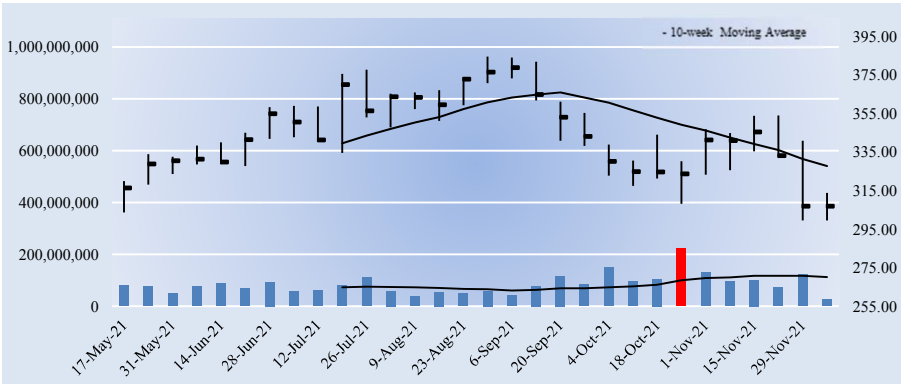
Facebook FB UNDERVALUED 23.8%

Buying Index™ 6 **Value Rating** ✓

Economic Castle	Estimated Fair Value	Fair Value Range	Investment Style	Sector	Industry
Very Attractive	$507.00	$380.00 - $634.00	MEGA-CAP BLEND	Information Technology	Technology Giants

Facebook is changing its name to Meta and changing its ticker to MVRS effective in 2022. The corporate rebranding aims to highlight its efforts towards building a "metaverse" and its other AR/VR activities.

Stock Chart (weekly)



The week with the highest trading volume out of the last 30 weeks was a week of heavy selling, or distribution (red bar).

Company Vitals

Market Cap (USD)	$886,154
Avg Weekly Vol (30 wks)	84,578
30-week Range (USD)	299.5 - 384.33
Valuentum Sector	Information Technology
5-week Return	-10.9%
13-week Return	-19.6%
30-week Return	-2.1%
Dividend Yield %	0.0%
Dividends per Share	0.00
Forward Dividend Payout Ratio	0.0%
Est. Normal Diluted EPS	19.53
P/E on Est. Normal Diluted EPS	15.7
Est. Normal EBITDA	77,720
Forward EV/EBITDA	14.4
EV/Est. Normal EBITDA	10.6
Forward Revenue Growth (5-yr)	19.0%
Forward EPS Growth (5-yr)	20.8%

NMF = Not Meaningful; Est. = Estimated; FY = Fiscal Year

Returns Summary

	3-year Historical Average
Return on Equity	24.4%
Return on Assets	20.1%
ROIC, with goodwill	55.7%
ROIC, without goodwill	90.7%

ROIC = Return on Invested Capital; NMF = Not Meaningful

Leverage, Coverage, and Liquidity

In Millions of USD

Total Debt	0
Net Debt	-61,954
Total Debt/EBITDA	0.0
Net Debt/EBITDA	NMF
EBITDA/Interest	Excellent
Current Ratio	5.1
Quick Ratio	4.9

NMF = Not Meaningful

Investment Highlights

• Facebook's mission is to make the world more open and connected. People use Facebook to stay in touch with friends/family, to learn about news, and to share what matters to them. The company continues to expand its reach with businesses such as the popular social media platform Instagram. The company was founded in 2004 and is headquartered in California.

• Facebook is building out a "metaverse," an expansive virtual landscape where users can interact, play games, and conduct a variety of other functions with each other. The firm is changing its name to Meta and its ticker to MVRS effective in 2022.

• Facebook's number of mobile users continues to grow, with mobile ad revenue surging. Data privacy and security remain paramount, however. Its operating margin guidance for the years ahead may not be as strong as it could be due to increased levels of spending in areas such as product development and infrastructure, safety and security, and AR/VR.

• Facebook's free cash flow generation and balance sheet are amazing, but investors must be cognizant of the low barriers to entry in the social media space and the fickle nature of its users. Recent social and political pressures have impacted public perception, and testifying in Congress has become the norm.

• Facebook's monthly active users (MAUs) count is growing at a solid rate. Concerns over user growth in Europe and US & Canada regions have cropped up, but its advertising business is as strong as ever. E-commerce (Shops) could offer huge upside.

Investment Considerations

DCF Valuation	**UNDERVALUED**
Relative Valuation	**ATTRACTIVE**
ValueCreation™	**EXCELLENT**
ValueRisk™	**MEDIUM**
ValueTrend™	**NEGATIVE**
Cash Flow Generation	**STRONG**
Financial Leverage	**LOW**
Growth	**AGGRESSIVE**
Technical Evaluation	**BEARISH**
Relative Strength	**WEAK**
Money Flow Index (MFI)	**NEUTRAL**
Upside/Downside Volume (U/D)	**BEARISH**
Near-term Technical Resistance, 10-wk MA	**328.00**

DCF = Discounted Cash Flow; MFI, U/D = Please see glossary. MA = Moving Average

Business Quality

ValueRisk™ \ ValueCreation™	Very Poor	Poor	Good	Excellent
Low				
Medium				■
High				
Very High				

Firms that generate economic profits with little operating variability score near the top right of the matrix.

Relative Valuation

	Forward P/E	PEG	Price / FV
Alphabet	25.9	2.1	81.3%
Amazon.com	NMF	2.8	100.9%
Apple	26.2	3.3	94.0%
Microsoft	36.1	2.9	98.3%
Peer Median	26.2	2.8	96.2%
Facebook	**21.9**	**1.5**	**60.5%**

Price / FV = Current Stock Price divided by Estimated Fair Value

Financial Summary

	----- Actual -----		Projected
Fiscal Year End:	Dec-19	Dec-20	Dec-21
Revenue	70,697	85,965	117,772
Revenue, YoY%	26.6%	21.6%	37.0%
Operating Income	23,986	32,671	47,992
Operating Margin %	33.9%	38.0%	40.8%
Net Income	18,485	29,146	39,771
Net Income Margin %	26.1%	33.9%	33.8%
Diluted EPS	6.43	10.09	13.99
Diluted EPS, YoY %	-15.1%	57.0%	38.6%
Free Cash Flow (CFO-capex)	21,212	23,631	36,929
Free Cash Flow Margin %	30.0%	27.5%	31.4%

In Millions of USD (except for per share items)

Structure of the Internet Software & Services Industry — NEUTRAL

The Internet software/services industry is composed of a variety of companies with rapidly-changing business models. Most focus on improving the ways people connect with information, either via Internet search or by social media platforms, and generate revenue primarily by delivering cost-effective online advertising. Constituents earn significant returns on invested capital due to their capital-light operations, though competition remains fierce. We expect most companies in this group to look substantially different 10 years from now than they do today. Overall, we're neutral on the structure.

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Economic Profit Analysis

ValueCreation™ EXCELLENT

The best measure of a firm's ability to create value for shareholders is expressed by comparing its return on invested capital (ROIC) with its weighted average cost of capital (WACC). The gap or difference between ROIC and WACC is called the firm's economic profit spread. Facebook's 3-year historical return on invested capital (without goodwill) is 90.7%, which is above the estimate of its cost of capital of 8.9%. As such, we assign the firm a ValueCreation™ rating of EXCELLENT. In the chart to the right, we show the probable path of ROIC in the years ahead based on the estimated volatility of key drivers behind the measure. The solid grey line reflects the most likely outcome, in our opinion, and represents the scenario that results in our fair value estimate.

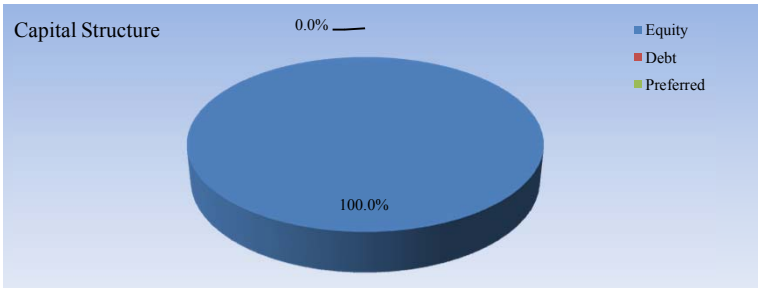
ROIC - WACC Spread, 3-year historical average	81.9%
ROIC - WACC Spread, 5-year projected average	63.2%

These spreads equal the firm's annual average ROIC (excluding goodwill) less its WACC.

ValueTrend™ NEGATIVE

Facebook receives a ValueTrend™ rating of NEGATIVE, which is based on the company's trailing three-year performance. The firm's ROIC (excluding goodwill) fell to 83.7% last year from its trailing 3-year average of 90.7%. We expect ROIC (excluding goodwill) to be in the ballpark of about 59% by the end of our discrete forecast period, with downside risk to about 47% over that time period.

Weighted Average Cost of Capital (WACC)



Cost of Equity	
Risk Free Rate Assumption	4.3%
Fundamental Beta (ERP multiplier)	0.7
Estimated Equity Risk Premium	6.5%
Cost of Equity Assumption	**8.9%**
After-tax Cost of Debt	
Risk Free Rate Assumption	4.3%
Synthetic Credit Spread	NA
Cost of Debt Assumption	NA
Cash Tax Rate Assumption	18.0%
After-tax Cost of Debt Assumption	**NA**
Cost of Preferred Stock	
Preferred Dividends	0
Value of Preferred Stock	0
Cost of Preferred Assumption	NA
Weighted Average Cost of Capital (WACC)	**8.9%**

ERP = Equity Risk Premium

Return on Invested Capital (ROIC)

The graph above shows the firm's ROIC (excluding goodwill) compared with historical averages and its WACC.

ROIC Calculation

Fiscal Year End:	Dec-18	Dec-19	Dec-20
	---------- Actual ----------		
Earnings before Interest			
Operating Income after Depreciation	24,913	23,986	32,671
- Adjusted Taxes (at 18% of EBIT)	4,484	4,317	5,881
+ Amortization	0	0	0
+ Non-cash Operating Items	4,625	5,264	5,643
- Minority Interest	1	0	0
Earnings before Interest	**25,053**	**24,933**	**32,433**
Invested Capital			
Inventories	0	0	0
+ Receivables	7,587	9,518	11,335
+ Current Deferred Income Taxes	0	0	0
+ Other Current Assets	1,779	1,852	2,381
+ Property, Plant and Equipment, Net	24,683	35,323	45,633
+ Goodwill, Net (Cost in Excess)	18,301	18,715	19,050
+ Intangibles	1,294	894	623
+ Non Current Deferred Income Taxes	0	0	0
- Accounts Payable	1,361	1,363	1,331
- Other Current Liabilities	3,225	11,735	11,152
Invested Capital, with goodwill	**49,058**	**53,204**	**66,539**
Invested Capital, without goodwill	**30,757**	**34,489**	**47,489**
Return on Invested Capital, with goodwill	**60.0%**	**50.9%**	**56.3%**
Return on Invested Capital, without goodwill	**106.6%**	**81.9%**	**83.7%**

In Millions of USD

Note: Valuentum may provide an adjusted ROIC measure to better reflect the economic substance of a company's operations, as in the case of companies with negative invested capital.

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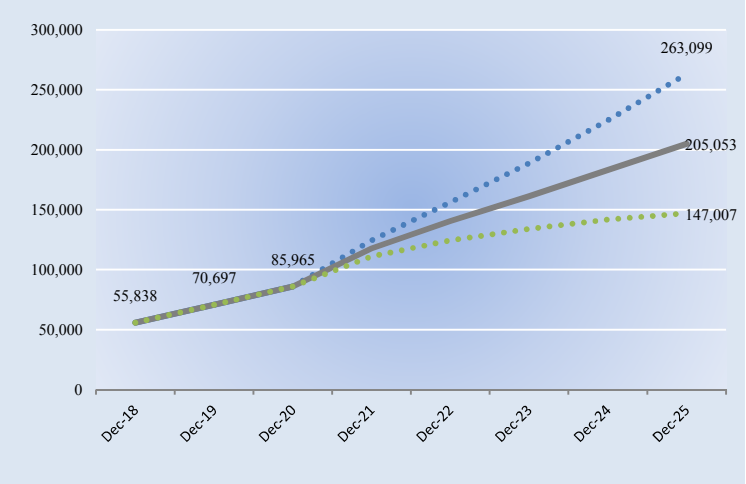
Growth Analysis

Revenue Growth — AGGRESSIVE

		Last Fiscal Year Revenue	3-year Historical CAGR	5-year Projected CAGR
Facebook	USD	**85,965**	**28.4%**	**19.0%**
Alphabet	USD	182,527	18.1%	18.6%
Amazon.com	USD	386,064	29.5%	16.7%
Apple	USD	365,817	11.3%	6.1%
Microsoft	USD	168,088	15.1%	11.5%
Peer Median			16.6%	14.1%
Industry Median			7.7%	11.6%

Facebook's revenue expansion has been greater than the median of both its peer group and industry group during the past three years. We expect the firm's revenue expansion to outpace the median of its peer group and industry group during the next five years. Our growth assessment of each firm is based on the firm's 5-year forward revenue CAGR. Facebook's future pace of revenue growth is AGGRESSIVE, in our opinion.

Projected Revenue (in millions of USD) Source: Company Filings, Valuentum Projections



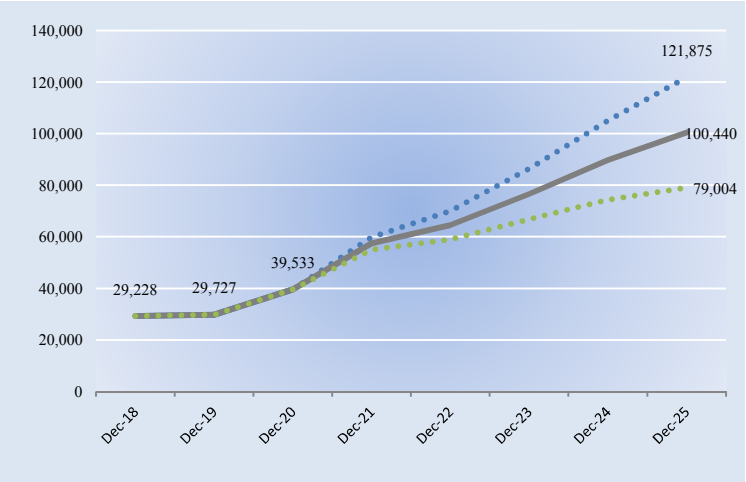
In the chart above, we show our baseline forecast for revenue as well as potential upside and downside cases.

EBITDA Growth

		Last Fiscal Year EBITDA	3-year Historical CAGR	5-year Projected CAGR
Facebook	USD	**39,533**	**19.4%**	**20.5%**
Alphabet	USD	54,921	15.3%	22.8%
Amazon.com	USD	48,075	44.9%	26.3%
Apple	USD	120,233	13.7%	6.4%
Microsoft	USD	81,602	21.7%	13.7%
Peer Median			18.5%	18.2%
Industry Median			10.4%	13.9%

Facebook's EBITDA expansion has been greater than that of both its peer group and industry group during the past three years. We expect the firm's EBITDA expansion to outpace its peer group and industry group during the next five years.Amazon.com sports the highest expected EBITDA growth rate among peers.

Projected EBITDA (in millions of USD) Source: Company Filings, Valuentum Projections



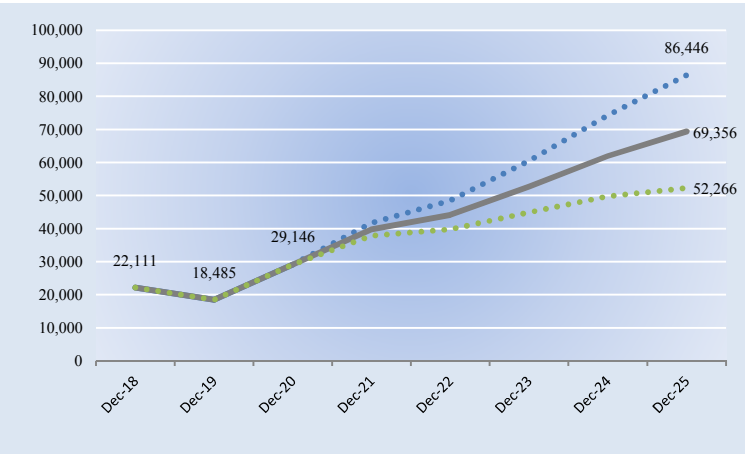
In the chart above, we show our baseline forecast for EBITDA as well as potential upside and downside cases.

Net Income Growth

		Last Fiscal Year Net Income	3-year Historical CAGR	5-year Projected CAGR
Facebook	USD	**29,146**	**22.3%**	**18.9%**
Alphabet	USD	40,269	47.1%	21.7%
Amazon.com	USD	21,331	91.6%	31.4%
Apple	USD	94,680	16.7%	5.9%
Microsoft	USD	61,271	54.6%	14.0%
Peer Median			50.8%	17.8%
Industry Median			17.5%	14.2%

Facebook's net income expansion has trailed that of its peer group but has been greater than that of its industry group during the past three years. We expect the firm's net income expansion to outpace its peer group and industry group during the next five years. Amazon.com sports the highest expected net income growth rate among peers.

Projected Net Income (in millions of USD) Source: Company Filings, Valuentum Projections



In the chart above, we show our baseline forecast for net income as well as potential upside and downside cases.

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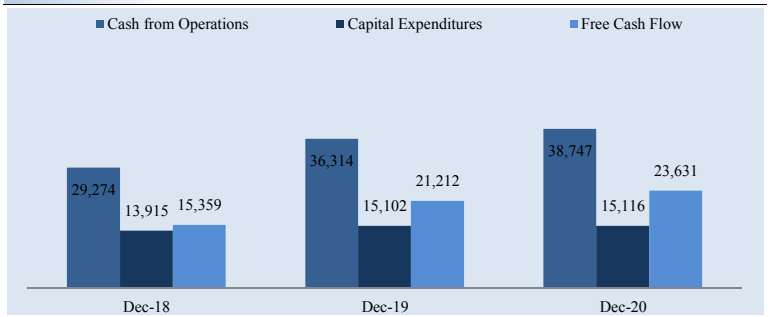
Cash Flow and Financial Leverage Analysis

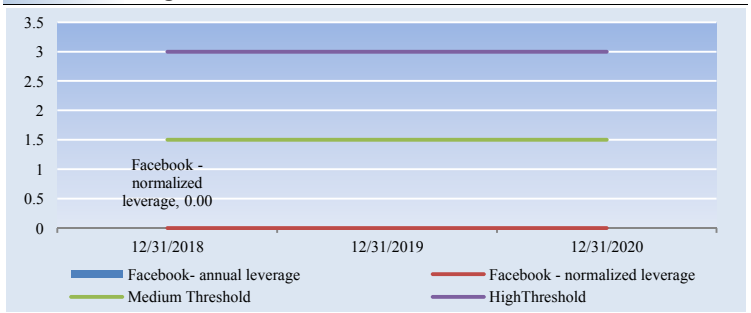
Cash Flow Generation — STRONG



The bars above show the firms operating cash flow, capital expenditures, and free cash flow, respectively.

Firms that generate a free cash flow margin (free cash flow divided by total revenue) above 5% are usually considered cash cows. Facebook's free cash flow margin has averaged about 28.3% during the past 3 years. As such, we think the firm's cash flow generation is relatively STRONG. The free cash flow measure shown above is derived by taking cash flow from operations less capital expenditures and differs from enterprise free cash flow (FCFF), which we use in deriving our fair value estimate for the company. For more information on the differences between these two measures, please visit our website at Valuentum.com. At Facebook, cash flow from operations increased about 32% from levels registered two years ago, while capital expenditures expanded about 9% over the same time period.

Financial Leverage — LOW



The bars above show the firm's annual debt-to-EBITDA. The red line shows the firm's normalized measure.

Firms that exhibit high leverage tend to be more risky than firms with relatively low debt loads, all else equal. We measure financial leverage by taking a firm's current total debt load and dividing it by the firm's trailing average 3-year annual EBITDA. Firms that are over 3 for this metric, we rate as having high leverage. Companies that have less than 1.5 turns of leverage (or a measure below 1.5), we rate as having low leverage. Facebook's normalized debt-to-EBITDA measure of about 0 puts it in the LOW camp.

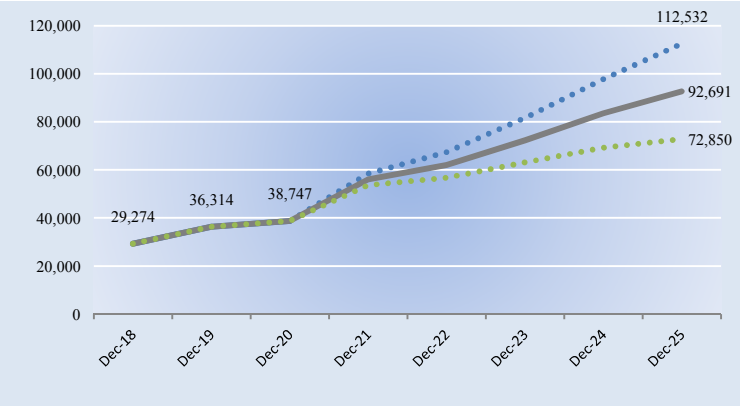
Cash Flow from Operations

		Last Fiscal Year CFO	3-year Historical CAGR	5-year Projected CAGR
Facebook	USD	**38,747**	**17.0%**	**19.1%**
Alphabet	USD	65,124	20.6%	18.8%
Amazon.com	USD	66,064	53.0%	19.5%
Apple	USD	104,038	10.3%	8.7%
Microsoft	USD	76,740	20.5%	14.9%
Peer Median			20.6%	16.8%
Industry Median			11.1%	14.5%

Facebook's cash flow from operations expansion has trailed that of its peer group but has been greater than that of its industry group during the past three years. We expect the firm's cash flow from operations expansion to outpace its peer group and industry group during the next five years. Amazon.com sports the highest expected cash flow from operations growth rate among peers.

Projected Operating Cash Flow (in millions of USD)

Source: Company Filings, Valuentum Projections



In the chart above, we show our baseline forecast for CFO as well as potential upside and downside cases.

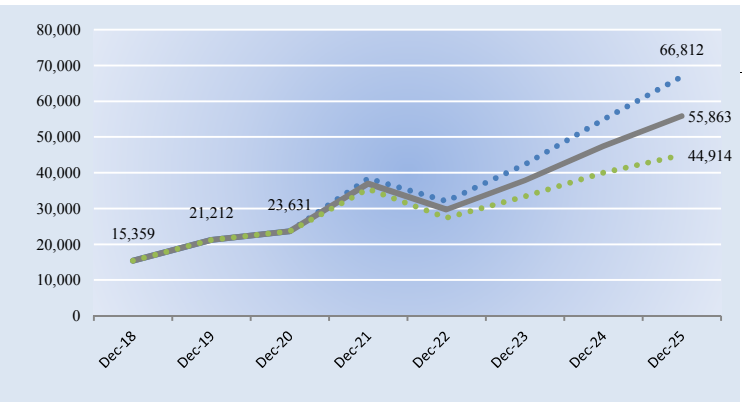
Free Cash Flow (CFO-capital expenditures)

		Last Fiscal Year FCF	3-year Historical CAGR	5-year Projected CAGR
Facebook	USD	**23,631**	**10.6%**	**18.8%**
Alphabet	USD	42,843	21.5%	20.4%
Amazon.com	USD	25,924	58.8%	27.8%
Apple	USD	92,953	13.2%	8.6%
Microsoft	USD	56,078	20.2%	17.1%
Peer Median			20.9%	18.7%
Industry Median			10.0%	14.4%

Facebook's free cash flow expansion has trailed that of its peer group but has been greater than that of its industry group during the past three years. We expect the firm's free cash flow expansion to outpace its peer group and industry group during the next five years. Amazon.com sports the highest expected free cash flow growth rate among peers.

Projected Free Cash Flow (in millions of USD)

Source: Company Filings, Valuentum Projections



In the chart above, we show our baseline forecast for free cash flow as well as potential upside and downside cases.

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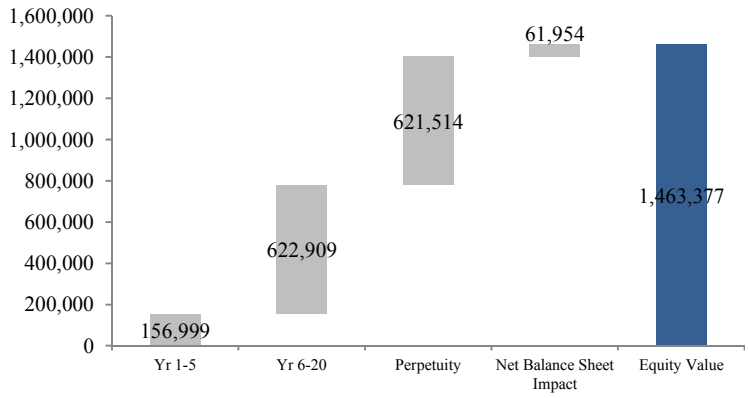
Valuation Analysis

Valuation Assumptions

In Millions of USD (except for per share items)	5-year Projections	
Revenue CAGR %	19.0%	
Avg. EBIT Margin %	40.1%	
Avg. Cash Tax Rate %	18.0%	
Earnings Before Interest CAGR %	18.7%	
Earnings Per Share CAGR %	20.8%	
Free Cash Flow to the Firm CAGR %	21.0%	
Earnings before interest = Net operating profits less adjusted taxes	Long-term Projections	
Phase II --> III FCFF CAGR %	8.7% (II)	3% (III)
Cost of Equity %	8.9%	
After-tax Cost of Debt %	NA	
Discount Rate (WACC) %	8.9%	
Synthetic credit spread = 0.46%	Results	
Phase I Present Value	156,999	
Phase II Present Value	622,909	
Phase III Present Value	621,514	
Total Firm Value	1,401,423	
Net Balance Sheet Impact	61,954	
Total Equity Value	1,463,377	
Diluted Shares Outstanding	2,888.0	
Fair Value per Share	$507.00	

Valuation Breakdown

In the chart below, we show the build up to our estimate of total enterprise value for Facebook and the break down to the firm's total equity value, which we estimate to be about 1463.38USD billion. The present value of the enterprise free cash flows generated during each phase of our model and the net balance sheet impact is displayed. We divide total equity value by diluted shares outstanding to arrive at our $507 per share fair value estimate.



In Millions of USD

DCF Valuation Summary

We think Facebook is worth $507 per share with a fair value range of $380.00 - $634.00. The margin of safety around our fair value estimate is driven by the firm's MEDIUM ValueRisk™ rating, which is derived from an evaluation of the historical volatility of key valuation drivers and a future assessment of them. Our near-term operating forecasts, including revenue and earnings, do not differ much from consensus estimates or management guidance. Our model reflects a compound annual revenue growth rate of 19% during the next five years, a pace that is lower than the firm's 3-year historical compound annual growth rate of 28.4%. Our model reflects a 5-year projected average operating margin of 40.1%, which is above Facebook's trailing 3-year average. Beyond year 5, we assume free cash flow will grow at an annual rate of 8.7% for the next 15 years and 3% in perpetuity. For Facebook, we use a 8.9% weighted average cost of capital to discount future free cash flows.

Enterprise Free Cash Flow

	---------- Actual ----------		
Fiscal Year End:	12/31/2018	12/31/2019	12/31/2020
Earnings before Interest	25,053	24,933	32,433
+ Depreciation	4,315	5,741	6,862
- Capital Expenditures	13,915	15,102	15,116
- Change in Working Capital	-370	-6,581	2,432
- Acquisitions	137	508	388
Enterprise Free Cash Flow (FCFF)	15,686	21,645	21,359

In Millions of USD

Our future forecasts for key valuation drivers result in a future free enterprise cash flow stream. Above, we show how we calculate enterprise free cash flow and the historical performance of the metric for Facebook. Over the next five years, we expect the firm's enterprise free cash flow to expand at about a 21% compound annual growth rate. During years 6 through 20, we expect the measure to grow at a 8.7% rate. Beyond year 20 (in perpetuity), we grow the firm's free cash flow at inflation (3%).

Source: Company Filings, Valuentum Projections

Company Metrics versus Peer and Industry Medians

Company Name	Valuentum Buying Index™	Forward Price-to-Earnings	P/E on Est. Normal Diluted EPS	Price/Earnings-to-Growth (PEG), 5-year	Forward EV/EBITDA	EV/Est. Normal EBITDA	5-year Forward Earnings per Share CAGR	3-year Hist Avg ROIC, without goodwill	Dividend Yield %	Stock Price / Fair Value Estimate
Facebook	**6**	**21.9**	**15.7**	**1.5**	**14.4**	**10.6**	**20.8%**	**90.7%**	**0.0%**	**60.5%**
Alphabet	4	25.9	21.5	2.1	17.6	14.4	22.3%	67.5%	0.0%	81.3%
Amazon.com	6	NMF	36.0	2.8	27.8	17.1	30.1%	25.9%	0.0%	100.9%
Apple	6	26.2	21.8	3.3	20.1	17.5	8.1%	34.8%	0.6%	94.0%
Microsoft	6	36.1	27.0	2.9	26.3	20.1	14.5%	64.9%	0.7%	98.3%
Peer Median	6.0	26.2	24.4	2.8	23.2	17.3	18.4%	49.8%	0.3%	96.2%
Industry Median	6.0	22.7	19.9	2.4	16.3	14.3	15.6%	62.8%	0.6%	99.1%

View back of report for a full list of industry constituents covered by Valuentum. VBI: Valuentum's ranking for the attractiveness of this investment at the date of the report.

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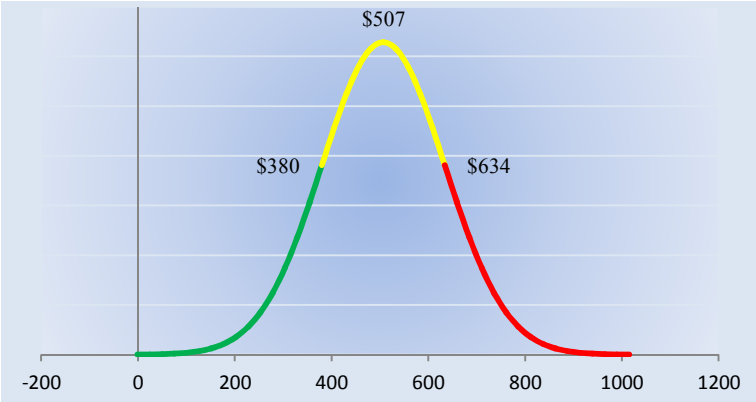
Facebook FB UNDERVALUED 23.8%

Buying Index™ 6 Value Rating ✓

Economic Castle	Estimated Fair Value	Fair Value Range	Investment Style	Sector	Industry
Very Attractive	$507.00	$380.00 - $634.00	MEGA-CAP BLEND	Information Technology	Technology Giants

Margin of Safety Analysis

Range of Potential Outcomes



Our discounted cash flow process values each firm on the basis of the present value of all future free cash flows. Although we estimate the firm's fair value at about $507 per share, every company has a range of probable fair values that's created by the uncertainty of key valuation drivers (like future revenue or earnings, for example). After all, if the future were known with certainty, we wouldn't see much volatility in the markets as stocks would trade precisely at their known fair values. Our ValueRisk™ rating sets the margin of safety or the fair value range we assign to each stock. In the graph above, we show this probable range of fair values for Facebook. We think the firm is attractive below $380 per share (the green line), but quite expensive above $634 per share (the red line). The prices that fall along the yellow line, which includes our fair value estimate, represent a reasonable valuation for the firm, in our opinion.

ValueRisk™ MEDIUM

Facebook receives a ValueRisk™ rating of MEDIUM based of the historical volatility of key drivers of economic value creation. The fair value range sets the margin of safety around our fair value estimate of the firm's shares.

Revenue Volatility	22.6%
Gross Margin Volatility	21.2%
Earnings (EBI) Volatility	15.4%
Cash Flow (FCFF) Volatility	14.6%
Fair Value Range	25.0%

The Fair Value Range sets the premium or discount on our estimate of the firm's fair value.

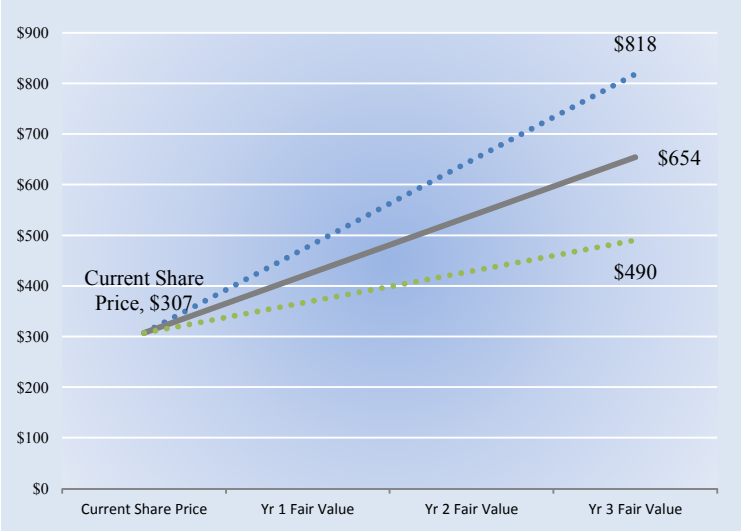
Upside and Downside Probabilities

Probability (fair value < $0)	Less than 0.1%
Probability (fair value > 2x current share price)	20.05%

We strive to answer a few questions that investors often ask: 1) What are the chances of a total loss of investment in this company? and 2) What is the chance that the company is really worth twice what I paid for it? The probability (fair value < 0) strives to answer the first question. It indicates the chance that the firm may encounter insolvency based on the characteristics of its cash flow stream, capital structure, and risk profile. The probability (fair value > 2x current share price) strives to answer the second question. It is our best estimate of whether investors are participating in a half-off sale by buying the company's shares at current prices.

Future Path of Fair Value

We estimate Facebook's fair value at this point in time to be about $507 per share. As time passes, however, companies generate cash flow and pay out cash to shareholders in the form of dividends. The chart to the right compares the firm's current share price with the path of Facebook's expected equity value per share over the next three years, assuming our long-term projections prove accurate. The range between the resulting downside fair value and upside fair value in Year 3 represents our best estimate of the value of the firm's shares three years hence. This range of potential outcomes is also subject to change over time, should our views on the firm's future cash flow potential change. The expected fair value of $654 per share in Year 3 represents our existing fair value per share of $507 increased at an annual rate of the firm's cost of equity less its dividend yield. The upside and downside ranges are derived in the same way, but from the upper and lower bounds of our fair value estimate range.



The graph above shows the expected future fair value of the firm's shares relative to its current stock price.

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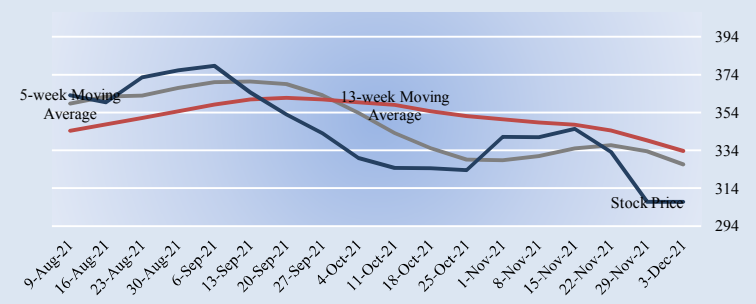
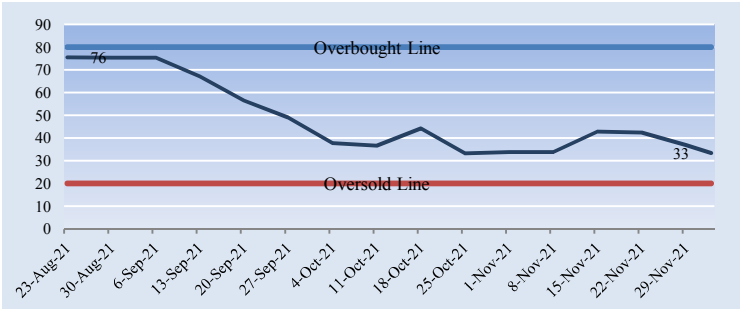
Technical Analysis

Technical Evaluation — BEARISH



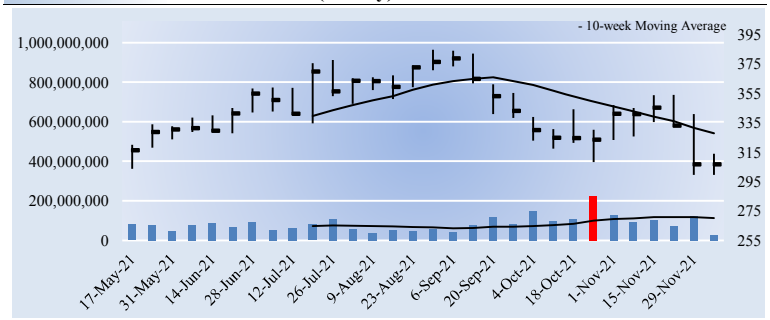
The firm's near-term moving average (5-week, grey line) and medium-term moving average (13-week, red line) are shown in the chart above. Typically, when a shorter-term moving average crosses a medium- or longer-term moving average from below, it represents a bullish signal. If the short-term moving average crosses from above, traders often view this as bearish. Facebook's 5-week moving average is below its 13-week measure, indicating a BEARISH trend. This activity further confirms the company's 30-week downtrend.

Money Flow Index (MFI) — NEUTRAL



The Money Flow Index (MFI) is an oscillator that uses price and volume to measure buying and selling pressure. Chartists often look for overbought (above 80) and oversold (below 20) levels to warn of unsustainable near-term price extremes. Facebook's MFI of 33 (green line) is neutral, suggesting the firm's stock is neither overbought nor oversold at this time. However, a score below 50 tends to favor bears. The MFI can also be used to gauge the strength or weakness of a firm's price trend. In Facebook's case, its stock price and money flow neither reveals a bullish nor bearish divergence, further supporting our neutral view on its money flow action.

30-week Price and Volume Chart (weekly)



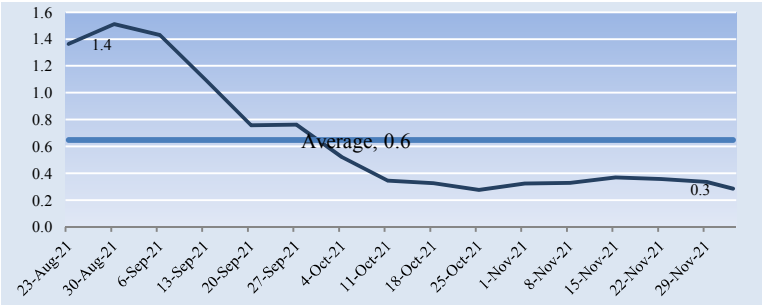
In the chart above, we pinpoint the heaviest accumulation or distribution week of the firm, determined by the week with the highest trading volume during the past 30 weeks. A heavy accumulation (buying) or distribution (selling) week often determines the future near-term direction of the firm's share price, as money managers continue to move in or out of the stock in the days and weeks ahead driving the stock up or down, respectively. For Facebook, the week with the highest trading volume out of the last 30 weeks was a week of heavy selling, or distribution (red bar). Such market activity could indicate a reversal of an uptrend or further confirmation of a downtrend.

Relative Price Strength — WEAK

A firm's relative price strength can be assessed over any number of time horizons. We show the firm's performance over the past 5 weeks, 13 weeks, and 30 weeks below. In arriving at our relative strength rating for each company, we assess the past 13 weeks, which includes the market's reaction to the firm's most recently reported quarter, where applicable, and other more recent economic events. During the past 13 weeks, Facebook's shares returned -19.6%, while the market benchmark returned 1.4%. We think Facebook's 13-week relative price performance is WEAK.

5-week Company Performance	-10.9%
5-week Market Benchmark Performance	2.5%
5-week Relative Performance vs. Market Benchmark	-13.4%
13-week Company Performance	-19.6%
13-week Market Benchmark Performance	1.4%
13-week Relative Performance vs. Market Benchmark	**-21.1%**
30-week Company Performance	-2.1%
30-week Market Benchmark Performance	13.0%
30-week Relative Performance vs. Market Benchmark	-15.1%

Upside/Downside Volume — BEARISH



The level and trend of the Upside/Downside (U/D) volume ratio reveals whether institutional participation has been bullish or bearish as of late. Facebook's U/D volume ratio of 0.3 is not only less than 1 but also is lower than its trailing average, indicating BEARISH institutional interest during the past several weeks.

Timeliness Matrix™

Equity Valuation

Relative Strength	Overvalued	Fairly Valued	Undervalued
Strong			
Neutral			
Weak			■

Firms that are undervalued and currently showing near-term pricing strength score near the top right of the matrix.

Companies that are undervalued and showing near-term relative price strength could represent timely buys, as the stock may be attractive to both value and momentum investors. A cross section of the firm's equity valuation and its relative share price strength is shown in the matrix above. We tend to prefer undervalued stocks that have strong pricing momentum, also called Valuentum stocks.

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Economic Castle	Estimated Fair Value	Fair Value Range	Investment Style	Sector	Industry
Very Attractive	$507.00	$380.00 - $634.00	MEGA-CAP BLEND	Information Technology	Technology Giants

Pro Forma Income Statement

---------- Historical ---------- ---------- *Projected* ----------

In Millions of USD (except for per share items)

	Dec-18	Dec-19	Dec-20	*Dec-21*	*Dec-22*
Total Revenue	55,838	70,697	85,965	*117,772*	*140,267*
Cost of Goods Sold	9,355	12,770	16,692	*22,377*	*26,651*
Selling, General and Administrative Expenses	11,297	20,341	18,155	*23,849*	*29,456*
Other Operating Expenses	10,273	13,600	18,447	*23,554*	*30,859*
Operating Income	**24,913**	**23,986**	**32,671**	***47,992***	***53,301***
Unusual items	0	0	0	*0*	*0*
Operating Income, including unusual items	24,913	23,986	32,671	*47,992*	*53,301*
Interest Expense	0	0	0	*0*	*0*
Other Non-operating Income	448	826	509	*509*	*509*
Pre-tax Income	**25,361**	**24,812**	**33,180**	***48,501***	***53,810***
Income Taxes	3,249	6,327	4,034	*8,730*	*9,686*
Income after tax	**22,112**	**18,485**	**29,146**	***39,771***	***44,124***
Minority Interest and Equity Income	(1)	0	0	*0*	*0*
Net Income, excluding extra items	22,111	18,485	29,146	*39,771*	*44,124*
Income Available to Common, excluding extra items	**22,111**	**18,485**	**29,146**	***39,771***	***44,124***
Diluted Earnings per Share, excluding extra items	**7.57**	**6.43**	**10.09**	***13.99***	***15.76***
Diluted Weighted Shares Outstanding	2,921.0	2,876.0	2,888.0	*2,843.5*	*2,799.7*

Source: Company Filings, Xignite, Valuentum Projections

Note: Pro forma data in discounted cash-flow valuation may reflect significant adjustments from GAAP accounting data, including cash (not effective) tax rates and other analytical adjustments on a backward-looking and forward-looking basis. No individual data, by itself, found in this report should be used to make any investment decision.

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Pro Forma Balance Sheet

In Millions of USD (except for per share items)

	Dec-18	Dec-19	Dec-20	*Dec-21*	*Dec-22*
	---------- Historical ----------			---------- *Projected* ----------	
Assets					
Total Cash (including marketable securities)	41,114	54,855	61,954	*85,236*	*101,482*
Inventory	0	0	0	*0*	*0*
Accounts Receivable	0	0	11,335	*15,583*	*18,624*
Other Current Assets	7,587	9,518	2,381	*2,381*	*2,381*
Total Current Assets	**48,701**	**64,373**	**75,670**	***103,201***	***122,487***
Gross Fixed Assets	31,573	45,986	61,051	*80,097*	*112,476*
(Accumulated Depreciation)	(6,890)	(10,663)	(15,418)	*(24,819)*	*(36,015)*
Net Property, Plant, and Equipment	24,683	35,323	45,633	*55,278*	*76,460*
Goodwill, Net	18,301	18,715	19,050	*19,050*	*19,050*
Intangibles, Net	1,294	894	623	*623*	*623*
Other Long-term Assets	2,576	12,219	18,340	*18,340*	*18,340*
Total Assets	**95,555**	**131,524**	**159,316**	***196,492***	***236,960***
Liabilities					
Accounts Payable	1,361	268	1,331	*1,871*	*2,331*
Other Current Liabilities	5,656	13,690	13,650	*17,412*	*19,780*
Current Portion of Long-term Debt	0	0	0	*0*	*0*
Total Current Liabilities	**7,017**	**13,958**	**14,981**	***19,283***	***22,111***
Long-term Debt	0	0	0	*0*	*0*
Other Long-term Liabilities	6,190	17,269	16,045	*16,045*	*16,045*
Total Liabilities	**13,207**	**31,227**	**31,026**	***35,328***	***38,156***
Preferred Stock	0	0	0	*0*	*0*
Shareholders' Equity					
Common Stock and Additional Paid in Capital	42,906	45,851	50,018	*50,018*	*50,018*
Retained Earnings	41,981	55,692	77,345	*117,116*	*161,240*
Other Equity	(227)	(489)	927	*(5,970)*	*(12,454)*
Total Shareholders' Equity	**84,660**	**101,054**	**128,290**	***161,164***	***198,804***
Total Liabilities and Shareholders' Equity	**97,867**	**132,281**	**159,316**	***196,492***	***236,960***

Source: Company Filings, Xignite, Valuentum Projections

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Pro Forma Cash Flow Statement

In Millions of USD (except for per share items)

	Dec-18	Dec-19	Dec-20	*Dec-21*	*Dec-22*
	---------- Historical ----------			---------- *Projected* ----------	
Cash from Operations					
Net Income	22,112	18,485	29,146	*39,771*	*44,124*
Depreciation and Amortization	4,315	5,741	6,862	*9,401*	*11,197*
Deferred Income Taxes	286	(37)	(37)	*0*	*0*
Operating Gains Or Losses	22,112	5,264	5,643	*6,750*	*6,953*
Changes in Working Capital	(2,064)	6,861	(2,867)	*54*	*(213)*
Cash Flow from Operations	**46,761**	**36,314**	**38,747**	***55,975***	***62,061***
Cash from Investing					
Purchase of Property, Plant, Equipment	(13,915)	(15,102)	(15,116)	*(19,046)*	*(32,378)*
Other Investing Cash Flows	2,312	(4,762)	(14,943)	*0*	*0*
Cash Flow from Investing	**(11,603)**	**(19,864)**	**(30,059)**	***(19,046)***	***(32,378)***
Cash from Financing					
Issuance (Retirement) of Stock	(12,879)	(6,539)	(9,836)	*(13,647)*	*(13,437)*
Issuance (Retirement) of Debt	0	(775)	(580)	*0*	*0*
Dividends Paid	0	0	0	*0*	*0*
Other Financing Cash Flows	(2,693)	15	124	*0*	*0*
Cash Flow from Financing	**(15,572)**	**(22,871)**	**(10,292)**	***(13,647)***	***(13,437)***
Foreign Exchange	(179)	4	279	*0*	*0*
Net Change in Cash	**1,920**	**9,155**	**(1,325)**	***23,282***	***16,246***

Source: Company Filings, Xignite, Valuentum Projections

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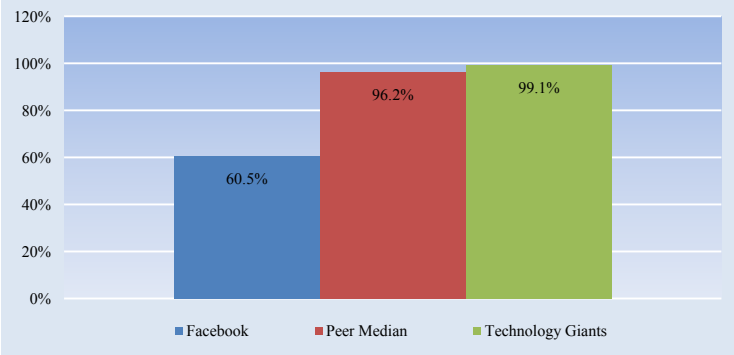
Technology Giants

Technology Giants — **FAIRLY VALUED**

We think the Technology Giants industry is fairly valued at this time. The industry's market cap is trading between 80% and 120% of our estimate of its fair value based on our DCF process. Although we use a firm-specific ValueRisk™ measure to determine whether a firm is undervalued or overvalued based on our DCF process, we consider an industry to be undervalued if it is trading below 80% of our estimate of its fair value and overvalued if it is trading at over 120% of our estimate of its fair value. We think these fair value ranges are appropriate given the diversification benefits of holding a basket of stocks. Although there may be individual opportunities within the Technology Giants industry, we don't find the industry as a whole attractive based solely on valuation.



The above bar chart reveals the price/fair value of the company, its peers, and the industry as a whole.

Shaded blue denotes that the firm has earned the highest rating for that respective category.

Company Name	Ticker	Market Cap (USD-mil)	Investment Style	DCF Valuation	Relative Valuation	ValueCreation™	ValueRisk™	ValueTrend™	Technicals	Relative Strength
Adobe Systems	ADBE	319,358	MEGA-CAP GROWTH	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	LOW	POSITIVE	BULLISH	NEUTRAL
Advanced Micro Devices	AMD	175,643	LARGE-CAP GROWTH	FAIRLY VALUED	UNATTRACTIVE	POOR	HIGH	NEGATIVE	BULLISH	STRONG
Alibaba	BABA	460,248	MEGA-CAP BLEND	FAIRLY VALUED	NEUTRAL	EXCELLENT	MEDIUM	NEGATIVE	BULLISH	STRONG
Alphabet	GOOG	1,924,659	MEGA-CAP BLEND	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	POSITIVE	VERY BEARISH	NEUTRAL
Amazon.com	AMZN	1,807,338	MEGA-CAP GROWTH	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	MEDIUM	POSITIVE	BULLISH	STRONG
Analog Devices	ADI	69,047	LARGE-CAP GROWTH	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	NEGATIVE	BULLISH	STRONG
Apple	AAPL	2,537,158	MEGA-CAP VALUE	FAIRLY VALUED	NEUTRAL	EXCELLENT	LOW	POSITIVE	BULLISH	NEUTRAL
Applied Materials	AMAT	145,360	LARGE-CAP GROWTH	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	MEDIUM	NEGATIVE	BULLISH	STRONG
Automatic Data Processing	ADP	98,725	LARGE-CAP CORE	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	LOW	POSITIVE	BULLISH	STRONG
Baidu	BIDU	58,203	LARGE-CAP BLEND	FAIRLY VALUED	NEUTRAL	EXCELLENT	MEDIUM	NEGATIVE	BULLISH	STRONG
Booking Holdings	BKNG	99,179	LARGE-CAP GROWTH	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	LOW	NEGATIVE	VERY BEARISH	STRONG
Broadcom	AVGO	237,495	MEGA-CAP CORE	FAIRLY VALUED	NEUTRAL	EXCELLENT	MEDIUM	NEGATIVE	BULLISH	STRONG
Cisco	CSCO	243,104	MEGA-CAP VALUE	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	POSITIVE	VERY BULLISH	NEUTRAL
eBay	EBAY	54,008	LARGE-CAP CORE	FAIRLY VALUED	ATTRACTIVE	POOR	MEDIUM	NEGATIVE	BULLISH	NEUTRAL
F5 Networks	FFIV	14,310	LARGE-CAP CORE	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	NEGATIVE	BULLISH	STRONG
Facebook	FB	886,154	MEGA-CAP BLEND	UNDERVALUED	ATTRACTIVE	EXCELLENT	MEDIUM	NEGATIVE	BEARISH	WEAK
IBM	IBM	106,525	LARGE-CAP VALUE	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	POSITIVE	BEARISH	WEAK
Intel	INTC	212,362	MEGA-CAP VALUE	FAIRLY VALUED	NEUTRAL	EXCELLENT	LOW	POSITIVE	BEARISH	WEAK
KLA-Tencor	KLAC	65,912	LARGE-CAP GROWTH	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	POSITIVE	BULLISH	STRONG
Korn/Ferry	KFY	4,303	MID-CAP VALUE	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	POSITIVE	BULLISH	STRONG
Lam Research	LRCX	91,887	LARGE-CAP VALUE	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	POSITIVE	BULLISH	STRONG
Manpower	MAN	6,012	MID-CAP VALUE	FAIRLY VALUED	NEUTRAL	EXCELLENT	MEDIUM	POSITIVE	BEARISH	WEAK
Mastercard	MA	365,528	MEGA-CAP GROWTH	FAIRLY VALUED	NEUTRAL	EXCELLENT	LOW	NEGATIVE	BULLISH	NEUTRAL
Micron Technology	MU	87,446	LARGE-CAP BLEND	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	MEDIUM	POSITIVE	BULLISH	STRONG
Microsoft	MSFT	2,550,316	MEGA-CAP BLEND	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	LOW	POSITIVE	BULLISH	STRONG
Nvidia	NVDA	738,120	MEGA-CAP GROWTH	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	MEDIUM	NEGATIVE	BULLISH	STRONG
Oracle	ORCL	283,524	MEGA-CAP CORE	FAIRLY VALUED	NEUTRAL	EXCELLENT	LOW	POSITIVE	BULLISH	STRONG
Paychex	PAYX	44,756	LARGE-CAP CORE	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	MEDIUM	NEGATIVE	BULLISH	STRONG
PayPal	PYPL	250,267	MEGA-CAP BLEND	UNDERVALUED	NEUTRAL	EXCELLENT	LOW	NEGATIVE	NEUTRAL	WEAK
QUALCOMM	QCOM	191,205	LARGE-CAP VALUE	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	LOW	NEGATIVE	BULLISH	STRONG
Salesforce.com	CRM	284,534	MEGA-CAP GROWTH	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	LOW	NEGATIVE	BULLISH	STRONG
Taiwan Semiconductor	TSM	609,951	MEGA-CAP BLEND	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	MEDIUM	POSITIVE	VERY BULLISH	STRONG
Texas Instruments	TXN	176,804	LARGE-CAP GROWTH	FAIRLY VALUED	ATTRACTIVE	EXCELLENT	MEDIUM	NEGATIVE	BEARISH	NEUTRAL
Twitter	TWTR	42,060	LARGE-CAP BLEND	FAIRLY VALUED	UNATTRACTIVE	EXCELLENT	MEDIUM	POSITIVE	BEARISH	WEAK
Visa	V	466,263	MEGA-CAP BLEND	FAIRLY VALUED	NEUTRAL	EXCELLENT	LOW	POSITIVE	BEARISH	WEAK

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Valuentum's Full Page Stock Report

A DCF Valuation
Shows whether the firm is undervalued, fairly valued, or overvalued based on our DCF process and by how much.

B Valuentum Buying Index (VBI)
Provides insight into the timeliness of an investment opportunity. We rank firms from 1 to 10 based on rigorous fiancial, valuation, and technical analysis. A 10 represents one of our top picks.

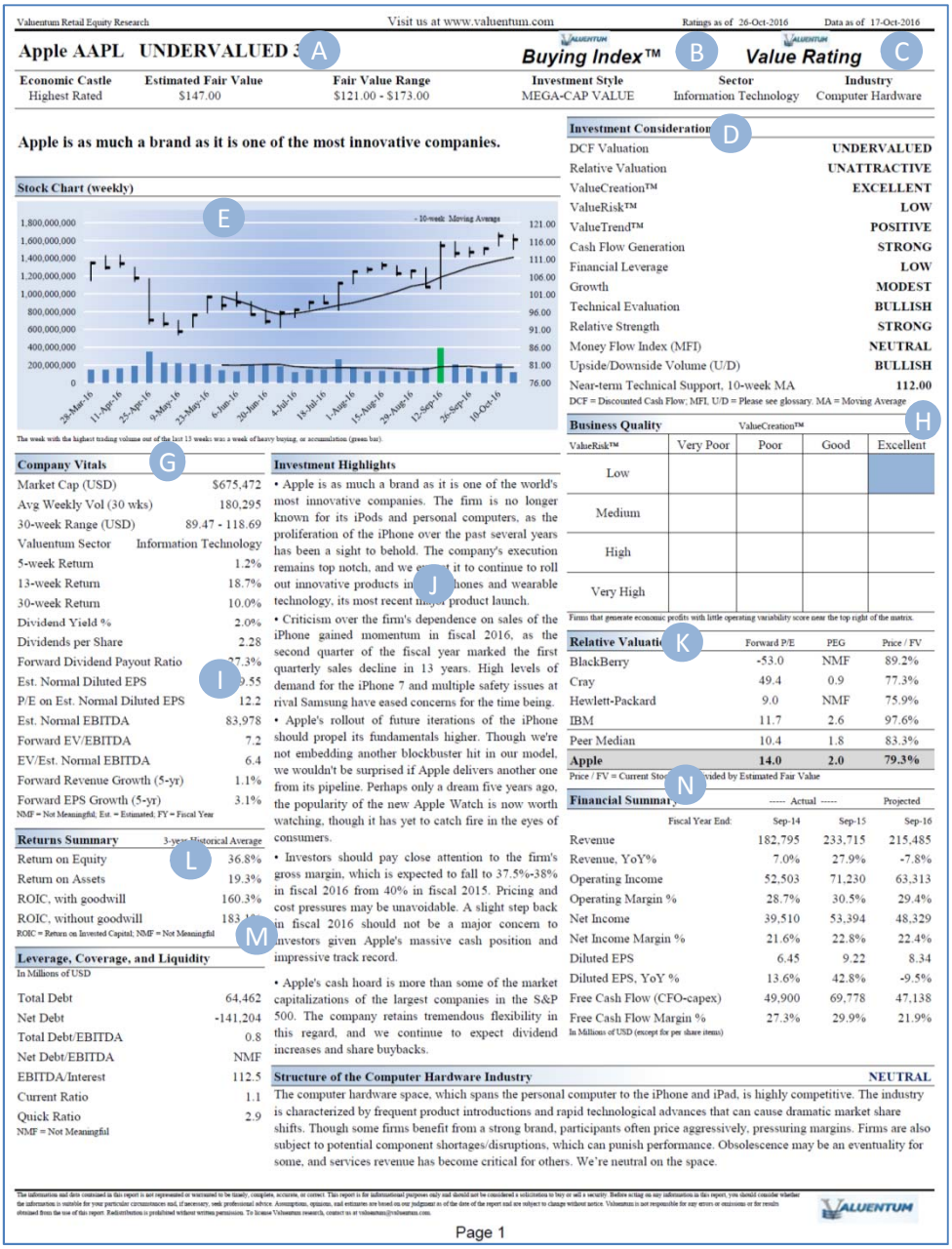
VBI Score	Action
10	Top Pick
9	We'd Consider Buying
6 to 8	Constructive (add/trim)
3 to 6	Less Exciting (add/trim)
1 to 2	We'd Consider Selling

C Valuentum Value Rating (VVR)
Indicates whether we think a firm is undervalued, fairly valued, or overvalued on the basis of our DCF process.

UNDERVALUED
FAIRLY VALUED
OVERVALUED

D Investment Considerations
Evaluates firms on 12 different measures, from the firm's growth and cash flow generation to the stock's money flow index and upside/downside volume. We reveal technical support and resistance levels.

E 30-week Price and Volume Action
Displays the last accumulation or distribution week of the stock and historical price and volume action.



Valuentum Retail Equity Research — Visit us at www.valuentum.com — Ratings as of 26-Oct-2016 — Data as of 17-Oct-2016

Apple AAPL UNDERVALUED (A) — Buying Index™ (B) — Value Rating (C)

Economic Castle	Estimated Fair Value	Fair Value Range	Investment Style	Sector	Industry
Highest Rated	$147.00	$121.00 - $173.00	MEGA-CAP VALUE	Information Technology	Computer Hardware

Apple is as much a brand as it is one of the most innovative companies.

Stock Chart (weekly) (E)

The week with the highest trading volume out of the last 13 weeks was a week of heavy buying, or accumulation (green bar).

Investment Considerations (D)

DCF Valuation	UNDERVALUED
Relative Valuation	UNATTRACTIVE
ValueCreation™	EXCELLENT
ValueRisk™	LOW
ValueTrend™	POSITIVE
Cash Flow Generation	STRONG
Financial Leverage	LOW
Growth	MODEST
Technical Evaluation	BULLISH
Relative Strength	STRONG
Money Flow Index (MFI)	NEUTRAL
Upside/Downside Volume (U/D)	BULLISH
Near-term Technical Support, 10-week MA	112.00

DCF = Discounted Cash Flow; MFI, U/D = Please see glossary. MA = Moving Average

Business Quality (H) — ValueCreation™

ValueRisk™	Very Poor	Poor	Good	Excellent
Low				■
Medium				
High				
Very High				

Firms that generate economic profits with little operating variability score near the top right of the matrix.

Company Vitals (G)

Market Cap (USD)	$675,472
Avg Weekly Vol (30 wks)	180,295
30-week Range (USD)	89.47 - 118.69
Valuentum Sector	Information Technology
5-week Return	1.2%
13-week Return	18.7%
30-week Return	10.0%
Dividend Yield %	2.0%
Dividends per Share	2.28
Forward Dividend Payout Ratio	27.3%
Est. Normal Diluted EPS	9.55
P/E on Est. Normal Diluted EPS	12.2
Est. Normal EBITDA	83,978
Forward EV/EBITDA	7.2
EV/Est. Normal EBITDA	6.4
Forward Revenue Growth (5-yr)	1.1%
Forward EPS Growth (5-yr)	3.1%

NMF = Not Meaningful, Est. = Estimated, FY = Fiscal Year

Investment Highlights (J)

• Apple is as much a brand as it is one of the world's most innovative companies. The firm is no longer known for its iPods and personal computers, as the proliferation of the iPhone over the past several years has been a sight to behold. The company's execution remains top notch, and we expect it to continue to roll out innovative products in smartphones and wearable technology, its most recent major product launch.

• Criticism over the firm's dependence on sales of the iPhone gained momentum in fiscal 2016, as the second quarter of the fiscal year marked the first quarterly sales decline in 13 years. High levels of demand for the iPhone 7 and multiple safety issues at rival Samsung have eased concerns for the time being.

• Apple's rollout of future iterations of the iPhone should propel its fundamentals higher. Though we're not embedding another blockbuster hit in our model, we wouldn't be surprised if Apple delivers another one from its pipeline. Perhaps only a dream five years ago, the popularity of the new Apple Watch is now worth watching, though it has yet to catch fire in the eyes of consumers.

• Investors should pay close attention to the firm's gross margin, which is expected to fall to 37.5%-38% in fiscal 2016 from 40% in fiscal 2015. Pricing and cost pressures may be unavoidable. A slight step back in fiscal 2016 should not be a major concern to investors given Apple's massive cash position and impressive track record.

• Apple's cash hoard is more than some of the market capitalizations of the largest companies in the S&P 500. The company retains tremendous flexibility in this regard, and we continue to expect dividend increases and share buybacks.

Relative Valuation (K)

	Forward P/E	PEG	Price / FV
BlackBerry	-53.0	NMF	89.2%
Cray	49.4	0.9	77.3%
Hewlett-Packard	9.0	NMF	75.9%
IBM	11.7	2.6	97.6%
Peer Median	10.4	1.8	83.3%
Apple	**14.0**	**2.0**	**79.3%**

Price / FV = Current Stock Price divided by Estimated Fair Value

Returns Summary (L) — 3-year Historical Average

Return on Equity	36.8%
Return on Assets	19.3%
ROIC, with goodwill	160.3%
ROIC, without goodwill	183.1%

ROIC = Return on Invested Capital; NMF = Not Meaningful

Leverage, Coverage, and Liquidity (M)

In Millions of USD

Total Debt	64,462
Net Debt	-141,204
Total Debt/EBITDA	0.8
Net Debt/EBITDA	NMF
EBITDA/Interest	112.5
Current Ratio	1.1
Quick Ratio	2.9

NMF = Not Meaningful

Financial Summary (N) — ----- Actual ----- | Projected

Fiscal Year End:	Sep-14	Sep-15	Sep-16
Revenue	182,795	233,715	215,485
Revenue, YoY%	7.0%	27.9%	-7.8%
Operating Income	52,503	71,230	63,313
Operating Margin %	28.7%	30.5%	29.4%
Net Income	39,510	53,394	48,329
Net Income Margin %	21.6%	22.8%	22.4%
Diluted EPS	6.45	9.22	8.34
Diluted EPS, YoY %	13.6%	42.8%	-9.5%
Free Cash Flow (CFO-capex)	49,900	69,778	47,138
Free Cash Flow Margin %	27.3%	29.9%	21.9%

In Millions of USD (except for per share items)

Structure of the Computer Hardware Industry — NEUTRAL

The computer hardware space, which spans the personal computer to the iPhone and iPad, is highly competitive. The industry is characterized by frequent product introductions and rapid technological advances that can cause dramatic market share shifts. Though some firms benefit from a strong brand, participants often price aggressively, pressuring margins. Firms are also subject to potential component shortages/disruptions, which can punish performance. Obsolescence may be an eventuality for some, and services revenue has become critical for others. We're neutral on the space.

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Page 1

G Company Vitals
Shows sector, industry and other relevant company information.

H Business Quality
Summary of the firm's ability to create value for shareholders compared wth the underlying risk of its operations.

I Normalized EPS and EBITDA
Estimation of the firm's normalized earnings measures and the corresponding valuation mutliples.

J Investment Highlights
Our opinion of the company, including analysis of its financial and technical strengths and weaknesses.

K Relative Valuation
Comparison of the firm's PE, PEG, and Price/FV ratios versus peers.

L Returns Summary
3-year averages of the firm's key return measures, including return on invested capital, with and without goodwill.

M Leverage, Coverage, and Liquidity
A snapshot of the company's financial health.

N Financial Summary
A summary of the proforma financial statements found in the extended report.

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About Valuentum

@Valuentum, we strive to stand out from the crowd. Most investment research publishers fall into a few camps, whether it be value, growth, income, momentum, chartist or some variant of the aforementioned. We think each in its own right holds merit, but we think the combination of these approaches can be even more powerful. After all, stock price movements aren't just driven by investors of the value or growth variety, but by all market participants. Therefore, we look at stocks from a variety of investment perspectives in order to better understand and identify ideas. We want to provide relevant information.

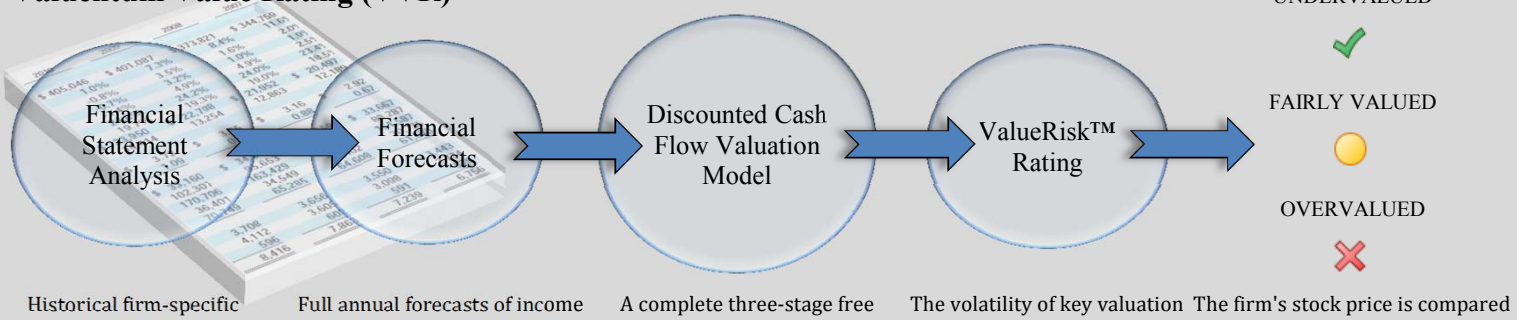
The core of our process is grounded in rigorous discounted cash flow analysis and incorporates the concept of a margin of safety. We offer a fair value estimate for each company and provide a relative valuation assessment in the context of a company's industry and closest peers. A cross section of our ValueCreation™ and ValueRisk™ ratings provides a financial assessment of a company's business quality, while our ValueTrend™ rating offers insight into the trajectory of a firm's economic profit creation. The Economic Castle rating measures the magnitude of future economic value generation, and the Dividend Cushion ratio assesses the financial capacity of a company to keep raising its dividend.

Our analysis doesn't stop there. We also offer a technical evaluation of the stock as well as other momentum indicators. We not only want to reveal to readers which firms may be undervalued, in our view, but we also want to provide readers with information to help them assess entry and exit points. Most research publishers focus on arriving at a target price or fair value estimate, but may fall short of providing a technical assessment to bolster buy and sell disciplines. We strive to go the distance and provide readers with answers--not half the story.

An explanation of our approach would not be complete if we didn't describe our ideal stock idea. We're looking for companies that are undervalued--both on a DCF basis and versus peers--have strong growth potential, have a solid track record of creating economic profits for shareholders with reasonable risk, are strong cash flow generators, have manageable financial leverage, and are currently showing bullish technical and momentum indicators. For dividend growth ideas, we look for companies that have both the capacity and willingness to keep raising the dividend.

Can such stock ideas exist? Subscribe to Valuentum to receive our best investment ideas and analysis on hundreds of stocks, dividends, ETFs and more.

Valuentum Value Rating (VVR)



Historical firm-specific financial data generates our ValueCreation™, ValueRisk™, and ValueTrend™ ratings. The data provides the basis for our financial forecasts.

Full annual forecasts of income statement, balance sheet, and cash flow statement items. Firm-specific cost of equity, cost of debt, weighted average cost of capital, and long-term growth and profitability measures estimated.

A complete three-stage free cash flow to the firm valuation model generates an estimate of the firm's equity value per share based on estimated future free cash flows.

The volatility of key valuation drivers are estimated and a margin of safety is determined.

- Revenue Volatility
- Margin Volatility
- Earnings Volatility
- Cash Flow Volatility

The firm's stock price is compared to the suggested margin of safety. If a firm's stock price falls below the lower bound of our estimated fair value range, it receives Valuentum's highest Value Rating.

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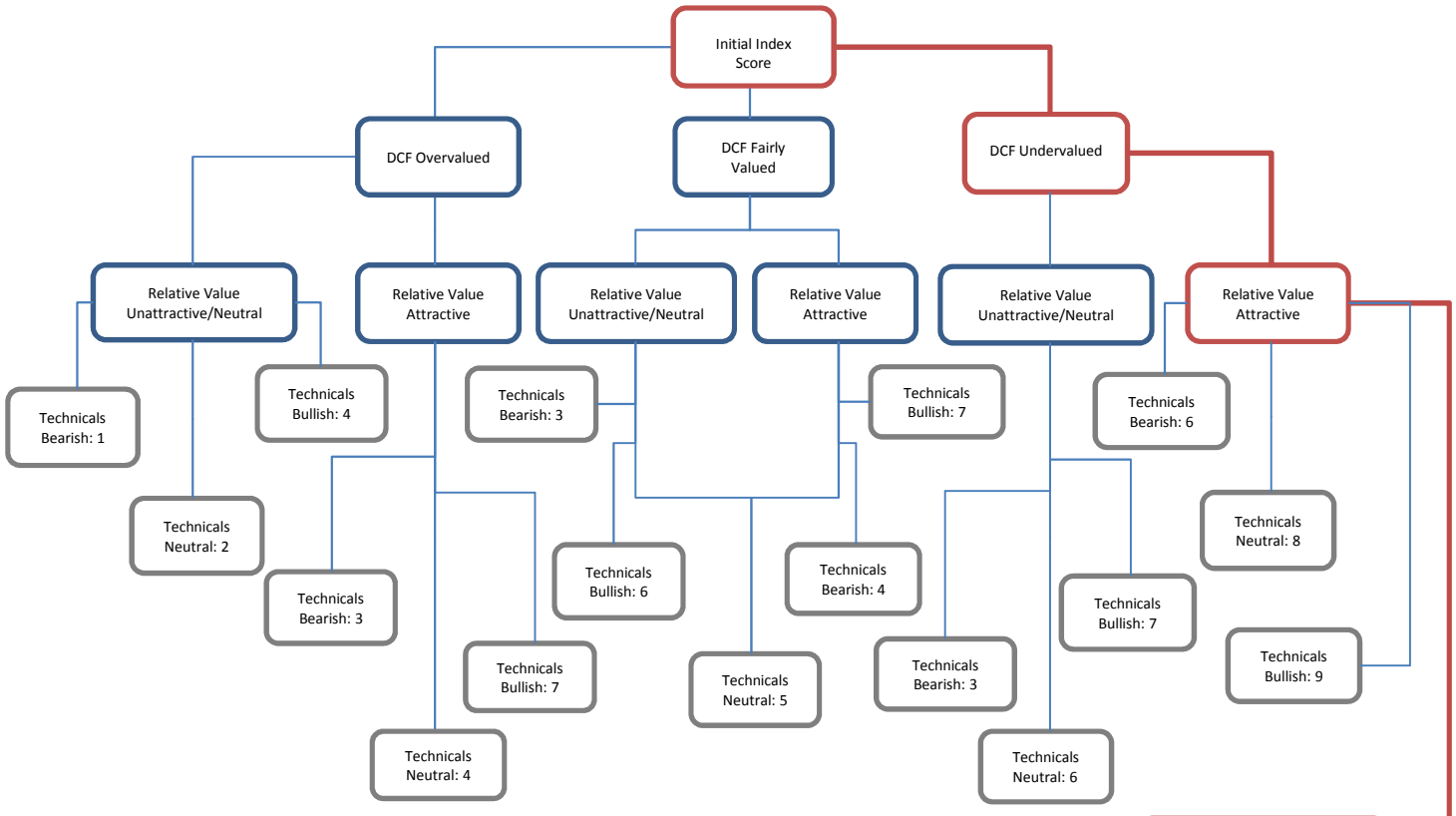
Methodology for Picking Stocks - Valuentum Buying Index™ (VBI)

@ Valuentum, we like to look at companies from a number of different perspectives. The Valuentum Buying Index (VBI) combines rigorous financial and valuation analysis with an evaluation of a stock's technicals to derive a rating between 1 and 10 for each company. The VBI places considerable emphasis on a company's discounted cash-flow (DCF) valuation, its relative valuation versus peers (both forward PE and PEG ratios), and its technicals in order to help readers assess entry and exit points on the most interesting ideas.

Let's follow the red line on the flow chart below to see how a company can score a 10, the best mark on the index (a "Top Pick"). First, the company would need to be 'undervalued' on a DCF basis and 'attractive' on a relative value basis. The stock would also have to be exhibiting 'bullish' technicals. The firm would need a ValueCreation™ rating of 'good' or 'excellent', exhibit 'high' or 'aggressive' growth prospects, and generate at least a 'medium' or 'neutral' assessment for cash flow generation, financial leverage, and relative price strength.

This is a tall order for any company. Stocks that don't make the cut for a 10 are ranked accordingly, with the least attractive stocks, in our opinion, garnering a rating of 1 ("We'd sell"). Most of our coverage universe registers ratings between 3 and 7, but at any given time there could be large number of companies garnering either very high or very low scores, especially at market lows or tops, respectively.

The Best Ideas Newsletter portfolio puts the VBI into practice.



VBI Score	Action
10	Top Pick
9	We'd Consider Buying
6 to 8	Constructive (add/trim)
3 to 6	Less Exciting (add/trim)
1 to 2	We'd Consider Selling

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Glossary

Estimated Fair Value. This measure is our opinion of the fair equity value per share of the company. If our forecasts prove accurate, which may not always be the case, we may expect a firm's stock price to converge to this value within the next 3 years.

Fair Value Range. The fair value range represents an upper bound and lower bound, between which we would consider the firm to be fairly valued. The range considers our estimate of the firm's fair value and the margin of safety suggested by the volatility of key valuation drivers, including revenue, gross margin, earnings before interest, and enterprise free cash flow (the determinants behind our ValueRisk™ rating).

DCF Valuation. We opine on the firm's valuation based on our DCF process. Firms that are trading with an appropriate discount to our fair value estimate receive an UNDERVALUED rating. Firms that are trading within our fair value range receive a FAIRLY VALUED rating, while firms that are trading above the upper bound of our fair value range receive an OVERVALUED rating.

Relative Value. We compare the firm's forward price-to earnings (PE) ratio and its price/earnings-to-growth (PEG) ratio to that of its peers. If both measures fall below the peer median, the firm receives an ATTRACTIVE rating. If both are above the peer median, the firm receives an UNATTRACTIVE rating. Any other combination results in a NEUTRAL rating.

ValueCreation™. This is a proprietary Valuentum measure. ValueCreation™ indicates the firm's historical track record in creating economic value for shareholders, taking the average difference between ROIC (without goodwill) and the firm's estimated WACC during the past three years. The firm's performance is measured along the scale of EXCELLENT, GOOD, POOR, and VERY POOR. Those firms with EXCELLENT ratings have a demonstrated track record of creating economic value, while those that register a VERY POOR mark have been destroying economic value.

ValueRisk™. This is a proprietary Valuentum measure. ValueRisk™ indicates the historical volatility of key valuation drivers, including revenue, gross margin, earnings before interest, and enterprise free cash flow. The standard deviation of each measure is calculated and scaled against last year's measure to arrive at a percentage deviation for each item. These percentage deviations are weighted equally to arrive at the corresponding fair value range for each stock, measured in percentage terms. The firm's performance is measured along the scale of LOW, MEDIUM, HIGH, and VERY HIGH. The ValueRisk™ rating for each firm also determines the fundamental beta of each firm along the following scale: LOW (0.85), MEDIUM (1), HIGH (1.15), VERY HIGH (1.3).

ValueTrend™. This is a proprietary Valuentum measure. ValueTrend™ indicates the trajectory of the firm's return on invested capital (ROIC). Firms that earned an ROIC last year that was greater than the 3-year average of the measure earn a POSITIVE rating. Firms that earned an ROIC last year that was less than the 3-year average of the measure earn a NEGATIVE rating.

Cash Flow Generation. Firms' cash flow generation capacity are measured along the scale of STRONG, MEDIUM, and WEAK. A firm with a 3-year historical free cash flow margin (free cash flow divided by sales) greater than 5% receives a STRONG rating, while firms earning less than 1% of sales as free cash flow receive a WEAK rating.

Financial Leverage. Based on the firm's normalized debt-to-EBITDA metric, we rank firms on the following scale: LOW, MEDIUM, and HIGH. Companies with a normalized debt-to-EBITDA ratio below 1.5 receive a LOW score, while those with a measure above 3 receive a HIGH score.

Upside/Downside Volume. Heavy volume on up days and lower volume on down days suggests that institutions are heavily participating in a stock's upward advance. We use the trailing 14-week average of upside and downside volume to calculate an informative ratio. We rank each firm's U/D volume ratio along the following scale: BULLISH, IMPROVING, DETERIORATING, and BEARISH.

Investment Style. Valuentum uses its own proprietary stock-classification system. Nano-cap: Less than $50 million; Micro-cap: Between $50 million and $200 million; Small-cap: Between $200 million and $2 billion; Mid-cap: Between $2 billion and $10 billion; Large-cap: Between $10 billion and $200 billion; Mega-cap: Over $200 billion. Blend: Firm's that we think are undervalued and exhibit high growth prospects (growth in excess of three times the rate of assumed inflation). Value: Firm's that we believe are undervalued, but do not exhibit high growth prospects. Growth: Firms that are not undervalued, in our opinion, but exhibit high growth prospects. Core: Firms that are neither undervalued nor exhibit high growth prospects.

Company Vitals. In this section, we list key financial information and the sector and industry that Valuentum assigns to the stock. The P/E-Growth (5-yr), or PEG ratio, divides the current share price by last year's earnings (EPS) and then divides that quotient by our estimate of the firm's 5-year EPS growth rate. The estimated normalized diluted EPS and estimated normalized EBITDA represent the five-year forward average of these measures used in our discounted cash flow model. The P/E on estimated normalized EPS divides the current share price by estimated normalized diluted EPS. The EV/estimated normalized EBITDA considers the current enterprise value of the company and divides it by estimated normalized EBITDA. EV is defined as the firm's market capitalization plus total debt, minority interest, preferred stock less cash and cash equivalents.

Business Quality Matrix. We compare the firm's ValueCreation™ and ValueRisk™ ratings. The box is an easy way for investors to quickly assess the business quality of a company. Firms that generate economic profits with little operating variability score near the top right of the matrix.

Timeliness Matrix. We compare the company's recent stock performance relative to the market benchmark with our assessment of its valuation. Firms that are experiencing near-term stock price outperformance and are undervalued by our estimate may represent timely buys.

Range of Potential Outcomes. The firm's margin of safety is shown in the graphic of a normal distribution. We consider a firm to be undervalued if its stock price falls along the green line and overvalued if the stock price falls along the red line. We consider the firm to be fairly valued if its stock price falls along the yellow line.

Return on Invested Capital. At Valuentum, we place considerable emphasis on return on invested capital (both with and without goodwill). The measure focuses on the return (earnings) the company is generating on its operating assets and is superior to return on equity and return on assets, which can be skewed by a firm's leverage or excess cash balance, respectively.

Technical Evaluation. We evaluate a firm's near-term and medium-term moving averages and money flow index (MFI) to assign each firm a rating along the following scale: VERY BULLISH, BULLISH, NEUTRAL, BEARISH, and VERY BEARISH.

Stock Price Relative Strength. We assess the perfomance of the company's stock during the past quarter, 13 weeks, relative to an ETF that mirrors the aggregate performance of constituents of the stock market. Firms are measured along the scale of STRONG, NEUTRAL, and WEAK. Companies that have outperformed the market index by more than 2.5% during this 13-week period receive a STRONG rating, while firms that trailed the market index by more than 2.5% during this 13-week period receive a WEAK rating.

Money Flow Index (MFI). The MFI is a technical indicator that measures buying and selling pressure based on both price and volume. Traders typically use this measure to identify potential reversals with overbought and oversold levels. We use a 14-week measure to rank firms along the following scale: EXTREMELY OVERBOUGHT (>90), OVERBOUGHT (80-90), NEUTRAL (20-80), OVERSOLD (10-20), EXTREMELY OVERSOLD (0-10).

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FB Rating History	Price	Fair Value	VBI
3-Dec-21	$306.84	$507.00	6
15-Nov-21	$349.67	$515.00	9
29-Jul-21	$358.17	$515.00	10
26-Jul-21	$372.46	$515.00	10
2-Dec-20	$287.52	$413.00	10
13-Nov-20	$276.95	$337.00	6
12-Jun-20	$228.58	$284.00	5
14-May-20	$202.27	$231.00	6
9-Oct-19	$179.85	$234.00	3
17-May-19	$185.30	$227.00	7
18-Feb-19	$162.29	$228.00	10
4-Feb-19	$167.33	$226.00	7
7-Jan-19	$142.53	$226.00	10
31-Oct-18	$153.88	$229.00	6

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