

Tencent Holdings Ltd 00700 ★★★★★ 13 Nov 2024 17:21, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
403.80 HKD 13 Nov 2024	704.00 HKD 12 Jan 2023 03:57, UTC	0.57	3.74 HKD Tril 14 Nov 2024	Wide	Large Growth	High	Exemplary	6 Nov 2024 06:00, UTC

Ivan Su

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Important Disclosure

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The primary analyst covering this company does not own its stock.

Reporting Currency: CNY | Trading Currency: HKD
Currency amounts expressed with "\$" are in U.S. dollars (USD) unless otherwise denoted.

The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating.

Tencent Earnings: Untapped WeChat Monetization Opportunities Fuel Long-Term Growth

Analyst Note Ivan Su, Senior Equity Analyst, 14 Nov 2024

Wide-moat Tencent's third-quarter earnings are in line with our expectations. While management's comments on nascent growth opportunities for its e-commerce and search businesses don't change our forecasts, they reinforce our view that there remains plenty of room for WeChat to increase monetization. Overall, we maintain our HKD 704 per share fair value estimate and continue to view shares as deeply undervalued, trading at about a 40% discount to our valuation.

Management's unusually detailed discussion of Mini Shops, its third-party e-commerce marketplace, highlights a key growth opportunity. While WeChat already facilitates substantial commercial activity, much of it occurs off-platform in one-on-one chats, bypassing monetization mechanisms. Migrating these transactions to Mini Shops offers advantages for both sellers and consumers. Sellers can open virtual storefronts and tap Tencent's advertising ecosystem to boost sales. Consumers benefit from a more structured and secure shopping environment with product quality assurance. Furthermore, Mini Shops' integration with Tencent's advertising properties, like Video Accounts, allows one-click access to shopping sites without leaving the ecosystem. This positions Mini Shops for success, contributing to our high-single-digit annual growth assumptions for the fintech and advertising segments.

Management also highlighted the rapid growth of Weixin Search, with revenue more than doubled in the third quarter. While the search business is nothing new, the increasing volume of chat data within WeChat, combined with the growth of exclusive content within the Tencent ecosystem (both articles and videos inaccessible to external search engines), positions Weixin Search for long-term usage growth. Although Tencent does not

Financial Summary and Key Statistics

	Actual		Forecast	
	2022	2023	2024	2025
Revenue (CNY Mil)	554,552	609,015	660,342	724,536
Revenue Growth %	-1.0	9.8	8.4	9.7
Operating Income (Mil)	102,821	155,373	207,576	245,607
Operating Margin %	18.5	25.5	31.4	33.9
Adjusted EBITDA (Mil)	272,201	221,000	291,497	336,439
Adjusted EBITDA Margin %	49.1	36.3	44.1	46.4
Earnings Per Share (Diluted) (CNY)	19.34	11.89	20.11	23.23
Adjusted Earnings Per Share (Diluted) (CNY)	11.93	16.41	24.51	28.21
Adjusted EPS Growth %	-6.6	37.6	49.4	15.1
Price/Earnings	23.7	16.3	15.3	13.3
Price/Book	3.8	3.2	4.2	4.0
EV/EBITDA	10.7	11.3	11.8	10.2
Free Cash Flow Yield %	—	—	—	—

Source: Morningstar Valuation Model. Data as of 14 Nov 2024.

Tencent Holdings Ltd

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403.80 HKD	704.00 HKD	0.57	3.74 HKD Tril	Wide	Large Growth	High	Exemplary	
13 Nov 2024	12 Jan 2023 03:57, UTC		14 Nov 2024					6 Nov 2024 06:00, UTC

Sector	Industry
Communication Services	Internet Content & Information

Business Description

Tencent holds a prominent position in China's internet sector, with a diverse portfolio of products and services used daily by a significant portion of the population. The company is the world's largest video game publisher and owns Honor of Kings, a top-grossing mobile game globally. Tencent also operates WeChat, China's largest social media super app, which has become deeply integrated into the daily lives of Chinese people for communication, entertainment, shopping, and more. Beyond its offerings, Tencent is a significant player in global venture capital and investment. The company holds substantial stakes in leading tech companies, including PDD, Kuaishou, and Epic Games.

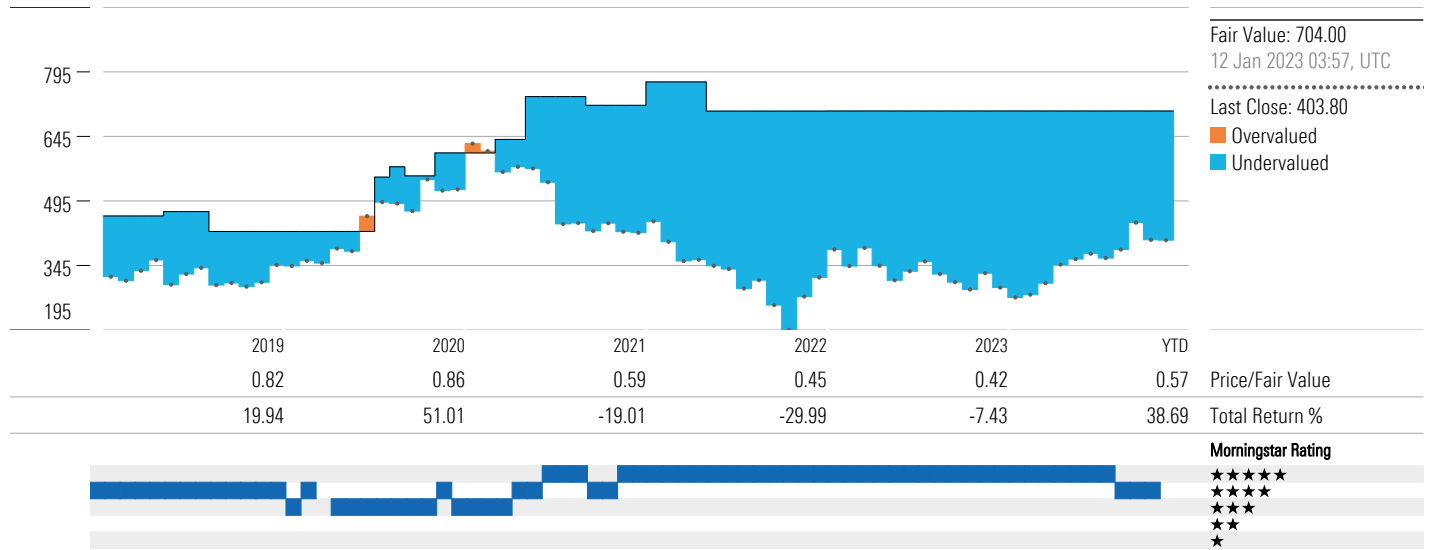
currently dominate the search engine industry, the seamless integration of search within its social network provides a strong competitive advantage, paving the way for potential market leadership.

Ultimately, these opportunities stem from WeChat's unparalleled network effect. Its deep integration with users' daily lives and work makes it an indispensable part of the Chinese social fabric. Quantifying the precise value of this network is challenging — akin to determining the price a typical user would accept to abandon WeChat entirely. However, we think the sheer scale and engagement of the WeChat platform suggest substantial untapped monetization potential. We believe the market is significantly undervaluing this potential, creating a compelling investment opportunity in Tencent's shares.

For more of our thoughts on Tencent, please read our Stock Pitch titled "Let's chat! Current share price level is too pessimistic, earnings growth to recover" published on Jan. 8, 2024. [Link](#)

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Price vs. Fair Value



Competitors

	Tencent Holdings Ltd 00700	CMGE Technology Group Ltd 00302	Alibaba Group ...rdinary Shares 09988	NetEase Inc Ordinary Shares 09999
	<p>Fair Value 704.00 Uncertainty: High</p> <p>Last Close 403.80</p>	<p>Fair Value 2.40 Uncertainty: Very High</p> <p>Last Close 0.83</p>	<p>Fair Value 97.00 Uncertainty: High</p> <p>Last Close 90.55</p>	<p>Fair Value 246.00 Uncertainty: High</p> <p>Last Close 120.60</p>
Economic Moat	Wide	None	Wide	Narrow
Currency	HKD	HKD	HKD	HKD
Fair Value	704.00 12 Jan 2023 03:57, UTC	2.40 2 Apr 2024 09:37, UTC	97.00 16 Aug 2024 04:58, UTC	246.00 1 Mar 2024 14:46, UTC
1-Star Price	1,091.20	4.20	150.35	381.30
5-Star Price	422.40	1.20	58.20	147.60
Assessment	Undervalued 13 Nov 2024	Undervalued 13 Nov 2024	Fairly Valued 13 Nov 2024	Undervalued 13 Nov 2024
Morningstar Rating	★★★★★ 13 Nov 2024 17:21, UTC	★★★★★ 13 Nov 2024 17:21, UTC	★★★ 13 Nov 2024 17:20, UTC	★★★★★ 13 Nov 2024 17:22, UTC
Analyst	Ivan Su, Senior Equity Analyst	Ivan Su, Senior Equity Analyst	Chelsey Tam, Senior Equity Analyst	Ivan Su, Senior Equity Analyst
Capital Allocation	Exemplary	Standard	Standard	Standard
Price/Fair Value	0.57	0.35	0.93	0.49
Price/Sales	5.62	0.90	1.76	3.39
Price/Book	4.03	0.38	1.71	2.77
Price/Earnings	18.31	—	10.92	12.37
Dividend Yield	0.84%	0.00%	1.08%	3.25%
Market Cap	3,710.57 Bil	2.37 Bil	1,735.07 Bil	388.63 Bil
52-Week Range	260.20 — 482.40	0.63 — 1.62	64.60 — 118.70	116.00 — 185.70
Investment Style	Large Growth	Small Value	Large Blend	Large Blend

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Morningstar Valuation Model Summary

Financials as of 14 Nov 2024

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2021	2022	2023	2024	2025	2026	2027	2028
Revenue (CNY Mil)	560,118	554,552	609,015	660,342	724,536	787,838	843,561	896,571
Operating Income (CNY Mil)	115,503	102,821	155,373	207,576	245,607	281,533	316,528	350,475
EBITDA (CNY Mil)	306,196	272,201	221,000	291,497	336,439	375,435	412,065	446,429
Adjusted EBITDA (CNY Mil)	306,196	272,201	221,000	291,497	336,439	375,435	412,065	446,429
Net Income (CNY Mil)	224,605	187,503	114,230	189,093	214,102	244,956	276,342	304,443
Adjusted Net Income (CNY Mil)	123,788	115,649	157,688	230,475	259,951	292,923	326,106	356,276
Free Cash Flow To The Firm (CNY Mil)	41,105	87,123	166,962	131,195	185,294	221,595	254,058	282,365
Weighted Average Diluted Shares Outstanding (Mil)	9,696	9,695	9,610	9,403	9,215	9,031	8,850	8,673
Earnings Per Share (Diluted) (CNY)	23.16	19.34	11.89	20.11	23.23	27.13	31.23	35.10
Adjusted Earnings Per Share (Diluted) (CNY)	12.77	11.93	16.41	24.51	28.21	32.44	36.85	41.08
Dividends Per Share (CNY)	1.33	2.06	3.07	6.20	7.02	8.19	9.42	10.58

Margins & Returns as of 14 Nov 2024

	3 Year Avg	Actual			Forecast					5 Year Avg
		2021	2022	2023	2024	2025	2026	2027	2028	
Operating Margin %	36.2	20.6	18.5	25.5	31.4	33.9	35.7	37.5	39.1	38.8
EBITDA Margin %	—	54.7	49.1	36.3	44.1	46.4	47.7	48.9	49.8	—
Adjusted EBITDA Margin %	—	54.7	49.1	36.3	44.1	46.4	47.7	48.9	49.8	47.4
Net Margin %	30.9	40.1	33.8	18.8	28.6	29.5	31.1	32.8	34.0	31.2
Adjusted Net Margin %	23.0	22.1	20.8	25.9	34.9	35.9	37.2	38.7	39.7	37.3
Free Cash Flow To The Firm Margin %	16.8	7.3	15.7	27.4	19.9	25.6	28.1	30.1	31.5	27.0

Growth & Ratios as of 14 Nov 2024

	3 Year CAGR	Actual			Forecast					2028 5 Year CAGR
		2021	2022	2023	2024	2025	2026	2027	2028	
Revenue Growth %	8.1	16.2	-1.0	9.8	8.4	9.7	8.7	7.1	6.3	8.0
Operating Income Growth %	9.0	-3.9	-11.0	51.1	33.6	18.3	14.6	12.4	10.7	17.7
EBITDA Growth %	0.7	32.1	-11.1	-18.8	31.9	15.4	11.6	9.8	8.3	15.4
Adjusted EBITDA Growth %	-1.6	32.1	-11.1	-18.8	31.9	15.4	11.6	9.8	8.3	15.1
Earnings Per Share Growth %	-10.4	40.2	-16.5	-38.5	69.2	15.5	16.8	15.1	12.4	24.2
Adjusted Earnings Per Share Growth %	-10.4	0.4	-6.6	37.6	49.4	15.1	15.0	13.6	11.5	24.2

Valuation as of 14 Nov 2024

	Actual			Forecast				
	2021	2022	2023	2024	2025	2026	2027	2028
Price/Earnings	27.0	23.7	16.3	15.3	13.3	11.6	10.2	9.1
Price/Sales	6.4	5.1	4.1	5.2	4.8	4.4	4.1	3.8
Price/Book	4.1	3.8	3.2	4.2	4.0	3.7	3.4	3.0
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	12.0	10.7	11.3	11.8	10.2	9.2	8.3	7.7
EV/EBIT	31.7	28.4	16.1	16.6	14.0	12.2	10.9	9.8
Dividend Yield %	0.4	0.7	1.2	1.7	1.9	2.2	2.5	2.8
Dividend Payout %	10.4	17.3	18.7	25.3	24.9	25.3	25.6	25.8
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 14 Nov 2024

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2021	2022	2023	2024	2025	2026	2027	2028
ROA %	13.9	15.9	7.2	11.7	13.1	14.5	15.6	16.4
ROE %	25.6	24.0	13.1	21.1	23.0	24.9	26.3	26.9
ROIC %	65.1	-189.9	181.8	42.4	44.4	47.2	49.4	52.0

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Financial Leverage (Reporting Currency)	Actual			Forecast				
	2021	2022	2023	2024	2025	2026	2027	2028
Fiscal Year, ends 31 Dec								
Debt/Capital %	4.6	6.9	10.1	5.4	4.9	4.7	4.5	4.3
Assets/Equity	1.8	1.5	1.8	1.8	1.8	1.7	1.7	1.6
Net Debt/EBITDA	0.1	0.2	0.3	0.0	-0.1	-0.2	-0.3	-0.5
Total Debt/EBITDA	0.9	1.2	1.6	1.2	1.0	0.9	0.8	0.7
EBITDA/ Net Interest Expense	659.9	358.2	-143.5	-99.7	-1,414.4	-1,947.7	-486.7	-220.5

Forecast Revisions as of 13 Nov 2024	2024		2025		2026	
	Current	Prior	Current	Prior	Current	Prior
Prior data as of 17 Oct 2024						
Fair Value Estimate Change (Trading Currency)	704.00	703.62	—	—	—	—
Revenue (CNY Mil)	660,342	668,644	724,536	738,204	787,838	802,766
Operating Income (CNY Mil)	207,576	213,269	245,607	250,287	281,533	286,968
EBITDA (CNY Mil)	291,497	294,197	336,439	341,281	375,435	381,301
Net Income (CNY Mil)	230,475	234,041	259,951	262,259	292,923	295,954
Earnings Per Share (Diluted) (CNY)	20.11	20.28	23.23	23.57	27.13	27.54
Adjusted Earnings Per Share (Diluted) (CNY)	24.51	24.83	28.21	28.39	32.44	32.69
Dividends Per Share (CNY)	6.20	6.17	7.02	7.12	8.19	8.31

Key Valuation Drivers as of 14 Nov 2024

Cost of Equity %	7.5
Pre-Tax Cost of Debt %	5.3
Weighted Average Cost of Capital %	8.3
Long-Run Tax Rate %	25.0
Stage II EBI Growth Rate %	4.1
Stage II Investment Rate %	15.0
Perpetuity Year	20

Additional estimates and scenarios available for download at <https://pitchbook.com/>.

Discounted Cash Flow Valuation as of 14 Nov 2024

	CNY Mil
Present Value Stage I	1,631,346
Present Value Stage II	1,376,184
Present Value Stage III	1,698,382
Total Firm Value	4,705,912
Cash and Equivalents	319,531
Debt	334,363
Other Adjustments	940,200
Equity Value	5,631,280
Projected Diluted Shares	9,283
Fair Value per Share (HKD)	704.00

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Income Statement (CNY)

Fiscal Year, ends 31 Dec

	Actual			Forecast				
	2021	2022	2023	2024	2025	2026	2027	2028
Revenue (Mil)	560,118	554,552	609,015	660,342	724,536	787,838	843,561	896,571
Cost of Goods Sold (Mil)	314,174	315,806	315,906	309,227	319,531	336,133	351,572	364,989
Gross Profit (Mil)	245,944	238,746	293,109	351,115	405,005	451,706	491,988	531,582
Selling, General, Administrative & Other Expenses (Mil)	78,561	74,524	73,658	75,347	86,944	91,389	95,322	100,416
Advertising & Marketing Expenses (Mil)	0	0	0	0	0	0	0	0
Research & Development (Mil)	51,880	61,401	64,078	68,191	72,454	78,784	80,138	80,691
Depreciation & Amortization (if reported separately) (Mil)	0	0	0	0	0	0	0	0
Adjusted Operating Income (Mil)	115,503	102,821	155,373	207,576	245,607	281,533	316,528	350,475
Financial Non-Cash (Gains)/Losses (Mil)	-133,023	-108,164	-11,141	-27,412	-25,000	-25,000	-25,000	-25,000
Irregular Cash (Gains)/Losses (Mil)	0	0	6,730	0	0	0	0	0
Operating Income (Mil)	248,526	210,985	159,784	234,988	270,607	306,533	341,528	375,475
Net Interest Expense (Mil)	464	760	-1,540	-2,925	-238	-193	-847	-2,025
Income Tax Expense (Mil)	20,252	21,516	43,276	44,074	52,678	57,345	61,251	67,925
After-Tax Items (Mil)	-217	-740	-986	-1,557	-1,557	-1,557	-1,557	-1,557
(Minority Interest) (Mil)	-2,988	-466	-2,832	-3,189	-2,508	-2,867	-3,224	-3,575
Net Income (Mil)	224,605	187,503	114,230	189,093	214,102	244,956	276,342	304,443
Adjusted Net Income (Mil)	123,788	115,649	157,688	230,475	259,951	292,923	326,106	356,276
Weighted Average Diluted Shares Outstanding (Mil)	9,696	9,695	9,610	9,403	9,215	9,031	8,850	8,673
Diluted Earnings Per Share	23.16	19.34	11.89	20.11	23.23	27.13	31.23	35.10
Diluted Adjusted Earnings Per Share	12.77	11.93	16.41	24.51	28.21	32.44	36.85	41.08
Dividends Per Common Share (CNY)	1.33	2.06	3.07	6.20	7.02	8.19	9.42	10.58
EBITDA (Mil)	306,196	272,201	221,000	291,497	336,439	375,435	412,065	446,429
Adjusted EBITDA (Mil)	306,196	272,201	221,000	291,497	336,439	375,435	412,065	446,429

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Key Cash Flow Items (CNY)

Fiscal Year, ends 31 Dec	Actual			Forecast as of 14 Nov				
	2021	2022	2023	2024	2025	2026	2027	2028
Cash from Working Capital (Mil)	-3,398	-23,857	16,852	-23,613	-1,459	2,104	2,306	1,494
(Capital Expenditures) (Mil)	-61,974	-49,948	-46,793	-61,000	-67,990	-69,210	-69,433	-67,865
Depreciation (Mil)	26,166	28,444	28,444	27,104	33,346	38,429	41,516	43,021
Amortization (Mil)	31,504	32,772	32,772	29,406	32,485	30,473	29,021	27,933
Net New (Investment), Organic (Mil)	-7,702	-12,589	31,275	-28,103	-3,617	1,796	3,411	4,583
(Purchases)/Sales of Companies & Assets (Mil)	-66,981	-1,268	-8,914	0	0	0	0	0
Net New (Investment), Total (Mil)	-74,683	-13,857	22,361	-28,103	-3,617	1,796	3,411	4,583
Other Non-Cash Items, From Cash Flows (Mil)	23,780	20,959	42,639	0	0	0	0	0
Free Cash Flow to the Firm (Mil)	41,105	87,123	166,962	131,195	185,294	221,595	254,058	282,365

Balance Sheet (CNY)

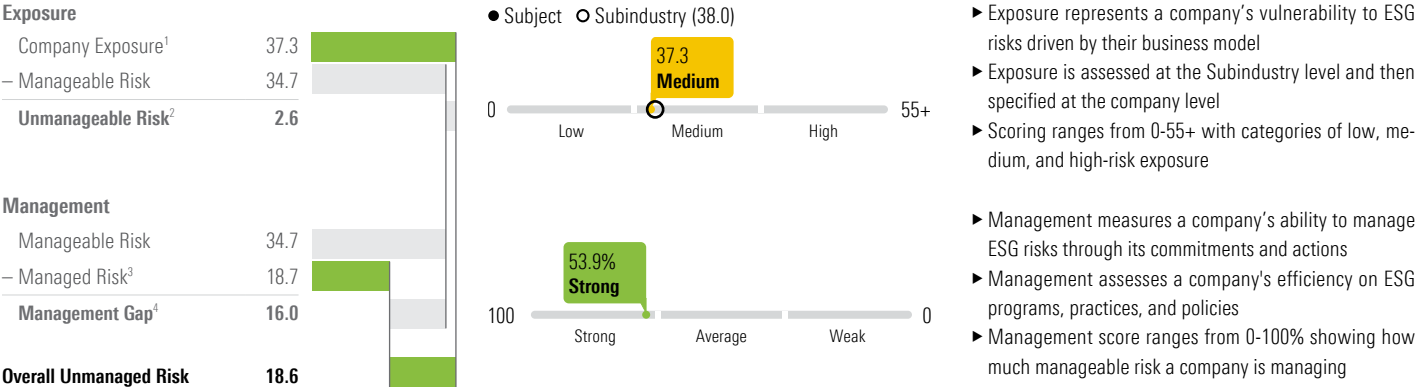
Fiscal Year, ends 31 Dec	Actual			Forecast				
	2021	2022	2023	2024	2025	2026	2027	2028
Assets								
Cash and Equivalents (Bil)	260	281	320	336	352	402	470	552
Inventory (Bil)	1	1	2	2	2	2	2	2
Accounts Receivable (Bil)	45	49	45	49	54	59	63	67
Net Property, Plant and Equipment (Bil)	60	62	54	53	67	81	90	95
Goodwill (Bil)	0	0	0	0	0	0	0	0
Other Intangibles (Bil)	159	171	162	178	168	157	148	142
Other Operating Assets (Bil)	207	-206	287	287	287	287	287	287
Non-Operating Assets (Bil)	880	821	708	708	708	708	708	708
Total Assets (Bil)	1,612	1,180	1,577	1,612	1,637	1,694	1,767	1,852
Liabilities								
Accounts Payable (Bil)	94	109	92	90	93	98	103	107
Debt (Bil)	248	302	334	349	334	334	334	334
Other Operating Liabilities (Bil)	393	384	277	277	277	277	277	277
Non-Operating Liabilities (Bil)	0	0	0	0	0	0	0	0
Total Liabilities (Bil)	736	795	704	716	705	710	714	718
Equity								
Shareholders' Equity (Bil)	806	721	809	831	867	919	987	1,069
Minority Interest (Bil)	70	61	65	65	65	65	65	65
Total Equity (Bil)	877	783	874	897	933	985	1,053	1,134

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ESG Risk Rating Breakdown



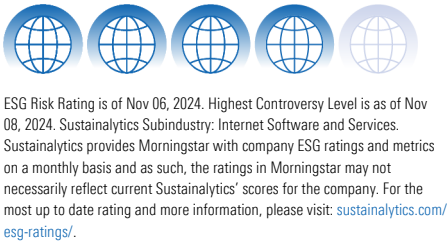
ESG Risk Rating



ESG Risk Ratings measure the degree to which a company's value is impacted by environmental, social, and governance risks, by evaluating the company's ability to manage the ESG risks it faces.

1. A company's Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 53.9% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment⁵



Peer Analysis 06 Nov 2024	Peers are selected from the company's Sustainalytics-defined Subindustry and are displayed based on the closest market cap values					
Company Name	Exposure		Management		ESG Risk Rating	
Tencent Holdings Ltd	37.3 Medium	0 — 55+	53.9 Strong	100 — 0	18.6 Low	0 — 40+
Baidu Inc	39.0 Medium	0 — 55+	57.4 Strong	100 — 0	18.2 Low	0 — 40+
NetEase Inc	25.7 Low	0 — 55+	40.3 Average	100 — 0	15.9 Low	0 — 40+
Alibaba Group Holding Ltd	36.6 Medium	0 — 55+	48.6 Average	100 — 0	20.1 Medium	0 — 40+
CMGE Technology Group Ltd	27.0 Low	0 — 55+	33.7 Average	100 — 0	18.5 Low	0 — 40+

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term approach.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our singlepoint star rating.

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as re-

turns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

When considering a company's moat, we also assess whether there is a substantial threat of value destruction, stemming from risks related to ESG, industry disruption, financial health, or other idiosyncratic issues. In this context, a risk is considered potentially value destructive if its occurrence would eliminate a firm's economic profit on a cumulative or midcycle basis. If we deem the probability of occurrence sufficiently high, we would not characterize the company as possessing an economic moat.

2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBIT) and the net new investment (NNI) to de-

rive our annual free cash flow forecast.

Stage II: Fade

The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBIT over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market-value weights.

3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating is designed to capture the range of potential outcomes for a company's intrinsic value. This rating is used to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating is aimed at identifying the confidence we should have in assigning a fair value estimate for a given stock.

Our Uncertainty Rating is meant to take into account anything that can increase the potential dispersion of future outcomes for the intrinsic value of a company, and any-

Morningstar Equity Research Star Rating Methodology



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thing that can affect our ability to accurately predict these outcomes. The rating begins with a suggested rating produced by a quantitative process based on the trailing 12-month standard deviation of daily stock returns. An analyst overlay is then applied, with analysts using the suggested rating, historical rating data, and their own knowledge of the company to inform them as they make the final Uncertainty Rating decision. Ultimately, the rating decision rests with the analyst. Analysts take into account many characteristics when making their final decision, including cyclical factors, operational and financial factors such as leverage, company-specific events, ESG risks, and anything else that might increase the potential dispersion of future outcomes and our ability to estimate those outcomes.

Our recommended margin of safety—the discount to fair value demanded before we'd recommend buying or selling the stock—widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the potential dispersion of outcomes, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the Uncertainty Rating provides guidance in portfolio construction based on risk tolerance.

Our Uncertainty Ratings are: Low, Medium, High, Very High, and Extreme.

Margin of Safety		
Qualitative Analysis	★★★★★ Rating	★ Rating
Uncertainty Ratings		
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly, when a stock hits 1 star, we expect there is a 75% chance that the intrinsic value of that stock lies below the current market price.

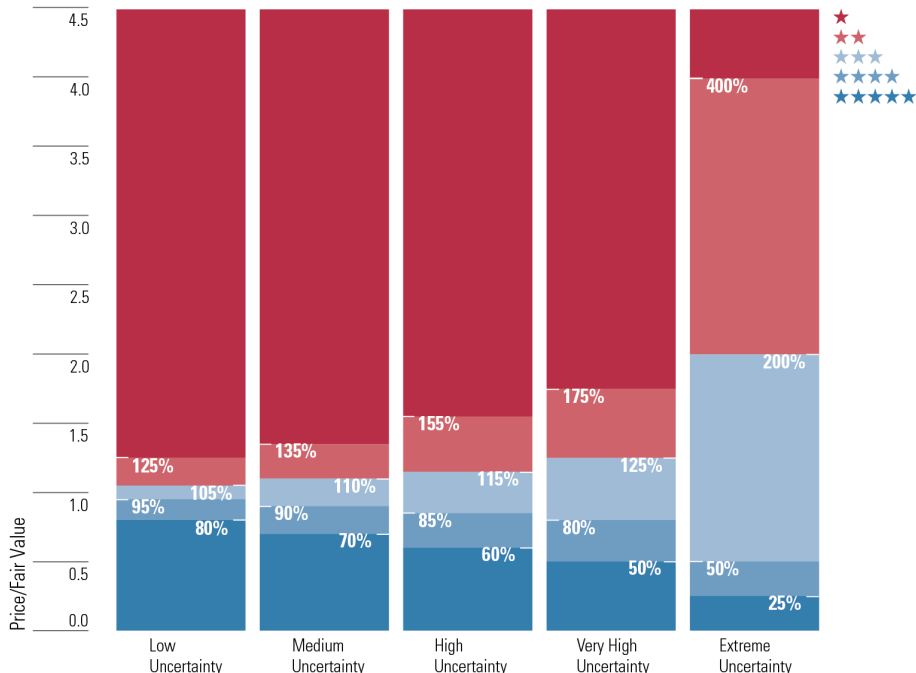
4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

For more details about our methodology, please go to <https://shareholders.morningstar.com>

Morningstar Star Rating for Stocks

Morningstar Equity Research Star Rating Methodology



Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk ad-

justed return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Other Definitions

Last Price: Price of the stock as of the close of the market of the last trading day before date of the report.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider compan-

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ies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

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Sustainalytics ESG Risk Rating Assessment: The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company.

Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risk represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale

starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered.

The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit sustainalytics.com/esg-ratings/

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

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