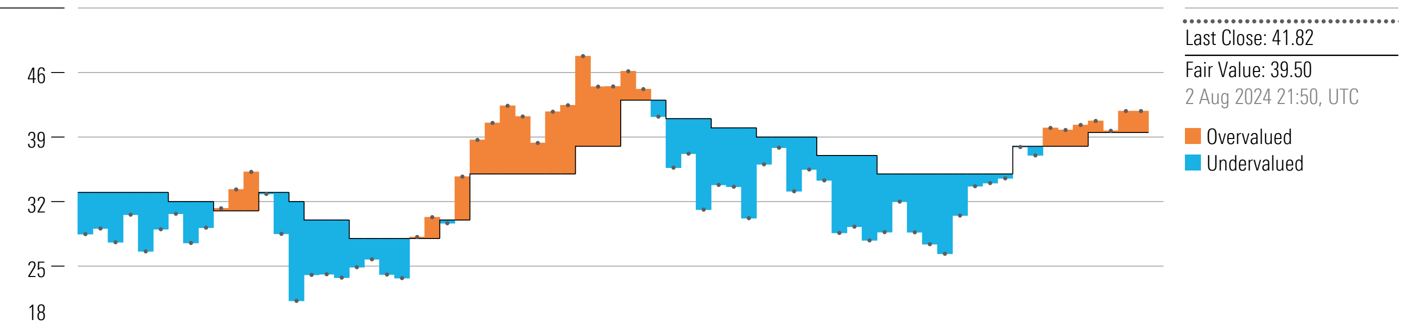
Morningstar Equity Analyst Report | Report as of 2 Nov 2024 04:35, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 1 of 23

Bank of America Corp BAC ★★★ 1 Nov 2024 21:41, UTC

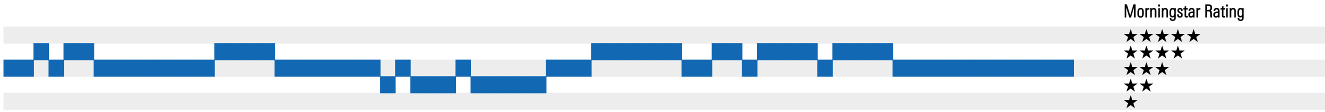
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
41.82 USD 31 Oct 2024	39.50 USD 2 Aug 2024 21:50, UTC	1.06	324.04 USD Bil 1 Nov 2024	Wide	Large Value	Medium	Standard	2 Oct 2024 05:00, UTC

Price vs. Fair Value



	2019	2020	2021	2022	2023	YTD
Price/Fair Value	1.14	1.08	1.17	0.85	0.96	1.06
Total Return %	45.62	-11.90	49.36	-23.62	4.44	26.40

Morningstar Rating



Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 2 Aug 2024 21:50, UTC.

Contents

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

Bank of America Earnings: Strong Fee Revenue and Upbeat Commentary Mark a Solid Quarter

Analyst Note Suryansh Sharma, Equity Analyst, 15 Oct 2024

Wide-moat-rated Bank of America reported a solid set of numbers in the third quarter as investment banking continues to recover, asset valuations remain buoyant, trading revenue remains strong, and, most importantly, the macroeconomic consensus on a soft landing has strengthened the outlook for the next year. The bank reported earnings per share of $0.81 in the third quarter, lower than the $0.90 per share in the same quarter of the previous year. The third-quarter numbers resulted in a return on tangible equity of 12.8%. We are maintaining our $39.50 per share fair value estimate for Bank of America as we fully incorporate the third-quarter results.

Net interest income will continue to be an important area to watch for Bank of America as interest rates decline in upcoming quarters. Bank of America's relatively lower asset sensitivity should enable it to outperform other banks from an NII perspective when rates decline. NII improved sequentially by about $0.3 billion during the quarter, driven by fixed-rate asset repricing and better results in the global markets segment. Management said that the bank's NII has already bottomed out at $13.9 billion in the second quarter and it expects an NII of around $14.3 billion in the fourth quarter. The bank reported a third-quarter net interest margin of 1.92%, which is materially lower than our midcycle estimates of 2.30% due to the unique balance sheet dynamics impacting the bank.

The bank reported an efficiency ratio of 65% in the third quarter as expenses increased by about 4% on

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Sector	Industry
Financial Services	Banks - Diversified

Business Description

Bank of America is one of the largest financial institutions in the United States, with more than $3.0 trillion in assets. It is organized into four major segments: consumer banking, global wealth and investment management, global banking, and global markets. Bank of America's consumer-facing lines of business include its network of branches and deposit-gathering operations, retail lending products, credit and debit cards, and small-business services. The company's Merrill Lynch operations provide brokerage and wealth-management services, as does its private bank. Wholesale lines of business include investment banking, corporate and commercial real estate lending, and capital markets operations. Bank of America has operations in several countries but is primarily US-focused.

a year-over-year basis, driven by revenue-related expenses and higher investments in technology. We think that Bank of America has considerable scope to improve its efficiency. For context, the bank's larger peer JPMorgan is now operating at an efficiency ratio of around 53%, resulting in a massive difference of 12 percentage points.

Business Strategy & Outlook Suryansh Sharma, Equity Analyst, 2 Aug 2024

After years of issues following the financial crisis of 2008, Bank of America has emerged as one of the preeminent US banking franchises. The bank has one of the best retail branch networks and overall retail franchises in the United States, is a Tier 1 investment bank, is a top four US credit card issuer, is a top three US acquirer, has a solid commercial banking franchise, and owns the Merrill Lynch franchise, which has turned into one of the leading US brokerage and advisor firms.

We believe that scale and scope advantages are increasingly important as the role of technology in banking grows. The bank is seeing increasing mobile adoption, has access to data on millions of customers, and has one of the largest technology budgets in the industry. Given the scalability of these platforms, we believe these factors will only matter more as the industry progresses.

Bank of America has been investing in organic growth initiatives across its franchises. The bank has opened hundreds of new financial centers across the US over the last several years in an attempt to build its client base across its product offerings. The bank's expenses have crept up quite a bit in the last several years, but we expect expense growth to remain muted in 2024 before it creeps back to the longer-term target of around 2% annual growth. The bank's ability to keep the expense growth rate in check will be key to improving the bank's efficiency.

Meanwhile, the bank isn't the only one investing for future share gains, so the space remains as competitive as ever, and we don't see Bank of America quite catching up with rival JPMorgan. Even so, with its scaled and integrated retail and commercial offerings, Bank of America remains in an enviable competitive position. During the recent banking turmoil, deposit outflows were not a serious issue, and the bank remains solidly profitable, with returns on tangible equity consistently exceeding its cost of equity. While the bank took more duration risk than peers in its securities portfolio, regulatory capital levels and profitability remain solid.

Bulls Say Suryansh Sharma, Equity Analyst, 2 Aug 2024

- Bank of America is poised to succeed on a nationwide scale, and there seems to be no structural reason it can't be one of the strongest bank franchises going forward.
- As a GSIB, Bank of America should not have to worry about deposit flight, and its valuation has become less demanding recently, potentially increasing future upside.
- Bank of America is seeing exceptional digital adoption, and there still seems to be something left in the

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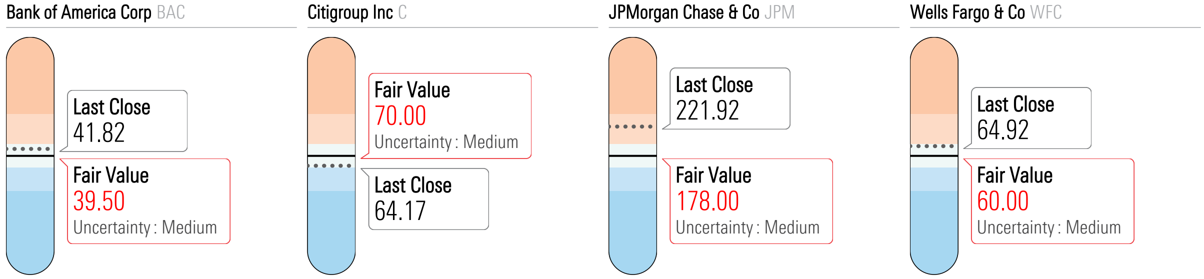
Competitors



	Bank of America Corp BAC	Citigroup Inc C	JPMorgan Chase & Co JPM	Wells Fargo & Co WFC
Economic Moat	Wide	None	Wide	Wide
Currency	USD	USD	USD	USD
Fair Value	39.50 2 Aug 2024 21:50, UTC	70.00 26 Aug 2024 16:25, UTC	178.00 30 Jul 2024 20:59, UTC	60.00 22 Aug 2024 21:34, UTC
1-Star Price	53.33	94.50	240.30	81.00
5-Star Price	27.65	49.00	124.60	42.00
Assessment	Fairly Valued 1 Nov 2024	Fairly Valued 1 Nov 2024	Overvalued 1 Nov 2024	Fairly Valued 1 Nov 2024
Morningstar Rating	★★★1 Nov 2024 21:41, UTC	★★★1 Nov 2024 21:41, UTC	★★1 Nov 2024 21:37, UTC	★★★1 Nov 2024 21:37, UTC
Analyst	Suryansh Sharma, Equity Analyst	Suryansh Sharma, Equity Analyst	Suryansh Sharma, Equity Analyst	Suryansh Sharma, Equity Analyst
Capital Allocation	Standard	Standard	Exemplary	Standard
Price/Fair Value	1.06	0.91	1.25	1.08
Price/Sales	3.37	1.54	3.73	2.78
Price/Book	1.18	0.63	1.94	1.31
Price/Earning	13.91	14.77	11.58	13.50
Dividend Yield	2.35%	3.37%	2.06%	2.24%
Market Cap	324.04 Bil	121.55 Bil	634.30 Bil	220.16 Bil
52-Week Range	26.15—44.44	39.28—67.81	138.47—226.75	39.29—66.40
Investment Style	Large Value	Large Value	Large Value	Large Value

tank for expense savings, potentially helping the bank better absorb inflationary expense pressure.

Bears Say Suryansh Sharma, Equity Analyst, 2 Aug 2024

- If the economy ever falters and rates are cut, watch out for the downside. Further, Bank of America is hamstrung with a longer duration securities portfolio, which will take years to mature away.
- The easy expense cuts for Bank of America are probably over, with incremental expense control measures being more challenging.
- There are few positive catalysts left for the banks. Funding costs are running higher, net interest income has probably peaked, higher regulatory scrutiny is likely, and a potential recession may be around the corner.

Economic Moat Suryansh Sharma, Equity Analyst, 2 Aug 2024

We believe Bank of America possesses a wide moat based on cost advantages and switching costs that are consistent with our bank moat framework. Bank of America is the second-largest US money center bank by assets and tends to have leading share and operations in many of the areas it competes. It is one of the top deposit gatherers in the US and has one of the top retail lending footprints as well as one of the top corporate franchises in the U.S. Bank of America also has one of the largest online retail brokerages in Merrill Edge and one of the largest advisor forces through Merrill Lynch Wealth Management. The bank is a top-five global investment bank, one of the largest US issuers of credit and debit cards, one of the top four US-based merchant acquirers, and a top-five fee earner from fixed-income, currencies, and commodities products globally. Given the bank's higher capital levels since the crisis, the increasing importance of scale and scope with changes in technology, and robust fee income, we believe Bank of America will consistently earn returns that exceed its 9.5% cost of equity through the cycle.

We argue that bank moats are derived primarily from two sources: cost advantages and switching costs. We see cost advantages as stemming from three primary factors: a low-cost deposit base, excellent operating efficiency, and conservative underwriting, with regulatory costs a final factor that must also be considered. Bank of America was hit quite hard during the crisis and underperformed peers, so it has not historically had any credit advantage in the last several decades. However, many of the charges were related to poor acquisitions, as well as credit practices and concentrations which have changed since the crisis. Bank of America made the ill-timed acquisition of MBNA in 2006 and followed this with the acquisition of Countrywide in 2008. This gave it one of the largest exposures to unsecured consumer lending and well as subprime mortgages. This, along with all of the legal charges that followed, plagued the bank following the crisis.

Bank of America has tamed its high consumer exposures, steered away from subprime lending, reduced second mortgage exposures, and run off or sold portions of its past portfolios. It is now rebalanced to roughly half and half commercial versus consumer lending, and FICO scores and other credit-risk-related metrics are much improved compared with precrisis vintages. We also believe CEO Brian Moynihan's renewed focus on "responsible growth" should set the tone from top when it comes to chasing outsize loan growth in more risky areas.

Bank of America's operating efficiency has generally been worse than peers since the crisis, but this is largely due to the outsize fines the bank has received as well as its unique integration challenges following the crisis. The bank had made several large acquisitions before and during the crisis, and the demands of the crisis led to a prolonged process of full integration as well as trying to rightsize businesses. The bank also had to deal with more crisis-related fines than any of the Big Four. That said, the bank has now consolidated over 30% of branches, reduced headcount by over 30%, and sold off noncore assets. We now believe Bank of America will, at the very least, be able to match peers on operating efficiency. Given the new phase of banking we are entering, where technological changes are occurring faster and are more impactful than ever before and can be deployed across singular, integrated platforms, we see potential advantages for the largest banks when it comes to operating efficiency. With its tech budget of roughly $10 billion per year, Bank of America may not drop to the lowest overall efficiency ratio among peers, but it will be able to maintain higher levels of investment at similar efficiency levels. Further, with its solid mix of fee income, Bank of America will be better insulated if rates decline as it is less dependent on rate-sensitive net interest income.

Bank of America's overall deposit market share is attractive, with one of the highest weighted average market shares among our coverage. Bank of America is the top depositee in five of its seven largest metropolitan statistical areas and is one of the top deposit gatherers across the U.S. On a cost advantage basis, we view the bank's deposit base as having a likely chance of being advantaged in the future, based on historical performance, current noninterest bearing deposit mix, and current deposit beta trends.

Overall, we believe the bank's key advantage comes from its scale in certain fixed-cost, fixed-platform businesses and the breadth of products it can offer to clients. This contributes to economies of scale and economies of scope and creates switching costs for customers as they use the bank for more and more products. The bank is one of the top issuers of credit and debit cards, where many of the costs of running a payments platform are fixed and high in nature, leading to the need for scale. Bank of America is also one of the more dominant wealth managers in the US through its multiple Merrill Lynch platforms. This allows the bank to be a convenient one-stop shop for banking and investment needs and act as a key asset and deposit gatherer. While advisor compensation is variable to a degree, the bank can invest in and maintain key technology platforms in the background that allow the business to run. Bank of America, while not as dominant as the top investment banks in the world, is still a Tier 1 investment bank and maintains a solid share in key areas and a respectable share in most others. While many of the costs of investment banking are variable (most notably banker compensation), the bank has built up a strong reputation, owns a large securities distribution platform, attracts top talent, and has a global reach that only the best can compete with. This leads us to view this segment as a positive contributor to Bank of America's moat.

While all of these segments are strong on their own, we believe there are advantages to combining them all under one banking roof. On the consumer side, Bank of America is able to cross-sell multiple products, providing advantaged pricing to key customer segments (such as through its Preferred Rewards banking program), and spread the overall costs of customer acquisition across more revenue streams. On the commercial side, similar dynamics apply; the bank is able to offer a complete package with a global scale that few can compete with, while sending out armies of bankers to both existing and new markets in an effort to win new business. A final point relates to the switching costs created and the advantages that come from lowering customer acquisition costs. In banking, where many of the products are commodified to a large degree, getting potential clients into your banking platform (having more products in more places helps with this) and then keeping them there (more products and therefore higher switching costs helps with this) matters a lot, and we see Bank of America being able to pull this off.

Finally, the largest banks will be able to spend the most on technology going forward and will have access to unique data on the largest client bases, and Bank of America is no exception. We believe its ability for higher investment into tech platforms that can scale, as well as its access to customer data on millions of households, should bolster the bank's advantages over the longer run.

From a systemic standpoint, we believe the US banking system has improved over the last decade, as capital levels supporting the banking system are at all-time highs. Further, regulation has become considerably stronger in the past several years. The US banking market is quite fragmented, and Bank of America must compete with a variety of regional and community banks as well as large money center institutions, although this fragmentation has gradually decreased since the 1990s. While we do view the banking sector as intensely competitive, the largest banks by asset size have generally been able to earn higher returns on equity for the last several decades and still do so today. Our outlook is generally positive from a macroeconomic and political standpoint for the US banking system, as the US is still the world's leading democracy, has increased GDP at a steady pace for years, and maintains the world's reserve currency, all of which contribute to banking stability.

Bank of America is large enough to be considered a global systemically important bank and has a GSIB surcharge of 2.5% (likely to increase to around 3%). This is below the banks with the highest surcharges but still above banks without this surcharge. The bank is also large enough to be subject to the Federal Reserve's annual stress tests, as well as a host of other regulatory requirements, and we don't see any massive regulatory relief coming for the large money center banks. The stringent capital requirements that the largest banks are held to give us some reassurance that these banks will be able to weather the next economic downturn.

Fair Value and Profit Drivers Suryansh Sharma, Equity Analyst, 2 Aug 2024

After incorporating the latest quarterly results, we are increasing the fair value estimate of Bank of America to $39.50 per share from $38.00 per share. Our fair value estimate is 1.55 times reported tangible book value per share as of June 2024. We currently see the shares as fairly valued even if near-term earnings are set to face some pressure.

Bank of America had been one of the more rate-sensitive banks under our coverage, but the asset sensitivity changed after the pandemic as the bank took more duration risk. With interest rates having peaked, the focus is now on the bank's performance as interest rates are cut. Given the bank's outsized exposure to long-duration securities and mortgages, we believe that the bank's net interest income, or NII, will hold up relatively better than its peers. We project NII to decline by around 2.5% in 2024 before it starts to grow again in 2025 and 2026. Key for Bank of America outperforming in the future would likely be the market getting more comfortable with where NII will reach its equilibrium and also seeing the securities book lower its duration over time.

As the NII growth lever starts to diminish, we think that fee growth will remain under pressure in the near term. We see some pressure remaining on investment banking and mortgages as rates remain high for much of the year. Trading-related fees have been outperforming expectations in the past couple of years, but we expect trading-related revenue to start normalizing lower in 2025. We see an eventual recovery in investment banking and mortgage fees as interest rates decline while the investment and brokerage services business should remain a bright spot for the company. Overall, we project a 2.8% noninterest revenue compounded annual growth rate in the next 10 years.

We expect credit costs to pick up further in 2024 after strong credit-related performance in the past three years. Overall, we think that charge-offs will increase in the upcoming years but they should remain manageable. In the long run, we forecast net charge-offs averaging 0.65% of loans, higher than the last few years but much better than in the past cycle. Having said this, credit quality will continue to be a major source of uncertainty for the banking sector.

Expenses have been another point of interest with Bank of America. Expenses rose at an elevated rate in the past three years. We think expense growth should remain much more controlled in 2024, as we expect around 2% growth in expenses after adjusting for nonrecurring charges. We project a 2.0% expense compounded annual growth rate in the next 10 years for the bank. This leads to roughly a 61% efficiency ratio over time, although it takes years. One of the keys for Bank of America to outperform in the future would likely be an ability to show scale efficiencies translating into a better return profile.

We use a 9.5% cost of equity. We project returns on tangible common equity will be roughly 14% through the cycle for the bank.

Risk and Uncertainty Suryansh Sharma, Equity Analyst, 2 Aug 2024

An investment in Bank of America entails a large amount of regulatory and macroeconomic risk. For Bank of America, costs of compliance are high, it is large and complex, and it is clearly a prime target of regulators seeking fines and litigants seeking compensation for alleged misdeeds. From a macroeconomic perspective, the bank's profitability will be affected by the interest-rate cycles and the effects of credit and debt cycles, all of which are not under management's control. Most lines of business at Bank of America are economically sensitive.

Another risk is business disruption. The banking industry is arguably going through more technological change than ever before. Bank branches are declining in importance as more transactions take place digitally, and it is still uncertain how this dynamic will ultimately play out. Though scale and regulatory expertise create barriers to entry, new or existing competitors could take share as the banking industry digitizes and becomes more and more a technology-focused industry.

We don't consider any environmental, social, or governance issues to be material enough to affect our uncertainty rating or fair value estimate. The money center banks deal with all of the inherent issues of operating in a highly regulated business, and there is an inherent cost to this via litigation, investments in internal controls, and more. There have been times when poor governance did lead to material value destruction, but we see the risks of a repeat of something like the financial crisis as minimal today.

We assign Bank of America a Medium Morningstar Uncertainty Rating.

Capital Allocation Suryansh Sharma, Equity Analyst, 2 Aug 2024

We give Bank of America a Standard Capital Allocation Rating. In our opinion, the company’s balance sheet is sound, its capital investment decisions are standard, and its capital return strategy is appropriate. We view management's targeted common equity Tier 1 ratio of approximately 11.9% as appropriate. We view the company's capital investments as standard. The bank was at the center of poor investments and capital destruction during the financial crisis of 2008, but we think capital allocation has improved materially since then. The bank has downsized, derisked, cut expenses, and invested capital in much more positive endeavors, such as organic growth and efficiency efforts. Over the last decade-plus, Bank of America's turnaround has positioned it as arguably one of the most dominant US banking franchises. We assess the company’s capital return strategy as appropriate. Bank of America, like most banks, targets a rough payout ratio for dividends and then uses capital first and foremost to invest in the business. Any extra capital beyond these requirements can be used for share repurchases.

Investors may never regard CEO Brian Moynihan with the reverence bestowed upon certain peers, but he should be given credit for returning the bank to form since taking over the imperiled institution at the height of its troubles. His tenure has not been perfect; initial underestimates of mortgage-related claims, a handful of regulatory missteps, and some questionable operational decisions (such as certain extra fees) stand out. However, his overall record has been decidedly positive, with shareholders reaping the rewards over the past several years.

With the bank successfully navigating the initial blows of the pandemic-driven recession, its success in improving the quality of its balance sheet has been on full display. We think Bank of America is now a much better business, and Moynihan and the management team should get credit for this. Returns on tangible common equity are now beginning to reach best-in-class levels among the money centers, although we aren't sure they will ever fully catch the bank's top peers. The bank maintains an enviable deposit base, a broad range of revenue-generating lines of business, and much-improved underwriting standards. Overall, Moynihan and his management team have nursed Bank of America back to health, and the bank has turned into a best-in-class franchise. If there were one criticism recently, it would be the bank's duration risk management, as Bank of America has a larger portion of its balance sheet stuck in lower-yielding securities than many peers, which will be an earnings headwind for the time being, and does not look great when comparing the unrealized losses to tangible equity. While the unrealized losses do not affect regulatory capital ratios, and we see nothing like what happened with more aggressive peers, it would have been helpful today to take a little less duration risk back in 2020 and 2021.

Analyst Notes Archive

Bank of America Earnings: Encouraging NII Guidance and Expense Control Should Boost Profitability

Suryansh Sharma, Equity Analyst, 16 Jul 2024

Wide-moat-rated Bank of America reported a good set of second-quarter numbers. Earnings per share came in at $0.83, slightly lower than the $0.88 in the year-ago quarter. For us, the biggest highlight was the company's encouraging net interest income outlook for the remaining half of the year. Management expects NII to increase from $13.9 billion in the current quarter to around $14.5 billion by the fourth quarter. The shares have rallied around 5% since the announcement of the results July 16.

Profitability in the second half should also be boosted by expense control and relatively strong fee income in the asset-management, investment banking, and trading businesses. The second-quarter numbers resulted in a return on tangible equity of 13.6%. We plan to increase our $38 fair value estimate by a mid-single-digit percentage as we fully incorporate these results. The increase can mostly be attributed to the time value of money and slightly higher NII in the near term than we previously anticipated.

The shares had corrected by around 50% in late 2023 from their highs in early 2022 partly due to fears about the bank’s profitability and higher exposure to long-duration securities. Among other things, investors have been penalizing Bank of America for its longer-duration securities exposure when interest rates were rising. The longer-duration securities portfolio weighed on NII, as these assets were stuck on the books while earning lower yields. We have continuously highlighted that the bank's balance sheet position will temporarily weigh on earnings, but the long-term earnings capacity of this high-quality banking franchise is fully intact. The shares have rallied by around 75% from their lows in late 2023.

US Banks: Duration Exposure and Balance Sheet Positioning Will Affect NIMs and Profits in Future

Suryansh Sharma, Equity Analyst, 19 May 2024

JPMorgan has become an investor favorite in recent quarters because of its bumper profitability. In contrast, its peer, Bank of America, has fallen out of grace as its profitability remains uninspiring on a relative basis. We believe the recent divergence between these two banks is not because of a structural

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difference in their banking franchise performance. It is largely a function of how their balance sheets were managed during the liquidity boom following the pandemic. JPMorgan placed most excess deposits in short-duration assets, whereas Bank of America took on excessive duration risk by buying long-duration securities. This made JPMorgan much more asset-sensitive than Bank of America as we entered the interest-rate hiking cycle in 2022.

Balance sheet positioning and duration exposure can have profound implications for bank returns and profitability, especially during rapid interest-rate changes. JPMorgan benefited enormously from its asset sensitivity as interest rates rose, but rising rates hurt Bank of America. Markets often tend to extrapolate the recent past, and we reckon this is what seems to be happening with these two firms. We make the case that the relative performance of these banks is positioned to reverse as interest rates start to decline.

Bank of America Earnings: Investment Banking, Asset Management Keep Fees Strong but Charge-Offs Rose Suryansh Sharma, Equity Analyst, 16 Apr 2024

Wide-moat-rated Bank of America reported first-quarter adjusted earnings per share of $0.83, higher than the FactSet consensus estimate of $0.76 per share. The first-quarter results of banks were impacted by an FDIC special assessment charge of $0.7 billion for uninsured deposits of certain failed banks that reduced earnings by $0.07 per share. The first-quarter numbers, after adjusting for the FDIC charge, resulted in a return on tangible equity of 13.8%. We do not plan to materially change our $38 fair value estimate for Bank of America as we fully incorporate the first-quarter results.

The shares of the bank have pared back some of their gains in recent days after rallying by around 50% from the October 2023 lows, as the market lost its enthusiasm for interest rate cuts by the Fed in 2024 due to hotter-than-expected inflation readings. The consensus has gone from six rate cuts for the year to 2-3 rate cuts. We agree that a higher-for-longer scenario is particularly bad for Bank of America in the short term, but the downside should be limited from a long-term perspective. If the market overreacts to short-term interest rate expectations, which we think it could, then investors should be on the lookout to purchase this name.

Investors have been penalizing Bank of America in the past year for its longer-duration securities exposure when interest rates were rising. The longer-duration securities portfolio weighed on the company’s net interest income, or NII, as these assets were stuck on the book while earning lower yields. Lower short-term interest rates should ameliorate some of the concerns related to the bank's long duration exposure and unrealized losses. We think the bank’s balance sheet is relatively well positioned for interest rate cuts, and NII should hold up reasonably well. It is now trading around 10% below our fair value estimate, and we think that it could outperform other money-center banks in the next few quarters as interest rates head lower.

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NYCB Was Uniquely Risky; We Would Not Read Too Much Into the Entire Banking Sector Eric Compton, CFA, Strategist, 7 Feb 2024

Our thesis on the U.S. banks following the Silicon Bank fallout was that all of the banks we covered, except for First Republic (which we downgraded to a $3 fair value estimate on March 20, 2023, and a $0 fair value on April 27, 2023), would be able to weather the storm. We believed that banks in trouble were in uniquely risky positions. We believe this thesis has largely held up, and sorting through banks based on their unique risk profiles remains necessary and valuable. To the extent that the market is selling off all banks because of what has happened to NYCB, we think there could be opportunities once again while acknowledging the significant time horizon risk (how long does it take for the banks to prove to the market they are fine) and the choppy waters that could occur in the meantime (we expect more commercial real estate related loan losses in the future).

We have highlighted that commercial real estate, or CRE, related risks have been lurking behind the scenes for some time. Our CRE thesis has been that there will be losses, it will take years to sort through, and there will likely be some bank failures. However, we again predict our coverage would be able to weather the storm. The latest developments with NYCB have not caused us to change that thesis.

While we do not cover NYCB, we have been following the situation. NYCB was in a uniquely risky position. NYCB had materially higher CRE exposure than any bank under our coverage, roughly double or more the amount of CRE exposure relative to capital. NYCB was also subject to increasing regulatory scrutiny because it had recently surpassed $100 billion in assets following its acquisition of Signature Bank. No bank under our coverage is set to see its regulatory requirements change in a similar way. NYCB has also had a more severe deterioration in core profitability. While many banks under our coverage have also seen pressure on profits, NYCB is coming under more pressure than most banks we cover.

Bank of America Earnings: Lower Net Interest Income, One-Time Charges Have Impact; Expenses on Track Suryansh Sharma, Equity Analyst, 12 Jan 2024

Wide-moat-rated Bank of America reported fourth-quarter earnings per share of $0.35, lower than the FactSet consensus estimate of $0.53. Results were affected by an FDIC special assessment of $2.1 billion for uninsured deposits of certain failed banks, which reduced EPS by $0.20, and a noninterest income charge of $1.6 billion as a result of the cessation of the Bloomberg Short-Term Bank Yield Index, which reduced earnings by $0.15 per diluted common share. Excluding the nonrecurring charges, reported EPS came in at $0.70, largely in line with our expectations.

Bank of America shares have rallied around 30% from their October-end lows as the market got excited about the prospect of interest-rate cuts by the Federal Reserve in 2024. Investors had penalized the bank earlier in 2023 for its longer-duration securities exposure when interest rates were rising. The longer-duration securities portfolio weighed on the company's net interest income, as these assets were stuck on the books while earning lower yields. The prospect of lower interest rates in 2024 has ameliorated some concerns related to the banks' long-duration exposure and unrealized losses. Relatively speaking, we think Bank of America's balance sheet is well positioned for interest-rate cuts and net interest income should hold up reasonably well. We do not plan to materially change our $35 fair value estimate as we fully incorporate fourth-quarter results. The bank is now trading close to this fair value estimate, and we believe investors should wait for a bigger margin of safety as they consider this name.

Bank of America Earnings: Bank Is Meeting Expectations, Net Interest Income Likely to Bottom Soon

Eric Compton, CFA, Strategist, 17 Oct 2023

Wide-moat-rated Bank of America reported decent third-quarter results. Deposit costs are tracking as we expected, deposits grew slightly in the quarter, and net interest income, or NII, even outperformed slightly despite minimal balance sheet growth. After some slight changes to our projections, we are maintaining our fair value estimate of $35 for Bank of America. We think the market is continuing to penalize Bank of America for its longer duration securities, and while it will be slow going for this book to gradually mature and roll off, we think the core business remains solid. We still view shares as moderately undervalued, being slightly cheaper than peer JPMorgan but not quite as cheap as the peers in turn-around mode.

Management maintained its fourth-quarter NII outlook and believes that next quarter will roughly be the bottom for NII in the current cycle, assuming no more than one additional rate hike. We think the market is still getting comfortable with where funding costs, deposit levels, and NII might reach an equilibrium, and we are starting to get a more refined picture here. This should set up the bank for a slight decline in NII in 2024, although NII levels should still be roughly 30% above 2020 and 2021 levels. In other words, despite some of the self-induced pressure from the bank's longer duration securities portfolio compared with peers, profitability is not an issue, and the bank's current trajectory roughly fits our previous expectations.

Expenses met expectations, and management maintained its outlook for the fourth quarter. We think it will be difficult, but possible, for the bank to limit expense growth in 2024. We are currently expecting something closer to a mid-single-digit percentage increase, but there may be room for something better.

Fees were a bit weaker, as investment banking did not bounce back in the quarter. This remains a cyclical business, and we would not read too much into this. Other fee items were roughly as expected. M

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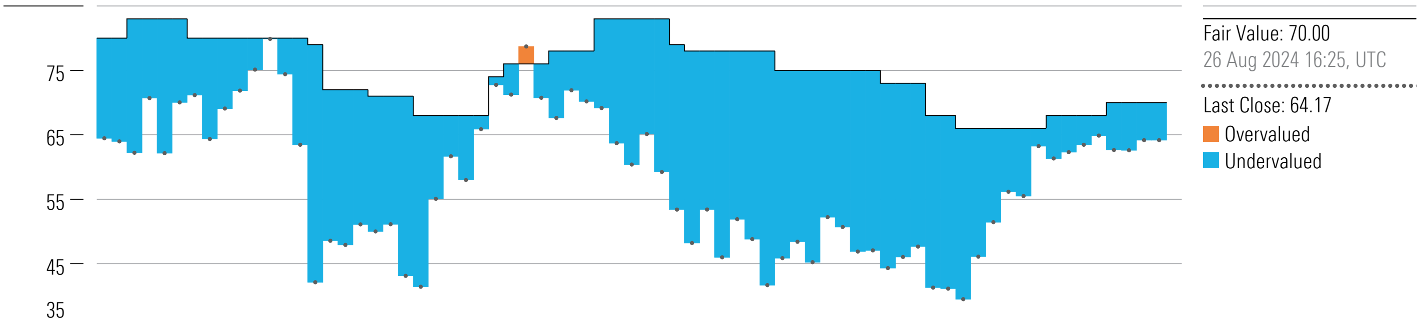
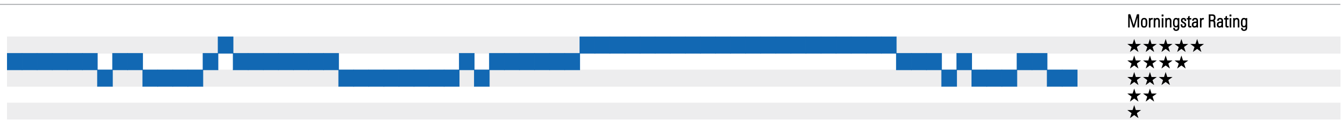
Bank of America Corp BAC ★★★ 1 Nov 2024 21:41, UTC

Competitors Price vs. Fair Value

Citigroup Inc C

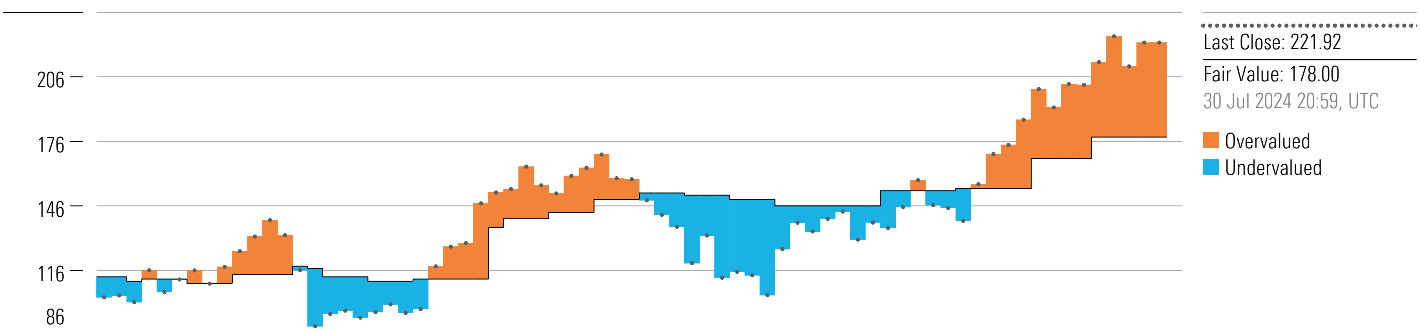


	2019	2020	2021	2022	2023	YTD
Price/Fair Value	1.00	0.91	0.73	0.60	0.78	0.91
Total Return %	57.15	-20.27	1.25	-21.73	18.33	27.90

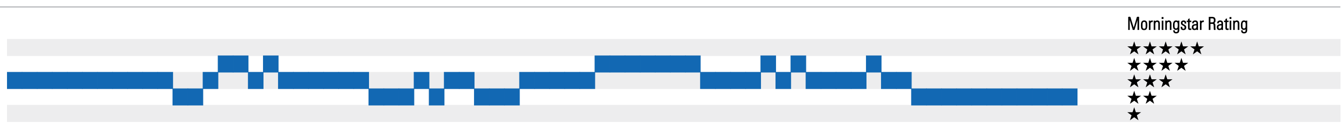


Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 26 Aug 2024 16:25, UTC.

JPMorgan Chase & Co JPM



	2019	2020	2021	2022	2023	YTD
Price/Fair Value	1.22	1.13	1.06	0.92	1.10	1.25
Total Return %	46.18	-6.26	27.53	-12.79	29.87	33.17



Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 30 Jul 2024 20:59, UTC.

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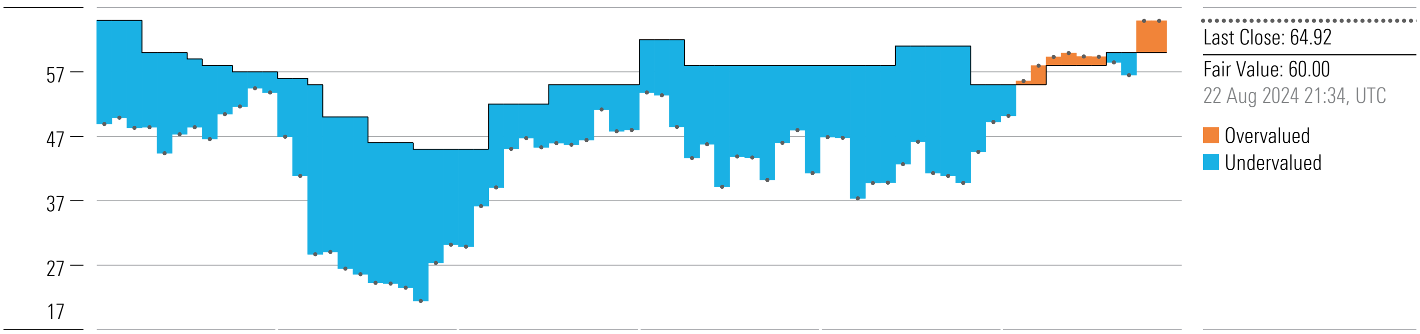
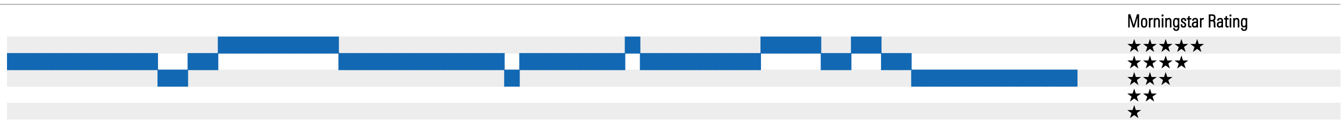
Bank of America Corp BAC ★★★ 1 Nov 2024 21:41, UTC

Competitors Price vs. Fair Value

Wells Fargo & Co WFC



	2019	2020	2021	2022	2023	YTD
Price/Fair Value	0.94	0.67	0.87	0.71	0.89	1.08
Total Return %	20.92	-41.64	60.97	-11.65	22.35	34.13



Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 22 Aug 2024 21:34, UTC.

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Bank of America Corp BAC ★★★ 1 Nov 2024 21:41, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
41.82 USD 31 Oct 2024	39.50 USD 2 Aug 2024 21:50, UTC	1.06	324.04 USD Bil 1 Nov 2024	Wide	Large Value	Medium	Standard	2 Oct 2024 05:00, UTC

Morningstar Historical Summary

Financials as of 30 Sep 2024

Fiscal Year, ends 31 Dec	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	TTM
Revenue (USD Bil)	86	83	84	87	91	91	86	89	95	99	77	98
Revenue Growth %	-0.2	-3.4	0.9	4.1	4.5	0.3	-6.3	4.2	6.6	3.8	-0.1	-2.6
Provision for Loan Losses (USD Bil)	-2.28	-3.16	-3.60	-3.40	-3.28	-3.59	-11.32	4.59	-2.54	-4.39	-4.37	-5.47
Provision for Loan Losses % of Loans and Leases	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-1.2	0.5	-0.2	-0.4	-0.4	-0.5
Revenue After Provision for Loan Losses (USD Mil)	—	—	—	—	—	—	74,208	0	0	0	—	—
Revenue After Provision for Loan Losses Growth %	—	—	—	—	—	—	—	-100.0	—	—	—	—
Operating Income (USD Tril)	7.96	22.19	25.02	29.21	34.58	32.75	19.00	33.98	30.97	28.34	22.15	25.27
Operating Margin %	—	—	—	—	—	—	—	—	—	—	—	—
Net Income (USD Bil)	5.52	15.91	17.82	18.23	28.15	27.43	17.89	31.98	27.53	26.52	20.47	23.61
Net Margin %	5.2	17.4	19.3	19.1	29.3	28.5	19.3	34.3	27.4	25.2	25.0	22.3
Diluted Shares Outstanding (Bil)	10.58	11.24	11.05	10.78	10.24	9.44	8.80	8.56	8.17	8.08	7.97	7.94
Diluted Earnings Per Share (USD)	0.42	1.31	1.49	1.56	2.61	2.75	1.87	3.57	3.19	3.08	2.40	2.76
Dividends Per Share (USD)	0.12	0.20	0.25	0.39	0.54	0.66	0.72	0.78	0.86	0.92	0.74	0.98

Valuation as of 31 Oct 2024

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Recent Qtr	TTM
Price/Sales	2.3	2.3	3.0	3.7	2.9	3.7	3.1	4.5	2.9	2.7	3.2	3.4
Price/Earnings	47.2	12.5	16.0	16.9	11.7	13.0	15.0	13.3	10.5	9.4	13.9	15.2
Dividend Yield %	0.67	1.19	1.13	1.32	2.19	1.87	2.38	1.75	2.6	2.73	2.47	2.34
Price/Book	0.9	0.7	0.9	1.2	1.0	1.3	1.1	1.4	1.1	1.0	1.1	1.2
Price/Tangible Book	1.3	1.1	1.3	1.7	1.4	1.8	1.5	2.0	1.5	1.4	1.5	—

Operating Performance / Profitability as of 30 Sep 2024

Fiscal Year, ends 31 Dec	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	TTM
ROA %	0.2	0.7	0.8	0.7	1.2	1.1	0.6	1.0	0.8	0.8	—	0.7
ROE %	2.0	6.3	6.8	6.8	11.0	10.7	6.7	12.4	10.6	9.8	—	8.3

Financial Leverage

Fiscal Year, ends 31 Dec	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Recent Qtr	TTM
Debt/Capital %	50.0	48.0	44.9	46.0	46.4	47.6	49.1	50.9	50.2	50.9	50.0	—
Equity/Assets %	10.7	10.9	11.0	10.7	10.3	9.9	8.8	7.7	8.0	8.3	8.2	—

Morningstar Analyst Historical/Forecast Summary as of 02 Aug 2024

Financials

			Estimates		
Fiscal Year, ends 31 Dec 2023	2022	2023	2024	2025	2026
Revenue (USD Mil)	94,950	98,581	101,097	102,443	107,124
Revenue Growth %	6.6	3.8	2.6	4.6	1.3
Provision for Loan Losses (USD Mil)	2,543	4,394	6,421	6,958	7,328
Provision for Loan Losses % of Loans and Leases					
Revenue After Provision for Loan Losses (USD Mil)	0	0	0	0	0
Revenue After Provision for Loan Losses Growth %	—	—	—	—	—
Operating Income (USD Mil)	30,969	28,342	28,984	28,525	31,215
Efficiency Ratio %	64.7	66.8	65.0	65.4	64.0
Net Income (USD Mil)	27,528	26,515	26,086	25,444	27,625
Net Margin %					
Diluted Shares Outstanding (Mil)	8,168	8,081	7,756	7,444	7,165
Diluted Earnings Per Share(USD)	3.19	3.08	3.15	3.19	3.62
Dividends Per Share(USD)	—	—	—	—	—

Forward Valuation

		Estimates			
	2022	2023	2024	2025	2026
Price/Sales	—	—	—	—	—
Price/Earnings	10.4	10.9	13.3	13.1	11.5
Dividend Yield %	2.7	2.4	2.6	2.7	3.0
Price/Book	—	—	—	—	—
Price/Tangible Book	1.5	1.4	1.6	1.6	1.5

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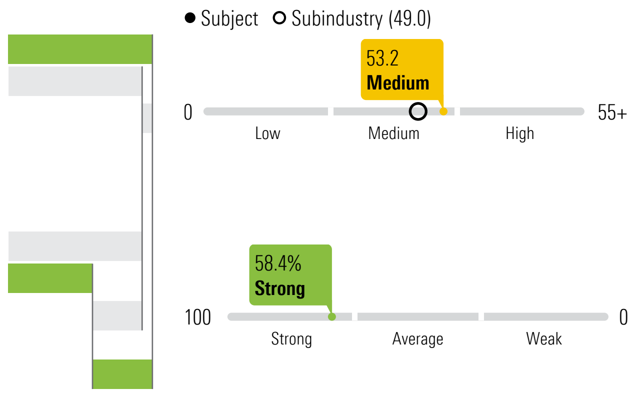
Bank of America Corp BAC ★★★ 1 Nov 2024 21:41, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
41.82 USD 31 Oct 2024	39.50 USD 2 Aug 2024 21:50, UTC	1.06	324.04 USD Bil 1 Nov 2024	Wide	Large Value	Medium	Standard	2 Oct 2024 05:00, UTC

ESG Risk Rating Breakdown

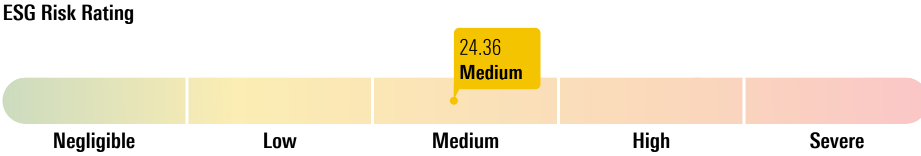
Exposure	
Company Exposure[1]	53.2
– Manageable Risk	49.4
Unmanageable Risk[2]	**3.8**
Management	
Manageable Risk	49.4
– Managed Risk[3]	28.8
Management Gap[4]	**20.6**
Overall Unmanaged Risk	**24.4**



- Exposure represents a company's vulnerability to ESG risks driven by their business model
- Exposure is assessed at the Subindustry level and then specified at the company level
- Scoring ranges from 0-55+ with categories of low, medium, and high-risk exposure

- Management measures a company's ability to manage ESG risks through its commitments and actions
- Management assesses a company's efficiency on ESG programs, practices, and policies
- Management score ranges from 0-100% showing how much manageable risk a company is managing

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 58.4% 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 Assessment[5]

ESG Risk Rating is of Oct 02, 2024. Highest Controversy Level is as of Oct 08, 2024. Sustainalytics Subindustry: Diversified Banks. Sustainalytics provides Morningstar with company ESG ratings and metrics on a monthly basis and as such, the ratings in Morningstar may not necessarily reflect current Sustainalytics' scores for the company. For the most up to date rating and more information, please visit: sustainalytics.com/esg-ratings/.

Peer Analysis 02 Oct 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		
Bank of America Corp	53.2 | Medium	0	55+	58.4 | Strong	100	0	24.4 | Medium	0	40+
Citigroup Inc	53.6 | Medium	0	55+	63.1 | Strong	100	0	22.1 | Medium	0	40+
Wells Fargo & Co	59.1 | High	0	55+	42.2 | Average	100	0	35.9 | High	0	40+
JPMorgan Chase & Co	53.7 | Medium	0	55+	52.5 | Strong	100	0	27.5 | Medium	0	40+
Chongqing Rural ...cial Bank Co Ltd	38.8 | Medium	0	55+	33.8 | Average	100	0	26.2 | Medium	0	40+

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Appendix
Historical Morningstar Rating

Bank of America Corp BAC 1 Nov 2024 21:41, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★★	★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★	★★	★★	★★	★★	★★★	★★	★★	★★	★★★	★★	★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★	★★★★	★★★	★★★

Citigroup Inc C 1 Nov 2024 21:41, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	★★★	★★★	★★★★	★★★★	★★★	★★★	★★★	★★★★	★★★	★★★★	★★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★★	★★★★	★★★★	★★★★	★★★	★★★★	★★★	★★★	★★★	★★★	★★★	★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★	★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★	★★★	★★★	★★★★	★★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

JPMorgan Chase & Co JPM 1 Nov 2024 21:37, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	★★	★★	★★	★★	★★	★★	★★	★★	★★	★★	★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★	★★★	★★★★	★★★	★★★	★★★	★★★	★★★★	★★★	★★★★	★★★	★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★★	★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★	★★★	★★	★★	★★	★★★	★★★	★★	★★★	★★	★★	★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★	★★★★	★★★★	★★★	★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★

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Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★★	★★★★	★★★★★	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★★	★★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★	★★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

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, indepth 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 shortterm market-price movements), but we believe these negatives are mitigated by deep analysis and our longterm 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 returns 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 (EBI) and the net new investment (NNI) to derive 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 EBI 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.

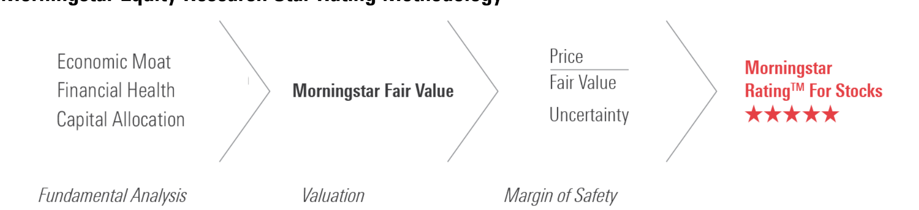
Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return 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 Uncertainty Ratings	★★★★★Rating	★Rating
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.

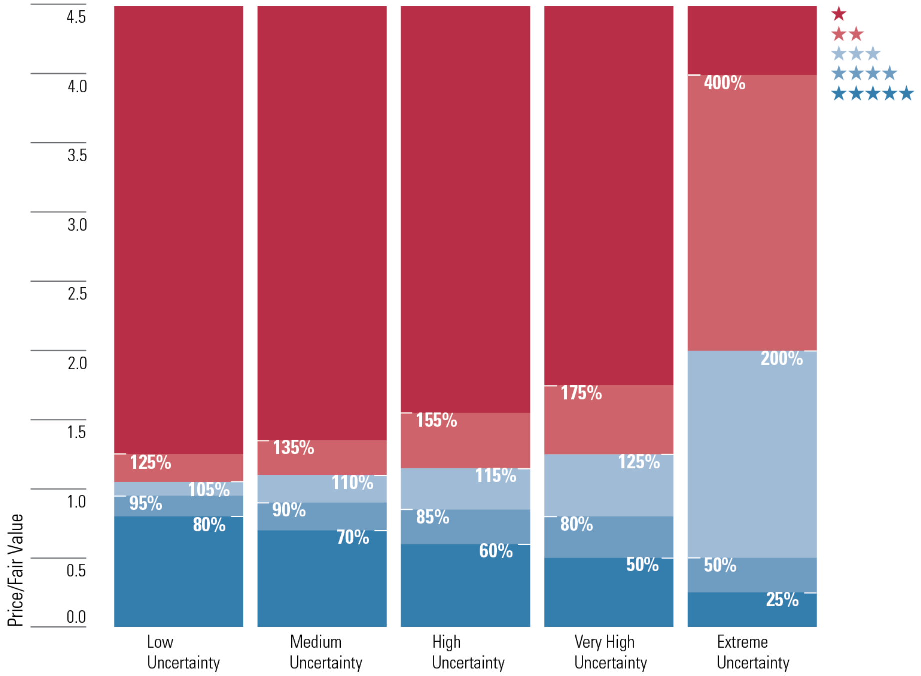
4. Market Price

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 adjusted 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 Risks 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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