a well-rounded perspective that equips navigating various macroeconomic trends ahead. With Zillow having moved away from holding real estate inventory, which could be affected by macroeconomic fluctuations, the Gross Margin is expected to remain stable at around 80% throughout the forecasted period.

With the anticipated growth in revenue, the projected stability is expected to boost the EBITDA margin from 4.5% in 2023 to an impressive 31.1% by 2032. Throughout this timeframe, depreciation and amortization costs are expected to maintain an average of 9.58%, with capital expenditures averaging 15.23%. This elevated CapEx reflects the company's strategic focus on growth, expansion, and the necessary modernization and technological advancements to stay ahead in the market. Consequently, the observed depreciation and amortization are direct outcomes of these substantial capital investments.

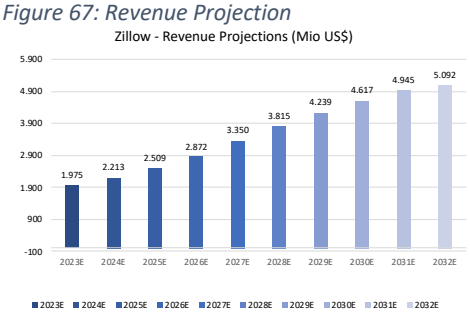
Further on, the calculation of Zillow's Cost of Equity through the Capital Asset Pricing Model (CAPM) reflects the Risk-free Rate based on the 10-year Treasury bill, adjusted for Beta and the historical Market Return of the last 20 years from the S&P 500, culminating in a Cost of Equity of 13.20% (Figure 64).

The calculation of the after-tax cost of debt, based on the balance sheet, involves an interest expense of $28.8 million against a total debt of $1.7 billion. This calculation yields a pre-tax cost of debt at 1.69%. After accounting for Washington state's tax rate of 6.5%, theafter-tax cost of debt is adjusted to 1.6% (Figure 65).

From these inputs and computations emerges a mid WACC of 11.82%, with the lower and upper boundaries determined at 11.32% and 12.32%, respectively. This calculation enabled the determination of the present value of the company's free cash flow and the present value of its terminal value.

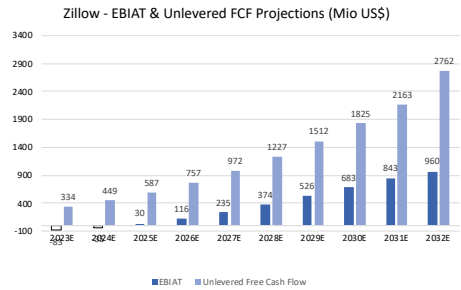
According to the model, Zillow's equity value stands at $15.82 billion. When this is divided by the total number of outstanding shares, it results in an intrinsic value of $65.83 per share and an implied upside of 21.6%. This suggests that Zillow's current market price offers a substantial margin of safety, affording investors the opportunity to account for potential risks such as dilution, lower-than-anticipated growth, or macroeconomic events that could impact the company's operations. Considering the risk-reward balance, the investment

Figure 67: Revenue Projection



Source: Author Estimates

Figure 63: EBIAT + Unlev. FCF Projections



Source: Author Estimates

Figure 64: Cost of Equity

Cost of Equity	
Risk fr. Rate	4,28%
Beta	1,89
Market Return (20y)	9,00%
Cost of Equity	13,20%

Source: Author Estimates

Figure 65: Cost of Debt

Cost of Debt	
Interest Expense	28,8
Total Debt	1700
Cost of Debt	1,69%
Eff. Tax Rate	6,50%
Cost of Debt a. Tax	1,6%

Source: Author Estimates

Figure 66: WACC

WACC	
WACC low	11,32%
WACC	**11,82%**
WACC high	12,32%
Step	0,50%

Source: Author Estimates

presents itself as an attractive option and is recommended as a buy from a valuation standpoint.

Additionally, with the current share price positioned at $54.14, the outlook appears favorable when cross-referenced with the sensitivity analysis that contemplates a terminal growth rate ranging from 2.3% to 3.8% and a WACC spanning 11.1% to 12.6%. This assessment reveals that, even under the most adverse conditions factored into the model, there exists a slight margin of safety. Simultaneously, should Zillow outperform expectations with a lower WACC, potentially impacted by favorable interest rates, there's room to anticipate the fair value of the shares to surpass the $65.8 mark, potentially trending towards the $75 mark(Figure 68).

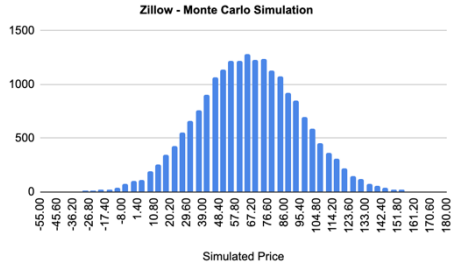
Finally, using Monte Carlo Simulation based on the DCF-derived starting price of $65.83 for Zillow, incorporating 180-day volatility of 44.7%, and running 20,000 price simulations, we arrive at a price range of $46.1 to $85.8 per share, with the range value occurring 3,274 times. Moreover, at the 50th percentile, the median of the simulation positions Zillow's share price at $65.93 (Figure 69).

Figure 68: Scenario Analysis

Cost of Capital (WACC) vs. Long-run sustainable growth rate (TGR)							
	WACC						
TGR	65,8	11,1%	11,3%	11,6%	11,8%	12,1%	12,3%	12,6%
2,3%	68,5	66,3	64,1	62,1	60,2	58,4	56,8
2,5%	70,0	67,6	65,4	63,3	61,3	59,5	57,7
2,8%	71,6	69,1	66,7	64,5	62,5	60,5	58,7
3,0%	73,3	70,6	68,1	65,8	63,7	61,7	59,8
3,3%	75,0	72,2	69,6	67,2	65,0	62,9	60,9
3,5%	76,9	74,0	71,2	68,7	66,3	64,1	62,1
3,8%	78,9	75,8	72,9	70,3	67,8	65,5	63,3

Source: Author Estimates

Figure 69: Monte Carlo Simulation



Source: Author Estimates

Thesis & Recommendation

Following an in-depth analysis of Zillow, the resulting recommendation for the company is a 'Buy.' This suggestion takes into consideration a moderate risk profile and a 21.6% potential increase from the present stock price with a target price of $65.83. The 'Buy' stance is reinforced by specific company attributes and strengths, which further solidify the confidence in this recommendation.

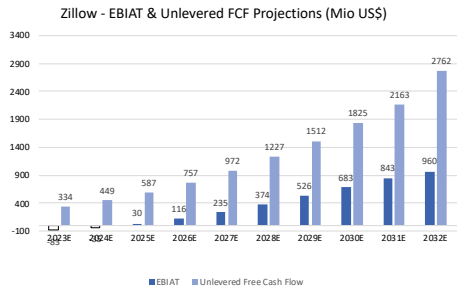
Firstly, a key element is the forecasted decrease in interest rates by late 2024, anticipated to: 1. favorably adjust Zillow's market valuation, 2. increase mortgage origination and transaction volumes, reversing the notable downturn seen in the past two years (Figure 70), and 3. substantially elevate Zillow's revenues from mortgage activities. This change is poised to stimulate growth in the housing sector, currently near historical lows in terms of current turnover.

Secondly, in terms of technology and market positioning, Zillow has redefined itself as a premier Real Estate Marketplace, securing over 1 million listings and achieving prime visibility on Google Search (Figure 72). By focusing on expanding its listings and leveraging its data, Zillow is strategically positioned to create a competitive advantage and dramatically increase transaction volume (Figure 71). The shift away from traditional real estate practices is becoming more pronounced, with millennials and Gen Z, poised to be the primary drivers of Zillow's revenue in the next decade, favoring digital solutions for real estate transactions due to their tech-savviness.

Figure 70: Exisiting Homes Turnover

Source: Zillow, 2024

Figure 71: EBIAT + Unlev. FCF Projections



Source: Author Estimates

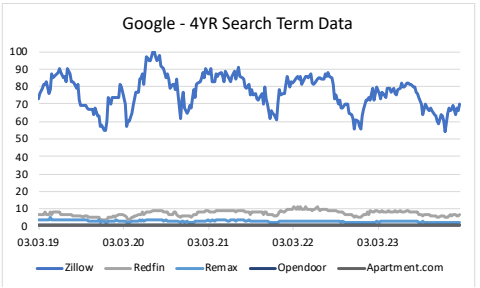
Thirdly, the strategic decision to divest from the iBuying segment marks a significant shift, enhancing the company's gross margin and steering Zillow towards an asset-light model. This transition not only forecasts more stable gross profits but also sets Zillow on a trajectory towards sustained net income and increased unlevered cash flow.

Lastly, Zillow's financial statements reflect robust health (Figure 73), evidenced by its substantial cash and equivalents, which comfortably exceed its current debt and capital lease commitments. With a quick ratio of 2.89 and a current ratio of 1.48, Zillow's liquidity position is strong, underscoring its financial stability.

Finally, it's crucial to recognize that opportunities for gain are invariably linked with potential risks. Zillow operates within the fluctuating realm of the real estate market, where its main operations, including lead generation for realtors and revenue from online listings, are susceptible to housing demand and broader economic shifts.

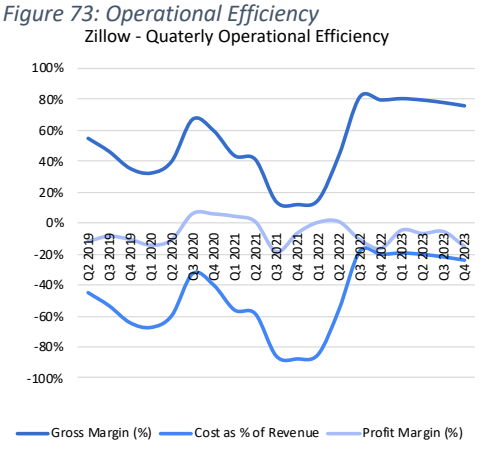
Moreover, Zillow's reliance on technology introduces its own set of challenges. The company's dependency on proprietary algorithms and data models for assessing property values and analyzing market trends places it at risk. Any interruption in data gathering, breakthroughs by competitors, or inherentbiases in its algorithms could detrimentally affect Zillow's standing in the industry and the reliability of its offerings.

Figure 72: google Search Term Data



Source: Google, 2024

Figure 73: Operational Efficiency



Source: Zillow, 2024

Appendices

Appendix 1: Statement of Financial Position

Appendix: Forecasting Assumptions

main source:
https://seekingalpha.com/symbol/Z/balance-sheet
https://seekingalpha.com/symbol/Z/income-statement

						Projected									
Year	**FY 18**	**FY 19**	**FY 20**	**FY 21**	**FY 22**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**	**2031E**	**2032E**	**Assumption**
Income Statement																
Total Revenue	**$1.334**	**$2.743**	**$1.624**	**$2.132**	**$1.958**	**1.975**	**2.213**	**2.509**	**2.872**	**3.350**	**3.815**	**4.239**	**4.617**	**4.945**	**5.092**	Project Revenue Growth offered by StockAnalysis
Total IMT segment revenue			$1.451	$1.887	$1.840	1.884	2.152	2.358	2.581	2.967	3.336	3.701	4.030	4.326	4.454	Author Projections of the Revenue for the Segment
Mortgages Segment			$174	$246	$119	89	59	148	288	380	476	534	582	614	633	Author Projections of the Revenue for the Segment
Cost of revenue	$270	$1.544	$255	$323	$367	$395	$443	$502	$574	$670	$763	$848	$923	$989	$1.018	Total Revenue - Gross Profit
Gross profit	$1.064	$1.199	$1.369	$1.809	$1.591	$1.580	$1.771	$2.007	$2.298	$2.680	$3.052	$3.392	$3.693	$3.956	$4.074	80% Gross Margin
Total operating expenses	**$1.193**	**$1.446**	**$1.260**	**$1.570**	**$1.684**	**$1.491**	**$1.605**	**$1.745**	**$1.914**	**$2.133**	**$2.317**	**$2.449**	**$2.531**	**$2.565**	**$2.491**	Total of the following detailed breakdown
Sales and marketing	$568	$729	$535	$715	$664	$668	$719	$782	$857	$956	$1.038	$1.097	$1.134	$1.149	$1.116	44.8% weight of the past 5 years
Technology and development	$279	$351	$324	$421	$498	$391	$421	$457	$501	$559	$607	$642	$663	$672	$653	26.2% weight of the past 5 years
General and administrative	$262	$366	$324	$414	$498	$388	$417	$454	$498	$555	$602	$637	$658	$667	$648	26% weight of the past 5 years
Impairment and restructuring costs	$79	$0	$77	$10	$24	$38	$41	$45	$49	$54	$59	$62	$65	$65	$64	2.55% weight of the past 5 years
Acquisition-related costs	$2	$0	$0	$9	$0	$4	$4	$4	$5	$5	$6	$6	$6	$6	$6	0.025% weight of the past 5 years
Integration costs	$2	$1	$0	$1	$0	$3	$3	$3	$4	$4	$5	$5	$5	$5	$5	0.020% weight of the past 5 years
EBITDA	**-$30**	**-$160**	**$220**	**$369**	**$64**	**$89**	**$165**	**$261**	**$384**	**$547**	**$735**	**$942**	**$1.162**	**$1.391**	**$1.583**	31.1% EBITDA Margin until 2032, linearity
Other income (expense)	19	40	25	7	43	27	31	35	40	46	53	59	64	68	70	Last 5 Years Average as % of Revenue: 0.38%
Interest expense	-$41	-$102	-$138	-$128	-$35	-$89	-$89	-$89	-$89	-$89	-$89	-$89	-$89	-$89	-$89	Average % of Last 5 Years
Taxes	$31	$4	$5	-$2	$3	-$6	-$2	$2	$8	$16	$26	$37	$48	$59	$67	Projected Tax Rate of 6.5% for Washington State
D&A	**$99**	**$87**	**$111**	**$130**	**$157**	**$178**	**$202**	**$229**	**$260**	**$295**	**$335**	**$380**	**$432**	**$490**	**$556**	Projection based on past 5 Years Revenue and D&A Growth
Net Income	**-$120**	**-$305**	**-$162**	**-$528**	**-$101**	**-$211**	**-$159**	**-$94**	**-$13**	**$100**	**$233**	**$378**	**$531**	**$686**	**$801**	EBITDA minus ITDA
Balance Sheet																
Capital Expenditure	**$122**	**$122**	**$137**	**$149**	**$213**	**$248**	**$289**	**$337**	**$392**	**$457**	**$532**	**$620**	**$722**	**$841**	**$979**	Projection based on past 5 Years Revenue and CapEx Growth
Current Assets	$1.893	$3.510	$4.965	$7.680	$3.603	$3.649	$4.089	$4.635	$5.306	$6.189	$7.049	$7.832	$8.529	$9.136	$9.408	Total of the following detailed breakdown
Cash and Cash Equivalents	$651	$1.141	$1.703	$2.315	$1.466	$1.495	$1.676	$1.899	$2.175	$2.536	$2.889	$3.210	$3.496	$3.745	$3.856	Offered by DCF Model Projections
Short-term investments	$904	$1.281	$2.218	$514	$1.896	$1.911	$2.141	$2.427	$2.778	$3.240	$3.691	$4.101	$4.466	$4.784	$4.926	In Line with Revenue Growth
Account Receivables	$66	$67	$70	$77	$72	$73	$81	$92	$106	$123	$140	$156	$170	$182	$187	In Line with Revenue Growth
Inventories	$163	$837	$491	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	iBuying spin-off leads to no inventories
Contract cost assets	$46	$45	$51	$35	$23	$23	$26	$29	$34	$39	$45	$50	$54	$58	$60	In Line with Revenue Growth
Accounts Payable	$7	$8	$19	$11	20	$20	$23	$26	$29	$34	$39	$43	$47	$50	$52	In Line with Revenue Growth
Other (Mortgage, Restricted Cash)	$56	$131	$413	$4.728	$126	$127	$142	$161	$185	$215	$245	$273	$297	$318	$327	In Line with Revenue Growth
Long Term Assets	$2.406	$2.640	$2.529	$3.013	$2.972	$2.995	$3.356	$3.804	$4.355	$5.079	$5.785	$6.428	$7.000	$7.498	$7.722	Total of the following detailed breakdown
Contract cost assets	$46	$45	$51	$35	$23	$23	$26	$29	$34	$39	$45	$50	$54	$58	$60	In Line with Revenue Growth
Property and equipment, net	$135	$170	$196	$215	$271	$273	$306	$347	$397	$463	$528	$586	$638	$684	$704	In Line with Revenue Growth
Right of use assets	$0	$212	$188	$130	$126	$127	$142	$161	$185	$215	$245	$273	$297	$318	$327	In Line with Revenue Growth
Goodwill	$1.985	$1.985	$1.985	$2.374	$2.374	$2.392	$2.681	$3.038	$3.479	$4.057	$4.621	$5.135	$5.592	$5.990	$6.168	In Line with Revenue Growth
Intangible assets, net	$216	$191	$95	$176	$154	$155	$174	$197	$226	$263	$300	$333	$363	$389	$400	In Line with Revenue Growth
Other assets	$17	$18	$7	$3	$12	$12	$14	$15	$18	$21	$23	$26	$28	$30	$31	In Line with Revenue Growth
Other Long-Term Assets	$7	$19	$7	$80	$12	$12	$14	$15	$18	$21	$23	$26	$28	$30	$31	In Line with Revenue Growth
Total Assets	**$4.299**	**$6.150**	**$7.494**	**$10.693**	**$6.575**	**$6.643**	**$7.445**	**$8.438**	**$9.661**	**$11.268**	**$12.834**	**$14.261**	**$15.530**	**$16.635**	**$17.130**	Long Term Assets + Current Assets
Current Liabilities	$288	$921	$909	$3.882	$877	$1.186	$1.215	$1.251	$1.295	$1.354	$1.411	$1.463	$1.509	$1.550	$1.571	Total of the following detailed breakdown
Accounts Payable	$8	$8	$19	$11	$20	$20	$23	$26	$29	$34	$39	$43	$47	$50	$52	In Line with Revenue Growth
Accrued Expenses	$80	$107	$111	$143	$117	$118	$132	$150	$171	$200	$228	$253	$276	$295	$304	In Line with Revenue Growth
Short-Term Borrowings	$150	$722	$670	$113	$37	$338	$338	$338	$338	$338	$338	$338	$338	$338	$338	Average of past 5 Years. Zillow could self-sustain
Current Portion of LT Debt		$10			$607	$607	$607	$607	$607	$607	$607	$607	$607	$607	$607	Considering Costant Borrowing and Payments
Current Portion of Lease Obligations		$18	$28	$24	$31	$31	$35	$40	$45	$53	$61	$68	$74	$80	$85	In Line with Revenue Growth
Current Income Taxes Payable	$1	$6	$6			$6	$7	$8	$9	$10	$12	$13	$14	$15	$16	In Line with Revenue Growth
Unearned Revenue	$34	$40	$49	$51	$44	$44	$50	$56	$64	$75	$86	$95	$104	$111	$114	In Line with Revenue Growth
Other Current Liabilities	$15	$10	$25	$3.540	$21	$21	$24	$27	$31	$36	$41	$45	$49	$53	$55	In Line with Revenue Growth
Long-Term Liabilities	$736	$1.776	$1.836	$1.480	$1.819	$1.857	$1.657	$2.060	$2.125	$1.931	$2.360	$2.372	$2.111	$2.536	$2.528	Total of the following detailed breakdown
Long-Term Debt	$699	$1.543	$1.613	$1.319	$1.660	$1.673	$1.875	$2.125	$2.432	$2.837	$3.231	$3.591	$3.910	$4.188	$4.313	In Line with Revenue Growth
Tax Liability	$13	$9	$1	$8	$8	$8	$8	$8	$8	$8	$8	$8	$8	$8	$8	Average of past 5 Years.
Capital Leases		$220	$208	$148	$139	$140	$157	$178	$204	$238	$271	$301	$327	$351	$361	In Line with Revenue Growth
Ohter Non-Current Liabilities	$24	$3	$14	$5	$12	$12	$14	$15	$18	$21	$23	$26	$28	$30	$31	In Line with Revenue Growth
Total Liabilities	**$1.024**	**$2.696**	**$2.744**	**$5.362**	**$2.696**	**$3.043**	**$2.872**	**$3.311**	**$3.420**	**$3.285**	**$3.771**	**$3.835**	**$3.621**	**$4.086**	**$4.098**	Long Term Liabilities + Current Liabilities
Total Equity	**$3.275**	**$3.453**	**$4.750**	**$5.331**	**$3.879**	**$3.601**	**$4.573**	**$5.127**	**$6.241**	**$7.983**	**$9.063**	**$10.426**	**$11.909**	**$12.549**	**$13.032**	Total Assets - Total Liabilities

Appendix 2: Growth Rate and Revenue Build

Growth assumptions in %	Historical			Projected					Yearly Average	
Economic Factors	**2020**	**2021**	**2022**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**Growth**	**Source**
US GDP growth	-2,8%	5,9%	2,1%	2,1%	1,5%	1,8%	2,1%	2,1%	1,9%	*IMF*
World Output GDP growth	-2,8%	6,3%	3,5%	3,0%	2,9%	3,2%	3,2%	3,1%	2,8%	*IMF*
US Residential Real Estate Market growth				4,7%	4,7%	4,7%	4,7%	4,7%	4,7%	*Statista*
US Residential Real Estate Transaction Growth				2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	*Statista*
Average									**2,98%**	

Revenue Estimates	Historical					Projected (stockanalysis.com)					linear projection towards terminal growth rate				
(in Billions + rounded)	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Revenue	1.330	2.740	1.620	2.130	1.960	1.975	2.213	2.509	2.872	3.350	3.815	4.241	4.599	4.862	5.007
Revenue Growth	*23,84%*	*105,68%*	*-47,90%*	*31,28%*	*-8,16%*	*0,77%*	*12,06%*	*13,34%*	*14,49%*	*16,63%*	*13,90%*	*11,17%*	*8,44%*	*5,71%*	*2,98%*

Source: https://stockanalysis.com/stocks/z/company/

Revenue Build	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
IMT Segment:													
PremierAgent	1.047	1.396	1.291	1.283	1.442	1.627	1.806	2.094	2.367	2.598	2.793	2.985	3.073
% growth		*33,3%*	*-7,5%*	*-0,6%*	*12,4%*	*12,8%*	*11,0%*	*15,9%*	*13,0%*	*9,8%*	*7,5%*	*6,9%*	*3,0%*
Conservative Case				-0,6%	11,8%	12,2%	10,5%	15,1%	12,3%	9,3%	7,1%	6,5%	2,8%
Street / Base Case				-0,6%	12,4%	12,8%	11,0%	15,9%	13,0%	9,8%	7,5%	6,9%	3,0%
Optimistic Case				-0,6%	13,0%	13,5%	11,6%	16,7%	13,6%	10,3%	7,9%	7,2%	3,1%
Rentals	222	264	274	296	366	351	364	421	475	544	604	666	704
% growth		*18,9%*	*3,8%*	*7,9%*	*23,7%*	*-4,0%*	*3,6%*	*15,8%*	*12,8%*	*14,5%*	*11,1%*	*10,2%*	*5,6%*
Conservative Case				7,9%	22,5%	-3,8%	3,4%	15,0%	12,2%	13,7%	10,5%	9,7%	5,4%
Street / Base Case				7,9%	23,7%	-4,0%	3,6%	15,8%	12,8%	14,5%	11,1%	10,2%	5,6%
Optimistic Case				7,9%	24,9%	-4,2%	3,7%	16,6%	13,5%	15,2%	11,7%	10,7%	5,9%
Other	181	226	274	305	344	380	410	451	494	559	633	675	677
% growth		*24,9%*	*21,2%*	*11,4%*	*12,8%*	*10,3%*	*8,1%*	*9,9%*	*9,5%*	*13,2%*	*13,2%*	*6,7%*	*0,3%*
Conservative Case				11,4%	12,2%	9,8%	7,7%	9,4%	9,0%	12,5%	12,5%	6,3%	0,3%
Street / Base Case				11,4%	12,8%	10,3%	8,1%	9,9%	9,5%	13,2%	13,2%	6,7%	0,3%
Optimistic Case				11,4%	13,5%	10,8%	8,5%	10,4%	10,0%	13,9%	13,9%	7,0%	0,3%
Total IMT Segment	**1.450**	**1.887**	**1.839**	**1.884**	**2.152**	**2.358**	**2.581**	**2.967**	**3.336**	**3.701**	**4.030**	**4.326**	**4.454**
% growth		*30,1%*	*-2,5%*	*2,4%*	*14,2%*	*9,6%*	*9,4%*	*15,0%*					
Mortgages Segment	174	246	119	89	59	148	288	380	476	534	582	614	633
% growth		*41%*	*-52%*	*-25,1%*	*-33,7%*	*150,3%*	*95,0%*	*31,6%*	*25,3%*	*12,3%*	*9,0%*	*5,5%*	*3,1%*
Conservative Case				-25,1%	-32,0%	142,8%	90,3%	30,0%	24,0%	11,7%	8,6%	5,2%	2,9%
Street / Base Case				-25,1%	-33,7%	150,3%	95,0%	31,6%	25,3%	12,3%	9,0%	5,5%	3,1%
Optimistic Case				-25,1%	-35,4%	157,8%	99,8%	33,2%	26,6%	12,9%	9,5%	5,8%	3,3%
Total revenue	**1.624**	**2.133**	**1.958**	**1.973**	**2.212**	**2.506**	**2.870**	**3.347**	**3.812**	**4.236**	**4.613**	**4.941**	**5.088**
% growth		*31,3%*	*-8,2%*	*0,8%*	*12,1%*	*13,3%*	*14,5%*	*16,7%*	*13,9%*	*11,1%*	*8,9%*	*7,1%*	*3,0%*

Appendix 3: DCF

DCF	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Revenue	1.624	2.133	1.958	1.973	2.212	2.506	2.870	3.347	3.812	4.236	4.613	4.941	5.088
% growth		*31,3%*	*-8,2%*	*0,8%*	*12,1%*	*13,3%*	*14,5%*	*16,7%*	*13,9%*	*11,1%*	*8,9%*	*7,1%*	*3,0%*
EBIT	109	239	(93)	-89	-37	32	124	251	400	562	731	902	1027
% of sales	*6,7%*	*11,2%*	*-4,7%*	*-4,5%*	*-1,7%*	*1,3%*	*4,3%*	*7,5%*	*10,5%*	*13,3%*	*15,8%*	*18,2%*	*20,2%*
Conservative Case				-4,3%	-1,6%	1,2%	4,1%	7,1%	10,0%	12,6%	15,1%	17,3%	19,2%
Street / Base Case				-4,5%	-1,7%	1,3%	4,3%	7,5%	10,5%	13,3%	15,8%	18,2%	20,2%
Optimistic Case				-4,7%	-1,8%	1,3%	4,5%	7,9%	11,0%	13,9%	16,6%	19,2%	21,2%
Taxes	5	-2	3	-6	-2	2	8	16	26	37	48	59	67
% of EBIT	4,4%	-1,0%	-3,5%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%	6,5%
EBIAT				**-83**	**-35**	**30**	**116**	**235**	**374**	**526**	**683**	**843**	**960**
D&A	111	130	157	178	202	229	260	295	335	380	432	490	827
% of sales	6,8%	6,1%	8,0%	9,0%	9,1%	9,2%	9,1%	8,8%	8,8%	9,0%	9,4%	9,9%	16,3%
Capital Expenditures	137	149	213	248	289	337	392	457	532	620	722	841	979
% of sales	*8,4%*	*7,0%*	*10,9%*	12,6%	13,1%	13,4%	13,7%	13,6%	14,0%	14,6%	15,6%	17,0%	19,3%
Change in Net Working Capital	354	476	14	-9	-7	-9	-11	-15	-14	-13	-12	-10	-5
% of sales				-0,5%	-0,3%	-0,4%	-0,4%	-0,4%	-0,4%	-0,3%	-0,3%	-0,2%	-0,1%
Unlevered Free Cash Flow				**334**	**449**	**587**	**757**	**972**	**1227**	**1512**	**1825**	**2163**	**2762**
Present Value of Free Cash Flow				**299**	**359**	**420**	**484**	**556**	**628**	**692**	**747**	**792**	**904**

Terminal Value	32260
Present Value of Terminal Value	10556
Enterprise Value	**16436**
(-) Net Debt	615
Equity Value	15821
Shares	240
Implied Share Price	**65,8**

Appendix 4 WACC

Cost of Debt		Assumption / Source
Interest Expense	28,8	finance.yahoo.com
Total Debt	1700	finance.yahoo.com
Cost of Debt	1,69%	see "Debt Breakdown"
Eff. Tax Rate	6,50%	Washington state's tax rate
Cost of Debt a. Tax	1,6%	Cost of Debt adjusted for Washington states tax rate

Debt Breakdown			Assumption / Source
(in millions)	Debt	Interest	
UBS AG - 7.08%	45	3,2	seekingalpha.com
JPMorgan - 7.05%	40	0,3	seekingalpha.com
Atlas Securitized - 7.37%	8	0,1	seekingalpha.com
1.375% convertible senior notes due 2026	496	6,8	seekingalpha.com
2.75% convertible senior notes due 2025	504	13,9	seekingalpha.com
0.75% convertible senior notes due 2024	607	4,6	seekingalpha.com
Sum	1700	28,8	SUM of Debt & Interest
Cost of Debt		**1,69%**	Total Debt / Total Interest paid

Cost of Equity		Assumption / Source
Risk fr. Rate	4,28%	Treasury Yield 10 Years
Beta	1,89	finance.yahoo.com
Market Return (20y)	9,00%	finance.yahoo.com
Cost of Equity	13,20%	Computed within the CAPM-Approach

Weight of Debt and Equity			Assumption / Source
Total Debt	1.700	12,02%	finance.yahoo.com - D/V
Market Cap	12.444	87,98%	finance.yahoo.com - E/V
Total	14.144		SUM Debt + Equity

WACC		Assumption / Source
WACC low	11,32%	- 0,25% Step for lower boundary
WACC	**11,82%**	WACC = (E/V * Ce) + (D/V * Cd after Tax)
WACC high	12,32%	+ 0,25% Step for upper boundary
Step	0,50%	Author estimated Step

Appendix 5: Comparable Analysis

Appendix 5: Comparable Analysis

Ticker	ZG	Implied Share Price	40,75	Upside (Downside)	-26,7%
Date	03/03/2024	Current Share Price	55,58		

		Market Data					Financials			Valuation
Company	Ticker	Share Price	Shares Outstanding	Equity Value	Net Debt	Enterprise Value	Revenue	EBITDA	Net Income	EV/Revenue
Zillow Group	ZG	55,58	238.830.000	13.274.171.400	-980.000.000	12.294.171.400	1.945.000.000	104.000.000	-158.000.000	6,30
Redfin	RDFN	7	119.240.000	834.680.000	813.690.000	1.648.370.000	976.672.000	-147.360.000	-130.026.000	1,7
Opendoor	OPEN	3,11	679.640.000	2.113.680.400	1.460.000.000	3.573.680.400	6.946.000.000	-297.000.000	275.000.000	0,5
Newscorporation (Realtor.com)	NWSA	26,33	377.790.000	9.947.210.700	2.410.000.000	12.357.210.700	9.879.000.000	1.260.000.000	149.000.000	1,3
Costar Group	CSGP	88,27	408.410.000	36.050.350.700	4.120.000.000	40.170.350.700	2.455.000.000	389.800.000	374.700.000	16,4
CBRE Group	CBRE	92,98	305.700.000	28.423.986.000	3.670.000.000	32.093.986.000	31.949.000.000	1.890.000.000	986.000.000	1
SECTOR: Real Estate US										4,78
High										16,4x
75th Percentile										5,15x
Average										**4,5x**
25th Percentile										1,1x
Low										0,5x

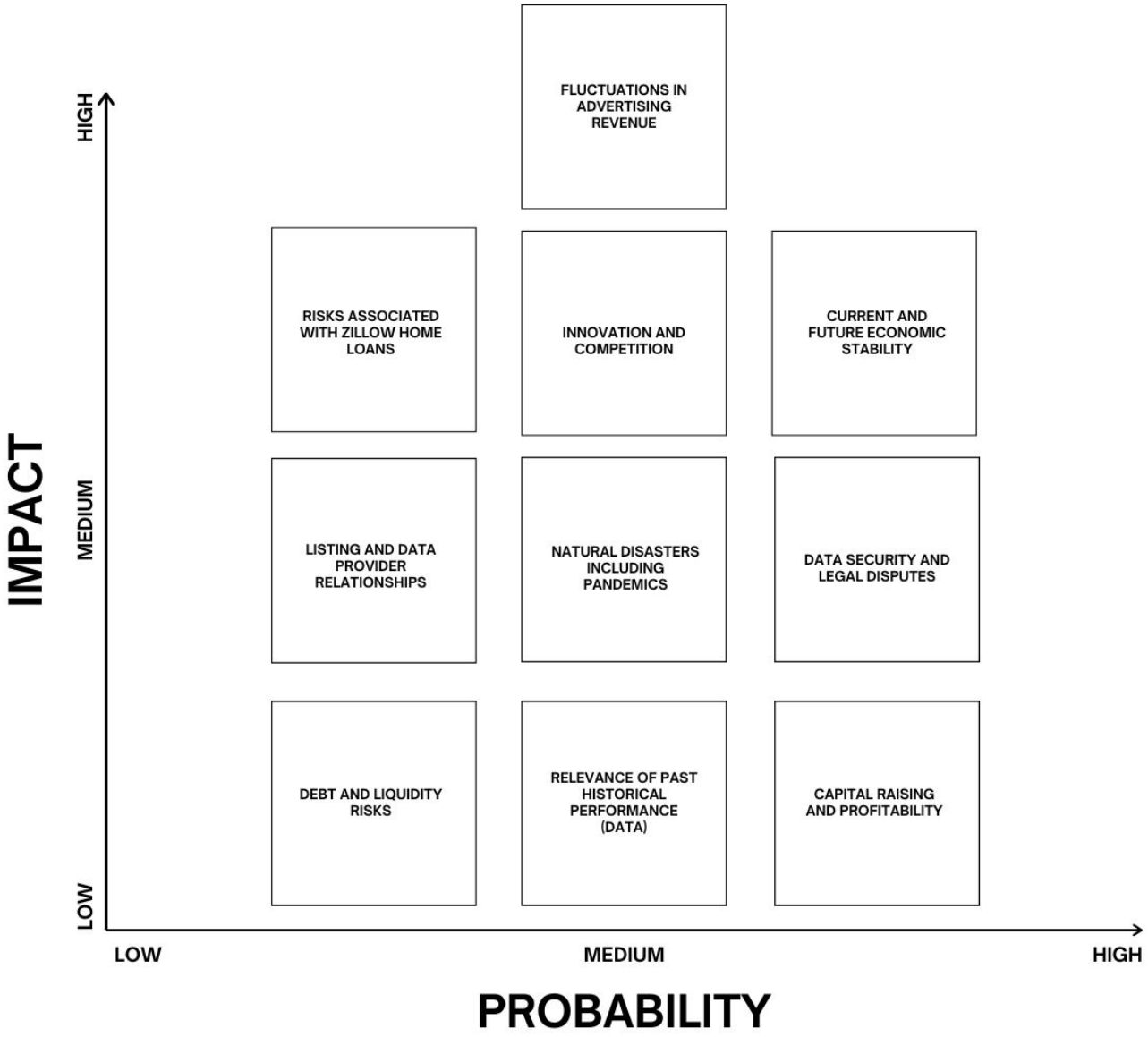
Benchmark	
SECTOR: Real Estate US	4,78x

Valuation	**EV/Revenue**
Implied Enterprise Value	8.752.500.000
Net Debt	-980.000.000
Implied Market Value	9.732.500.000
Shares Outstanding	238.830.000
Implied Value per Share	40,75074321

Source: https://finance.yahoo.com/

Appendix 6: Risk – Impact / Probability Matrix

APPENDIX 6: RISK - IMPACT / PROBABILITY MATRIX



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