

Zillow

4Q beat & 1Q outlook brackets Street but still see some uncertainty on mkt vols

Reiterate Rating: NEUTRAL | PO: 63.00 USD | Price: 52.06 USD

4Q Rev/EBITDA above Street with 7pts outperformance

4Q Rev/EBITDA at \$474mn/\$69mn was above the Street at \$451mn/\$58mn as residential revenue at \$349mn (up 3% y/y) grew 7pts above market (vs +11pts in 3Q). Relative outperformance driven by improvements in top & mid funnel experiences that drove higher lead volumes. Rental revenue of \$93mn (up 37% y/y) was also above the Street at \$90mn driven by growth in multifamily (revenue up 52% y/y). EBITDA beat was driven by higher topline & lower than expected S&M and R&D offset by higher COGS.

2024 guide of double-digit revenue growth vs flat market

1Q revenue outlook of \$495mn-\$510mn was slightly above the Street at \$501mn (and likely conservative on implied share gains) while EBITDA outlook of \$95-\$105mn was below the Street at \$113mn on investments. For 2024, Zillow expects double digit revenue growth (with market ~flat y/y) driven by expanded real-time touring, rentals, Follow-up Boss (low single digit revenue contribution) and rollout of Listing Showcase. Management noted significant traction of Listing Showcase product and plans to cover 5-10% of total listings in 2024, with \$150-\$300mn incremental revenue opportunity.

Raising '24 revenue by 4% & EBITDA by 6%; PO to \$63

We are raising our revenue estimates to reflect stronger growth in all segments and Opex to reflect investments to scale growth initiatives and website development costs. For 2024, we raise revenues by 4% to \$2.2bn & EBITDA by 6% to \$487mn. For 2025 metrics, we raise revenue by 4% to \$2.5bn & EBITDA by 1% to \$678mn (up 39% y/y). Increasing PO to \$63 (from \$60) on higher 2025 EBITDA and unchanged 20x multiple.

Neutral on limited vol upside and commission uncertainty

We are encouraged to see another quarter of above market performance and ramping monetization of growth initiatives with potentially increased revenue contribution through 2024. At 18x our revised '25 EBITDA, we think stock prices a steady recovery in RE market. However, low home affordability hindered by higher rates could limit volume upside (see takeaways from recent expert call) & uncertainty from commission lawsuits remains an overhang on lead generation business (~48% revenue). We reiterate Neutral.

Estimates (Dec) (US\$)	2022A	2023A	2024E	2025E	2026E
EPS	1.71	1.35	1.42	1.97	2.37
GAAP EPS	(0.42)	(0.67)	(0.41)	0.09	0.43
EPS Change (YoY)	NM	-21.1%	5.2%	38.7%	20.3%
Consensus EPS (Bloomberg)			1.06	1.76	2.70
DPS	0	0	0	0	0
EPS (Z - US\$)	1.71	1.35	1.42	1.97	2.37
DPS (Z - US\$)	0	0	0	0	0
Valuation (Dec)					
P/E	30.4x	38.6x	36.7x	26.4x	22.0x
GAAP P/E	NM	NM	NM	578.4x	121.1x
EV / EBITDA*	20.4x	31.0x	24.9x	17.9x	14.6x
Free Cash Flow Yield*	36.2%	1.8%	4.7%	5.2%	5.9%
* For full definitions of ${\it IQ}$ method ${\it SM}$ measures, see page 9.					

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Refer to important disclosures on page 10 to 13. Analyst Certification on page 8. Price Objective Basis/Risk on page 8.

Timestamp: 13 February 2024 11:44PM EST

13 February 2024

Equity

Key Changes		
(US\$)	Previous	Current
Price Obj.	60.00	63.00
2024E Rev (m)	2,106.0	2,191.6
2025E Rev (m)	2,423.0	2,529.3
2026E Rev (m)	NA	2,800.1
2024E EPS	1.19	1.42
2025E EPS	2.02	1.97
2026E EPS	NA	2.37

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Stock Data

Price (NAS / NAS)	52.06 USD / 53.88 USD
Price Objective	63.00 USD / 63.00 USD
Date Established	13-Feb-2024 / 13-Feb-2024
Investment Opinion	C-2-9 / C-2-9
52-Week Range	33.23 USD - 58.82 USD
Market Value (mn)	12,129 USD
Free Float	67.8%
Average Daily Value	29.55 USD
Shares Outstanding (mn)	233.0 / 233.0
BofA Ticker / Exchange	ZG / NAS
BofA Ticker / Exchange	Z / NAS
Bloomberg / Reuters	ZG US / ZG.OQ
ROE (2024E)	7.3%
Net Dbt to Eqty (Dec-	2.5%
2023A)	
ESGMeter™	High

ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of BofA Global Research's equity investment rating, volatility risk rating, income rating, and price objective for that company. For full details, refer to "BofA ESGMeter Methodology".

FUB: Follow Up Boss

S&M: Sales and Marketing

G&A: General and Administrative

*iQ*profile[™]Zillow

2022A	2023A	2024E	2025E	2026
-0.7%	-3.9%	-3.0%	-0.6%	1.2%
8.4%	7.1%	7.3%	9.4%	10.4%
-1.0%	-9.5%	13.2%	19.9%	25.1%
4,389	219	567	627	717
2022A	2023A	2024E	2025E	2026
10.9x	1.1x	2.2x	1.7x	1.6>
0.7x	0.7x	0.6x	0.7x	0.8
NM	NM	NM	NM	NM
4.3%	2.5%	-1.8%	-6.7%	-12.2%
-0.8x	-7.5x	-5.6x	-1.1x	2.4>
2022A	2023A	2024E	2025E	2026
6,184	1,945	2,192	2,529	2,800
-24.1%	-68.5%	12.7%	15.4%	10.7%
1,834	1,626	2,192	2,529	2,800
2.6%	-11.3%	34.8%	15.4%	10.7%
596	391	487	678	833
122.9%	-34.4%	24.5%	39.3%	22.7%
(38)	116	104	60	17
415	320	339	474	573
NM	-22.9%	5.9%	40.0%	20.9%
2022Δ	20224	2024E	20255	
	2023A		2025E	2026
(101)	(158)	(99)	21	104
				10 ²
(101) 157	(158) 187 0	(99) 252 0	21 264 0	10 ² 276
(101) 157 0 NA	(158) 187 0 NA	(99) 252 0 NA	21 264 0 NA	104 276 (
(101) 157 0 NA 4,448	(158) 187 0 NA 325	(99) 252 0 NA 577	21 264 0 NA 533	104 276 0 NA 557
(101) 157 0 NA	(158) 187 0 NA	(99) 252 0 NA	21 264 0 NA	104 276 (NA 557 (219
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2,081

4,482

6,563

2,126

4,526

6,652

1,549

4,802

6,350

1,563

5,241

6,804

1,581

5,783

7,364

Internet/e-Commerce

Company Description

Zillow Group (ZG/Z) is the category leader for online real estate advertising with over 300mn average monthly unique users across multiple sites. Zillow operates the top two online and mobile real estate lead generating services Zillow.com and Trulia.com, as well as high growth segments in rentals and mortgage lead generation. We believe Zillow occupies a lucrative position in the market relative to competitors due to its dominant and growing share of user traffic and advertiser spending

Investment Rationale

Given Zillow's sizable real estate-focused audience, we are positive on its ability to expand share in home-related markets such as real estate, rentals, and mortgage and through several initiatives that should increase agent productivity. However, in the near- to medium-term, we believe uncertainty over mounting real estate commission lawsuits could be disruptive to ZG's buy side revs (nearly 50% of total) and weigh on investor sentiment.

Stock Data	
Average Daily Volume	567,698
Shares / Common - Dual Listed	1.00

Quarterly Earnings Estimates

	2023	2024
Q1	0.37A	0.34E
Q2	0.42A	0.38E
Q3	0.35A	0.39E
Q4	0.22A	0.32E

Key Changes		
(US\$)	Previous	Current
Price Obj.	60.00	63.00
2024E EPS	1.19	1.42
2025E EPS	2.02	1.97
2026E EPS	NA	2.37

Total Liabilities

Total Equity & Liabilities

Total Equity



Company Sector

^{*} For full definitions of $\emph{\textbf{IQ}} \textit{method}^{\text{SM}}$ measures, see page 9.

4Q Positives:

- 4Q Revenue and EBITDA beat: 4Q Rev/EBITDA at \$474mn/\$69mn was above the Street at \$451mn/\$58mn as residential revenue at \$349mn (up 3% y/y) exceeded the Street estimates at \$331mn and grew 7pts above market. EBITDA beat was driven by higher topline growth and lower than expected S&M and R&D expense offset by higher G&A ad COGS (higher website development charges & 1x lease termination charges). Excluding a one-time partial lease termination expense, 4Q'23 Adj. EBITDA would have been \$83mn (18% margin, up 1pts y/y).
- Above market growth: In 4Q, growth in residential revenue at \$349mn (up 3% y/y) outperformed industry (down 4% y/y) by 7pts (vs +11pts in 3Q). Zillow noted relative outperformance driven by improvements in top and mid funnel experiences that drove higher lead volumes.
- 1Q Revenue outlook above Street: Midpoint of 1Q revenue outlook of \$495mn-\$510mn was slightly above the Street at \$501mn. Midpoint of 1Q guide suggest 2% y/y growth and Zillow expects industry total transaction value in 1Q to be between up 1% and down 4% y/y, implying 5-6pts of market outperformance (vs 7pts in 4Q'23). Given that guidance includes roughly 2ppts of revenue contribution from FUB and the ramping of growth initiatives, guidance could prove conversative.
- **Strong growth in rental business:** In 4Q, rental revenues of \$93mn (up 37% y/y) was above the Street at \$90mn primarily driven by multifamily (revenue up 52% y/y). Total active rental listings on Zillow were up 40% y/y in 4Q. The company also benefited from industry tailwinds as occupancy rates have declined from historically high levels, which drove an increasing need for advertising. The company expect rentals revenue to continue to grow more than 30% y/y in 1Q'23.
- Listing Showcase gaining strong traction: For the listing showcase product, management noted significant demand from listing agents and strong engagement with consumers. They highlighted Listing showcase listings receives 68% more page views 66% more sales 63% more shares. Zillow is actively rolling out listing showcase nationwide with the intermediate term goal of 5-10% listing coverage that represent \$150-\$300mn incremental annual revenue opportunity.
- Real time touring driving higher conversion: Management highlighted real time touring product is meaningfully improving Zillow's ability to connect high intent customers to premier agent partners. In 4Q'23, real time touring product delivering ~10% of total connection. The company plans to expand the breadth of coverage by launching the product in additional markets and increase real time touring to account for ~20% of connections by the end of 2024.
- **Higher than expected Premier Agent revenue:** 4Q Premier Agent revenue was flat y/y, above Zillow's expectations for a decline between 4% and 9%. The company noted mid-funnel investments have improved Zillow's ability to capture more of the customer demand and connect those customers with Premier Agent partners.
- **Strong momentum in mortgage business**: The purchase loan origination volume increased 105% y/y to \$487mn in 4Q'23. Management noted in enhanced markets, customer adoption rates for Zillow home homes increased from 6% to 15% over the course of 2023. Since 1Q'23, the percentage of purchase mortgages in which a customer works with a premier agent partner increased from 23% to 53%.



Share repurchase and decline in share count: Zillow repurchased \$88mn of shares in 4Q (total \$424mn in 2023). At the end of 4Q, the company had \$770mn available for share repurchases. In 4Q, diluted share count declined 1.4% y/y. Moreover, the company expects absolute dollar SBC expense to decline y/y in 2024.

4Q Negatives:

- 1Q EBITDA outlook below Street: 1Q EBITDA outlook of \$95-\$105mn was slightly below the Street estimates at \$113mn driven by 1) Full quarter of operating costs for Follow Up Boss, 2) Annual increase in payroll taxes occurs in 1Q, 3) Increasing variable headcount for sales to scale Rentals, Listing Showcase, and Zillow Home Loans product.
- Regulatory headwind: On the real estate commission lawsuits, management highlighted that regardless of the outcome (which could take years and multiple appeals), Zillow remains relatively well positioned to grow. However, given ZG derives ~50% of sales from buyside lead generation segment that is supported by buyside fees, an outcome which leads to lower buyside commissions or agents, risk remains a lower fee pool (though partially offset by a strategy of shifting to the highest productivity agents).
- **Low affordability limits volume upside:** For 2024, Zillow expects double digit revenue growth (with broader market relatively flat y/y) driven by expanded real time touring, top funnel improvements, integrate follow up boss, and expand the rollout of listing showcase. However, we believe low affordability, potentially dragged out for longer due to higher rates for longer, could limit volume upside in 2024 and we see limited upside surprise from here (we forecast flat volumes for the year).



Actual vs BofA Estimates

4Q Rev/EBITDA at \$474mn/\$69mn was above Street at \$451mn/\$58mn as residential revenue at \$349mn (up 3% y/y) grew 7pts above market (vs +11pts in 3Q). Relative outperformance driven by improvements in top & mid funnel experiences that drove higher lead volumes. Rental revenue of \$93mn (up 37% y/y) was also above the Street at \$90mn driven by growth in multifamily (revenue up 52% y/y). EBITDA beat was driven by higher topline and lower than expected S&M and R&D offset by higher G&A and COGS (higher website development charges & 1x lease termination charges). Excluding a one-time partial lease termination expense, 4Q'23 Adj. EBITDA would have been \$83mn (18% margin, up 1pts y/y).

Exhibit 1: Actual vs. BofA Estimates

4Q Rev/EBITDA at \$474mn/\$69mn was above our estimate at \$459mn/\$62mn.

Zillow		4Q23			
Segments	Actuals	BofA Ests.	Difference		
Residential	349	340	9		
Rentals	93	90	3		
Mortgage	22	20	2		
Other	10	9	1		
Total Revenue	\$474	\$459	\$15		
Cost of revenue	111	96	15		
As a % of revenue	23%	21%	2%		
Gross Profit	\$363	\$362	\$1		
Gross Margin	77%	79%	-2%		
Sales and Marketing	148	152	(4)		
As a % of revenue	31%	38%	(6%)		
Technology and Development	98	102	(4)		
As a % of revenue	21%	22%	(2%)		
General and Administrative	101	91	10		
As a % of revenue	21%	20%	1%		
Operating Expenses	\$468	\$466	\$2		
As a % of revenue	99%	102%	(3%)		
Non-GAAP Operating Income	\$4	\$16	(\$12)		
Non-GAAP EPS diluted	\$0.22	\$0.09	\$0.13		
Adj. EBITDA	\$69	\$62	\$7		
Margin	15%	14%	1%		

Source: BofA Global Research estimates, Company Filings

BofA GLOBAL RESEARCH



Estimate Changes

We are raising our revenue estimates to reflect stronger growth in all segments and Opex to reflect investments to scale growth initiatives and higher COGS for new products website development costs. We are raising 1Q'24E revenue by 3% to \$516mn and EBITDA by 11% to \$107mn. For 2024E, we raise revenues by 4% to \$2.2bn and EBITDA by 6% to \$487mn. For 2025E metrics, key for valuation, we raise revenue by 4% to \$2.5bn and EBITDA by 1% to \$678mn (27% margin and up 39% y/y).

Exhibit 2: Estimate Changes

We are increasing 2024 EBITDA estimate, key for valuation, by 1% to \$678mn.

Zillow	raida erori,	1Q24	ΙE		2024E			2025E	
Segments	New	Old	Difference	New	Old	Difference	New	Old	Difference
Residential	379	354	25	1,603	1,542	61	1,838	1,773	65
Rentals	100	91	9	436	421	15	511	484	27
Mortgage	27	25	2	112	103	9	135	124	11
Other	10	10	0	41	40	1	45	42	3
Total Revenue	\$516	\$479	\$37	\$2,192	\$2,106	\$86	\$2,529	\$2,423	\$106
Cost of revenue	116	101	15	493	431	62	544	460	84
As a % of revenue	23%	21%	1%	23%	20%	2%	22%	19%	3%
Gross Profit	\$400	\$378	\$21	\$1,699	\$1,675	\$24	\$1,985	\$1,963	\$22
Gross Margin	78%	79%	-2%	78%	80%	-2%	79%	81%	-3%
Sales and Marketing	151	136	14	651	619	32	689	666	22
As a % of revenue	29%	29%	1%	30%	29%	0%	27%	28%	(0%)
Technology and Development	103	103	(0)	427	417	10	461	448	13
As a % of revenue	20%	22%	(2%)	19%	20%	(0%)	18%	18%	(0%)
General and Administrative	95	93	3	386	375	11	422	394	28
As a % of revenue	19%	19%	(1%)	18%	18%	(0%)	17%	16%	0%
Operating Expenses	\$459	\$452	\$6	\$1,901	\$1,891	\$10	\$2,025	\$2,008	\$17
As a % of revenue	89%	95%	(5.5%)	87%	90%	(3.1%)	80%	83%	(2.8%)
Non-GAAP Operating Income	\$50	\$45	\$5	\$235	\$263	(\$29)	\$414	\$455	(\$41)
Non-GAAP EPS diluted	\$0.34	\$0.21	\$0.13	\$1.42	\$1.16	\$0.27	\$1.97	\$1.94	\$0.03
Adj. EBITDA	\$107	\$90	\$17	\$487	\$461	\$25	\$678	\$673	\$5
Margin	21%	19%	2%	22%	22%	0%	27%	28%	(1%)

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

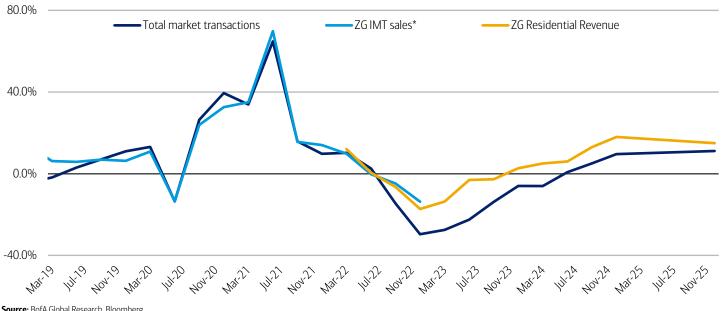


ZG Residential vs. Market

Over the past several years, ZG Residential revenues have closely tracked total real estate transactions growth. Given high mortgage rates, low inventory, and affordability, we expect continued pressure on transactions till 2Q'24, though with improving trends. We expect market to return to growth in 2Q'24 largely on improving home affordability as well as a degree of mean reversion as existing average homes volume in 4Q'23 was 28% below average since 1999 and 42% below peak volume in 4Q'20. We estimate Zillow Residential revenue to grow 10% y/y in 2024 (vs broader RE transactions growth up 2% y/y) and 15% y/y in 2025 (vs market up 10% y/y).

Exhibit 3: ZG Residential segment sales vs. total real estate transactions

We estimate for Core ZG revenues to outperform total market transactions.



Source: BofA Global Research, Bloomberg *Note: ZG IMT Sales discontinued after 4Q22

BofA GLOBAL RESEARCH

*In 4Q22, Zillow adjusted the segmentation of its revenue base and as such ZG IMT was discontinued. We now track Residential revenue relative to total market transactions.

Price objective basis & risk

Zillow (ZG / Z)

Our \$63 price objective for both Class A (ticker ZG) and Class C (ticker Z) shares is based on a 20x EV/EBITDA estimate, in line with ZG's average historic EBITDA multiple. Our 20x multiple is above the peer lead generation average of 14x given our forecast for double EBTIDA margins and growth in 2024-25.

Downside risks are: 1) a slower than expected recovery in the US housing market, 2) potential disruption to buy side revenues from several agent commission lawsuits and 3) execution risk around new growth initiatives and 4) increased competition from Costar's new residential advertising marketplace.

Upside risks are: 1) faster-than-expected growth and S&M leverage,2) better than expected trends in the US existing home market on lower rates, and 3) faster than expected progress in ZG hitting its long term targets.

Analyst Certification

I, Curtis Nagle, CFA, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Internet Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Alphabet	GOOGL	GOOGL US	Justin Post
	Alphabet	GOOG	GOOG US	Justin Post
	Amazon.com	AMZN	AMZN US	Justin Post
	AppLovin	APP	APP US	Omar Dessouky, CFA
	DoorDash	DASH	DASH US	Michael McGovern
	DoubleVerify Holdings, Inc.	DV	DV US	Omar Dessouky, CFA
	Electronic Arts	EA	EA US	Omar Dessouky, CFA
	Integral Ad Science Holding Corp.	IAS	IAS US	Omar Dessouky, CFA
	LegalZoom	LZ	LZ US	Michael McGovern
	Match Group	MTCH	MTCH US	Curtis Nagle, CFA
	Meta Platforms Inc	META	META US	Justin Post
	Pinterest	PINS	PINS US	Justin Post
	RH	RH	RH US	Curtis Nagle, CFA
	Roblox Corp. Class A	RBLX	RBLX US	Omar Dessouky, CFA
	Squarespace, Inc.	SQSP	SQSP US	Michael McGovern
	Uber	UBER	UBER US	Justin Post
	Udemy Inc	UDMY	UDMY US	Curtis Nagle, CFA
	Vivid Seats	SEAT	SEAT US	Curtis Nagle, CFA
	Wayfair	W	W US	Curtis Nagle, CFA
	Wix.com	WIX	WIX US	Michael McGovern
NEUTRAL				
	ACV Auctions	ACVA	ACVA US	Curtis Nagle, CFA
	Airbnb	ABNB	ABNB US	Justin Post
	Beyond Inc	BYON	BYON US	Curtis Nagle, CFA
	Booking Holdings Inc	BKNG	BKNG US	Justin Post
	Bumble	BMBL	BMBL US	Curtis Nagle, CFA
	Digital Turbine, Inc	APPS	APPS US	Omar Dessouky, CFA
	Duolingo	DUOL	DUOL US	Curtis Nagle, CFA
	eBay	EBAY	EBAY US	Justin Post
	Etsy, Inc.	ETSY	ETSY US	Curtis Nagle, CFA
	Expedia	EXPE	EXPE US	Justin Post
	Instacart	CART	CART US	Justin Post
	Magnite, Inc.	MGNI	MGNI US	Omar Dessouky, CFA
	Snap	SNAP	SNAP US	Justin Post



US - Internet Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Take-Two Interactive	TTWO	TTWO US	Omar Dessouky, CFA
	Zillow	ZG	ZG US	Curtis Nagle, CFA
	Zillow	Z	Z US	Curtis Nagle, CFA
UNDERPERFORM				
	Chewy Inc	CHWY	CHWY US	Curtis Nagle, CFA
	Lyft, Inc.	LYFT	LYFT US	Michael McGovern
	Opendoor Technologies	OPEN	OPEN US	Curtis Nagle, CFA
	Peloton	PTON	PTON US	Curtis Nagle, CFA
	Playtika	PLTK	PLTK US	Omar Dessouky, CFA
	Redfin Corp	RDFN	RDFN US	Curtis Nagle, CFA
	Shutterstock	SSTK	SSTK US	Curtis Nagle, CFA

Qmethod[™] Measures Definitions

Business Performance	Numerator NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization	Denominator Total Assets — Current Liabilities + ST Debt + Accumulated Goodwill
Return On Capital Employed	NOPAT = (EBIT + ITILETESL ITICOTTE) × (T = Tax Rate) + GOODWIII ATTOTILZALIOT	Amortization
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5 Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations – Total Capex	N/A
Quality of Earnings	Numerator	Denominator
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	Net Debt = Total Debt — Cash & Equivalents	Total Equity
Interest Cover	EBIT	Interest Expense
Valuation Toolkit	Numerator	Denominator
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations – Total Capex	Market Cap = Current Share Price × Current Basic Shares
Enterprise Value / Sales	EV = Current Share Price × Current Shares + Minority Equity + Net Debt +	Sales
	Other LT Liabilities	
EV / EBITDA	Enterprise Value	Basic EBIT + Depreciation + Amortization

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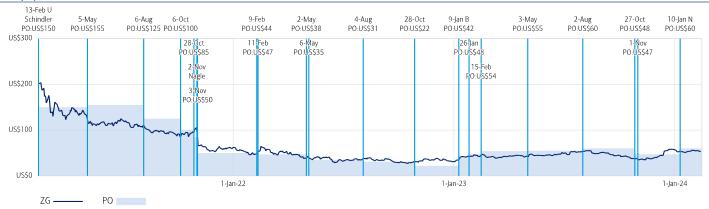
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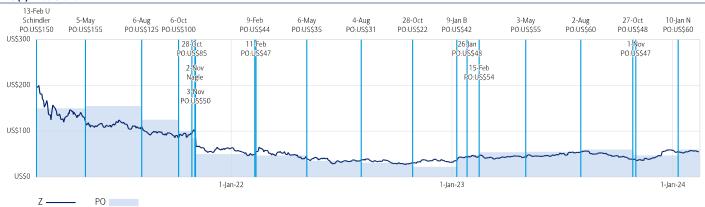
Zillow A (ZG) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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Zillow C (Z) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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Equity Investment Rating Distribution: Technology Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	215	53.09%	Buy	111	51.63%
Hold	97	23.95%	Hold	45	46.39%
Sell	93	22.96%	Sell	24	25.81%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

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Investment rating Total return expectation (within 12-month period of date of initial rating) Ratings dispersion guidelines for coverage cluster^{R2}

 Buy
 ≥ 10%
 ≤ 70%

 Neutral
 ≥ 0%
 ≤ 30%

 Underperform
 N/A
 ≥ 20%

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