



**CFRA**

# Industry Surveys

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## Multinational Banks

FEBRUARY 2023

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## CONTENTS

5	Industry Snapshot
6	Financial Metrics
9	Key Industry Drivers
11	Industry Trends
12	Porter's Five Forces
27	Individual Bank Financial Metrics
30	How the Industry Operates
38	How to Analyze a Company in this Industry
46	Glossary
48	Industry References
50	Comparative Company Analysis

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## CHARTS & FIGURES

- 6 Revenue  
Net Income  
Net Interest Margin
- 7 Cost-to-Income Ratio  
Loan Growth
- 8 Deposit Growth  
Loan Loss Provisions
- 9 Real GDP Growth  
Yield Spread  
10-Year Government Bond Yields
- 10 Global Interest Rates  
U.S. Consumer & Business Confidence  
Europe Consumer & Business Confidence
- 11 Profit Share Map
- 14 U.S. GDP Since Covid-19
- 15 U.S., Europe, and China's Interest Rates
- 16 Net Interest Margin
- 17 Multinational Banks with the Highest  
Revenue Per Branch
- 18 Global Venture Capital-Backed Fintech  
Deals
- 19 U.S. Fintech Investment by Segment
- 22 Climate Goals of Top 10 Banks
- 23 Aggregate Capital Ratios Prior and Post-  
Stress Test Scenarios
- 25 Global M&A Activity
- 26 Top Banks League Table

## NEW THEMES



**What's Changed:** Crypto regulation has been outside banks' regulation - does this still hold true? Read our commentary on this on page 20.



**What's Changed:** In 2023, we think M&A will take a breather due to increase macro uncertainties and higher interest rates, although we still expect the trend toward consolidation to remain strong in the longer term. More on this on page 25.

# EXECUTIVE SUMMARY

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Major global central banks' decision to raise rates in 2022 to curb rampant inflation has helped the banking sector as banks see their net interest margin expand. In the U.S. and Europe, this ended the period of low and declining interest rates, which lasted for more than 15 years. The trend of higher interest rates is expected to continue in 2023 as inflation is expected to remain elevated, although the pace of rate hikes has seen signs of slowing down recently.

A weaker global economy and increased credit risk may weigh on banks' profitability prospects in the medium term. Despite a significant worsening of the economic outlook, the asset quality of the banks under our coverage showed no signs of broad-based deterioration in 2022. This will be tested in 2023 as households and businesses will start to feel the pain from inflation and slower economic growth, with the threat of a recession looming.

Here are the key themes we expect to play out for the multinational banks under our coverage in 2023:

## ***Slower Economic Growth Will Dampen Demand for Loans***

The combination of higher interest rates, tighter liquidity conditions, and risk aversion against a background of weaker global economic growth will slow credit growth in most regions, in our view. However, we believe a sharp pullback in loans remains unlikely, in part due to the lack of major credit booms over the last decade. All in all, we expect loan growth to decelerate but not contract.

## ***Asset Quality Will Be Tested***

The normalization of interest rates and the removal of extraordinary borrower support and forbearance that masked asset-quality problems at the height of the pandemic will put upward pressure on non-performing loans (NPLs) this year, in our opinion. We expect the combination of tighter monetary policy and slowing global economic growth will negatively affect the ability of borrowers to service debt, leading to a gradual increase in NPLs in early 2023, in turn hurting bank profitability and capital buffers. On a more positive note, growing impairment starts from historically low levels in many economies, providing banks with more room to absorb asset-quality deterioration before problems become severe.

## ***Profitability Under Pressure from Asset Quality and Costs, Counterbalanced By Higher Policy Rates***

Deteriorating asset quality is likely to push profits lower as inflationary pressures damage the financial position of households and businesses, and banks adapt with higher loan loss provisions and write-offs. Rising inflation has prompted global central banks to tighten monetary policy in 2022 and we expect further monetary tightening in 2023, increasing funding costs for banks and curtailing the debt-service capacity of borrowers. In addition, higher operational and refinancing costs are likely to squeeze earnings. Counterbalancing this, rising interest rates should support margins, cushioning the decline in earnings and permitting improvements in profitability in stronger-performing geographies and over the longer term.

## ***Environmental Social Governance (ESG) Issues Will Remain a Key Focus Area for Global Regulators***

Globally, regulators will need to balance the desire to prioritize funding for green initiatives without inadvertently cutting off access to funding for vulnerable developing economies that rely most heavily on energy-intensive industries. Tactics are likely to vary by region, with advanced economies likely to introduce tighter regulations to identify and monitor ESG-related exposures and impose penalties on financial institutions that fail to meet new targets.

## Multinational Banks

Outlook: Neutral

## MARKET CAP BREAKDOWN\*

RANK NO.	COMPANY NAME	MARKET CAP (\$ billion)
1	JPMorgan Chase	437.5
2	Bank of America	372.7
3	ICBC	249.9
4	China Merchants Bank	192.8
5	Wells Fargo	160.2
	Others†	2,287.2

Source: CFRA, S&amp;P Global Market Intelligence

\*Data as of January 31, 2023.

†Refer to the "Comparative Company Analysis" section of this survey for the list of companies.

## BY THE NUMBERS

**+3.26%-pts**

Avg. interest rate hike for the Fed, BOE, and ECB since the start of 2022

**+2.36%-pts**

Avg. increase in 10-yr government bond yield for U.S., U.K., and Germany

**-34.6%**

Y/Y drop in aggregate M&amp;A value as of YTD Q3 2022

**-0.53%**

Current yield spread between 2-yr and 10-yr U.S. government bonds

**11.7%**

2022 average ROE for the world's largest banks (2021: 12.7%)

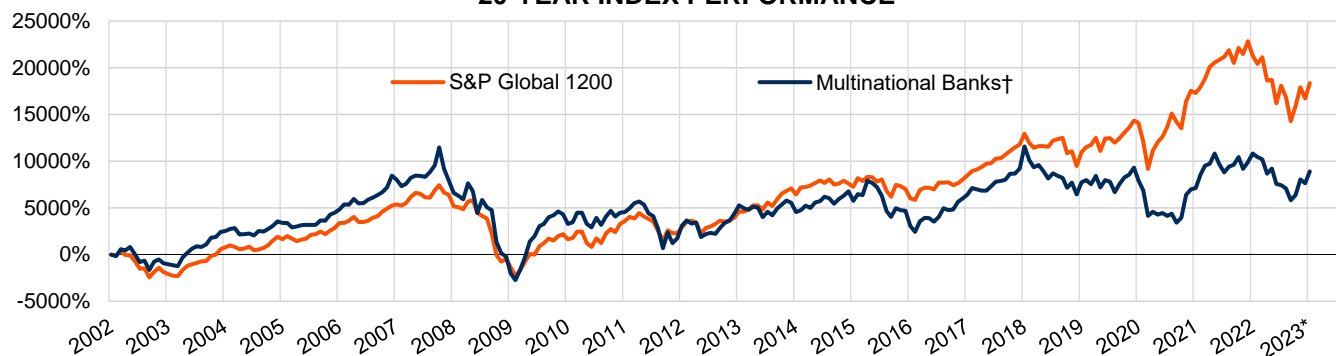
**108.3**

Dec. 2022 U.S. Consumer Confidence Index (vs. a low of 95.3 in July 2022)

## ETF FOCUS

<b>XLF</b> Financial Select Sector SPDR	AUM (\$M) <b>31,461</b>	Expense Ratio <b>0.10</b>
<b>KBE</b> SPDR S&P Bank	AUM (\$M) <b>1,704</b>	Expense Ratio <b>0.35</b>
<b>KBWB</b> Invesco KBW Bank	AUM (\$M) <b>1,757</b>	Expense Ratio <b>0.35</b>
<b>EUFN</b> iShares MSCI Europe Financials	AUM (\$M) <b>1,321</b>	Expense Ratio <b>0.48</b>

## 20-YEAR INDEX PERFORMANCE

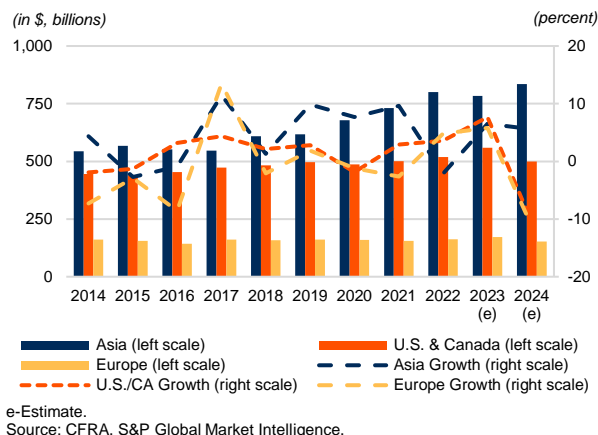


\*Data through January 31. †Index and Financial Metrics based on the public-listed Multinational Banks with market cap of over \$50 billion; the top 20 of which are listed in the Comparative Company Analysis section.

Source: CFRA, S&P Global Market Intelligence.

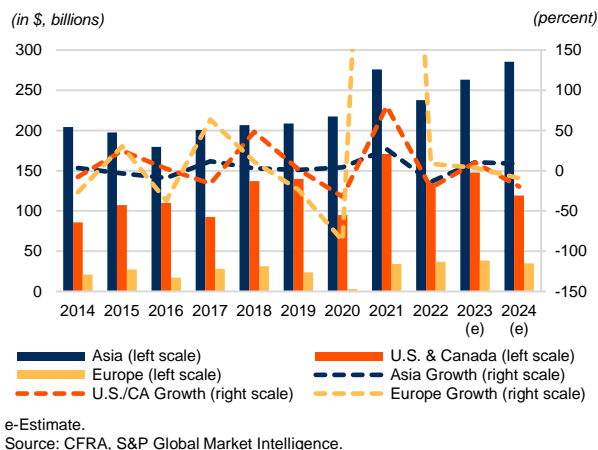
# FINANCIAL METRICS

## Revenue



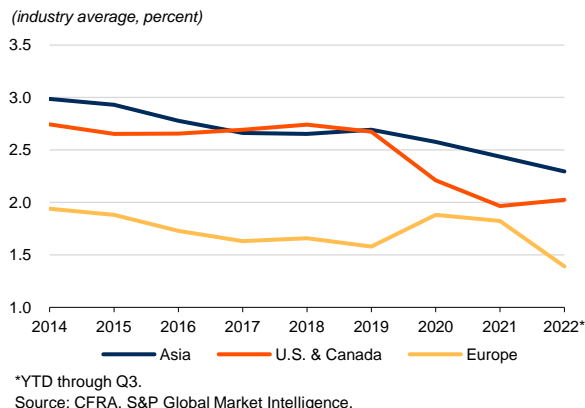
- ◆ We estimate revenues of U.S./Canadian and European multinational banks to grow by 7.7% and 5.8% in 2023, respectively, as they benefit from higher margins amid interest rate hikes.
- ◆ Revenue growth for Asian multinational banks is forecasted to experience a 6.5% rise amid a recovery from the previous year's revenue contraction due to China's zero-Covid-19 policy and mortgage crisis caused by a real estate slump.
- ◆ However, the People's Bank of China will likely keep interest rates low in 2023, putting pressure on net interest margin. Similarly, the Bank of Japan has indicated an ultra-low interest rate stance until clearer global outlook.

## Net Income



- ◆ In 2021, global banks recorded net income (NI) growth due to the reversal of loan loss provisions. In 2022, with the exception of EU banks, net income declined across the board, due to not just a higher base, but also the uncertainties that plague those regions.
- ◆ This year, we forecast higher NI growth across the board due to the higher interest rate environment. However, such growth could potentially be hampered by a looming recession and increased delinquencies due to the higher interest rate.

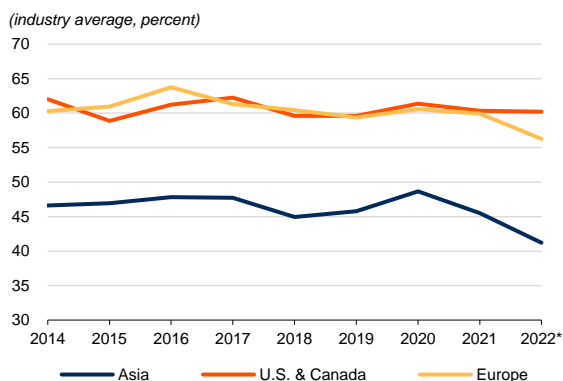
## Net Interest Margin (NIM)



- ◆ After the pandemic, banks operate under decreasing net interest margins due to the low interest rate environment.
- ◆ In 2023, we think banks' net interest margin will benefit from central banks' action to increase interest rates to curb inflation. When this happens, we think banks will waste little time implementing their own rate increases.



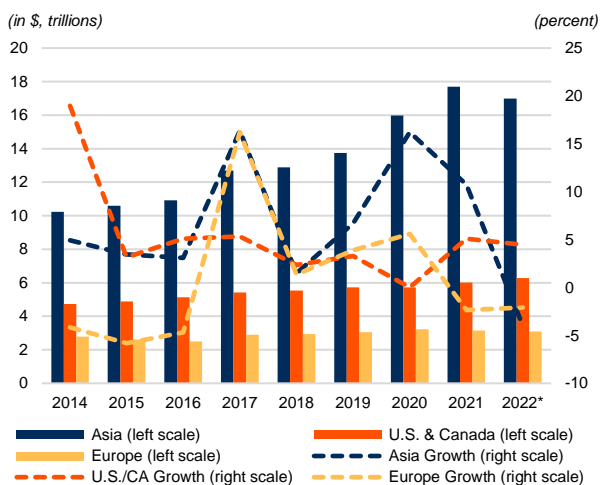
## Cost-to-Income Ratio



◆ We note the cost-to-income ratio (CIR) for Asian banks is significantly lower than their North American and European counterparts. The eight Chinese banks had very low CIRs, with an average of 24.3% in 2022. This could be explained by their focus on interest-driven commercial banking compared to other multinational banks that generate a larger share through non-interest sources (e.g., investment banking or wealth management), which tends to carry a higher CIR.

◆ We expect banks' operating costs to increase due to the inflationary environment, higher compliance and regulatory costs, and ongoing investments in IT infrastructure. However, we expect banks' CIR to remain largely stable, as the increase in operating costs will be neutralized by the expected revenue growth driven by higher interest rates, in our view.

## Loan Growth

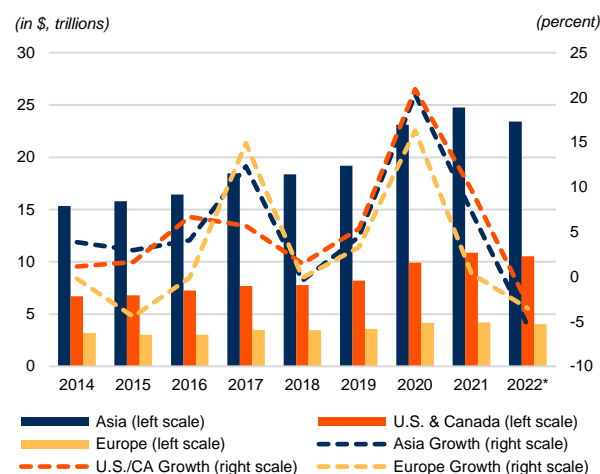


◆ Multinational banks' loan balances decreased in the second quarter of 2022 amid economic uncertainties. Total loans of Asian and European banks contracted by 4.0% and 2.1%, respectively, during the period, driven by various geopolitical issues (i.e., China's zero-Covid-19 policy and high inflationary pressures in Europe). Loan growth for North American banks, on the other hand, grew 4.5% during the same period.

◆ We project slower global loan growth within the low-single-digit range in 2023 amid increasing macroeconomic uncertainties and slower economic growth, coupled with the threat of recession.

◆ In the second quarter of 2022 (latest available), the loan-to-deposit ratio declined considerably for Asian banks to 67.7% from 71.4% as of year-end 2021 amid an increase in deposits and decrease in loans. On the other side of the spectrum sat North American banks – the group's loan-to-deposit ratio rose to 58.1% from 55.3% just half a year prior. In their case, deposits contracted by 1.3% while loans increased by 4.5%. European banks' ratio stood in the middle of the pack with a modest increase of 1% to 76.2%.

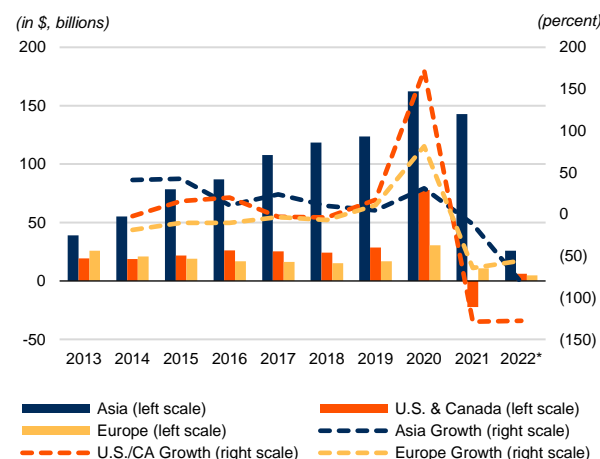
## Deposit Growth



\*Data as of Q3.  
Source: CFRA, S&P Global Market Intelligence.

- ◆ Deposit costs are a key driver of net interest spreads and, therefore, net interest income. Deposit costs had been rising as banks competed for customers.
- ◆ Retail deposit costs were slow to fall as households hoarded cash in fear of a deeper recession. Wholesale deposits, on the other hand, were repriced much more quickly.
- ◆ Deposits grew modestly at 0.3% as of the third quarter of 2022 from year-end 2021 levels. Deposits at U.S./Canada and European banks contracted 0.5% and 3.4% during the period, respectively. We attribute the decline to a decrease in risk appetite (hence increased savings) amid geopolitical and economic uncertainties. During the same period, Asian banks' deposits grew 1.3%.

## Loan Loss Provisions



\*Data through Q3.  
Source: CFRA, S&P Global Market Intelligence.

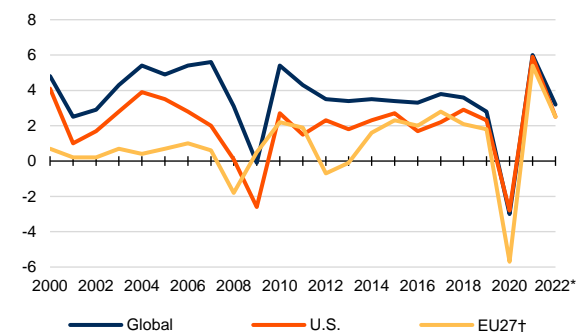
- ◆ Total loan loss provisions spiked 89% in 2020 from the previous five years' average. However, in 2021, most banks had decreased their provisions, as evidenced by North America's net reversion.
- ◆ Despite a decline, loan loss provisions remain relatively high in China due to the mortgage crisis.
- ◆ We foresee multinational banks' loan loss provisions to rise in 2023 due to deteriorating macroeconomic indicators including slower economic growth (and a possible recession), rising inflation, and ongoing geopolitical conflict (*i.e.*, the Russia-Ukraine war). That said, this should still be well below the level seen during the height of the pandemic in 2020, in our view.



# KEY INDUSTRY DRIVERS

## Real GDP Growth

(Y/Y change, in percent)



†Excludes U.K.

\*2022 data estimated by The World Bank.

Source: Federal Reserve Bank of St. Louis, IMF, Eurostat.

- ◆ Action Economics forecasts U.S. economic growth to slow to 1.0% in 2023 and 1.7% in 2024 as its economy braces for inflationary and potential recessionary headwinds. Real GDP in the Euro Area is forecasted to increase 0.1% this year, after a growth of 3.1% in 2022.
- ◆ The IMF projects slower global real GDP growth of 2.9% in 2022 as the world grapples with inflated material costs due to the Russia-Ukraine conflict. We think that recovery is expected to be uneven and highly dependent on each country's policy countermeasures and degree of self-sustainability.

## Yield Spread: 10-Year Versus 2-Year Treasury

(monthly average, percent)



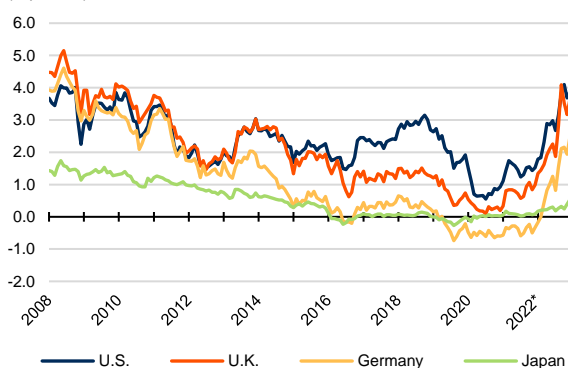
\*Data through December.

Source: U.S. Department of the Treasury.

- ◆ The Treasury yield curve has inverted to a degree that hasn't been witnessed since the 1980s while the U.S. government bond market is giving out clear signs that a recession is about to start.
- ◆ After inverting briefly in August-September 2019, the yield spread widened to 147 basis points in April 2021 before plunging to negative territory since July 2022.
- ◆ A flattening and inverted yield curve would be detrimental to bank asset yields and send a negative signal about the economy, further dampening investors' sentiment.

## 10-Year Government Bond Yields

(in percent)

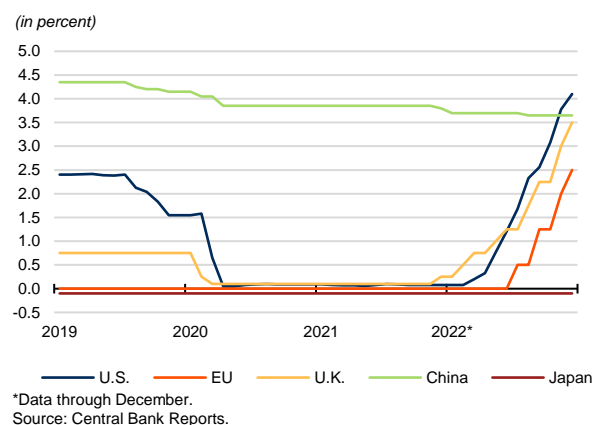


\*Data through December.

Source: CFRA, S&P Global Market Intelligence.

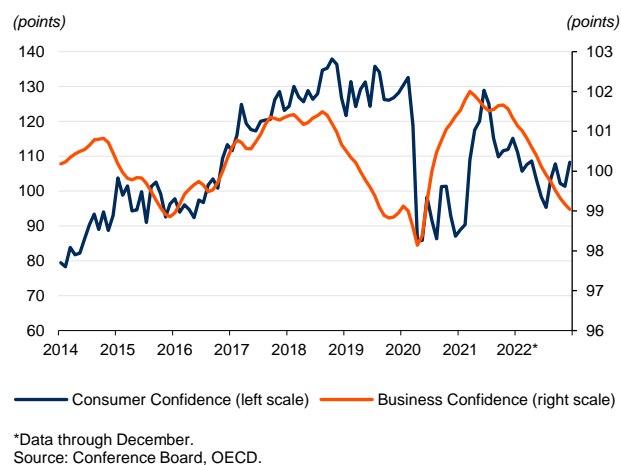
- ◆ The 10-year bond yields continue to rise as investors gauge the effects of governmental and central banks' response to current economic volatilities.
- ◆ While the current round of contractionary monetary policies was meant to tame inflation rates instead of slowing down an overheated economy, some investors are keen to take a chance to seek higher-risk, higher-return investment classes.
- ◆ Most central banks worldwide followed the Fed's footsteps to hike interest rates in 2022. In its December 2022 meeting, the Fed reiterated its commitment to tame inflation, thereby hinting that rate hikes would continue well into 2024.

## Global Interest Rates



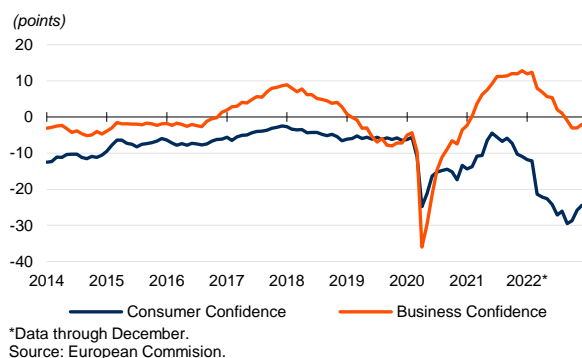
- ◆ With the exception of China, most central banks had cut their target interest rates to near-zero in 2020 to buoy the economy through pandemic times.
- ◆ However, inflationary pressures around the world necessitated an early rate hike. The Bank of England was the earliest to raise its interest rate in December 2021. In March 2022, the U.S. Fed raised its interest rate for the first time in three years. The European Central Bank was last among the three to tighten its monetary policy in July 2022.
- ◆ Higher central bank rates would likely positively impact banks' net interest income and net interest margin. This, alongside loan loss reversal, would have a net positive effect on banks' downline.

## U.S. Consumer & Business Confidence



- ◆ The U.S. Consumer Confidence Index averaged 104.4 in 2022, 112.3 in 2021, and 101.0 in 2020.
- ◆ The latest (December 2022) index reached a high of 108.3 since April 2022. The increase was driven mainly by a more positive perception of the economy and employment by the consumers. In December, inflation forecasts dropped to their lowest level since September 2021, according to the Conference Board.
- ◆ U.S. business confidence, on the other hand, reached a post-pandemic low as uncertainty plagues the near-term outlook. We think the downward trend may persist through year-end as the country faces strong headwinds of a possible recession.

## Europe Consumer & Business Confidence



- ◆ Things are not looking too good in Europe either. Despite recent increases, confidence levels for both consumers and businesses remained low amid inflated food and gas prices due to the ongoing Russia-Ukraine crisis and higher interest rates.
- ◆ Even before the war, Europe's Consumer Confidence Indices had been in the negative territory, reflecting sustained pessimism regarding the region's economic outlook.

# INDUSTRY TRENDS

## Competitive Environment

### INDUSTRY OUTLOOK AND PROFITABILITY OVERVIEW

CFRA has a neutral fundamental outlook for the multinational banks industry for the next 12 months, driven by a higher interest rate environment, which is positive for net interest margin. However, we believe the impact on banks' net interest income will be somewhat diluted by the weaker demand for loans due to the expected slower economic growth and threat of recession. The increased macro-economic uncertainties will also result in high loan loss provisions, in our view.

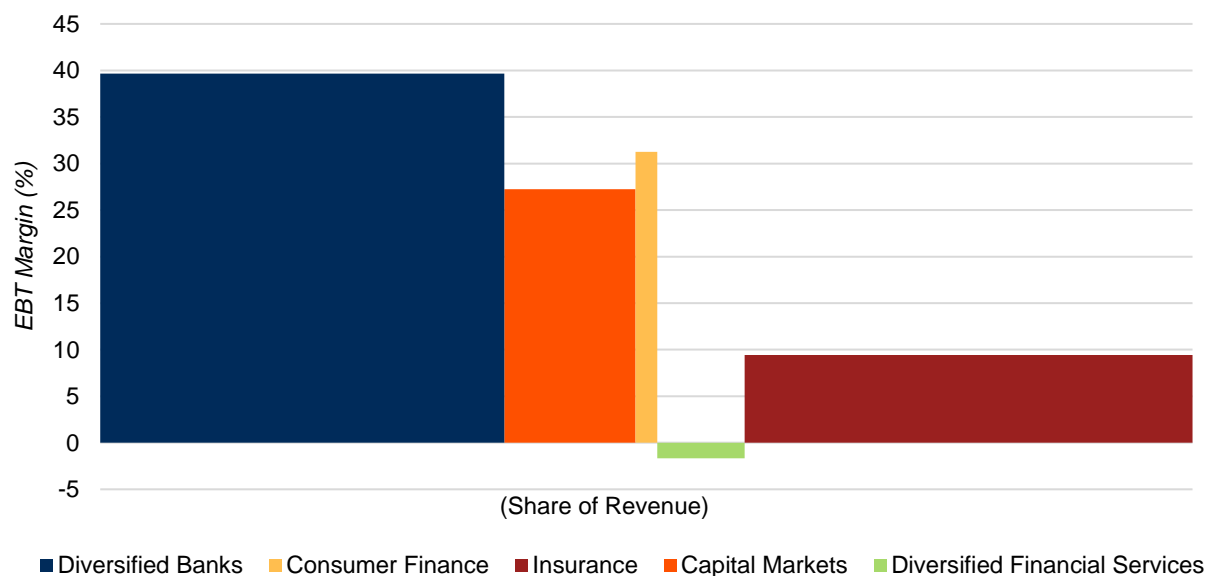
While banks will generally benefit from the higher interest rate environment, it can also be a double-edged sword. Corporates and households already feeling the pinch from higher commodities prices and disrupted global supply chain will now also have to deal with higher interest payments on their debt. A further surge in inflation could translate into higher probabilities of default, including in some sectors badly hit by the pandemic, such as accommodation and food services. This will lead to higher credit costs, *i.e.*, an increase in banks' loan loss provisions.

The high inflationary environment will likely lead to higher operational costs due to the expected increase in wages and procurement expenses. Banks will have to persist on ongoing cost optimization and technology investments to improve their profitability.

We are comforted with the banks' strong capital levels. Despite increasing macro-economic uncertainty, banks' asset quality has been holding up well, as we haven't seen any significant spike in non-performing loans.

The following charts illustrate the profitability map of the global financial sector.

#### PROFIT SHARE MAP OF THE GLOBAL FINANCIALS SECTOR\*

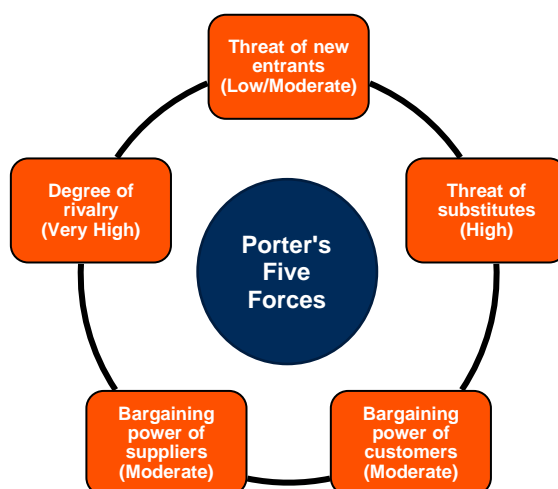


\*Companies within the S&P Global 1200 Index as of December 31, 2022.

Source: CFRA, S&P Global Market Intelligence.

Within the global financial sector, the insurance industry is the largest in revenue terms at 40% in the 12 months ended December 31, 2022, followed by banks at 37%. However, in terms of earnings before tax (EBT) margins, banks' margins of 39.7% dwarf insurance companies' margins of 9.4%, underscoring the intense competition in the insurance industry. Although the consumer finance industry accounts for only 2% of the financial sector revenue, the industry has a significantly higher (compared to the insurance industry) EBT margin of 31.3%.

## PORTER'S FIVE FORCES



### Threat of New Entrants (Low/Moderate)

The threat of entry for a new full-service global bank is relatively low due to high capital requirements and significant regulatory barriers; however, there are opportunities for businesses within a specialty, such as payment. The payments business is a good source of revenue for banks; therefore, banks pay great attention to their competitors in the space. Although some banks act as funding partners for digital lenders, these online lenders also compete for borrowers. Nevertheless, CFRA sees banks retaining the upper hand with their access to insured deposits, which lowers their cost of capital.

Steady moves by tech companies, digital-only banks, and fintech companies into the banking business are likely to lead to more competition and margin pressure for multinational banks. Digital-only banks are redefining the retail banking scene in the U.S., with the likes of Ally Financial Inc. and Wise US Inc. growing their customer bases at a faster clip than the industry, enticing clients with very attractive rates. Lastly, consumers' increased appetite for digital solutions had given a leg up to fintech-backed platforms.

While the overall market share of these newcomers is still relatively small compared to the centuries-old financial services industry largely tied to the rigid regulatory framework, these new companies have an outsized impact. Their financial model – low-to-negative cost of capital, balance sheet-lite, and little-to-no regulatory constraints – allowed fintech companies and online banks to pay richer rates than traditional banks and keep the “hot money” happy.

### Threat of Substitutes (High)

There are many substitutes in the banking industry. In addition to taking deposits and lending money, banks offer an array of services such as insurance, mutual funds, or fixed-income securities. Still, many non-banking financial services companies also offer similar services. Unconventional companies such as Mercedes-Benz, General Motors, and Microsoft compete with global banks by offering preferred financing, sometimes at 0% rates, to customers who buy big-ticket items.

**Bargaining Power of Customers (Moderate)**

A major factor affecting the power of buyers is relatively high switching costs. If a customer has a mortgage, car loan, credit card, checking account, and mutual funds with one bank, the person is unlikely to switch to another bank. Banks try to lower the switching costs to entice customers, but many would still stick with their current banks. On the other hand, large corporate clients have significant bargaining power over banks. Financial institutions compete intensely to get high-margin corporate clients by offering better rates and services.

**Bargaining Power of Suppliers (Moderate)**

The suppliers of capital do not have significant leverage over global banks due to fragmentation, and capital is the most homogenous input available; however, there is the bigger threat of human capital being lured away by other banks. Bigger banks or investment firms that promise a bigger paycheck can lure away a talented employee from a smaller bank.

**Competitive Rivalry (Very high)**

The global banking industry is highly competitive. The market is saturated as the financial services industry has been around for hundreds of years. Because of this, the only way for banks to gain market share is to offer lower financing, preferred rates, and investment services to try and lure customers away from competitor banks. This results in a lower return on assets for banks, often causing them to take on riskier projects.

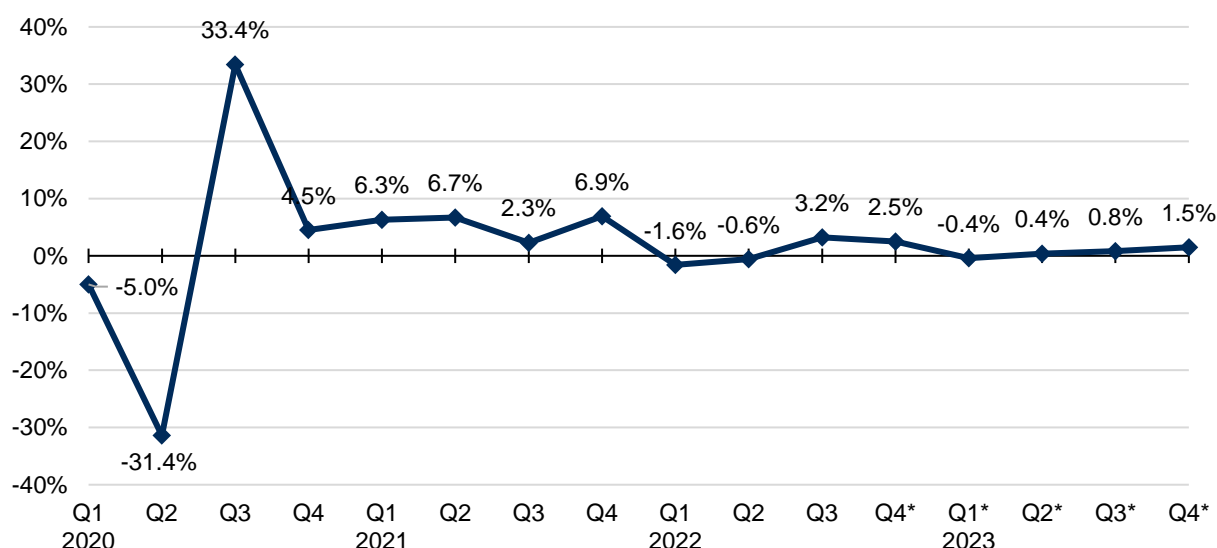
In the longer term, CFRA sees more consolidation in the global banking industry. In certain cases, it could be more cost-efficient for larger banks to take over or merge with another bank than spending more on marketing and advertising. However, we expect M&A activity to take a breather in 2023 due to increasing macro uncertainties and the higher interest rate environment, with banks becoming more selective and particular with potential M&A moves.

## GLOBAL DEVELOPMENTS AFFECTING THE INDUSTRY

### Economic and Geopolitical Uncertainty May Weigh on Bank Performance

Banks are a proxy for economic growth; thus, positive GDP growth would lead to an overall increase in a bank's prospects. As of January 14, 2023, Action Economics lowered its 2023 forecasts for GDP growth in the Euro Area to 0.1% from 1.8% mid-last year. The U.K. GDP is now expected to contract by 0.4% (from a growth of 0.8% mid-last year). GDP for developed and emerging Asia, on the other hand, is expected to grow at 4.9%, with India spearheading a 6.0% growth. As for the U.S., Action Economics forecasts GDP increasing at a lower rate of 0.9% in 2023 (July 14, 2022 forecast: 1.7%) amid inflationary headwinds. Moving forward, the quarter-to-quarter growth is expected to slow as governments worldwide continue to combat inflation and steer their economies away from recession.

### U.S. GROSS DOMESTIC PRODUCT SINCE COVID-19



\*Forecast.

Sources: Bureau of Economic Analysis, Action Economics.

The world is very different today from a year ago. It all started with Russia's aggression toward Ukraine. With both countries being major exporters of raw food and energy products, being at war meant major disruption for importers that rely heavily on those goods. Such an effect has sent ripples across the globe, most notably with increased food and gas prices, which in turn sent inflation rates through the roof. In fact, inflation rates in the U.S. and U.K. reached 40-year highs at various points in 2022, despite recent recovery.

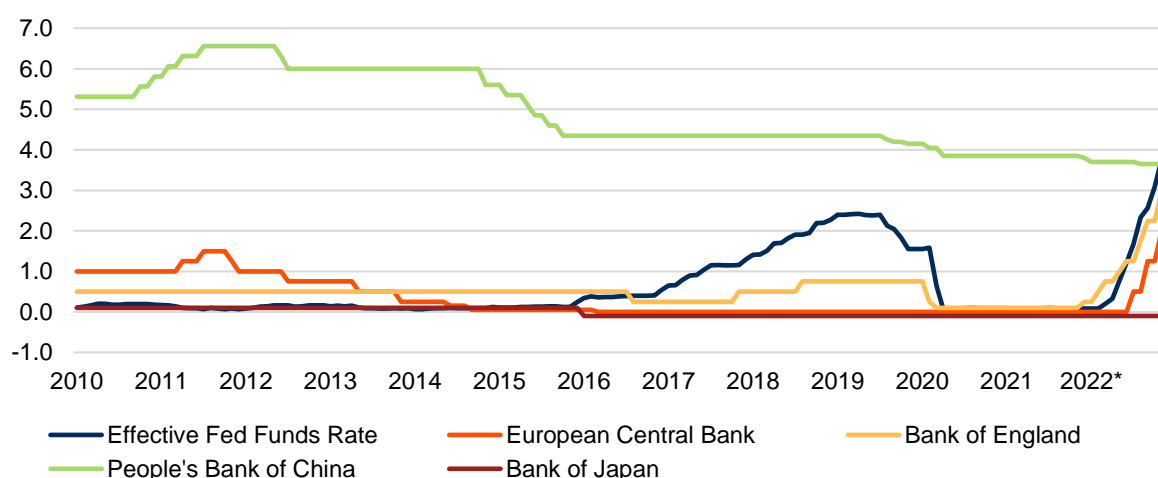
Central banks have responded by adopting various degrees of contractionary monetary policy to combat unruly inflation rates. However, according to a survey by IntraFi Networks, U.S. bankers are fearful the Fed may overcorrect on inflation, possibly leading to a "hard landing" or, worse, a recession. As a matter of fact, according to IntraFi's findings, only 4% of surveyed banks do not foresee a near-term recession. The remainder were split equally between a likely recession by the end of this year and one sometime in 2023.

### Higher Interest Rates Positive for Net Interest Income, but Extent May Vary

Most banks reported increased net interest income (NII) in the second quarter of 2022, spurred by the gradual rise in short- and long-term interest rates. Central banks around the world have raised policy rates in response to surging inflation. The inflation reflected higher food, housing, and gasoline cost and was attributed mainly to supply chain issues and the ultra-loose monetary policies enacted to counter the Covid-19-led economic slump. However, the extent and persistence of such price increases were much greater than policymakers anticipated.

This led to the U.S. Fed raising its interest rate for the first time in three years in March 2022 by 0.25%-pts to 0.50%. This was followed by another six rate hikes, with the latest being on December 14, 2022, by 0.50%-pts, bringing the Fed's benchmark rate to a target range of 4.25%-4.50%. In the U.K., the Bank of England (BOE) has increased its policy rate nine times since December 2021, taking it from 0.10% to 3.50% in December 2022, its highest level since the GFC. Meanwhile, in Europe, the European Central Bank (ECB) raised rates by 0.25%-pts in July 2022, which was its first rate hike in more than a decade. Since then, the ECB has raised its interest rates three times to reach 2.50% in December 2022. However, the People's Bank of China (PBOC) and the Bank of Japan (BOJ) have become dovish outliers and will continue to be accommodative to support economic recovery.

**U.S., EUROPE, AND CHINA'S INTEREST RATES**  
(in percent)



\*Data through December.

Source: Board of Governors of the Federal Reserve System, European Central Bank, People's Bank of China.

The impact of the interest rate upcycle varies greatly. U.K. and Italian banks stand to benefit the most from rising rates, followed by Spanish, German, Danish, and Austrian banks, while French and Dutch banks report smaller effects.

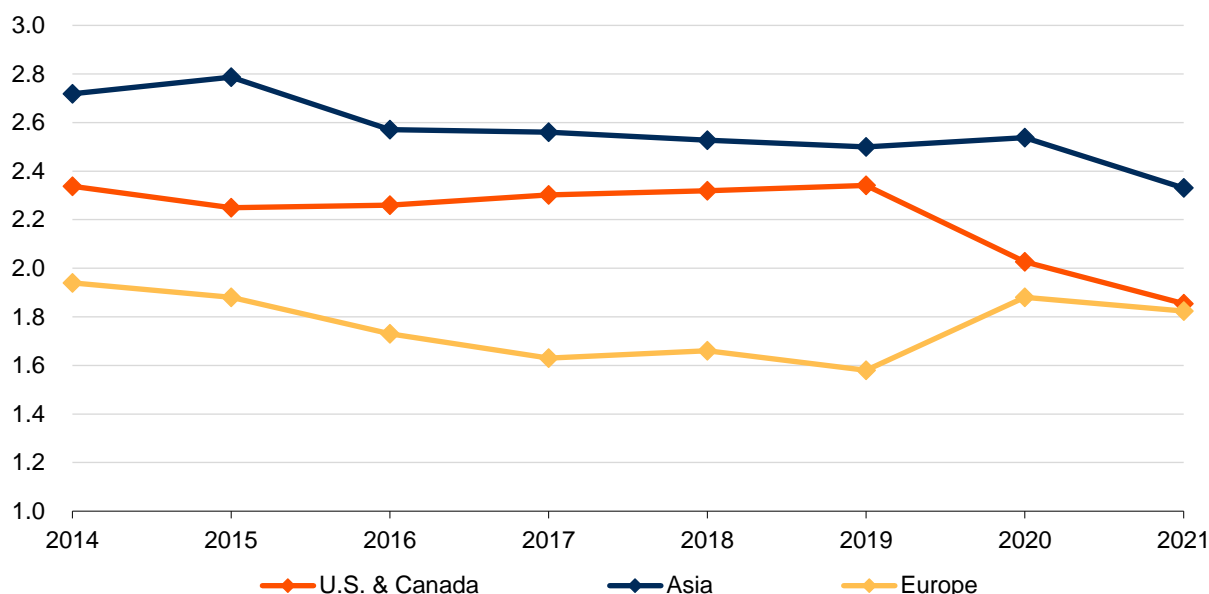
The actual upside to NII will also depend on two key factors that are unequal across the globe: how far and fast policy rates rise and the strength of net lending against a weakening economic backdrop.

The current high inflationary environment will likely lead to rising bank operational and credit costs. However, with an economic base case that envisages a normalization in inflation in 2023 and a limited rise in unemployment, we expect that rising interest rates will, in general, provide a boost for European bank profits in 2023.



## NET INTEREST MARGIN

(industry average, in percent)



Note: Latest available data. Full-year 2022 data not yet available.

Source: CFRA, S&P Global Market Intelligence.

## TRENDS IN EARNING DRIVERS

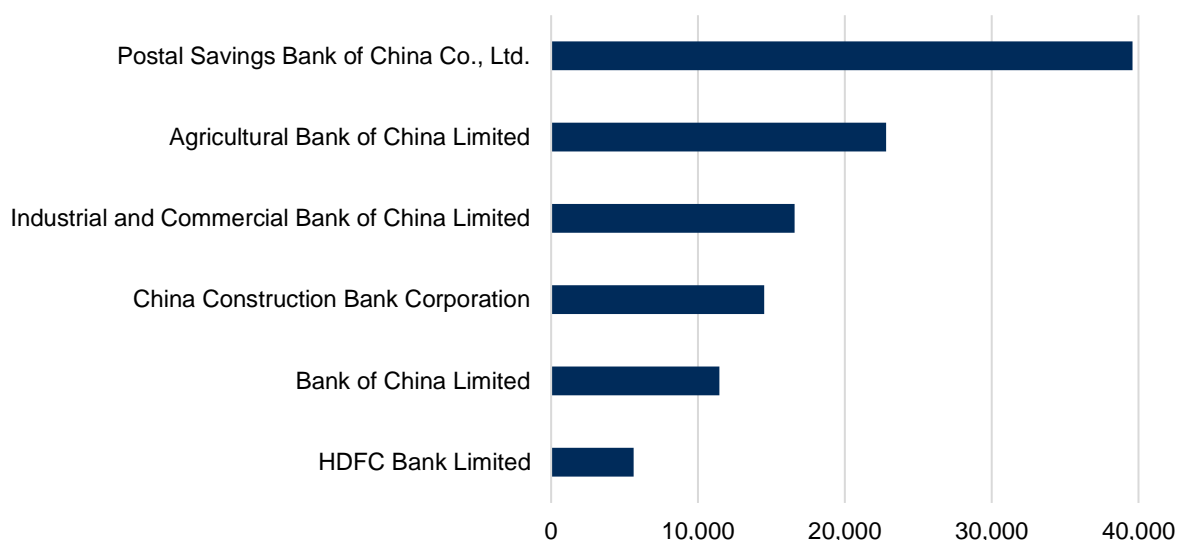
**Revenue and Earnings Growth:** Total revenues for the 29 multinational banks covered in this survey have trended upward since 2016, increasing from \$1.14 trillion to an estimated \$1.46 trillion in 2022. CFRA expects revenue to grow 6.8% this year before contracting 2.0% in 2024 on recessionary impact. That said, banks that rely more on lending activities instead of investment banking and asset management should outperform, in our opinion.

Banks' net income plunged as much as 15.3% in 2020 as economies worldwide came to a grinding halt but quickly regained footing the following year with a 52.4% recovery. In 2022, earnings were expected to contract by about 15% amid exposures to various geopolitical issues such as the Russia-Ukraine conflict and the Chinese mortgage crisis. We foresee aggregated net income in 2023 to regain footing due to a higher interest rate environment but subjected to potential recessionary risks and increased delinquency from a higher loan interest rate.

In aggregate, loan loss provisions for multinational banks have increased yearly since 2014, exacerbating the pandemic-led financial recession. The figure surged by more than 59% year-over-year in 2020, reaching \$270 billion. The reversion in 2021 brought the number back to a pre-pandemic level of around \$131 billion, equivalent to 0.5% of total loans outstanding.

The Covid-19 pandemic has undoubtedly accelerated the trend toward digital banking, and we think banks that rely more on their branch networks will be more significantly impacted. Therefore, we see Chinese banks being the most affected as each of the four has more than 10,000 domestic branches (Postal Savings Bank of China alone has 39,603 branches in China). Other banks, including India-based HDFC Bank and JPMorgan Chase, could be significantly affected due to their large number of branch networks. The virus spread could also unevenly impact banks with high revenue per branch.

### MULTINATIONAL BANKS WITH THE HIGHEST NUMBER OF BRANCHES\*



\*As of financial year 2021 (latest).

Source: CFRA, company filings, S&P Global Market Intelligence.

### REVENUE PER BRANCH\*

(in \$ millions)



\*As of financial year 2021 (latest).

Source: CFRA, company reports, S&P Global Market Intelligence.

**Net Interest Margin (NIM):** Average NIM dropped further in the last 12 months ended the third quarter of 2022 to 2.1% amid a low interest rate environment after a five-year high of 2.6% in 2018. We expect interest margins to remain under pressure, given the widespread inflation and political uncertainties globally. Another reason for NIM pressure is increasing competition among the banks as they seek to gain market share, in our view. Please refer to the “How to Analyze a Company in This Industry” section of this Industry Survey for a more detailed discussion of NIM.

**Operating Costs:** Multinational banks' operating expenses have been on a downward trend for the most part since 2014. The improvement was mainly due to better expense management, further aided by lower legal expenses. In our opinion, banks will continue to look for restructuring and more cost cuts to maintain profitability amid the inflationary environment. CFRA expects operating costs to increase by mid-single-digit rates in the coming years due to inflation, investments in IT, and regulatory compliance costs (e.g., increased spending to enhance anti-money laundering processes).

Regulatory expenses have increased as the industry's aggregate spending on litigation costs averaged around €3 billion over the last five years compared to prior levels at around €1 billion. Since the GFC, large international banks have paid close to \$60 billion in fines to the U.S. Department of Justice (DoJ) alone for their role in the subprime mortgage-backed securities crisis.

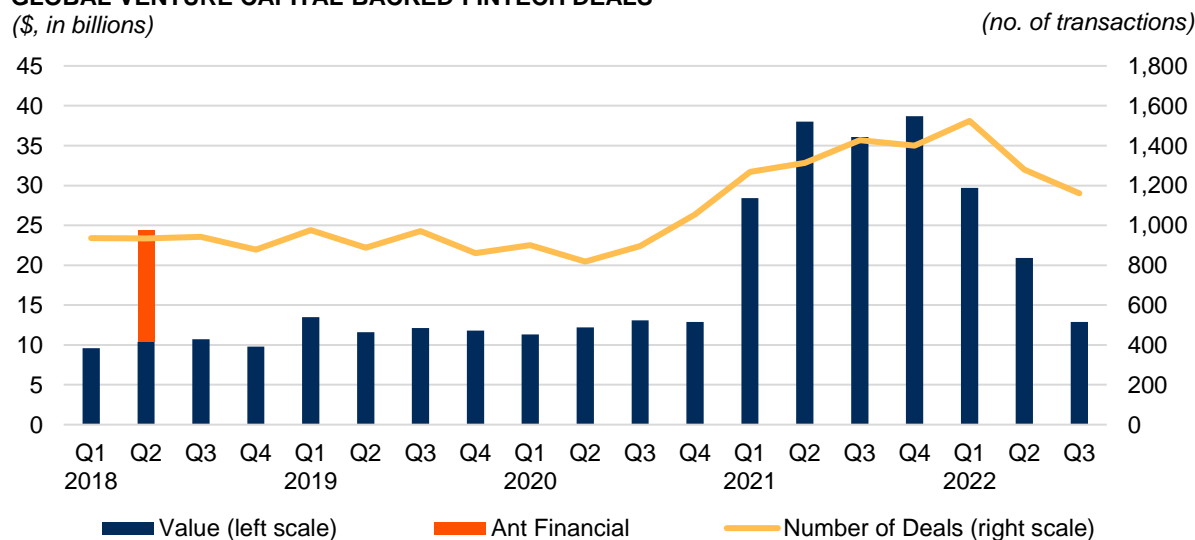
## Operating Environment

### Fintech Content May Be Reduced Amid VC Funding Plunge

Fintech companies are incorporating new technologies such as artificial intelligence and blockchain to create new financial industry solutions. According to the International Business Times, technology startup companies are factoring information such as a person's entire financial portfolio and even personal details into the loan application process through an artificial intelligence-powered optimization algorithm. With the ability to generate insights from large data sets, these companies use these insights to generate new solutions and products.

Fintech funding exploded in 2021, with global funding passing **\$141.2 billion**, a **285%** increase year-over-year, according to global venture-finance data and analytics firm CB Insight. After seeing no growth from 2018 to 2020, fintech deal counts reached an all-time high in 2021 at **5,410 deals**. However, things weren't that rosy in 2022. In the third quarter of 2022 (latest available), fintech funding fell to its lowest level since the fourth quarter of 2020 to \$12.9 billion, a drop of 38.2% quarter-over-quarter and a drop of 64.2% year-over-year. The total number of transactions also fell 19.3% quarter-over-quarter to 1,160. CB Insights attributed the pullback to a general pessimism amid market volatility and recession fears. In fact, the third quarter of 2022 saw a nine-quarter-low number of unicorn births of just 6 ("unicorns" are startups valued at more than \$1 billion). In comparison, each of the six quarters prior to this saw a consistent 20+ new fintech unicorns worldwide.

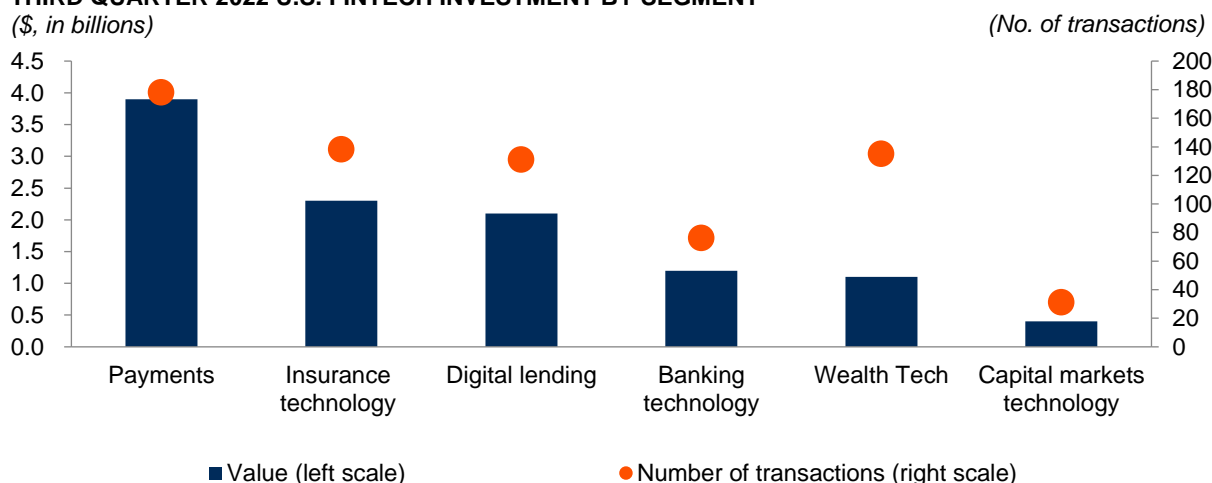
#### GLOBAL VENTURE CAPITAL-BACKED FINTECH DEALS



Source: CB Insights.

We think VC investments in fintech may also be subdued this year, given the current economic outlook and the Fed's monetary tightening, which may drive up borrowing costs. As a result of the decrease in investments, fintech companies swiftly saw their financial reserves deplete. The ensuing bloodbath had pushed businesses to either lay off employees, shut down inefficient operations, or go out of business altogether. For firms with stronger financial standing, the dwindling cash injection could distract them from the longer-term business plan and instead force them to divert their attention to managing cash flows and halt business ventures with longer payback periods. This may, in turn, stifle innovation and possibly alter a company's long-term vision.

### THIRD QUARTER 2022 U.S. FINTECH INVESTMENT BY SEGMENT



Note: Reflects private placements for private fintech companies, U.S.-based fintech companies. Excludes debt transactions.

Source: CB Insights.

Despite near-term challenges, fintech players actively disrupt and enhance the value chain in this matured industry. We think industry changes are still developing, and new companies have great potential to establish themselves as leaders in the coming years.

### Digital Banking Services as a Potential Growth Driver

Digital banking is a broad term that refers to the use of electronic means to conduct banking activities. It encompasses products and services that customers can typically access using their mobile devices or computers, or in general, without human intervention from the banks.

From a user perspective, digital banking confers benefits in ease, speed, and multiple access channels, as well as a paradigm shift in engagement. At the very least, digital transformation should involve automating banks' internal processes. Digital services present unprecedented opportunities for banks to automate operations in myriad ways. For example, the e-wallet, which stores all the customer data on the client or server side, is a definitive shift towards improving customer experience. Blockchain technology, which is set to revolutionize digital transactions, is another case in point. Process automation will reduce banks' operating costs, improve cost/income ratios, and ultimately expand profit margins if executed properly.

Artificial intelligence (AI) and big data are the two technologies driving the financial industry's transformation. Their adoption translates into new services for clients that are more accessible and agile. AI offers, among other things, personalized products and recommendations to customers, thus allowing them to make decisions more intelligently. The advent of big-data algorithms could lead to innovation in advisory tools for personal finances and provide access to financial products once offered only to the high-value segment. Such developments could potentially open up new revenue streams, offsetting a deteriorating growth in the conventional banking segment.

## Regulatory Updates

### **Crypto Regulation Has Been Outside Bank Regulation – Is This Still True?**

The short answer is a Yes, for now. Despite crypto assets' decade-old existence, efforts to regulate them have only become a recent priority for policymakers. This is partly because crypto assets have only recently become widely accepted as speculative investments, hedges against weak currencies, and even viable payment instruments, having previously existed as a niche asset.

The remarkable, erratic surge in crypto's market cap and their increasing overlap into the financial system have prompted further measures to control them. There is also increased impetus to regulate this asset class amid the recent drop in crypto prices and the collapse of crypto exchanges and issuers.

However, existing regulatory frameworks were neither suitable nor capable of exercising control of this new asset class. To make matters worse, developing new regulations on crypto assets is insurmountably difficult. This is true on two accounts: 1) With many other priorities on hand, regulators may not have the resources to keep pace with an everchanging crypto landscape; 2) Regulators have a hard time keeping eyes on the thousands of actors in the crypto market who may not be subject to standard disclosure or reporting rules, making it difficult to monitor the asset.

Notwithstanding these challenges, several countries have announced policies to protect investors and prevent the usage of cryptocurrencies for illegitimate purposes. The U.S. government has conferred authority to existing market regulators, *i.e.*, the SEC and Commodity Futures Trading Commission (CFTC), to oversee and regulate crypto activities. On the other hand, Japan took a progressive approach to regulate crypto assets. In there, cryptocurrencies are recognized as legal property under the Payment Services Act, and trading gains of this asset class are considered "miscellaneous income" and are taxed accordingly. As with Japan, cryptocurrencies are also recognized as legal property in Australia and are subjected to capital gains tax. Crypto exchanges are permitted to operate in the three countries above but must comply with AML/CFT obligations.

### **Progress in Banking ESG**

The profound and global effects of climate change led to the establishment of the Paris Agreement in 2015, with a key objective of maintaining global temperature rise below 2 degrees Celsius within this century. Following the Agreement, the European Banking Authority (EBA) required banks under its purview to disclose climate risk information and their plans for mitigation from December 2023. As such, banks are required to disclose the carrying amount (*i.e.*, cost of asset minus accumulated depreciation) of loans, equities, and bond holdings in carbon-intensive companies in their books.

The EBA also requires its member banks to report energy performance and usage of their real estate portfolios. Buildings consume approximately 40% of the European Union's energy and are responsible for 36% of GHG emissions from energy usage. Therefore, reducing housing sector emissions is imperative in achieving emission targets.

In addition, the EBA required its members to adopt a green asset ratio (GAR) that demonstrates their eco-friendliness while acknowledging that one of the more effective ways to tackle climate change is to change how banks make loans. The ratio measures a bank's climate-friendly debts and loans, per EU's taxonomy rules, as a percentage of its total assets. However, according to S&P Market Intelligence, the GAR may not fully reflect the "greenness" of a bank's assets as a significant amount of assets lay outside of the ratio's scope. Held-for-trading assets and exposures to central banks and governments, for example, will not be included in the calculation of the GAR. On top of that, non-EU counterparties and SMEs (small and medium enterprises) can never be classified as "green."

On December 13, 2022, the EBA published a new roadmap on sustainable finance. The roadmap provides a guide to integrating ESG risk considerations in the banking framework over the next three years with the goal of transitioning towards a sustainable economy. The new roadmap was built on and would replace EBA's first action plan on sustainable finance, published in December 2019. Key objectives of the new roadmap have been classified under key areas of transparency and disclosures, risk management and supervision, prudential treatment of exposures, stress-testing, standards and labels, greenwashing, supervisory reporting, and ESG risks and sustainable finance monitoring.

### **Path to Net-Zero**

There is good news on the ESG front. Thirty of the largest banks in North America and Europe had set concrete benchmarks under the Net-Zero Banking Alliance (see table below for the top 10 banks), a small but meaningful first step in tackling climate change. These net-zero emission pledges commit banks to reach carbon neutrality by 2050 across Scope 1 (emissions from direct operations), Scope 2 (emissions associated with power the company consumes), and Scope 3, which is typically high for banks, consisting of indirect emissions through investments and loans.

According to S&P Global Market Intelligence research, as of December 2022, 26 of the 30 have released their first 2030 carbon reduction objectives for finance portfolios in the oil and gas, electricity, and transportation sectors. Despite these near-term wins, banks still face skepticism from shareholders. Several climate-related proposals got turned down during the annual meetings for some large U.S. banks, including BofA, Citigroup, Goldman Sachs, and JPMorgan Chase. Support for these proposals averaged around 10%, indicating that investors are slowly buying into banks' climate plans.

The decarbonization program also received criticism from climate activists and other stakeholders. They contend that the targets have gaps and faults, such as omitting crucial aspects of the banking industry, specifically underwriting capital markets. Investors and other stakeholders also find it "very difficult" to make comparisons with one another to determine the effectiveness of achieving the intended goal as they lack standardization and transparency.

# CLIMATE GOALS OF TOP 10 BANKS

BANK	TOTAL ASSETS (in \$ billion)	CLIMATE GOAL	SCOPES 1 & 2	SCOPE 3	INTERIM GOAL(S)
JPMorgan Chase	3,954.7	JPM has achieved net-zero emissions in its own operations and committed to reaching net-zero financed emissions by 2050.	Achieved in 2020	2050 target for financed emissions; achieved for business travel	Published 2030 financed emissions reduction targets, covering lending and capital markets activity, for oil and gas, electric power, and auto manufacturing,
Bank of America	3,238.2	BofA has achieved net-zero emissions in Scope 1 and 2 and committed to reaching net-zero Scope 3, including financed emissions, by 2050.	Achieved in 2019	2050 target	Published 2030 financed emissions reduction targets for energy, power, and auto manufacturing. Plans to set targets for other key sectors through 2024, and include capital markets activities when PCAF methodology is finished.
BNP Paribas	3,178.0	BNP Paribas has achieved net-zero emissions in own operation and committed to reaching net-zero financed emissions by 2050.	Achieved in 2017	2050 target for financed emissions; achieved for business travel	Published 2025 financed emissions reduction targets for power generation, upstream oil and gas and refining, and automotive. Also pledged to exit coal by 2040.
HSBC Holdings	3,021.5	HSBC has committed to reaching net-zero emissions in its own operations and supply chain by 2030 and financed emissions by 2050.	2030 net-zero target	2050 target for financed emissions	Published 2030 financed emissions reduction targets for oil and gas and power generation. Intends to set targets for capital market activities when PCAF methodology is finished. Also pledged to exit coal by 2040.
Crédit Agricole	2,641.9	Crédit Agricole has committed to reaching net-zero operational and financed emissions by 2050.	2050 target	2050 target	Published 2025 reduction targets for corporate and investment banking exposure to upstream production of oil. Plans to release decarbonization plan for transport, automobile, infrastructure, construction, and steel in H1 2022. Also pledged to exit coal by 2040.
Citigroup	2,394.1	Citi has committed to reaching net-zero emissions in its own operations by 2030 and financed emissions by 2050.	2030 target	2050 target for financed emissions	Published 2030 financed emissions reduction targets for energy and power. Set reduction targets for coal exposure.
Barclays	1,966.6	Barclays has achieved net-zero emissions in its own operations and committed to reaching net-zero financed emissions by 2050.	Achieved in 2020	2050 target for financed emissions; achieved for business travel	Published 2030 financed emissions reduction targets, covering lending and capital markets activity, across its energy, power, cement, and steel portfolios.
Wells Fargo	1,939.7	Wells Fargo has achieved net-zero emissions in Scope 1 and 2 and committed to reaching net-zero Scope 3, including financed emissions, by 2050.	Achieved in 2019	2050 target	Published 2030 financed emissions reduction targets, covering lending and capital markets activity, for oil and gas, and power.
Banco Santander	1,850.7	Santander has achieved net-zero emissions in its own operations and committed to reaching net-zero financed emissions by 2050.	Achieved in 2020	2050 target for financed emissions	Published 2030 financed emissions reduction targets for power generation. Will release targets for oil and gas, transport and mining and metals by Sept 2022. Also pledged to exit thermal coal by 2040.
Société Générale	1,797.6	Société Générale has committed to reaching net-zero operational and financed emissions by 2050.	2050 target	2050 target	Published interim emissions reduction targets for financing linked to electricity production, and target to cut exposure to oil and gas extraction. Also pledged to exit thermal coal by 2040.

Note: Banks are the 10 largest in North America and Europe by assets. Climate goal details include select targets and may not be comprehensive.

Source: S&P Global Market Intelligence.



### CCAR Stress Tests: 2022 Update

In June 2022, the Fed released its annual bank stress test, which showed that large banks could withstand losses of up to \$600 billion and continue lending to households and businesses during a severe recession. The Fed conducted a sensitivity analysis to assess the resiliency of large banks under a hypothetical scenario, which included a severe global recession with substantial stress in commercial real estate and corporate debt markets. Some of the scenarios include: unemployment rate increase by 5.8%-pt to a peak of 10%; real GDP falls 3.5% from fourth quarter 2021 through first quarter 2023; CPI inflation falls from an annual rate of 8.25% at the end of 2021 to an annual rate of about 1.25% in third quarter 2022 before gradually increasing above 1.5% by the end of the scenario. Stress test results in terms of capital ratio adequacy are shown in the table below.

AGGREGATE CAPITAL RATIOS PRIOR AND POST-STRESS TEST SCENARIOS			
REGULATORY RATIO	ACTUAL 2021:Q4	STRESSED MINIMUM CAPITAL RATIOS, SEVERELY ADVERSE	MINIMUM REGULATORY CAPITAL RATIOS
Common equity tier 1 capital ratio	12.4	9.7	4.5
Tier 1 capital ratio	14.1	11.4	6.0
Total capital ratio	16.1	13.7	8.0
Tier 1 leverage ratio	7.5	6.0	4.0
Supplementary leverage ratio	6.1	4.8	3.0
Source: Federal Reserve.			

Under the sensitivity analysis, aggregate losses would amount to \$612 billion. Of that, loan losses would make up \$463 billion, while trading and counterparty losses would amount to another \$100 billion. The remainder consists of \$43 billion in additional losses from various items (such as fair-value loans) and \$6 billion in security losses.

However, the stress test result also revealed that JPMorgan, Bank of America, and Citigroup face an unexpected surge in their stress capital buffers (SCBs). SCBs are calculated based on the difference between the bank's starting common equity Tier 1 (CET 1) ratio and its minimum under the simulation. A surprise increase meant the three banks would have larger capital deficits that may restrict their share buyback capabilities. To mitigate, the trio would have to buff up their CET 1 ratios and significantly reduce their positions in risk-weighted assets, which may subsequently cause a drop in revenues.

### Mixed Feelings About Central Bank Digital Currencies

Central banks worldwide realize a need for an alternative before the future of money passes them by. Their solution is a Central Bank Digital Currency or CBDC. CBDC is a form of digital currency issued by a country's central bank and backed by the full faith and credit of their respective governments. According to the IMF, the advantages of such implementation include lower transaction costs, better promotion of financial inclusion, increased transparency in transactions, and quicker monetary policy flow. However, without significant international coordination and a new standard, the currency exchange system may be in trouble.

Central banks around the world are at various stages of implementing CBDCs. Based on data from Atlantic Council, a think tank specializing in international affairs, there are currently 11 CBDCs launched around the world, 17 undergoing pilot programs, 33 in development, and 39 under research. According to their data, in December 2022, 114 countries representing 95% of the world's GDP are currently exploring CBDCs compared to just 35 countries in May 2020.

Among the four economies with the biggest central banks – U.S., EU, Japan, and the U.K. – the U.S. is furthest behind in CBDC development. The main reason for such a lag is the skepticism among Federal Reserve board members. According to a highly anticipated study released by the Fed in January 2022,

the central bank remained noncommittal toward a digital dollar. The study did, however, present some potential advantages of a U.S. CBDC, including faster payment processing and dominance of the U.S. dollar. On the other hand, disadvantages include financial stability risks, privacy concerns, and potential use for illicit activities. While many critics are fearful that China's aggressive push toward a digital yuan would provide its currency with a stepping-stone towards global currency, the Fed appeared not too concerned about it. In one of his speeches, Fed chairman Jerome Powell said that the U.S. would not be rushed by those pressures, stressing that it would be more important to get it right than to be the first.

### **Moving Away from LIBOR**

December 31, 2021 marked the end of the 52-year-old LIBOR and will no longer be used to calculate new deals. At its peak, the rate was benchmarked against \$300 trillion worth of contracts. Regulators have been calling for an urgent move away from LIBOR since the rigging scandal came to light in 2012, where certain bankers manipulated the benchmark rate for profit. LIBOR, calculated daily, is supposed to reflect the interest rate banks pay to borrow money from each other. It is also the basis for determining the rates charged on many other loans. Among the financial institutions that became caught up in the scandal were Deutsche Bank, Barclays, UBS, Rabobank, HSBC, Bank of America, Citigroup, JPMorgan Chase, the Bank of Tokyo Mitsubishi, Credit Suisse, Lloyds, WestLB, and the Royal Bank of Scotland.

Alternative risk-free rates (RFRs) have been developed in various jurisdictions. In the U.S., efforts by the Alternative Reference Rates Committee (ARRC) have brought greater clarity to the transition. The Secured Overnight Financing Rate (SOFR) – a rate based on transaction data compiled by the Federal Reserve Bank of New York – had gained wide acceptance. However, liquidity challenges in the U.S. repo market have raised new questions about the stability of SOFR as an alternative, driving the daily volatility in SOFR to record levels (although the impact on the 90-day average, which will be the basis for most transactions, was negligible). Other RFRs proposed include the Ameribor (or American Interbank Offered Rate) and the Bloomberg Short-Term Bank Yield Index.

In the U.K., the Bank of England (the administer of SONIA) and Financial Conduct Authority, the country's financial regulator, endorsed the adoption of the Sterling Overnight Index Average (SONIA) as a replacement for LIBOR. In Europe, the Euro Short Term Rate (€STR) began publication in October 2019. Elsewhere, countries such as Switzerland and Japan have also made progress in identifying a replacement rate.

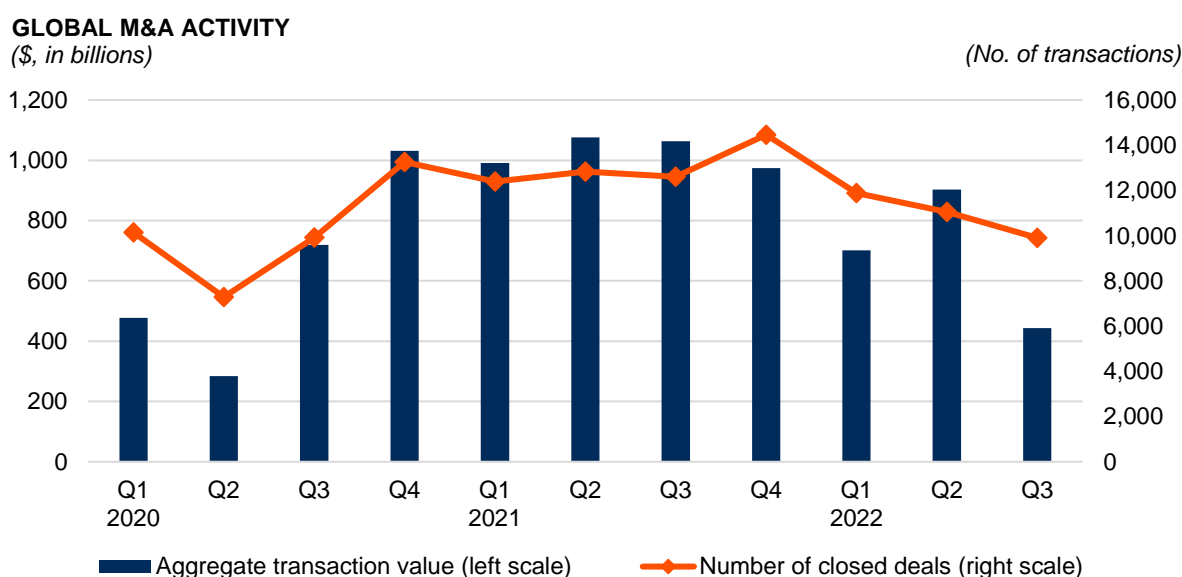
Replacing all contracts still attached to LIBOR would be tricky as a readily available alternative does not exist, especially for U.S. dollar LIBOR. As such, authorities in the U.K. and the U.S. have extended existing U.S. dollar LIBOR contracts through mid-2023 to ease the burden. The transition away from LIBOR is a key risk for banks and market participants and has had a widespread impact, requiring changes to front-to-back processes and supporting systems, a product replacement strategy, ongoing client communications, active management of conduct risks, and adjustments to contract language for existing and future exposure.

## M&A Environment

While the official full-year figure is not yet available, it was evident that M&A activities had slowed considerably in 2022 in terms of deal counts and value. We attribute this downtrend to a couple of reasons: 1) Equity market depreciation has lowered valuations for sellers and decreased the buying power of equities for purchasers; 2) Borrowing costs surged alongside raising interest rates; and 3) The ongoing geopolitical issues and recessionary fears marred near-term economic outlook.

Dealmakers may encounter a fresh set of challenges due to lingering doubts caused by the issues mentioned above. This may lead to longer transaction time as buyers increase their focus on value creation by conducting more in-depth due diligence before putting their signatures on the dotted line. At the same time, more sellers will eventually enter the market as financing costs continue to rise. As a result of government stimulus measures, borrowers had a surplus of cash after the pandemic and could sustain the increased costs on their loans for most of 2022. However, as reserves deplete, sellers may be forced to opt for M&A to bolster their balance sheets through divestitures or distressed sales.

In 2023, we think that M&A will take a breather due to increase macro uncertainties and higher interest rates. Despite so, we still think that the trend toward consolidation remains strong in the longer term, thanks to the ever-increasing requirement for digital capabilities and the ongoing disruption from fintech and other financial platforms. Banks continue to see M&A as a method to acquire scale and save costs. However, economic uncertainties have led many to see transactions as undesirable due to increased regulatory costs, lower valuations, and rising interest rates.



Source: CFRA, S&P Global Market Intelligence.

In Europe, cross-border banking activities (aside from interbank lending and in a few relatively small countries) within the Union remain fairly limited. Seeing as there are quite a number of banks in some European countries, domestic and cross-border consolidations could be appropriate in a low growth environment. However, as with the rest of the world, M&A landscape within the Euro Area had slowed due to increased political uncertainties and inflation headwinds. As Brexit's aftermath remains uncertain, many banks continue to reevaluate and strategize on whether to incorporate any changes to their corporate structures and location policies.

Banks benefit from a robust M&A environment as they earn advisory fees from these transactions. In the category of top banks by fees earned in 2022, U.S. banks held six of the top 10 spots (see the accompanying table for more details). Traditionally, banks (excluding investment banks and brokerages) earned 20%-30% of their fees in M&A, 10%-25% in equity, 30%-45% in bonds, and 20%-25% in loans. However, owing to the recent economic turmoil, revenue composition has changed rather drastically. The proportion of revenues from equities had dropped to around 5%-13% (with the exception of CITIC) amid steep global selloff.

#### TOP BANKS LEAGUE TABLE\*

Top 10 Banks	Fees (\$m)	Change in Fees vs. Prev Period	M&A	Equity	Bonds	Loans
JPMorgan	6,922.26	-48%	37	10	22	31
Goldman Sachs & Co	6,503.71	-45%	63	10	16	12
BofA Securities Inc.	5,515.89	-38%	28	8	25	39
Morgan Stanley	4,610.54	-51%	57	12	20	10
Citi	3,960.06	-44%	37	10	27	26
Barclays	2,831.05	-38%	34	7	30	30
Credit Suisse	2,227.31	-53%	36	7	26	30
Wells Fargo & Co	2,031.59	-23%	10	5	32	53
CITIC	1,900.38	-1%	5	44	46	5
RBC Capital Markets	1,728.88	-30%	24	9	30	36
<b>Total</b>	<b>108,356.74</b>	<b>-34%</b>	<b>34</b>	<b>13</b>	<b>29</b>	<b>24</b>

\*YTD data through Dec 31, 2022.

Source: Refinitiv, Financial Times.

# INDIVIDUAL BANK FINANCIAL METRICS

## KEY BANK FINANCIAL METRICS (in percent)

Bank	Net Interest Margin					Efficiency Ratio				
	Financial Year					Financial Year				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
JPMorgan Chase & Co.	2.2	2.5	2.5	2.0	1.6	58.4	57.6	56.3	55.8	58.3
Industrial and Commercial Bank of China Limited	2.2	2.4	2.3	2.2	2.1	27.4	26.7	26.7	25.8	27.3
Bank of America Corporation	2.4	2.5	2.4	1.9	1.7	62.0	57.6	57.5	63.9	66.6
China Construction Bank Corporation	2.2	2.3	2.3	2.2	2.1	28.1	27.6	27.7	26.4	28.6
Agricultural Bank of China Limited	2.3	2.3	2.2	2.2	2.1	35.1	33.8	33.8	33.6	30.9
Bank of China Limited	1.8	1.9	1.9	1.9	1.8	31.6	29.6	32.5	32.2	32.2
China Merchants Bank Co., Ltd.	2.4	2.6	2.6	2.5	2.5	31.8	32.7	34.1	36.1	36.9
Citigroup Inc.	2.8	2.8	2.7	2.2	2.0	58.9	58.2	57.9	59.7	64.9
Wells Fargo & Company	2.9	2.9	2.7	2.3	2.1	62.8	64.8	65.9	76.7	75.5
Royal Bank of Canada	1.5	1.5	1.5	1.3	1.3	58.2	57.2	57.3	56.8	56.5
HSBC Holdings plc	1.6	1.6	1.6	1.3	1.2	59.4	58.7	59.0	59.1	60.6
Commonwealth Bank of Australia	2.1	2.1	2.1	2.1	2.0	39.3	38.7	44.9	44.4	44.7
The Toronto-Dominion Bank	2.0	1.9	1.9	1.7	1.6	57.3	54.9	55.6	54.6	57.5
HDFC Bank Limited	4.5	4.6	4.5	4.5	4.3	43.3	41.3	40.0	41.6	40.8
U.S. Bancorp	3.1	3.1	3.1	2.7	2.5	55.0	54.6	54.7	55.9	59.7
Postal Savings Bank of China Co., Ltd.	2.4	2.7	2.5	2.4	2.4	65.4	58.3	57.0	58.6	59.9
Mitsubishi UFJ Financial Group, Inc.	0.9	0.8	0.8	0.8	0.8	63.1	63.5	66.2	65.8	63.0
Bank of Communications Co., Ltd.	1.5	1.5	1.6	1.6	1.6	37.7	36.6	37.2	37.6	36.4
The Bank of Nova Scotia	1.7	1.8	1.7	1.6	1.5	54.0	51.7	52.8	53.4	52.8
BNP Paribas SA	1.1	1.2	1.1	0.9	0.9	67.9	70.9	68.9	65.2	65.7
PT Bank Central Asia Tbk	6.2	6.1	6.2	5.8	5.2	44.2	43.9	42.9	41.2	38.2
Industrial Bank Co., Ltd.	1.5	1.6	2.0	2.1	2.0	28.6	27.8	27.7	24.8	26.1
Westpac Banking Corporation	2.1	2.1	2.1	2.0	2.1	43.4	43.5	48.9	63.3	60.6
Itaú Unibanco Holding S.A.	5.3	4.6	2.9	2.4	3.2	54.1	62.6	58.9	63.8	56.5
National Australia Bank Limited	1.9	1.9	1.8	1.8	1.7	45.4	45.3	46.9	52.4	46.8
Banco Santander, S.A.	2.6	2.6	2.5	2.2	2.3	53.7	51.5	53.1	52.9	52.0
DBS Group Holdings Ltd	1.8	1.9	1.9	1.6	1.4	43.0	44.0	43.0	42.2	45.3
Australia and New Zealand Banking Group Limited	2.0	1.9	1.8	1.6	1.6	45.9	45.9	48.3	50.4	52.0
Ping An Bank Co., Ltd.	2.4	2.3	2.6	2.9	2.8	30.9	31.4	30.6	30.2	29.4
Bank of Montreal	1.7	1.6	1.6	1.6	1.5	63.4	61.2	61.9	60.3	56.8
Intesa Sanpaolo S.p.A.	0.9	1.2	1.1	1.1	1.0	68.6	58.4	58.0	73.1	63.3
ICICI Bank Limited	3.3	3.3	3.5	3.8	3.7	40.8	45.2	51.6	43.2	35.0
Canadian Imperial Bank of Commerce	1.8	1.9	1.8	1.7	1.6	59.2	56.9	56.6	57.5	57.6
ING Groep N.V.	1.6	1.6	1.6	1.5	1.4	55.5	54.3	56.7	59.7	57.3
State Bank of India	2.7	2.6	2.9	3.0	2.9	53.1	55.4	60.1	58.0	64.4

Source: CFRA, S&P Global Market Intelligence.

**KEY BANK FINANCIAL METRICS**
*(in percent)*

Bank	Common Equity Tier 1 (CET1) Ratio					Leverage Ratio				
	Financial Year					Financial Year				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
JPMorgan Chase & Co.	12.2	12.0	12.4	13.1	13.1	6.5	6.4	6.3	6.9	5.4
Industrial and Commercial Bank of China Limited	11.7	11.5	13.2	13.2	13.3	7.5	7.8	8.3	8.1	8.7
Bank of America Corporation	11.8	11.6	11.2	11.9	10.6	6.9	6.8	6.4	7.2	5.5
China Construction Bank Corporation	12.4	12.9	13.9	13.6	13.6	7.5	8.1	8.3	8.0	8.1
Agricultural Bank of China Limited	10.0	10.7	11.2	11.0	11.4	6.2	6.8	7.1	7.4	7.8
Bank of China Limited	11.7	11.6	11.3	11.3	11.3	7.0	6.9	7.4	7.7	7.7
China Merchants Bank Co., Ltd.	12.1	11.8	11.9	12.3	12.7	6.3	6.6	6.8	7.4	8.0
Citigroup Inc.	13.0	11.9	11.8	11.5	12.3	6.7	6.4	6.2	7.0	5.7
Wells Fargo & Company	12.3	11.7	11.1	11.6	11.4	8.0	7.7	7.1	8.1	6.9
Royal Bank of Canada	10.9	11.5	12.1	12.5	13.7	4.4	4.4	4.3	4.8	4.9
HSBC Holdings plc	14.5	14.0	14.7	15.9	15.8	5.6	5.5	5.3	5.4	5.2
Commonwealth Bank of Australia	10.1	10.1	10.7	11.6	13.1	5.1	5.5	5.6	5.9	6.0
The Toronto-Dominion Bank	10.7	12.0	12.1	13.1	15.2	3.9	4.2	4.0	4.5	4.8
HDFC Bank Limited	12.9	12.3	14.7	16.3	16.7	8.8	9.2	10.8	10.4	10.6
U.S. Bancorp	9.4	9.1	9.1	9.7	10.0	7.2	7.2	7.0	7.3	7.0
Postal Savings Bank of China Co., Ltd.	8.6	9.8	9.9	9.6	9.9	4.6	4.8	5.1	5.7	6.1
Mitsubishi UFJ Financial Group, Inc.	11.8	12.6	12.2	11.9	12.3	4.8	5.0	4.9	4.4	5.5
Bank of Communications Co., Ltd.	10.5	10.1	11.2	10.9	10.6	6.9	6.8	7.4	7.5	7.6
The Bank of Nova Scotia	11.5	11.1	11.1	11.8	12.3	4.7	4.5	4.2	4.7	4.8
BNP Paribas SA	11.9	11.8	12.1	12.8	12.9	4.7	4.5	4.6	4.9	4.1
PT Bank Central Asia Tbk	22.7	22.9	23.7	25.9	25.9	16.1	16.9	17.1	15.2	14.6
Industrial Bank Co., Ltd.	9.1	9.3	9.5	9.3	9.8	5.9	6.1	6.4	6.6	6.7
Westpac Banking Corporation	10.6	10.6	10.7	11.1	12.3	5.7	5.8	5.7	5.8	6.0
Itaú Unibanco Holding S.A.	16.2	15.1	13.2	11.5	11.3	8.9	9.0	8.3	7.2	7.4
National Australia Bank Limited	10.1	10.2	10.4	11.5	13.0	5.5	5.4	5.6	5.8	5.8
Banco Santander, S.A.	12.3	11.5	11.6	12.3	12.5	5.0	5.1	5.1	5.2	5.2
DBS Group Holdings Ltd	14.3	13.9	14.1	13.9	14.4	7.6	7.1	7.0	6.8	6.7
Australia and New Zealand Banking Group Limited	10.6	11.4	11.4	11.3	12.3	5.4	5.5	5.6	5.4	5.5
Ping An Bank Co., Ltd.	8.3	8.5	9.1	8.7	8.6	5.7	5.8	6.4	6.5	6.3
Bank of Montreal	11.4	11.3	11.4	11.9	13.7	4.4	4.2	4.3	4.8	5.1
Intesa Sanpaolo S.p.A.	13.3	13.5	13.9	14.7	14.5	6.1	5.7	6.3	6.9	6.5
ICICI Bank Limited	13.8	14.2	13.4	13.2	16.7	9.8	9.8	9.3	8.8	10.2
Canadian Imperial Bank of Commerce	10.6	11.4	11.6	12.1	12.4	4.0	4.3	4.3	4.7	4.7
ING Groep N.V.	14.7	14.5	14.6	15.5	15.9	4.7	4.4	4.6	4.8	5.9
State Bank of India	9.9	9.9	9.8	10.0	10.3	5.4	5.4	5.3	5.6	5.4

Source: CFRA, S&amp;P Global Market Intelligence.

**KEY BANK FINANCIAL METRICS**
*(in percent)*

Bank	Nonperforming Assets-Total Assets Ratio				
	Financial Year				
	2017	2018	2019	2020	2021
JPMorgan Chase & Co.	0.3	0.2	0.2	0.3	0.2
Industrial and Commercial Bank of China Limited	0.9	0.9	0.8	0.9	0.8
Bank of America Corporation	0.3	0.2	0.2	0.2	0.2
China Construction Bank Corporation	0.9	0.9	0.8	0.9	0.9
Agricultural Bank of China Limited	0.9	0.8	0.8	0.9	0.8
Bank of China Limited	0.8	0.8	0.8	0.9	0.8
China Merchants Bank Co., Ltd.	0.9	0.8	0.7	0.6	0.6
Citigroup Inc.	0.3	0.2	0.2	0.3	0.1
Wells Fargo & Company	0.4	0.4	0.3	0.5	0.4
Royal Bank of Canada	0.2	0.2	0.2	0.2	0.1
HSBC Holdings plc	0.6	0.5	0.5	0.6	0.6
Commonwealth Bank of Australia	0.3	0.2	0.3	0.3	0.2
The Toronto-Dominion Bank	0.3	0.2	0.2	0.2	0.1
HDFC Bank Limited	0.7	0.8	0.9	0.8	0.8
U.S. Bancorp	0.3	0.2	0.2	0.2	0.2
Postal Savings Bank of China Co., Ltd.	0.3	0.4	0.4	0.4	0.4
Mitsubishi UFJ Financial Group, Inc.	0.6	0.5	0.4	0.4	N/A
Bank of Communications Co., Ltd.	0.8	0.8	0.8	0.9	0.8
The Bank of Nova Scotia	0.6	0.6	0.5	0.5	0.4
BNP Paribas SA	1.9	1.7	1.4	1.2	1.1
PT Bank Central Asia Tbk	1.0	1.0	1.0	1.1	1.2
Industrial Bank Co., Ltd.	0.6	0.7	0.9	0.8	0.7
Westpac Banking Corporation	0.1	0.7	0.7	1.2	1.0
Itaú Unibanco Holding S.A.	3.1	2.5	2.6	3.0	2.4
National Australia Bank Limited	0.2	0.2	0.2	0.2	0.1
Banco Santander, S.A.	3.4	2.8	2.5	2.4	2.3
DBS Group Holdings Ltd	1.2	1.0	1.0	1.0	0.9
Australia and New Zealand Banking Group Limited	0.2	0.2	0.2	0.2	0.2
Ping An Bank Co., Ltd.	1.0	1.1	1.1	0.8	0.6
Bank of Montreal	0.3	0.3	0.3	0.4	0.2
Intesa Sanpaolo S.p.A.	N/A	N/A	N/A	2.1	1.4
ICICI Bank Limited	4.9	4.7	3.7	3.0	2.7
Canadian Imperial Bank of Commerce	0.2	0.3	0.3	0.3	0.2
ING Groep N.V.	1.5	1.3	1.3	1.4	1.3
State Bank of India	3.3	6.2	4.5	3.6	2.6

Source: CFRA, S&amp;P Global Market Intelligence.



# HOW THE INDUSTRY OPERATES

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Banks differ widely in the mix of services they offer and the emphasis they place upon each service, but the basic business model is the same. In this section, CFRA discusses how that model works as well as their funding avenues and income sources. (This survey concerns itself with multinational banks, the largest banks that operate across national borders. CFRA also publishes a *U.S. Regional Banks Industry Survey*.)

## BANKING BASICS

Banks perform many of the same functions everywhere in the world, serving as intermediaries between people who want to save and invest capital, and those who need money to buy homes or expand their businesses. They provide similar services to the same types of customers – from individuals and small businesses to major corporations – and make money in similar ways. Interest rates are crucial to banks in every country.

### Wholesale business

Wholesale services, aimed at clients ranging from middle-market companies to the world's biggest businesses, include lending, capital raising, financial markets operations, and transaction services.

◆ **Loans.** The structure and terms of wholesale loans tend to vary much more than in the retail and small business banking segment, and because each loan is larger, banks tend to devote more attention to each deal. They also sometimes share the risks and returns from a large or especially risky loan with other players, inviting other banks to take part in loan syndications, arrangements in which two or more banks enter into direct contractual relationships with a borrower, sharing the loan.

◆ **Capital raising.** In addition to lending, commercial banks often help companies raise capital from the broader financial markets either through debt issuance or through stock offerings.

◆ **Financial market operations.** Wholesale banks' financial market operations focus on helping companies buy or sell foreign exchange, securities (both debt and equities), options, and other derivatives. In addition to performing simple transactions on behalf of clients, they help companies manage their exposure to foreign currency and interest-rate risk. Banks also help their clients arrange and structure securitizations. While private banking is often seen as separate from wholesale banking, the largest banks operating in capital markets are usually the same as the largest managers of assets for high-net-worth individuals.

◆ **Transaction services.** These include cash management (collections, payments, and liquidity management), clearing and execution, custody services (holding equity or debt certificates on behalf of a client), and trade services (providing trade finance and letters of credit).

### Retail business

Although credit cards, insurance, mutual funds, financial planning, and asset management are critical markets for banks, their core retail business is lending and taking deposits. Home mortgages account for the largest segment of retail lending, but banks offer a variety of other loans.

◆ **Loans.** Loans may be of two basic varieties: term and revolving. With a term loan, a borrower receives credit over a long period, often between two and 10 years, to finance major purchases such as a car or boat. With a revolving loan, a bank agrees to make loans up to a specified amount. As that loan is paid off, the borrower is allowed to take out additional loans in the amount paid off. In addition to receiving interest payments on these loans, banks charge a fee for keeping the funds available. Credit cards provide one type of revolving loan.

Loans may also be either secured or unsecured. With a secured loan, the borrower pledges other assets as collateral. Unsecured loans, such as credit card debt, are not guaranteed with collateral.

◆ **Deposits.** Deposits come in three basic varieties: demand deposits, savings accounts, and time deposits. Demand deposits, or checking accounts, may or may not offer interest, but they are “demandable,” or payable on demand. The bank must provide cash in exchange for the depositor’s check, assuming the depositor’s account contains enough funds.

In practice, savings accounts are also demandable since most banks waive the requirement that 30 days’ notice be given prior to a withdrawal. Time deposits, or certificates of deposit, differ from savings accounts in that they come with a specific maturity, ranging from a few months to a few years. They also carry significant penalties for early withdrawal. In the U.S., time deposits are insured by the Federal Deposit Insurance Corporation (FDIC) up to \$250,000 per investment.

## **SOURCES OF BANK FUNDING**

Banks fund their operations in a variety of ways, including taking customer deposits, tapping the debt markets, getting loans from other financial institutions, and securitizing assets.

### **The role of deposits**

Banks have traditionally relied on building up their deposit bases in order to fund their lending. Funding via deposits involves liquidity risk because, in most cases, depositors can withdraw their money at will, while banks generally cannot demand repayment of a loan until it comes due. The spread between the lower-than-market interest rates banks offer on deposits, and the market-level rates charged on loans, compensates banks for taking this risk.

Some banks have found it more difficult to raise funds from deposits in recent years because of competition from other liquid financial products, such as money-market accounts, that offer higher interest rates than can be earned on traditional bank deposits.

### **Managed liabilities**

When a bank’s deposit base is insufficient to cover its lending activities, the bank may tap other sources of financing, such as other banks. The liquidity acquired from these sources usually reflects market interest rates and is referred to as “managed liabilities.” These funds can be increased or reduced at will in order to provide liquidity for the banks and make up any funding shortfalls. Examples of managed liabilities can include foreign currency borrowings and large negotiable time deposits, usually over \$100,000.

Since these sources of funds carry higher interest rates than traditional deposits, they are costlier for banks. As such, banks earn a much smaller spread between their funding costs and the rates they charge on their loans.

### **Securitization**

Securitization has become increasingly popular as a means of financing bank operations. Typically, a bank pools various financial assets (such as mortgages or credit card receivables), structures them as asset-backed securities, and sells them in the public securities market. This generates liquidity for banks to fund their lending operations.

Increasingly, securitization is seen as transforming the banking business model from one of “lend and hold” to an “originate-to-distribute” model, where the bank originates the loan and then unloads the risk onto other financial institutions such as hedge funds. Securitizations leave net income substantially unchanged because they replace interest income, as well as credit losses and other expenses, with loan servicing fees, while reducing the banks’ on-balance sheet assets.

As loan receivables are securitized, the banks' on-balance sheet funding needs are reduced by the value of loans securitized. Banks often continue to service the accounts, for which they receive a fee, such as the retention of the mortgage servicing rights of a securitized mortgage portfolio. Funds received from securitizations sold in the public market enhance liquidity and are a source of future lending growth.

During the revolving period of a securitization, which can range from 24 to 108 months, no principal payments are made to security holders. The revolving period allows the securitization issuer to resolve the mismatch in the timing of the payments promised to security holders and the timing of the payments on the assets backing the securitization. Payments received on the accounts backing the securitization are used to pay interest to holders and to purchase new loans receivables generated by the accounts so that the principal dollar amount remains unchanged. Once the revolving period ends, principal payments are allocated for distribution to holders of the securitized assets.

As a result of the securitization process, mortgages and other bank loans are being indirectly funded by investors worldwide. This is perceived as reducing the overall risks to the bank that originated the loan by moving some of the risk that borrowers will default into the hands of institutional investors. In addition, securitizations allow financial institutions to manage their exposure to a single borrower, industry, or loan type, further reducing their credit risk. Although this theory appeared to work for many years, protecting the banking industry during the downturn in the aftermath of the dot-com bubble, the dispersion of risk was possibly less than was first thought as it turned out that the ultimate places were parts of the shadow banking system that drew down liquidity from the banks in a crisis. In addition, securitization encourages originators to increase loan volume at the potential expense of credit quality since they do not bear the long-term credit risk of the assets.

In addition to giving the appearance of increasing liquidity and spreading risk, securitizations in theory help banks and other financial institutions to reduce their interest-rate sensitivity. However, managing the residual interest-rate convexity risk gives rise to market risk. Although in theory, securitization and disintermediation reduce banks' balance sheets, in practice the combination of international expansion and increase in wholesale business meant that multinational banks' balance sheets grew substantially more rapidly than local economies from the late 1990s until 2007.

As with the development of securitization, much of the growth of interest-rate risk originated, in CFRA's view, in retail banking. Deposit and lending products offered to retail customers often include implicit as well as explicit interest-rate derivative positions. Although there were many complaints when accounting standards began to force disclosure of these implicit derivative positions, the positions and risks were already there in retail banking.

Despite the excesses that occurred, CFRA thinks it is still reasonable to argue that the development of securitization and the growth of derivatives can have positive features, in that increased liquidity and the transferability of financial claims made possible transactions and investments that could bring general benefit. At the same time, however, an excess of liquidity can result in misleading conclusions about the value of transactions and financial claims.

Although securitization and derivatives in their current scale and form originated in the U.S. housing finance market, they were soon extended to other forms of credit. Many European banks adopted the originate-and-distribute model, which they claimed accelerated revenue growth and optimized the use of capital because it allowed them not to retain credit risk on their balance sheet to maturity (as in the buy-and-hold model). Many European banks also sought to reduce credit risk and capital requirements by using credit risk mitigation techniques. Such techniques (which included securitization and structures based on, or embedded with, credit default swaps) were at the center of much of the discussion of regulatory capital requirements under the international Basel II accord and its implementation in the EU Capital Requirements Directives (CRD).

## SOURCES OF INCOME

The profitability of the banking business depends in part on the net interest spread – the difference between the average rate a bank receives for its interest-earning assets (loans and holdings of debt securities) and the rate it pays for deposits and borrowed funds. Holdings of debt securities typically relate to government bonds, but this category also includes other kinds of securities that are held as a way of receiving a return on assets while keeping them in a supposedly liquid form in order to pay depositors or meet loan demand.

Other factors affecting bank profitability include a bank's costs and the degree to which it has developed other sources of income. These other sources of income may include a broad range of fees charged to customers and changes in fair value of financial assets, including debt securities.

### Role of interest rates

Net interest income (NII) traditionally accounted for the majority of bank revenues, so it is not surprising that changes in interest rates are seen as critical to the industry. Put simplistically, reductions in interest rates can create demand for loans, while increases can reduce borrowing, or slow its growth. Rate reductions also encourage borrowers to repay their debts early in order to refinance at lower rates, however, forcing lenders to find new ways to invest their money.

Equally important, changes in rates could affect interest spreads. If a bank has borrowed \$1 million for five years at a fixed rate of 5%, and loaned that money for five years at 6%, it will collect \$10,000 per year (the difference between its annual borrowing cost of \$50,000 and the customer's cost of \$60,000) no matter what happens to interest rates. However, if a bank has borrowed \$1 million for three years without fixing this rate, while lending the same amount at 6% per year for five years, the annual return on investment would shrink if interest rates rose during the final two years.

Rather than addressing this risk by matching assets (loans) to liabilities (deposits and borrowings) on a one-to-one basis, banks match assets and liabilities with a similar duration. Duration is a measure of a bond's length. While a bond may mature at a set time, say 30 years, its cash flows may be received at different points over its life. Duration is the weighted-average time until fixed cash flows such as interest payments are received, or the instrument reprices (changes interest rate).

If more assets than liabilities are due to be repaid or repriced, the bank stands to benefit if rates go up. The bank would lose if more liabilities than assets were due to reprice as rates rose. This view is the traditional interpretation of interest-rate risk for banks but ignores changes in the value of instruments in future periods. Thus, this view is a good measure of interest-rate risk only if interest-rate exposures in the current period are the mirror image of those faced in the future and if any shift in the yield curve happens in parallel, meaning the entire yield curve moves up by the same amount. The risks posed by interest rates are more difficult to capture if the yield curve flattens or steepens.

Banks may use futures, swaps, and options to hedge their interest-rate exposure. Lending and borrowing at variable rates also allow banks to avoid interest-rate risk. The huge expansion of global over-the-counter interest-rate derivatives since the 1980s has transformed the nature of interest margins, although accounting protocols still stuck in an earlier, simpler environment, make it difficult to narrate the risks and exposures.

Cash flow derivatives give banks the capacity to fix interest margins within fairly narrow ranges in a wide variety of interest-rate scenarios. What banks cannot fix is the fair value of its exposure to interest-rate movements, either through changes in the shape of the yield curve, changes in relative credit default spreads, or changes in volatility affecting derivatives. Sensitivity to interest-rate movements therefore comes through changes in the fair value of assets and liabilities on the balance sheet, or through trading profits where these fair values are marked to market through the income statement.

## MULTINATIONAL BANKS REGULATIONS

Due to global inter-linkages between financial institutions, financial contagion may spread beyond a single economy. To manage this global systemic risk, global and regional regulatory bodies coordinate rules and oversight.

One of the most important global organizations is the Basel Committee on Banking Supervision, a standing committee of the Bank of International Settlements. The Basel committee develops the regulatory framework for banks (currently Basel III) with the objective of increasing the banking sector's ability to absorb economic and financial shocks.

### Basel III

The three pillars of the Basel III framework are the maintenance of minimum levels of capital, liquidity, and stable funding.

#### Capital Requirements

The Basel III rule introduced the following measures to strengthen the capital requirement and introduced more capital buffers:

- **Capital Conservation Buffer** is designed to absorb losses during periods of financial and economic stress. Financial institutions will be required to hold a capital conservation buffer of 2.5% to withstand future periods of stress, bringing the total common equity requirement to 7% (4.5% common equity requirement and the 2.5% capital conservation buffer). The capital conservation buffer must be met exclusively with common equity. Financial institutions that do not maintain the capital conservation buffer faces restrictions on payouts of dividends, share buybacks, and bonuses.
- **Countercyclical Capital Buffer** is a countercyclical buffer within a range of 0% and 2.5% of common equity or other fully loss absorbing capital is implemented according to national circumstances. This buffer serves as an extension to the capital conservation buffer.
- **Higher Common Equity Tier 1 (CET1)** of 4.5% from January 1, 2015.
- **Minimum Total Capital Ratio** remains at 8%. The addition of the capital conservation buffer increases the total amount of capital a financial institution must hold to 10.5% of risk-weighted assets, of which 8.5% must be tier 1 capital. Tier 2 capital instruments are harmonized, and tier 3 capital is abolished.

#### Leverage Ratio

Basel III introduced a minimum "leverage ratio". The leverage ratio was calculated by dividing Tier 1 capital by the bank's average total consolidated assets; the banks were expected to maintain a leverage ratio in excess of 3% under Basel III. In July 2013, the U.S. Federal Reserve Bank announced that the minimum Basel III leverage ratio would be 6% for eight Systemically Important Financial Institution (SIFI) banks and 5% for their bank holding companies.

#### Liquidity Requirements

Basel III introduced two required liquidity ratios:

- **Liquidity Coverage Ratio (LCR)** ensures that sufficient levels of high-quality liquid assets to meet demands under a 30-day liquidity stress scenario.
- **Net Stable Funding Ratio (NSFR)** promotes resilience over long-term time horizons by creating more incentives for financial institutions to fund their activities with more stable sources of funding on an ongoing structural basis.

### **Focus on Governance Frameworks**

Strong governance is required to deliver financial services in a safe and sound manner. As such, regulators continue to focus on governance frameworks during examination activities. Regulators often identify a breakdown in governance and controls as one of the root causes when something goes wrong. All levels of the organization are being scrutinized – from the board and senior management to the business lines, independent risk management, and audit functions.

In November 2018, the U.S Federal Reserve Board (FRB) finalized its new rating framework for large financial institutions. This revised system has three components: (1) Capital Planning and Positions, (2) Liquidity Risk Management and Positions, and (3) Governance and Controls. For a firm to be considered “well-managed” consistent with various statutes and regulations, it must be rated as “broadly meets expectations” or “conditionally meets expectations” for all three components. Governance has been placed on equal footing with the capital and liquidity components, which arguably received greater focus historically.

In July 2019, the U.S. Office of the Comptroller of the Currency (OCC) updated the Corporate and Risk Governance booklet of the Comptroller’s Handbook. While broadly consistent with the OCC’s Heightened Standards guidance for large banks, issued in September 2014, the booklet is intended to be used for national banks of all sizes, and includes heightened standards.

The OCC handbook update and the FRB proposed guidance and statements both clarify the role of a bank’s board of directors to better distinguish its responsibilities from the role of management regarding providing overall direction and oversight. Additionally, the two agencies continue to review their policies and examination protocols to better define the responsibilities of both groups.

## **OTHER GLOBAL REGULATING ORGANIZATIONS**

### **Financial Stability Board (FSB)**

The FSB promotes international financial stability by coordinating national financial authorities and international standard-setting bodies as they work toward developing strong regulatory, supervisory, and other financial sector policies. It fosters a level playing field by encouraging coherent implementation of these policies across sectors and jurisdictions.

The FSB, working through its members, seeks to strengthen financial systems and increase the stability of international financial markets. The policies developed in the pursuit of this agenda are implemented by jurisdictions and national authorities.

### **International Association of Deposit Insurers (IADI)**

IADI is a forum for deposit insurers from around the world to gather to share knowledge and expertise. It provides training and educational programs and produces research and guidance on matters related to deposit insurance.

It seeks to contribute to the stability of financial systems by promoting international cooperation in the field of deposit insurance and providing guidance for establishing new, and enhancing existing, deposit insurance systems, and to encourage wide international contact among deposit insurers and other interested parties.

### **International Organization of Securities Commissions (IOSCO)**

The IOSCO is an association of organizations that regulate the world’s securities and futures markets. Members are typically primary securities and/or futures regulators in a national jurisdiction or the main financial regulator from each country. The association’s mandate is to: (1) develop, implement, and promote high standards of regulation to enhance investor protection and reduce systemic risk, (2) share

information with exchanges and assist them with technical and operational issues, and (3) establish standards toward monitoring global investment transactions across borders and markets.

### **Financial Crime**

There is growing consensus that the Bank Secrecy Act (BSA, in the U.S.) and anti-money laundering (AML) regime globally needs reform to better support law enforcement's efforts to deter and disrupt global financial crime, money laundering, and terrorist financing. In the U.S., this has resulted in several initial steps by the regulatory community that signal an openness to new approaches and innovation. U.S. authorities are also considering how to best enhance risk-based BSA/AML supervision to align risk exposures with supervision resource allocation and institutional controls.

In Europe, the EU is exploring the creation of a central authority to crack down on money laundering activity after a series of high-profile scandals involving Baltic and Nordic banks in 2019 that underlined the region's weakness in preventing dirty money from flowing through its banks. The EU's Anti-Money Laundering Directives are the mechanism it uses to harmonize AML/CTF legislation across its member states. Published periodically, the directives are updated to reflect the current money laundering, terrorism financing, and criminal risks facing financial markets. The EU's Fifth Anti-Money Laundering Directive (5AMLD) came into effect on January 10, 2020, while the 6AMLD came into effect in June 2021. 5AMLD focuses on cryptocurrency regulation and introduces new legal requirements for prepaid cards, transactions involving high-value goods, beneficial ownership, customers from high-risk third countries, and Politically Exposed Persons (PEP) lists. 6AMLD includes provisions for a harmonized definition of money laundering offenses, an extension of the scope of money laundering and the criminal liability of persons associated with it, and tougher punishments for those convicted of money laundering.

In Asia, the Hong Kong Monetary Authority (HKMA) is responsible for the stability of Hong Kong's banking system and monetary policy. Under the authority of the AML/CTF Ordinance, the HKMA is responsible for combating money laundering and the financing of terrorism. In this capacity, it works to ensure that financial institutions in Hong Kong are meeting a variety of legal requirements, the most important being the development and implementation of an effective AML/CTF program. In Singapore, the Monetary Authority of Singapore has a mandate to serve as the city-state's central bank and regulate its financial sector. Financial institutions must comply with MAS's AML policy. Those who fail to comply may be held criminally liable and face fines of up to \$1 million.

### **Cybersecurity and Privacy Concerns**

Cybersecurity continues to be a key focus area from a regulatory perspective. Issues coming under increased scrutiny and supervision from regulators include cybersecurity governance (board or leadership involvement), privacy, data security, cyber resilience, and outsourcing risks. In response to these rising risks and regulatory expectations, banking institutions across the globe are continuing to strengthen their technology, risk, and compliance programs.

Office closures and restricted movement during the Covid-19 pandemic compelled everything to go virtual, many institutions had to embrace a digital transformation fully. This shift, however, has led hackers and cyber scammers to try to take advantage of expanding technology footprints and new attack surfaces, making cybersecurity an important priority for institutions.

The following table highlights the latest regulatory activities of various regulatory bodies related to cybersecurity and data privacy:



## REGULATORY ACTIVITIES OF VARIOUS REGULATORY BODIES

REGULATORY BODY	REGULATORY ACTIVITIES
U.S. Office of the Comptroller of the Currency (OCC)	The OCC's Semiannual Risk Perspective (Fall 2021) identified cybersecurity and operational resiliency as priorities, with emphasis on threat vulnerability and detection, access controls and data management, and managing third-party connections. Examiner focus will include information technology risk management evaluation and information technology systems maintenance.
U.S. Federal Reserve Board (FRB)	Cyber-related risks are among the supervisory priorities for the FRB for Large Institution Supervision Coordinating Committee (LISCC) firms, large and foreign banking organizations (LFBOs), and community banking organizations (CBOs).
U.S. Federal Deposit Insurance Corporate (FDIC)	Enhancing oversight of banks' cybersecurity risks is a top area of focus for the FDIC. As part of its Community Banking Initiative, the FDIC is adding to its cybersecurity awareness resources for financial institutions. This includes adding two new Cyber Challenge vignettes focused on cybersecurity and operational resilience.
European Union	The European Council adopted the EU Cybersecurity Act in April 2019. The Act permanently designates the European Union Agency for Network and Information Security (ENISA) as Europe's Cybersecurity Agency and establishes an EU cybersecurity certification framework. Separately, European Supervisory Authorities (ESAs) published a Joint Advice on the costs and benefits of establishing a coherent cyber resilience testing framework for significant market participants and infrastructures within the whole EU financial sector. In addition, General Data Protection Regulation (GDPR) and Payment Services Directive 2 (PSD2) requirements are driving closer regulatory scrutiny regarding the use of consumer data.

Source: CFRA.

# HOW TO ANALYZE A COMPANY IN THIS INDUSTRY

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Evaluating any business from the perspective of an equity owner can be boiled down to estimating the net present value of future cash flows. For most non-bank businesses, cash can be defined as claims on banks and equivalent financial institutions. Banks differ from most other businesses in that a large part of their business consists of financial claims and liabilities and defining where on the spectrum of liquidity is the boundary between cash and non-cash is not intuitively obvious.

One of the precepts of financial theory since 1958 has been the Modigliani-Miller theorem that the value of an enterprise is independent of how it is financed. At first sight, this does not necessarily apply to a bank, since the cost of finance of a bank is crucial to its value. The efficient markets financial theory orthodoxy of the past half century has been challenged in recent times, but on certain narrow assumptions, it still claims some respectability. On those narrow assumptions, it might still be possible to use a Modigliani-Miller perspective to compare the return on gross assets of a bank with the weighted total cost of capital including equity, deposits, and other funds (a line pursued by Miller himself in an essay included in “Merton Miller on Derivatives” published in 1991).

The leverage of banks globally increased substantially in recent decades. There was a particularly strong rise in the ratio of gross assets to net equity from 2000 to 2007. Because the regulatory focus was more on risk-weighted assets (RWAs), which were declining relative to gross unweighted assets, the ratio of gross assets to net equity did not show up so much in regulatory capital ratios.

Higher leverage allowed ROE to be maintained or increased. When gross return on assets declined, or went negative, high leverage led to substantial problems. Regulators and others are now calling for reduced leverage over time and, with investor skepticism over risk weightings (used to derive the capital ratio), regulators are placing increased emphasis on leverage.

If the Modigliani-Miller theorem is correct, this should not affect valuation, some regulators argue. CFRA's view is:

- Any general theory of financial behavior of firms should apply to banks as well as to other firms.
- Nevertheless, despite the risk of self-contraction, we think that the value of banks is not indifferent to financing costs and leverage.

## Balance Sheet as Primary Focus for Bank Analysis

The balance sheet should be the initial focus of any analysis and valuation of a bank, in our view. Employees, physical branch infrastructure, IT systems, and networks are all crucial components of a bank.

However, for the customers, serving whom must be the main rationale of the business, the bank is essentially a provider and custodian of financial assets and financial liabilities. A large part of the interaction between a bank and its customers shows up on the balance sheet as loans to customers, and as deposits and other accounts from customers. Much traditional bank analysis focuses on ratios of financial income and expense to these customer accounts.

The balance sheet will also show financial asset and liability relationships with other banks, wholesale market counterparties, holdings of securities, securities liabilities, and the fair value of derivatives positions. However, there is large dispersion among the banks, with large diversified capital markets players' operations typically less “loan-intensive,” as one would expect, relative to the more retail focused banks.

### **Beyond the balance sheet**

The financial asset and liability relationship between a bank and its customers and counterparties goes beyond the balance sheet. A bank providing lending facilities to customers through overdrafts, credit

Cards, or other arrangements will not show the undrawn amounts on the balance sheet but will have a contingent commitment. Because it is recognized that drawings are more likely as default approaches, exposure at default has to take account of this off-balance sheet commitment.

Securitization led to the creation of off-balance sheet vehicles. Some were excluded from regulatory capital but stayed on the balance sheet under accounting rules. Others were, in theory, separate from the bank, but in practice, the bank had a commitment to provide liquidity.

Assets under management for customers can create other relationships. For some banks, assets under management for customers can be of a similar order of magnitude to customer deposits. Usually (but not always), assets under management are not on the bank balance sheet. Nevertheless, even if the assets belonging to customers are off-balance sheet, there can still be some responsibility for the bank. Banks that ran money-market funds that were intended to preserve capital value have felt obliged in some circumstances to purchase assets from the funds that had fallen in value, taking the loss onto their own account to preserve customer goodwill.

The boundary between financial assets and liabilities that appear on a balance sheet and those that do not is not hard and fast. It can depend on accounting convention. The way that derivatives or instruments such as sale and repurchase agreements (repos and reverse repos) are accounted for can create big differences in the size of the balance sheet. Financial assets and liabilities related to wholesale and capital market activities can be more volatile than those related to customer loans and customer deposits.

### **Balance sheet versus non-balance sheet income**

Much analysis of banks and the ratios commonly used in evaluating banks have assumed that the main activity of banks is taking customer deposits and making customer loans. This activity generates interest income, sometimes referred to as balance sheet-driven revenue.

Under IFRS, the accounting standard adopted by Asian and European banks, interest income is recognized on interest-bearing financial instruments classified as held to maturity, available for sale or other loans and receivables, using the effective interest method, which includes all related cash flows, including some formerly treated as commissions. Under U.S. GAAP, equity investments are carried at fair value through profit or loss, while debt securities can be carried at amortized cost, fair value through other comprehensive income (OCI), or fair value through profit or loss, depending on the classification of the debt security.

Non-interest income includes fees and commissions, as well as trading income on assets held for trading or marked to market through profit or loss. While non-interest income is sometimes referred to as non-balance sheet-driven income, it frequently relates to buying and selling financial assets and incurring financial liabilities that are on the balance sheet, or to arranging for customers to have other financial assets or liabilities that are off-balance sheet.

Many of the ratios used to measure and compare the performance of banks are affected by business mix more than by absolute performance. It is important to consider the impact of differences in mix between banks or over time in looking at such ratios. Additionally, while a bank is represented much more by its balance sheet than some other types of businesses, it is always important to think through what changes in the balance sheet represent in intention and underlying action of the firm.

## Profitability Measures

◆ **Yield on interest-earning assets.** Interest accrued as being received in a period is best measured against average interest-earning assets for the period. Because banks can achieve a given profit level in a variety of ways, the components affecting net income must be considered when evaluating the quality of earnings. Interest-earning assets—loans, short-term money market investments, lease financings, and taxable and nontaxable investment securities—are the principal source of most banks' interest income.

The level of yield will be affected by the level of general interest rates, but also by business mix. A bank with a high proportion of unsecured consumer credit or loans to lower credit quality businesses in its asset mix ought to charge higher spreads than a bank that is more oriented to prime mortgages or investment-grade corporate lending to reflect higher credit risk. Where a bank operates in several different jurisdictions, with different prevailing interest rates, the currency mix of lending will also have an impact on average yield.

The influence of the general level of interest rates is usually measured by interbank rates in the relevant currency. The difference between the average yield on interest-earning assets and the wholesale rate (commonly using a three-month tenure) is described as the asset spread.

◆ **Cost of interest-bearing liabilities.** Interest expense accrued in a period is best measured against average interest-bearing liabilities for the period. Interest-bearing liabilities may include deposits from retail investors, wholesale funds including interbank and central bank deposits, and securities liabilities. The marginal cost of funds is generally assumed to be interbank rate, so the liability spread can be measured against interbank, again conventionally of three-month tenure. Current accounts sometimes pay no interest, or may pay interest, and can therefore switch between interest-bearing liabilities and non-interest-bearing liabilities. When interest rates are low, the liability spread can decline.

◆ **Net interest spread.** The net interest spread is the difference between the yield on interest-earning assets and the cost of interest-bearing liabilities. It is also equivalent to the sum of the asset spread and the liability spread. The liability spread tends to decline as interest rates go lower, while the asset spread can widen as interest rates go lower. However, this has not offset pressure on net interest margins, which have been squeezed as interest rates were reduced sharply following the financial crisis.

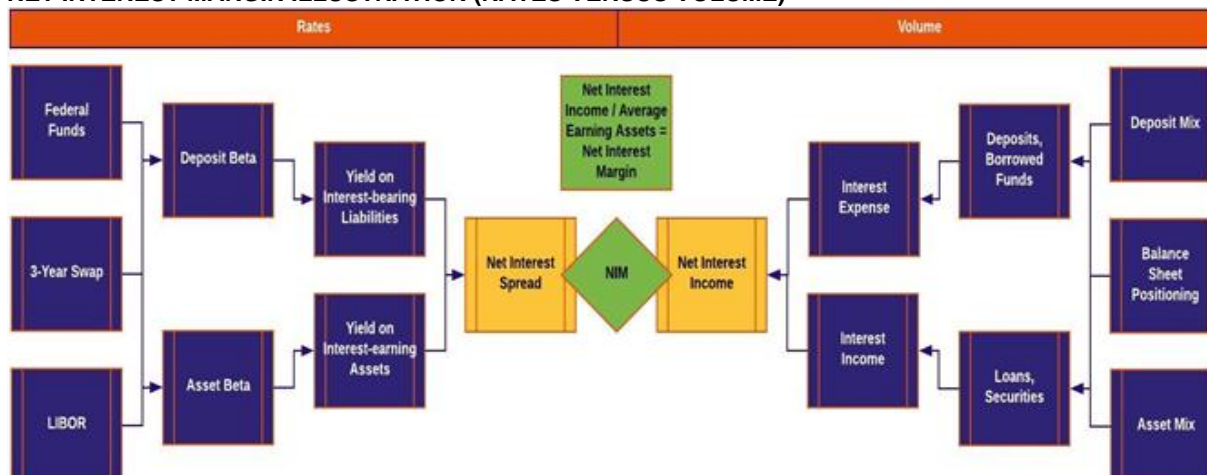
$$\text{net interest spread} = \text{yield on interest-earning assets} - \text{cost of interest-bearing liabilities}$$

◆ **Net interest income.** Net interest income contributions for diversified banks are less sensitive to changes in interest rates compared to regional banks, as they have a wide range of businesses beyond consumer and commercial loans, such as credit card, capital markets (trading), investment banking, asset and wealth management, and custodial or treasury services. The type of assets earning interest for the bank may vary greatly from mortgages to auto loans, personal loans, commercial and industrial loans, and commercial real estate loans.

◆ **Net interest margin.** The yield on interest-earning assets and the cost of interest-bearing liabilities use different denominators. The net interest margin (NIM) is net interest income (interest income less interest expense) divided by average interest-earning assets.

$$\text{net interest margin} = \text{net interest income} / \text{average interest-earning assets}$$

## NET INTEREST MARGIN ILLUSTRATION (RATES VERSUS VOLUME)



Source: CFRA.

The difference between the net interest margin and the net interest spread is sometimes referred to as the endowment effect and comes from non-interest-bearing funds, including non-interest-paying accounts, shareholders' equity, and other net free funds. Total net free funds are the difference between average interest-earning assets and interest-bearing liabilities.

The endowment effect can be represented as the ratio of total net free funds to average interest-earning assets, multiplied by the average cost of interest-bearing liabilities.

So, if total net free funds are 10% of interest-earning assets (interest-bearing liabilities are 90% of interest-earning assets) and the average cost of interest-bearing liabilities is 4%, the endowment effect is 0.4% (10% x 4%). If the average yield on interest-earning assets is 5%, the spread is 1%, and the net interest margin is 1.4%. As with the liability margin, the endowment effect contribution and the value of free funds will be lower when interest rates are lower.



**Watch Out!** Interest income is often seen as more stable than non-interest income. Nevertheless, banks are in the business of providing a service to clients with different temporal liquidity requirements, and they can deliberately mismatch the maturity of their assets and liabilities to make profits. It is important to view statements of maturity mismatch, and also to consider to what extent NII arises from balance sheet management, or asset liability management, mismatches that may not be sustainable. Banks increasingly report the potential impact on interest income of a movement across the entire yield curve. Vulnerabilities tend to arise more from non-uniform movements in the yield curve.

◆ **Provision for loan losses.** The provision for loan losses should be considered along with the NIM when evaluating the quality of a bank's financial performance. The provision, which appears on the income statement, is a quarterly charge taken against earnings; the charge then goes into an allowance to cover possible loan losses. The provision's size as a percentage of total loans reflects the success or failure of the bank's credit evaluation procedures and the risk inherent in the bank's loan portfolio. Over the short term, risky, high-interest loans may boost a bank's yield on interest-earning assets and, hence, its NIM. However, when a bank makes a greater number of high-risk loans, it needs to increase its provision for loan losses in the long term.

Provisions for loan losses generally rise over time to reflect growing loan portfolios and increases in the level of charge-offs; however, the provision for loan losses can vary greatly from quarter to quarter and from year to year. In addition, bank managements can exercise discretion in establishing the provision for

loan losses. The provision for loan losses should be examined in conjunction with the bank's allowance for loan losses, charge-off experience, and level of nonperforming loans, to see whether management is making adequate provisions or whether it is simply using the charge to manipulate reported earnings.



**Watch Out!** Credit impairment charges (or loan loss provisions) are estimates calculated based on average historical default rates and other assumptions, which are at the discretion of the bank. This gives dishonest management the ability to enhance the banks' profitability. Hence, some analysts prefer to look at pre-provisioning profit for a true measure of the banks' financial performance.

◆ **Non-interest income.** Noninterest income is composed primarily of fee income, including service charges on deposits, trust accounts and credit cards, sales commissions, and gains or losses from securities trading, as well as other capital market activities. The proportion of noninterest income to total income has risen over time as banks have sought to diversify away from their core lending operations, which are more subject to macroeconomic and cyclical factors. For most multinational banks, noninterest income now constitutes more than 40% of total revenues (interest income plus noninterest income). In general, large banks tend to have a greater proportion of their total income attributable to noninterest-bearing sources than do smaller banks. This reflects large banks' scale and capacity to pursue additional revenue streams.

◆ **Non-interest expenses and the efficiency ratio.** Non-interest expenses represent all expenses incurred in operations, including such items as personnel compensation, occupancy costs, IT, and other administrative costs, including depreciation of the bank's own capitalized assets.

The efficiency, or cost-income ratio, is the ratio of non-interest expense to net revenues. For comparability of this ratio, CFRA thinks net revenues are best measured net of insurance claims where applicable. Depreciation charges relating to assets leased to customers should also be taken out of operating expenses and netted against revenues for comparability.

Expense ratios can vary across business mix, as well as relative efficiency. Business lines with greater personal service requirements—advisory, asset management—and lower balance sheet requirements tend to have higher cost-income ratios. Businesses such as retained mortgage lending that rely mainly on balance sheets would have a fairly low ratio of expense to revenues. Moreover, perceptions of economic capital requirement and regulatory capital requirements for market and operational risk could shift, pushing up the capital cost and potentially reducing the personnel compensation for some activities.

◆ **Return on assets.** A comprehensive measure of bank profitability is return on assets (ROA)—a bank's net income divided by its average total assets during a given period. Despite the usual caveats about mix, a high ROA is almost always a positive sign for a bank, in our view, as long as it is not obtained from short-term mismatching of costs or credit exposures, or at the expense of longer-term customer service and satisfaction. Banks with low ROA tend to try to offset this with higher leverage.

◆ **Return on equity.** Another measure of profitability, usually considered in conjunction with ROA, is return on equity (ROE). A bank's ROE is calculated by dividing net income by average shareholders' equity. Because shareholders' equity normally backs only a small fraction (usually 5%–10%) of a bank's assets, ROE is much larger than ROA. Banks that rely heavily on deposits and borrowings to support assets, rather than on stockholders' equity, tend to have higher ROEs. An unusually high ROE versus ROA can indicate that the bank's equity base is too small compared with its debt; this high leverage may limit its ability to borrow further.

## Measures of Financial Condition

◆ **Allowances for loan losses.** To protect banks from possible default by loan customers at some point in the future, they are required to maintain an allowance for loan losses. This allowance appears on a bank's balance sheet as a contra account, or a net reduction, to loans outstanding. It is a set-aside that is built by the provision for loan losses and reduced by net charge-offs (discussed later in this section). The allowance reflects management's judgment regarding the quality of its loan portfolio.

The adequacy of a bank's allowance for loan losses should be judged in relation to the value of its problem loans and net charge-offs. Ratios at the higher end of the range usually indicate that a bank has a very high level of problem loans, such as nonperforming commercial real estate. However, if a bank's allowance is considerably lower than banks of similar size with comparable loan portfolios, it may indicate a lack of management prudence or a reluctance to reduce reported earnings, which in turn could signal another whole set of potential problems.

Over time, the provision for loan losses should equal the level of net charge-offs in order to maintain the allowance for loan losses at a given proportion of total loans. If the provision for loan losses does not rise to compensate for higher net charge-offs, management may be manipulating reported earnings by running down the allowance, or the credit quality of the company's loan portfolio may be improving.



**Watch Out!** In an attempt to soften the negative impact on capital ratios, banks may choose to under-reserve when establishing the initial allowance for loan losses on the newly consolidated assets. Such under-reserving may lead to higher provisioning expense in future periods. In addition, election of fair value option upon consolidation may reduce initial capital impact but may increase prospective earnings volatility.

◆ **Net charge-offs.** Under bank accounting, impairment allowances are set up some time in advance of final recognition of loss and write-off or charge-off. Charge-off is likely to be more final, and accurate, than initial provision, and can be netted off against any subsequent recoveries. The time difference between provision and charge-off can vary with type of lending (unsecured consumer credit defaults with low recovery expectations are likely to be written off fairly rapidly). In principle, the charge-off ratio is closer to cash flow and can act as a check on the provision accrual, but while offering some chances for further mathematical analysis, CFRA doubts that this mathematical analysis offers a large amount of extra insight.

◆ **Non-performing loans.** Loans on which income is no longer being accrued and repayment has been rescheduled are considered nonperforming. The level of nonperforming loans is another indication of the quality of a bank's portfolio. With an expected 2020 global recession from the coronavirus, multinational banks' nonperforming loans to total loans ratios are likely to rise dramatically, especially for banks with high exposure to commercial real estate loans. In addition to reducing the flow of interest income, nonperforming loans represent potential charge-offs if their quality deteriorates further.

◆ **Capital levels.** In the U.S., the Federal Reserve (the Fed) has established two basic types of measures of capital adequacy with which bank holding companies (BHCs) must comply: a risk-based measure and a leverage measure.

Risk-based standards consider differences in the risk profiles among banks to account for off-balance sheet (OBS) exposure and to encourage banks to hold liquid assets. Assets and OBS items are assigned to broad risk categories, each representing various weightings. Capital ratios represent capital as a percentage of total risk-weighted assets. The minimum guideline for the ratio of total capital to risk-weighted assets is 8.0%. At least half of total capital must consist of Tier 1 capital: common equity and certain preferred stock, less goodwill, and other intangible assets.



The Fed's minimum leverage ratio guidelines for BHCs provide for a 3% minimum ratio of Tier 1 capital to average assets, less goodwill, and certain intangible assets. To meet the regulatory requirement to be classified as "well-capitalized," the financial institution must have a leverage capital ratio exceeding 5%, a Tier 1 risk-based capital ratio exceeding 6%, and a total risk-based capital ratio exceeding 10%. In practice, all banks are expected to maintain capital positions substantially above the minimum supervisory level.

Banks in Europe and Asia are subject to the implementation of Basel III. Under Basel II, many banks invested in new types of capital instruments that were unlikely to be permanent. One of Basel III's main tenets is a greater focus on common equity (*i.e.*, share capital, share premium, and retained earnings), which must be the predominant form of Tier 1 capital.

◆ **Liquidity.** The internationally agreed minimum capital standards under Basel I and Basel II did not address liquidity, though national banking regulators continued to have their own liquidity standards. The topic remained on the agenda of the Basel Committee of Banking Supervisors, which incorporated a liquidity framework under Basel III.

◆ **Derivatives.** Derivatives are financial instruments, designed to transfer risk between parties, with values derived from the level of an underlying instrument, index, or interest-rate level, which can include equity or debt securities, currencies, interest rates, commodities, and even things as abstract as whether or not a company defaults on its debt. Some derivative contracts are traded on exchanges; other derivative contracts can be directly negotiated between parties, and still others can be arranged through a third party.

Banks generally use derivatives to hedge a variety of risks, including interest-rate changes. As a result of such hedging, many banks have become less interest-rate sensitive.

One type of derivative commonly used by banks is an interest-rate swap. A bank that receives a fixed interest rate for a particular asset may want to protect against future rate changes, since a majority of a bank's funding is derived from floating rate sources. As a result, the bank will want to convert this fixed interest rate into a floating rate. The bank will find a party that may prefer to receive a fixed rate instead of a floating rate over time and enter into a swap agreement. The counterparty may be an investor holding a floating-rate debt instrument. Such an investor may decide to convert the current floating rate into a fixed rate, thus locking in future interest payments related to that investment. As a result, the bank would receive payments that change as interest rates change from the counterparty and make payments to the counterparty at the agreed-upon fixed rate. Of course, only the net difference between the payments would change hands between the parties.



**Watch Out!** Derivatives pose inherent risks if they are not used for hedging purposes, as there is the chance that the bet will not go in the direction that management hopes. Most derivatives contain counterparty credit risk, in which a counterparty may fail to fulfil an obligation specified by the derivative contract terms.

Credit exposure is assessed by the cost to replace a contract at current market rates. Many banks try to limit counterparty credit risk in one or more ways. They can deal with derivatives dealers that are national market makers with strong credit ratings in their derivatives activities. They can subject counterparties to credit reviews and approvals similar to those used in making loans and other extensions of credit. Finally, they can require counterparties to provide cash collateral when their unsecured loss positions exceed certain negotiated limits.



## Equity Valuation

The last step in analyzing a bank consists of determining whether its stock price reflects the company's true value. The valuation of a bank should reflect myriad factors, such as the quality of management, future business prospects, earnings volatility, and earnings history, to name a few.

Investment valuations often focus on an analysis of a company's price-to-earnings (P/E) ratio, or a forward P/E ratio, using an estimate of a company's future earnings. All else being equal, companies that have superior earnings growth prospects will command higher ratios. Analysts can compare a firm's trading multiples with the multiples of its peers and with those of the broader market.

One good technique for P/E valuation during abnormal environments is to estimate normalized earnings per share (EPS), and apply a multiple to it, based on longer-term historical trends or a "normalized" operating environment (*i.e.*, not a crisis environment). Based on historical averages of trailing 12-month multiples, 12x is an appropriate multiple for multinational banks (based on average trailing 12-month normalized P/E from 2007-2019). Normalized EPS can be estimated by forecasting the revenues of a bank in a moderate growth economy, with loan loss provisions that just cover net charge-offs, and expenses that are free of legacy legal and credit-related costs.

An alternative valuation measure, especially common for banks, is price-to-tangible book value per share. This measure can be calculated by taking total assets, and subtracting goodwill and intangibles, total liabilities, and preferred stock, then dividing by shares outstanding. One key indicator of investors' perception of future earnings and capital trends at a bank is whether a bank trades above or below 1.0x tangible book value per share. Beyond that, an investor should evaluate a bank by comparing its current and historical valuations on price-to-tangible book value per share, relative to peers, and seeing if the differences can be explained by differing levels of asset quality, growth, location, or quality of management.

# GLOSSARY

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**Allowance for loan losses**—A reserve fund composed of accumulated earnings that a bank sets aside to protect its loan portfolio from potential losses on loans.

**Asset sensitive**—A financial institution is said to be asset sensitive if its net interest income (NII) will increase during a period of rising interest rates and fall when rates decline.

**Basis point**—One-hundredth of one percent (0.01%); the unit generally used to measure movements in interest rates or investment returns.

**Capital**—For commercial banks, capital is the sum of equity capital and certain other items. Under Basel III, qualifying subordinated debt counts toward total capital requirements.

**Central Bank Digital Currencies (CBDC)**—Virtual money backed and issued by a central bank.

**Commercial paper**—Short-term promissory notes issued by companies and sold to investors, mainly other companies. Commercial paper provides corporations with a way to borrow among themselves, bypassing the banking network.

**Cost of funding**—The rate of interest that a bank pays on the interest-bearing liabilities and noninterest-bearing deposits. It is calculated as the total interest expense divided by the sum of the average interest-bearing liabilities and average noninterest-bearing deposits.

**Cryptocurrency**—A digital currency that can be used to buy goods and services but uses an online ledger with strong cryptography to secure online transactions.

**Derivative**—A security whose price is dependent upon or derived from one or more underlying assets. The derivative itself is merely a contract between two or more parties. Its value is determined by the fluctuations of the underlying asset.

**Discount rate**—Interest rate at which an eligible depository institution may borrow funds, typically for a short period, directly from a central bank.

**Duration**—A measure of a fixed-income security's length. Duration is the weighted-average time until fixed cash flows such as interest payments are received, or the instrument reprices. Duration is also a measure of the sensitivity to movements in interest rates.

**Earning assets**—Interest-bearing financial instruments, comprising commercial, real estate, and consumer loans; investment and trading account securities; money-market investments; lease finance receivables; and time deposits in foreign banks.

**Efficiency ratio**—Efficiency ratio is a measure of operating expenses as a percentage of net interest revenue and total noninterest revenue. The higher the ratio, the lower the efficiency.

**Environmental, Social, and Governance (ESG)**—ESG criteria are a set of standards for a company's operations that socially conscious investors use to screen potential investments.

**Eurozone**—The 19 countries that have adopted the euro as their currency. The 11 initial members from 1999 were Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, and Finland. Greece joined in 2001, Slovenia in 2007, Cyprus and Malta in 2008, Slovakia in 2009, Estonia in 2011, Latvia in January 2014, and Lithuania in 2015.

**Float**—The portion of gross checking account (demand deposit) balances that is in the process of being collected.

**Gap**—The difference between a financial institution's liabilities and its assets as both items mature over time. If more liabilities than assets mature or are repriced, the bank is liability sensitive (has a negative gap). If more assets mature than liabilities, the bank is asset sensitive (has a positive gap). In a period of falling interest rates, a bank with a negative gap will see net interest margins widen; conversely, a bank with a positive gap will benefit during a period of rising rates.

**GFC**—The Global Financial Crisis of 2008 (also known as the Great Recession) refers to the period of extreme stress in global financial markets and banking systems between mid-2007 and early-2009.

**Hedging**—A strategy used to offset financial risk. A bank looking to minimize its exposure to interest rate or currency risk, for example, would buy or sell futures or options contracts. A perfect hedge is one that eliminates the possibility of future gain or loss.

**Interest-rate sensitivity**—The degree to which an asset is subject to fluctuations in interest rates.

**Liability sensitive**—A financial institution is said to be liability sensitive if its NII is projected to fall during a period of rising interest rates and to rise when rates fall.

**LIBOR**—London Interbank Offered Rate. Based on the rate that a panel of banks say they could borrow from each other at various maturities and for various currencies; used as a benchmark for a large volume of contracts globally.

**LTRO**—Longer-term refinancing operations are secured loans offered by the ECB to European banks for various maturities in order to provide liquidity to the banking sector.

**Negotiable certificates of deposit**—Marketable receipts for funds deposited in a bank at interest for a specified period, usually between 30 and 90 days; sold in denominations of \$100,000 or more.

**Net charge-offs**—The collective amount of loans that are no longer likely to be collected and are written off, minus recoveries of payments previously charged off.

**Net interest income (NII)**—Total interest revenues minus total interest expenses.

**Net interest margin (NIM)** —Net interest income divided by average earning assets.

**Net interest spread (NIS)** —The difference between the average rate a bank receives from its earning assets and the average rate it pays for deposits and borrowed funds, a measure of the profitability of a bank's lending business.

**Nonperforming assets**—A bank's total nonaccrual loans, renegotiated-rate loans, and other real estate owned, from which principal and interest payments are not being received according to the original agreements.

**Non-performing loan (NPL)** —A loan in which the borrower is in default because they have not made the scheduled payments for a specified period. Currently, national regulators have differing interpretations of what constitutes a non-performing loan. The European Banking Authority defines a non-performing loan as a loan where material exposures are more than 90 days past due; and/or exposures represent a risk of not being paid back in full without collateral realization, regardless of the existence of any past due amount or of the number of days past due.

**Return on assets (ROA)**—A comprehensive measure of bank profitability. Bank's net income divided by its average total assets during a given period.

**Return on equity (ROE)**—Another measure of bank profitability. Calculated by dividing net income by average shareholders' equity.

**Risk-based capital**—A regulatory measurement of a bank's capital adequacy. Guidelines set forth how capital is measured and how assets, including off-balance sheet items, are adjusted to reflect the level of credit risk they entail.

**Stablecoin**—Stablecoins are cryptocurrencies without the volatility. They share a lot of the same powers as other cryptos, but their value is steady, more like a traditional currency,

**Tier 1 capital**—Under Basel III, common equity tier 1 capital must always be at least 4.5% of RWAs. Common equity tier 1 is the sum of share capital, share premium, retained earnings, accumulated other comprehensive income, and other disclosed reserves, less regulatory adjustments. The latter include deductions for goodwill and all other intangibles and adjustments for deferred tax assets.

**TLTRO**—Targeted longer-term refinancing operations is a new funding system offered by the ECB to European banks (individual banks or several banks forming a "TLTRO group") to borrow at least 7.0% of a specific part of their existing loans for various maturities in order to provide liquidity to the banking sector.

**Trading account securities**—Bank bond inventories. These securities, held primarily with the expectation that they will generate capital gains, are valued on bank balance sheets at cost or at market value, whichever is lower.

# INDUSTRY REFERENCES

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## PERIODICALS

### **ABA Banking Journal**

[bankingjournal.aba.com](http://bankingjournal.aba.com)

Journal of the American Bankers Association; focuses on regulatory developments and compliance issues.

### **American Banker**

[americanbanker.com](http://americanbanker.com)

Daily; covers the banking industry, focusing mainly on the U.S., but also deals with international issues.

### **Federal Reserve Bulletin**

[federalreserve.gov/publications/bulletin](http://federalreserve.gov/publications/bulletin)

Bulletin with data and articles covering banking and economic developments.

### **Quarterly Banking Profile**

[fdic.gov/bank/analytical/qbp](http://fdic.gov/bank/analytical/qbp)

Bulletin with earnings and balance sheet data for FDIC-insured institutions.

### **The Banker**

[thebanker.com](http://thebanker.com)

Monthly publication offering detailed reports on banking in both developed and developing markets.

## TRADE ASSOCIATIONS

### **American Bankers Association (ABA)**

[aba.com](http://aba.com)

Largest banking trade association; represents all categories of banking institutions, including community, regional, and money center banks.

### **American Bankruptcy Institute (ABI)**

[abi.org](http://abi.org)

Multidisciplinary, nonpartisan organization founded in 1982 to provide Congress and the public with analysis of bankruptcy issues. Membership includes 7,500 attorneys, auctioneers, bankers, judges, professors, turnaround specialists, accountants, and other bankruptcy professionals.

### **Association of German Banks**

[en.bankenverband.de](http://en.bankenverband.de)

Trade association for German banks.

### **British Bankers' Association (BBA)**

[bba.org.uk](http://bba.org.uk)

Trade group for the U.K. banking industry.

### **European Banking Federation (EBF)**

[ebf-fbe.eu](http://ebf-fbe.eu)

Trade group representing national banking lobby organizations in Europe.

### **Mortgage Bankers Association (MBA)**

[mba.org](http://mba.org)

National association representing the real estate finance industry. Its more than 3,000 member companies include mortgage companies, mortgage brokers, commercial banks, thrifts, life insurance companies, and others in the mortgage lending field.

## REGULATORY AND GOVERNMENT AGENCIES

### **Banca d'Italia**

[bancaditalia.it](http://bancaditalia.it)

Italian bank regulator; provides statistics on the Italian banking industry.

### **Banco de España**

[bde.es/bde/es](http://bde.es/bde/es)

Spanish central bank and bank regulator.

### **Bank of England**

[bankofengland.co.uk](http://bankofengland.co.uk)

U.K. central bank.

### **Banque de France**

[banque-france.fr/accueil.html](http://banque-france.fr/accueil.html)

French central bank; provides statistics on the domestic banking industry.

### **Board of Governors of the Federal Reserve System**

[federalreserve.gov](http://federalreserve.gov)

The Federal Reserve System supervises and regulates banks; maintains the stability of the financial system; conducts U.S. monetary policy by influencing money and credit conditions; and provides certain financial services to the U.S. government, the public, financial institutions, and foreign official institutions.

### **Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)**

[bafin.de/DE/Startseite/startseite\\_node.html](http://bafin.de/DE/Startseite/startseite_node.html)

Regulator for the German financial services industry.

### **European Banking Authority (EBA)**

[eba.europa.eu](http://eba.europa.eu)

EU banking regulator charged with supporting financial stability and transparency.

### **European Central Bank (ECB)**

[ecb.europa.eu/home/html/index.en.html](http://ecb.europa.eu/home/html/index.en.html)

Central bank for the Eurozone countries.

### **European Commission (EC)**

[http://ec.europa.eu/index\\_en.htm](http://ec.europa.eu/index_en.htm)

EU body that proposes and monitors European legislation.

**Federal Deposit Insurance Corp. (FDIC)**

[fdic.gov](https://www.fdic.gov)

Independent deposit insurance agency created by Congress to maintain stability and public confidence in the U.S. banking system by identifying, monitoring, and addressing risks to insured depository institutions.

**International Monetary Fund (IMF)**

[imf.org/external/index.htm](https://imf.org/external/index.htm)

Publishes detailed, periodic reviews of stability of financial systems in countries worldwide.

**U.S. Department of Justice (DOJ) Antitrust Division**

[justice.gov/atr](https://justice.gov/atr)

As enforcer of antitrust rules, the DOJ reviews bank mergers for compliance with the Clayton Act, which prohibits mergers or acquisitions that are likely to reduce competition.

**U.S. Department of the Treasury**

[treasury.gov](https://treasury.gov)

The Treasury Department is the executive agency responsible for promoting economic prosperity and ensuring the financial security of the U.S. The department is responsible for advising the President on economic and financial issues, encouraging sustainable economic growth, and fostering improved governance in financial institutions.

**ONLINE RESOURCES****Bank for International Settlements (BIS)**

[bis.org](https://bis.org)

Publishes statistics on international capital flows; also responsible for the Basel Committee on Banking Supervision, which sets capital adequacy standards for internationally active banks.

**Identity Theft Resource Center**

[idtheftcenter.org](https://idtheftcenter.org)

The Identity Theft Resource Center is a U.S. non-profit organization founded to provide victim assistance and consumer education.

**International Business Times**

[lbtimes.com](https://lbtimes.com)

An American online news publication that provides business news and financial news from the U.S. and around the world.

**Reuters**

[reuters.com](https://reuters.com)

Based in London, U.K., Reuters is one of the largest international news organizations in the world.

**MARKET RESEARCH FIRMS****Atlantic Council**

[atlanticcouncil.org](https://atlanticcouncil.org)

An American Atlanticist think tank in the field of international affairs. It manages 10 regional centers and functional programs related to international security and global economic prosperity.

**CB Insights**

[cbinsights.com](https://cbinsights.com)

Analyzes data points on venture capital, startups, patents, partnerships, and tech news.

**S&P Global Market Intelligence**

[capitaliq.com](https://capitaliq.com)

Financial information and research firm that collects, standardizes, and disseminates corporate, financial, market, and merger and acquisition data, plus news and analytics on banking and other industries.

# COMPARATIVE COMPANY ANALYSIS

			Operating Revenues														
			Million \$							CAGR (%)		Index Basis (2013=100)					
Ticker	Company	Yr. End	2021	2020	2019	2018	2017	2016	2015	5-Yr.	1-Yr.	2021	2020	2019	2018	2017	2016
MULTINATIONAL BANKS																	
NYSE:JPM	JPMORGAN CHASE & CO.	DEC	130,898.0	102,471.0	110,134.0	103,744.0	94,745.0	91,208.0	89,202.0	7.5	27.7	147	115	123	116	106	102
NYSE:BAC	BANK OF AMERICA CORPORATION	DEC	93,707.0	74,208.0	85,582.0	87,738.0	83,730.0	80,104.0	79,804.0	3.2	26.3	117	93	107	110	105	100
SEHK:1398	INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	DEC	116,924.4	104,801.6	86,246.1	89,460.6	92,310.8	79,925.7	89,680.9	6.0	8.6	130	117	96	100	103	89
SEHK:939	CHINA CONSTRUCTION BANK CORPORATION	DEC	103,311.6	86,139.0	77,931.5	73,830.2	72,028.7	67,630.0	76,266.0	6.9	16.7	135	113	102	97	94	89
SEHK:1288	AGRICULTURAL BANK OF CHINA LIMITED	DEC	87,501.2	75,764.0	70,480.0	67,742.1	68,365.4	61,019.5	70,341.2	5.6	12.4	124	108	100	96	97	87
NYSE:WFC	WELLS FARGO & COMPANY	DEC	82,948.0	60,243.0	84,227.0	84,696.0	85,989.0	84,541.0	83,690.0	(0.4)	37.7	99	72	101	101	103	101
SHSE:600036	CHINA MERCHANTS BANK CO., LTD.	DEC	41,761.0	34,557.3	29,964.1	27,294.9	24,739.3	20,675.9	21,902.8	13.1	17.6	191	158	137	125	113	94
TSX:RY	ROYAL BANK OF CANADA	OCT	40,687.5	32,187.0	33,542.6	31,390.4	30,636.5	27,801.5	26,143.0	6.3	17.8	156	123	128	120	117	106
SEHK:3988	BANK OF CHINA LIMITED	DEC	79,178.1	69,043.9	64,251.7	58,681.4	60,705.1	56,958.0	63,812.6	4.9	11.6	124	108	101	92	95	89
LSE:HSBA	HSBC HOLDINGS PLC	DEC	50,480.0	41,612.0	53,342.0	52,013.0	49,676.0	44,562.0	56,018.0	2.5	21.3	90	74	95	93	89	80
TSX:TD	THE TORONTO-DOMINION BANK	OCT	34,615.0	27,357.9	28,905.4	27,696.1	26,347.2	23,872.6	22,732.7	6.1	17.9	152	120	127	122	116	105
ASX:CBA	COMMONWEALTH BANK OF AUSTRALIA	JUN	17,972.7	14,780.4	15,638.8	17,189.3	17,948.0	16,658.1	17,454.9	1.4	12.0	103	85	90	98	103	95
NSEI:HDFCBAI	HDFC BANK LIMITED	# MAR	12,015.6	10,633.9	9,459.6	8,950.4	8,050.9	6,808.6	5,634.5	15.8	9.2	213	189	168	159	143	121
NYSE:CC	CITIGROUP INC.	DEC	74,990.0	59,572.0	66,849.0	65,500.0	65,272.0	64,048.0	69,246.0	3.2	25.9	108	86	97	95	94	92
SEHK:1658	POSTAL SAVINGS BANK OF CHINA CO., LTD.	DEC	42,890.9	36,169.9	31,844.8	29,828.9	30,449.7	24,872.5	25,413.6	9.5	15.4	169	142	125	117	120	98
NYSE:USB	U.S. BANCORP	DEC	23,762.0	19,242.0	21,140.0	20,813.0	19,883.0	19,211.0	18,524.0	4.3	23.5	128	104	114	112	107	104
TSX:BNS	THE BANK OF NOVA SCOTIA	OCT	23,741.0	18,977.0	21,188.9	19,901.1	19,308.0	17,866.6	16,896.5	4.2	16.6	141	112	125	118	114	106
TSE:8306	MITSUBISHI UFJ FINANCIAL GROUP, INC.	# MAR	24,319.7	42,294.0	35,285.4	34,801.1	41,487.7	28,352.4	39,490.9	1.1	23.2	62	107	89	88	105	72
TSX:BMO	BANK OF MONTREAL	OCT	21,824.6	16,708.3	18,703.1	16,918.7	16,559.8	15,163.2	14,351.3	5.9	21.7	152	116	130	118	115	106
NSE:ICICIBANK	ICICI Bank Limited	# MAR	13,036.7	13,189.1	10,965.3	10,343.8	10,255.0	9,565.4	7,803.3	13.3	16.9	167	169	141	133	131	123
ASX:NAB	NATIONAL AUSTRALIA BANK LIMITED	SEP	12,263.5	10,157.7	11,201.2	13,253.7	13,493.4	13,261.0	12,446.1	(0.4)	19.5	99	82	90	106	108	107
SHSE:601166	INDUSTRIAL BANK CO., LTD.	DEC	24,208.4	19,502.8	17,644.2	16,175.0	16,016.1	15,239.1	16,803.5	7.8	20.8	144	116	105	96	95	91
IDX:BBCA	PT Bank Central Asia Tbk	DEC	4,853.2	4,561.4	4,843.4	4,184.5	4,008.9	3,652.6	3,215.0	7.0	8.8	151	142	151	130	125	114
ENXTPA:BNP	BNP PARIBAS SA	DEC	47,338.8	45,766.4	48,213.4	45,924.0	45,924.0	42,369.9	43,591.6	0.7	11.3	109	105	111	105	105	97
SGX:D05	DBS GROUP HOLDINGS LTD	DEC	10,643.2	8,720.1	10,290.8	9,155.5	7,766.8	6,957.1	7,183.3	7.4	24.5	148	121	143	127	108	97
NSE:SBIN	STATE BANK OF INDIA	# MAR	27,766.5	23,880.4	19,914.8	17,012.3	12,894.3	13,617.5	13,954.6	13.6	16.5	199	171	143	122	92	98
SEHK:3328	BANK OF COMMUNICATIONS CO., LTD.	DEC	32,014.8	28,092.1	25,838.9	24,642.5	25,349.1	23,750.8	25,703.5	4.3	10.9	125	109	101	96	99	92

Note: Data as originally reported. CAGR-Compound annual growth rate.  
Source: S&P Capital IQ.

# Net Income

Ticker	Company	Yr. End	Million \$							CAGR (%)		Index Basis (2013=100)					
			2021	2020	2019	2018	2017	2016	2015	5-Yr.	1-Yr.	2021	2020	2019	2018	2017	2016
MULTINATIONAL BANKS																	
NYSE:JPM	JPMORGAN CHASE & CO.	DEC	48,334.0	29,131.0	36,431.0	32,474.0	24,441.0	24,733.0	24,442.0	14.3	65.9	198	119	149	133	100	101
NYSE:BAC	BANK OF AMERICA CORPORATION	DEC	31,978.0	17,894.0	27,430.0	28,147.0	18,232.0	17,822.0	15,910.0	12.4	78.7	201	112	172	177	115	112
SEHK:1398	INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	DEC	54,833.9	48,388.0	44,841.1	43,281.3	43,962.2	40,073.9	42,684.8	4.6	10.3	128	113	105	101	103	94
SEHK:939	CHINA CONSTRUCTION BANK CORPORATION	DEC	47,620.3	41,517.3	38,307.7	37,026.2	37,233.0	33,335.3	35,139.8	5.5	11.6	136	118	109	105	106	95
SEHK:1288	AGRICULTURAL BANK OF CHINA LIMITED	DEC	37,966.0	33,073.7	30,461.2	29,484.1	29,655.9	26,491.5	27,813.9	5.6	11.7	137	119	110	106	107	95
NYSE:WFC	WELLS FARGO & COMPANY	DEC	21,548.0	3,377.0	19,715.0	22,393.0	22,183.0	21,938.0	22,894.0	(0.4)	538.1	94	15	86	98	97	96
SHSE:600036	CHINA MERCHANTS BANK CO., LTD.	DEC	18,877.6	14,910.1	13,337.4	11,713.2	10,781.2	8,941.0	8,886.6	14.1	23.2	212	168	150	132	121	101
TSX:RY	ROYAL BANK OF CANADA	OCT	12,935.5	8,591.2	9,772.9	9,431.8	8,859.4	7,766.0	7,585.7	9.0	40.3	171	113	129	124	117	102
SEHK:3988	BANK OF CHINA LIMITED	DEC	34,089.8	29,542.3	26,914.8	26,184.0	26,496.8	23,702.8	26,314.2	5.6	12.3	130	112	102	100	101	90
LSE:HSBA	HSBC HOLDINGS PLC	DEC	13,917.0	5,229.0	7,383.0	13,727.0	10,798.0	2,479.0	13,522.0	41.2	166.2	103	39	55	102	80	18
TSX:TD	THE TORONTO-DOMINION BANK	OCT	11,532.1	8,939.2	8,867.1	8,566.2	8,059.4	6,583.7	6,047.2	10.1	20.2	191	148	147	142	133	109
ASX:CBA	COMMONWEALTH BANK OF AUSTRALIA	JUN	7,633.1	6,622.5	6,006.2	6,900.1	7,618.8	6,870.8	6,967.3	2.0	6.1	110	95	86	99	109	99
NSE:HDFCBAI	HDFC BANK LIMITED	# MAR	5,014.2	4,351.2	3,619.4	3,223.3	2,844.4	2,349.8	1,931.5	20.0	16.8	260	225	187	167	147	122
NYSE:C	CITIGROUP INC.	DEC	21,952.0	11,047.0	19,401.0	18,045.0	(6,798.0)	14,912.0	17,242.0	8.0	98.7	127	64	113	105	(39)	86
SEHK:1658	POSTAL SAVINGS BANK OF CHINA CO., LTD.	DEC	11,990.4	9,833.5	8,751.1	7,605.9	7,328.3	5,732.2	5,369.1	13.9	18.6	223	183	163	142	136	107
NYSE:USB	U.S. BANCORP	DEC	7,963.0	4,959.0	6,914.0	7,096.0	6,218.0	5,888.0	5,879.0	6.2	60.6	135	84	118	121	106	100
TSX:BNS	THE BANK OF NOVA SCOTIA	OCT	7,762.3	5,093.7	6,376.0	6,501.9	6,205.8	5,311.9	5,360.8	6.2	42.0	145	95	119	121	116	99
TSE:8306	MITSUBISHI UFJ FINANCIAL GROUP, INC.	# MAR	(686.1)	10,102.2	2,843.4	6,485.4	11,564.1	1,817.8	7,140.7	6.8	265.2	(10)	141	40	91	162	25
TSX:BMO	BANK OF MONTREAL	OCT	6,254.0	3,830.4	4,375.8	4,147.7	4,137.4	3,449.7	3,340.0	10.9	52.1	187	115	131	124	124	103
NSE:ICICBANK	ICICI Bank Limited	# MAR	3,308.8	2,512.9	1,270.4	614.0	1,185.1	1,572.4	1,536.0	12.5	92.2	215	164	83	40	77	102
ASX:NAB	NATIONAL AUSTRALIA BANK LIMITED	SEP	4,609.6	1,834.4	3,236.0	4,020.3	4,146.1	269.8	4,455.7	78.4	148.7	103	41	73	90	93	6
SHSE:601166	INDUSTRIAL BANK CO., LTD.	DEC	13,015.1	10,205.3	9,459.9	8,814.0	8,790.9	7,755.6	7,733.1	9.0	24.1	168	132	122	114	114	100
IDX:BBCA	PT Bank Central Asia Tbk	DEC	2,205.6	1,948.0	2,064.3	1,792.6	1,719.5	1,529.3	1,305.6	8.8	15.8	169	149	158	137	132	117
ENXTPA:BNP	BNP PARIBAS SA	DEC	10,790.4	8,644.6	9,171.8	8,616.9	8,616.9	8,130.5	7,270.2	4.3	34.3	148	119	126	119	119	112
SGX:D05	DBS GROUP HOLDINGS LTD	DEC	5,047.5	3,571.7	4,751.7	4,093.7	3,270.6	2,932.3	3,142.9	9.9	44.1	161	114	151	130	104	93
NSE:SBIN	STATE BANK OF INDIA	# MAR	4,661.2	3,062.5	2,625.2	331.9	(700.2)	37.2	1,844.5	12.9	13.3	253	166	142	18	(38)	2
SEHK:3328	BANK OF COMMUNICATIONS CO., LTD.	DEC	13,786.6	11,989.4	11,099.0	10,705.6	10,792.4	9,679.7	10,246.9	5.4	11.9	135	117	108	104	105	94

Note: Data as originally reported. CAGR-Compound annual growth rate.  
Source: S&P Capital IQ.

Ticker	Company	Yr. End	Net Interest Margin (%)						Return on Assets (%)						Return on Equity (%)					
			2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016
MULTINATIONAL BANKS																				
NYSE:JPM	JPMORGAN CHASE & CO.	DEC	1.6	2.0	2.5	2.5	2.4	2.3	1.3	0.9	1.4	1.2	1.0	1.0	16.9	10.8	14.1	12.7	9.6	9.9
NYSE:BAC	BANK OF AMERICA CORPORATION	DEC	1.7	1.9	2.4	2.5	2.4	2.3	1.0	0.6	1.1	1.2	0.8	0.8	11.8	6.7	10.3	10.6	6.8	6.8
SEHK:1398	INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	DEC	2.1	2.2	2.3	2.3	2.2	2.2	1.0	0.9	1.0	1.1	1.1	1.2	11.3	11.3	12.4	13.3	13.9	14.8
SEHK:939	CHINA CONSTRUCTION BANK CORPORATION	DEC	2.1	2.2	2.3	2.3	2.2	2.2	1.0	1.0	1.0	1.1	1.1	1.1	12.1	11.8	12.7	13.5	14.4	15.3
SEHK:1288	AGRICULTURAL BANK OF CHINA LIMITED	DEC	2.1	2.2	2.2	2.3	2.3	2.3	0.8	0.8	0.9	0.9	0.9	0.9	10.4	10.4	11.7	13.1	14.0	14.5
NYSE:WFC	WELLS FARGO & COMPANY	DEC	2.1	2.3	2.7	2.9	2.9	2.9	1.1	0.2	1.0	1.2	1.1	1.1	12.4	2.0	10.5	11.3	11.0	11.2
SHSE:600036	CHINA MERCHANTS BANK CO., LTD.	DEC	2.5	2.5	2.6	2.6	2.4	2.5	1.3	1.2	1.3	1.2	1.1	1.0	15.1	14.5	16.1	15.7	15.9	16.3
TSX:RY	ROYAL BANK OF CANADA	OCT	1.5	1.6	1.6	1.6	1.7	1.7	0.9	0.7	0.9	0.9	0.9	0.9	17.3	13.4	15.7	16.1	15.7	15.4
SEHK:3988	BANK OF CHINA LIMITED	DEC	1.8	1.9	1.9	1.9	1.8	1.8	0.8	0.8	0.8	0.8	0.9	0.9	10.1	9.9	10.9	11.7	12.1	12.9
LSE:HSBA	HSBC HOLDINGS PLC	DEC	1.2	1.3	1.6	1.7	1.6	1.7	0.5	0.2	0.3	0.5	0.4	0.1	7.1	3.1	4.5	7.7	6.3	1.8
TSX:TD	THE TORONTO-DOMINION BANK	OCT	1.6	1.7	2.0	2.0	2.0	2.0	0.8	0.7	0.8	0.8	0.8	0.7	14.6	13.0	13.9	14.6	14.1	12.7
ASX:CBA	COMMONWEALTH BANK OF AUSTRALIA	JUN	2.1	2.1	2.1	2.2	2.1	2.1	0.9	0.9	0.9	1.0	1.0	1.0	11.7	10.4	11.7	13.3	15.2	15.8
NSEI:HDFCBAI	HDFC BANK LIMITED	# MAR	4.0	4.1	4.3	4.4	4.4	4.3	1.8	1.8	1.7	1.7	1.7	1.7	16.6	16.4	16.5	17.0	18.4	18.3
NYSE:C	CITIGROUP INC.	DEC	2.0	2.2	2.7	2.7	2.7	2.9	1.0	0.5	1.0	0.9	NM	0.8	10.9	5.6	10.0	9.1	NM	6.7
SEHK:1658	POSTAL SAVINGS BANK OF CHINA CO., LTD.	DEC	2.4	2.4	2.5	2.7	2.4	2.2	0.6	0.6	0.6	0.5	0.5	0.5	10.4	10.6	12.0	11.6	12.3	12.9
NYSE:USB	U.S. BANCORP	DEC	2.5	2.7	3.1	3.1	3.1	3.0	1.4	0.9	1.4	1.5	1.3	1.3	14.6	9.4	13.3	14.1	12.8	12.5
TSX:BNS	THE BANK OF NOVA SCOTIA	OCT	2.2	2.3	2.4	1.9	1.8	1.8	0.8	0.6	0.8	0.9	0.9	0.8	13.9	9.7	12.8	13.5	13.8	13.2
TSE:8306	MITSUBISHI UFJ FINANCIAL GROUP, INC.	# MAR	0.7	0.8	0.9	1.0	0.9	0.9	NM	0.3	0.1	0.2	0.4	0.1	NM	7.3	2.0	4.7	8.2	1.2
TSX:BMO	BANK OF MONTREAL	OCT	1.6	1.6	1.7	1.7	1.7	1.6	0.8	0.5	0.7	0.7	0.8	0.7	13.6	9.5	11.9	12.1	12.3	11.3
NSEI:ICIBANI	ICICI Bank Limited	# MAR	4.0	3.8	3.8	3.4	-	3.3	1.4	1.2	0.7	0.3	0.7	1.0	14.9	13.7	9.0	4.8	8.0	11.0
ASX:NAB	NATIONAL AUSTRALIA BANK LIMITED	SEP	1.7	1.8	1.8	1.9	1.9	1.9	0.7	0.3	0.6	0.7	0.7	0.0	10.4	6.0	10.9	11.4	12.0	12.0
SHSE:601166	INDUSTRIAL BANK CO., LTD.	DEC	-	-	2.3	1.8	1.7	2.2	1.0	0.8	0.9	0.9	0.9	0.9	12.7	11.5	13.1	13.7	14.9	16.2
IDX:BBCA	PT Bank Central Asia Tbk	DEC	5.1	5.7	6.2	6.1	6.2	6.8	2.6	2.5	3.1	3.1	3.1	3.0	16.2	15.1	17.5	18.3	19.1	20.4
ENXTPA:BNP	BNP PARIBAS SA	DEC	-	-	-	-	-	-	0.4	0.3	0.4	0.4	0.4	0.4	7.6	6.1	7.9	7.6	7.8	7.9
SGX:D05	DBS GROUP HOLDINGS LTD	DEC	1.5	1.6	1.9	1.9	-	-	1.0	0.7	1.1	1.0	0.8	0.9	12.1	8.9	12.6	11.3	9.3	9.7
NSEI:SBIN	STATE BANK OF INDIA	# MAR	-	-	-	-	-	-	0.7	0.5	0.5	0.1	NM	0.0	12.4	8.8	8.5	1.4	NM	NM
SEHK:3328	BANK OF COMMUNICATIONS CO., LTD.	DEC	1.8	1.8	1.8	1.7	1.7	2.0	0.8	0.7	0.8	0.8	0.8	0.8	9.6	9.5	10.4	10.7	10.8	11.6

Note: Data as originally reported. CAGR-Compound annual growth rate.  
Source: S&P Capital IQ.



Ticker	Company	Yr. End	Total Assets (\$, Millions)					Total Loans (\$, Millions)					Total Deposits (\$, Millions)							
			2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016
MULTINATIONAL BANKS																				
NYSE:JPM	JPMORGAN CHASE & CO.	DEC	3,743,567	3,384,757	2,687,379	2,622,532	2,533,600	2,490,972	1,077,714	1,012,853	997,620	984,554	930,697	894,765	2,462,303	2,144,257	1,562,431	1,470,666	1,443,982	1,375,179
NYSE:BAC	BANK OF AMERICA CORPORATION	DEC	3,169,495	2,819,627	2,434,079	2,354,507	2,281,234	2,188,067	979,124	927,861	983,426	946,895	936,749	915,897	2,064,446	1,795,480	1,434,803	1,381,476	1,309,545	1,260,934
SEHK:1398	INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	DEC	5,536,534	5,107,536	4,324,267	4,027,442	4,009,259	3,476,289	3,253,352	2,852,726	2,407,232	2,242,015	2,187,506	1,880,469	4,533,662	4,214,737	3,571,749	3,322,886	3,233,254	2,819,687
SEHK:939	CHINA CONSTRUCTION BANK CORPORATION	DEC	4,762,456	4,309,079	3,653,113	3,376,520	3,400,246	3,019,228	2,953,774	2,564,986	2,152,538	1,998,670	1,983,101	1,693,267	3,771,588	3,413,252	2,848,230	2,666,845	2,716,607	2,451,308
SEHK:1288	AGRICULTURAL BANK OF CHINA LIMITED	DEC	4,575,946	4,167,057	3,572,863	3,287,359	3,235,647	2,818,513	2,697,439	2,318,433	1,914,253	1,732,211	1,647,626	1,399,839	3,653,440	3,292,601	2,889,224	2,655,953	2,639,046	2,332,550
NYSE:WFC	WELLS FARGO & COMPANY	DEC	1,948,068	1,952,911	1,927,555	1,895,883	1,951,757	1,930,115	895,394	887,637	962,265	953,110	956,770	967,604	1,482,479	1,404,381	1,322,626	1,286,170	1,335,991	1,306,079
SHSE:600036	CHINA MERCHANTS BANK CO., LTD.	DEC	1,455,943	1,280,741	1,065,252	980,812	967,870	855,822	876,812	770,323	644,940	571,853	547,904	469,753	1,117,390	972,352	775,267	708,304	692,127	628,115
TSX:RY	ROYAL BANK OF CANADA	OCT	1,376,245	1,220,859	1,085,916	1,015,238	940,247	880,908	582,062	500,978	472,654	440,960	422,330	390,977	887,882	760,438	673,317	636,036	612,153	565,441
SEHK:3988	BANK OF CHINA LIMITED	DEC	4,206,531	3,737,809	3,270,152	3,092,207	2,991,904	2,613,833	2,467,493	2,172,500	1,871,948	1,713,899	1,674,667	1,436,380	2,820,936	2,595,488	2,278,898	2,169,504	2,130,655	1,893,303
LSE:HSBA	HSBC HOLDINGS PLC	DEC	2,957,939	2,984,164	2,715,152	2,558,124	2,518,430	2,374,986	1,057,231	1,052,477	1,045,475	990,321	959,080	869,354	1,828,429	1,744,036	1,515,797	1,437,977	1,424,719	1,332,460
TSX:TD	THE TORONTO-DOMINION BANK	OCT	1,394,270	1,289,484	1,075,546	1,015,367	991,523	878,452	587,989	545,453	523,646	494,365	477,835	440,006	962,399	860,352	730,205	705,933	683,575	613,848
ASX:CBA	COMMONWEALTH BANK OF AUSTRALIA	JUN	818,695	701,098	684,688	721,276	749,227	695,050	613,485	538,600	533,595	553,276	565,221	521,696	560,101	474,076	436,936	455,371	473,944	429,557
NSEI:HDFCBAI	HDFC BANK LIMITED	# MAR	279,739	245,968	209,938	186,592	169,525	137,718	187,238	162,012	138,602	125,456	107,573	90,359	205,298	182,302	152,219	133,146	121,149	99,257
NYSE:C	CTGROUP INC.	DEC	2,291,413	2,260,090	1,951,158	1,917,383	1,842,465	1,792,077	667,767	675,883	699,483	684,196	667,060	624,297	1,317,230	1,280,671	1,070,590	1,013,170	959,822	929,406
SEHK:1658	POSTAL SAVINGS BANK OF CHINA CO., LTD.	DEC	1,981,531	1,739,004	1,467,306	1,383,633	1,385,119	1,190,429	1,015,978	875,572	714,384	621,845	557,907	433,599	1,812,006	1,600,027	1,344,766	1,265,418	1,246,816	1,090,140
NYSE:USB	U.S. BANCORP	DEC	573,284	553,905	495,426	467,374	462,040	445,964	312,028	297,707	296,102	286,810	280,432	272,403	456,083	429,770	361,916	345,475	347,215	334,590
TSX:BNS	THE BANK OF NOVA SCOTIA	OCT	955,643	854,062	825,426	759,484	709,552	668,945	518,302	459,097	454,114	423,594	394,359	361,832	643,034	564,260	557,338	514,592	488,422	457,775
TSE:8306	MITSUBISHI UFJ FINANCIAL GROUP, INC.	# MAR	3,027,571	3,199,167	3,083,152	2,754,525	2,830,096	2,665,337	945,266	1,060,442	1,112,484	1,067,580	1,113,195	1,069,128	1,849,482	2,072,414	1,895,453	1,798,401	1,842,424	1,707,638
TSX:BMO	BANK OF MONTREAL	OCT	797,018	713,376	647,624	588,190	550,092	513,453	371,682	338,721	325,215	293,322	279,348	269,182	522,892	470,426	405,191	370,204	346,954	330,865
NSEI:ICIBANI	ICICI Bank Limited	# MAR	230,945	215,119	182,908	178,797	172,767	152,130	121,269	108,229	93,791	93,377	87,108	79,530	143,809	131,211	106,346	98,335	90,019	79,109
ASX:NAB	NATIONAL AUSTRALIA BANK LIMITED	SEP	670,700	621,194	571,339	583,793	618,440	595,340	451,894	421,535	401,269	418,575	435,503	408,964	396,766	361,138	313,943	327,855	360,741	334,581
SHSE:601166	INDUSTRIAL BANK CO., LTD.	DEC	1,354,252	1,209,141	1,026,251	975,858	986,190	876,501	715,963	603,737	511,951	444,369	392,021	314,439	946,832	846,339	716,214	675,865	696,659	635,965
IDX:BBCA	PT Bank Central Asia Tbk	DEC	86,218	77,224	66,411	57,186	55,350	50,226	45,511	43,212	44,622	39,171	36,335	32,400	68,803	60,712	51,072	44,159	43,328	39,736
ENXTPA:BNP	BNP PARIBAS SA	DEC	2,996,070	3,044,026	2,429,259	2,336,657	2,340,108	2,192,504	951,201	1,018,147	929,253	906,251	914,138	781,966	1,100,300	1,162,697	948,883	925,029	923,405	817,450
SGX:D05	DBS GROUP HOLDINGS LTD	DEC	508,888	491,718	430,446	404,265	387,378	333,202	307,876	285,806	269,464	256,648	245,253	211,319	372,323	351,688	300,589	289,048	279,572	240,400
NSEI:SBIN	STATE BANK OF INDIA	# MAR	706,404	662,331	557,437	561,227	555,735	531,696	368,175	341,798	315,314	321,405	301,209	292,752	538,598	507,836	434,817	424,412	418,314	401,236
SEHK:3328	BANK OF COMMUNICATIONS CO., LTD.	DEC	1,836,375	1,638,577	1,422,626	1,385,808	1,389,069	1,210,238	1,032,711	895,816	761,791	705,792	703,775	610,041	1,248,591	1,238,608	1,068,392	1,044,394	1,035,774	909,736

Note: Data as originally reported. CAGR-Compound annual growth rate.  
Source: S&P Capital IQ.

Ticker	Company	Yr. End	Equity/Assets (%)						Loans/Deposits (%)						Loan Loss Reserves (%)					
			2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016
MULTINATIONAL BANKS																				
NYSE:JPM	JPMORGAN CHASE & CO.	DEC	6.9	7.4	8.7	8.8	9.1	9.2	0.4	0.5	0.6	0.7	0.6	0.7	1.5	2.7	1.3	1.3	1.4	1.5
NYSE:BAC	BANK OF AMERICA CORPORATION	DEC	7.7	8.8	9.9	10.3	10.7	11.0	0.5	0.5	0.7	0.7	0.7	0.7	1.3	2.0	1.0	1.0	1.1	1.2
SEHK:1398	INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	DEC	8.9	8.3	8.5	8.1	7.9	7.8	0.7	0.7	0.7	0.7	0.7	0.7	2.9	2.8	2.9	2.6	2.4	2.2
SEHK:939	CHINA CONSTRUCTION BANK CORPORATION	DEC	8.4	8.2	8.4	8.2	7.7	7.4	0.8	0.8	0.8	0.7	0.7	0.7	3.4	3.3	3.2	3.0	2.5	2.3
SEHK:1288	AGRICULTURAL BANK OF CHINA LIMITED	DEC	8.0	7.8	7.5	7.0	6.4	6.3	0.7	0.7	0.7	0.7	0.6	0.6	4.2	4.1	4.1	4.0	3.8	4.1
NYSE:WFC	WELLS FARGO & COMPANY	DEC	8.6	8.4	8.7	9.2	9.4	9.1	0.6	0.6	0.7	0.7	0.7	0.7	1.4	2.1	1.0	1.0	1.1	1.2
SHSE:600036	CHINA MERCHANTS BANK CO., LTD.	DEC	8.9	8.2	7.8	7.5	7.1	6.8	0.8	0.8	0.8	0.8	0.8	0.7	4.7	4.9	5.1	4.9	4.2	3.5
TSX:RY	ROYAL BANK OF CANADA	OCT	5.4	5.0	5.4	5.5	5.6	5.4	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.8	0.5	0.5	0.4	0.4
SEHK:3988	BANK OF CHINA LIMITED	DEC	7.9	7.7	7.4	7.1	7.2	7.2	0.9	0.8	0.8	0.8	0.8	0.8	2.5	2.6	2.5	2.6	2.3	2.4
LSE:HSBA	HSBC HOLDINGS PLC	DEC	5.9	5.8	6.0	6.4	6.6	6.7	0.6	0.6	0.7	0.7	0.7	0.7	1.1	1.3	0.8	0.8	0.9	0.9
TSX:TD	THE TORONTO-DOMINION BANK	OCT	5.5	5.2	5.8	5.5	5.4	5.8	0.6	0.6	0.7	0.7	0.7	0.7	0.9	1.1	0.6	0.5	0.6	0.7
ASX:CBA	COMMONWEALTH BANK OF AUSTRALIA	JUN	7.2	7.1	7.1	6.9	6.5	6.4	1.1	1.1	1.2	1.2	1.2	1.2	0.7	0.8	0.6	0.5	0.5	0.5
NSE:HDFCBAI	HDFC BANK LIMITED	# MAR	0.1	0.1	0.1	0.1	0.1	0.1	0.9	0.9	0.9	0.9	0.9	0.9	-	-	-	-	-	-
NYSE:C	CITIGROUP INC.	DEC	8.0	8.0	9.0	9.3	9.9	11.5	0.5	0.5	0.7	0.7	0.7	0.7	2.5	3.7	1.8	1.8	1.9	1.9
SEHK:1658	POSTAL SAVINGS BANK OF CHINA CO., LTD.	DEC	5.9	5.5	4.9	4.5	4.3	4.2	0.6	0.5	0.5	0.5	0.4	0.4	3.4	3.6	3.3	2.9	2.4	2.4
NYSE:USB	U.S. BANCORP	DEC	8.5	8.5	9.3	9.6	9.4	9.4	0.7	0.7	0.8	0.8	0.8	0.8	1.8	2.5	1.4	1.4	1.4	1.4
TSX:BNS	THE BANK OF NOVA SCOTIA	OCT	5.9	5.8	6.0	6.3	6.2	5.9	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	0.8	0.9	0.9	1.0
TSE:8306	MITSUBISHI UFJ FINANCIAL GROUP, INC.	# MAR	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.6	0.6	0.6	0.6	1.3	1.2	0.7	0.6	0.6	1.0
TSX:BMO	BANK OF MONTREAL	OCT	5.5	5.5	5.4	5.4	5.7	5.6	0.7	0.7	0.8	0.8	0.8	0.8	0.6	0.7	0.4	0.4	0.5	0.5
NSE:ICICIBAN	ICICI Bank Limited	# MAR	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.8	0.9	0.9	1.0	1.0	-	-	-	-	-	28.0
ASX:NAB	NATIONAL AUSTRALIA BANK LIMITED	SEP	6.8	7.1	6.6	6.4	6.4	6.5	1.1	1.2	1.3	1.3	1.2	1.2	0.8	1.0	0.7	0.6	0.6	0.6
SHSE:601166	INDUSTRIAL BANK CO., LTD.	DEC	7.3	7.1	6.8	6.6	6.1	5.3	0.8	0.7	0.7	0.7	0.6	0.5	2.8	2.7	3.0	3.2	3.3	3.5
IDX:BBCA	PT Bank Central Asia Tbk	DEC	16.5	17.2	18.9	18.4	17.5	16.6	0.7	0.7	0.9	0.9	0.8	0.8	5.1	4.6	2.5	2.5	2.8	2.9
ENXTPA:BNP	BNP PARIBAS SA	DEC	4.5	4.5	5.0	5.0	5.1	4.8	0.9	0.9	1.0	1.0	1.0	1.0	2.4	2.6	2.5	3.0	3.6	3.5
SGX:D05	DBS GROUP HOLDINGS LTD	DEC	8.4	8.4	8.8	8.9	9.2	9.3	0.8	0.8	0.9	0.9	0.9	0.9	1.5	1.7	1.3	1.3	1.4	1.3
NSE:SBIN	STATE BANK OF INDIA	# MAR	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.7	0.7	0.8	0.7	0.7	0.9	1.5	2.0	2.9	4.3	2.8
SEHK:3328	BANK OF COMMUNICATIONS CO., LTD.	DEC	7.9	7.7	7.4	6.7	6.8	6.8	0.8	0.7	0.7	0.7	0.7	0.7	2.5	2.3	2.4	2.6	2.3	2.3

Note: Data as originally reported. CAGR-Compound annual growth rate.  
Source: S&P Capital IQ.

Ticker	Company	Yr. End	Price/Earnings Ratio (High-Low)						Dividend Payout Ratio (%)						Dividend Yield (High-Low, %)					
			2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016
MULTINATIONAL BANKS																				
NYSE:JPM	JPMORGAN CHASE & CO.	DEC	11 - 8	16 - 9	13 - 9	13 - 10	17 - 13	14 - 9	26.6	43.6	33.9	31.1	36.8	34.3	3.9 - 2.4	3.0 - 2.2	4.6 - 2.6	3.5 - 2.7	3.1 - 1.9	2.5 - 2.1
NYSE:BAC	BANK OF AMERICA CORPORATION	DEC	13 - 8	19 - 10	13 - 9	12 - 9	18 - 13	15 - 7	25.2	43.2	21.6	24.5	31.3	23.5	3.0 - 1.7	2.6 - 1.7	4.0 - 2.0	2.7 - 1.9	2.3 - 1.5	2.1 - 1.2
SEHK:1398	INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	DEC	6 - 4	7 - 5	7 - 6	9 - 6	8 - 6	7 - 5	30.0	32.4	30.1	30.3	30.7	31.5	9.3 - 6.6	7.9 - 5.6	7.6 - 4.6	5.7 - 4.6	5.3 - 3.9	5.8 - 4.3
SEHK:939	CHINA CONSTRUCTION BANK CORPORATION	DEC	6 - 4	6 - 5	7 - 5	9 - 6	7 - 6	7 - 5	28.5	31.6	30.2	30.2	29.2	30.1	9.4 - 6.5	7.9 - 5.7	7.4 - 5.0	6.1 - 4.7	5.4 - 3.8	5.6 - 4.7
SEHK:1288	AGRICULTURAL BANK OF CHINA LIMITED	DEC	5 - 4	6 - 4	6 - 5	8 - 6	7 - 5	6 - 5	32.6	33.9	30.9	30.8	31.0	32.0	10.0 - 7.3	8.8 - 6.7	8.7 - 5.6	6.5 - 5.4	5.9 - 4.3	6.0 - 5.0
NYSE:WFC	WELLS FARGO & COMPANY	DEC	10 - 6	124 - 49	13 - 11	15 - 10	15 - 12	14 - 11	16.8	181.9	48.6	41.6	41.1	41.2	3.0 - 1.0	1.4 - 0.8	9.1 - 1.4	4.7 - 3.2	3.4 - 2.4	3.1 - 2.5
SHSE:600036	CHINA MERCHANTS BANK CO., LTD.	DEC	13 - 9	12 - 8	11 - 7	11 - 8	11 - 6	8 - 6	27.9	33.0	27.3	28.4	26.6	28.0	5.7 - 2.3	2.9 - 2.1	3.6 - 2.4	3.4 - 2.3	3.4 - 2.1	3.9 - 2.4
TSX:RY	ROYAL BANK OF CANADA	OCT	12 - 8	14 - 9	12 - 10	13 - 11	13 - 11	12 - 10	40.0	55.4	46.9	45.5	46.5	48.0	4.3 - 3.2	4.7 - 3.2	6.0 - 3.8	4.3 - 3.8	3.9 - 3.4	4.1 - 3.3
SEHK:3988	BANK OF CHINA LIMITED	DEC	5 - 4	5 - 4	6 - 5	8 - 5	7 - 6	7 - 5	32.4	34.2	32.5	32.5	32.6	35.4	10.3 - 7.6	8.9 - 7.5	9.3 - 6.1	6.9 - 5.5	6.2 - 4.3	5.8 - 4.8
LSE:HSBA	HSBC HOLDINGS PLC	DEC	7 - 6	31 - 15	23 - 19	13 - 9	16 - 13	103 - 63	41.6	25.5	121.8	73.2	77.3	332.3	6.1 - 1.8	2.9 - 2.3	9.2 - 0.0	7.2 - 5.7	6.6 - 4.6	6.4 - 5.0
TSX:TD	THE TORONTO-DOMINION BANK	OCT	12 - 7	12 - 8	12 - 10	13 - 12	13 - 11	13 - 10	38.9	30.8	44.2	41.1	40.5	43.2	4.6 - 3.3	5.5 - 3.6	6.4 - 3.8	4.1 - 3.4	3.6 - 3.1	3.8 - 3.1
ASX:CBA	COMMONWEALTH BANK OF AUSTRALIA	JUN	18 - 11	17 - 10	17 - 13	16 - 13	15 - 12	16 - 13	40.6	79.5	80.0	57.5	61.3	63.2	4.0 - 2.8	6.7 - 3.0	7.9 - 4.7	6.6 - 5.5	6.3 - 5.0	6.0 - 4.8
NSE:HDFCBAI	HDFC BANK LIMITED	# MAR	28 - 14	26 - 15	28 - 23	28 - 20	24 - 18	22 - 19	9.4	-	18.3	18.3	15.3	15.8	0.5 - 0.0	1.0 - 0.0	0.7 - 0.5	0.7 - 0.5	0.7 - 0.5	0.9 - 0.7
NYSE:EC	CITIGROUP INC.	DEC	8 - 6	17 - 7	10 - 6	12 - 7	NM - NM	13 - 7	23.7	48.4	28.1	27.8	NM	15.3	5.0 - 3.0	3.7 - 2.6	5.8 - 2.5	3.7 - 2.5	2.9 - 1.6	1.9 - 0.9
SEHK:1658	POSTAL SAVINGS BANK OF CHINA CO., LTD.	DEC	8 - 6	8 - 4	8 - 6	9 - 7	9 - 7	9 - 7	34.8	37.2	29.9	27.4	12.5	22.6	8.0 - 3.7	6.0 - 4.1	7.8 - 4.0	5.1 - 3.4	3.7 - 1.7	2.0 - 1.6
NYSE:USB	U.S. BANCORP	DEC	12 - 8	20 - 9	15 - 11	14 - 11	16 - 14	16 - 12	36.3	57.5	39.7	33.3	35.6	35.3	4.9 - 2.9	3.9 - 2.7	5.8 - 2.8	3.4 - 2.7	2.9 - 2.1	2.3 - 2.0
TSX:BNS	THE BANK OF NOVA SCOTIA	OCT	11 - 7	14 - 9	11 - 10	12 - 10	13 - 11	12 - 9	47.8	67.3	52.9	48.8	47.4	50.6	6.3 - 4.2	6.6 - 4.4	7.7 - 4.7	5.3 - 4.5	4.5 - 3.7	4.3 - 3.6
TSE:8306	MTSUBISHI UFJ FINANCIAL GROUP, INC.	# MAR	8 - 4	25 - 16	14 - 9	10 - 7	52 - 29	16 - 8	NM	28.7	99.3	38.3	19.6	121.5	4.8 - 3.8	6.5 - 4.4	5.1 - 3.8	4.2 - 2.4	2.8 - 2.0	4.2 - 2.3
TSX:BMO	BANK OF MONTREAL	OCT	12 - 7	14 - 7	12 - 10	13 - 12	13 - 11	13 - 10	38.4	48.6	47.8	47.4	37.7	48.0	4.7 - 3.0	5.5 - 3.2	7.5 - 4.0	4.6 - 3.6	3.9 - 3.5	4.1 - 3.4
NSE:ICIBANI	ICICI Bank Limited	# MAR	25 - 11	37 - 19	60 - 39	30 - 20	17 - 12	19 - 10	5.5	-	9.3	27.5	22.3	33.6	0.3 - 0.2	0.4 - 0.0	0.4 - 0.2	0.9 - 0.4	1.9 - 0.6	2.4 - 1.7
ASX:NAB	NATIONAL AUSTRALIA BANK LIMITED	SEP	15 - 9	36 - 17	18 - 14	16 - 13	18 - 13	369 - 275	42.1	90.8	68.1	76.0	89.9	1,304.8	5.6 - 3.1	3.6 - 2.2	12.0 - 2.9	8.7 - 5.8	7.6 - 6.0	7.7 - 5.8
SHSE:601166	INDUSTRIAL BANK CO., LTD.	DEC	7 - 5	7 - 5	7 - 5	7 - 5	7 - 6	6 - 5	63.9	67.5	66.8	72.1	74.2	60.5	6.9 - 3.5	4.6 - 2.7	4.9 - 3.4	4.4 - 3.2	4.7 - 3.1	4.0 - 3.3
IDX:BBCA	PT Bank Central Asia Tbk	DEC	30 - 23	32 - 20	29 - 22	25 - 20	23 - 16	19 - 15	43.7	50.3	30.6	24.8	22.2	20.9	2.1 - 1.3	1.8 - 1.4	2.5 - 1.0	1.3 - 0.9	1.2 - 0.8	1.3 - 0.9
ENXTPA:BNP	BNP PARIBAS SA	DEC	8 - 5	10 - 5	9 - 6	12 - 7	11 - 9	10 - 6	4.3	6.0	51.1	50.1	-	-	8.9 - 4.0	5.6 - 4.3	6.3 - 0.0	7.8 - 5.9	6.8 - 4.0	4.9 - 3.7
SGX:D05	DBS GROUP HOLDINGS LTD	DEC	12 - 10	15 - 9	12 - 9	14 - 11	15 - 10	11 - 8	35.2	51.1	61.5	56.5	31.5	24.5	4.9 - 1.9	2.9 - 2.2	7.8 - 2.8	5.2 - 4.2	5.3 - 2.4	3.5 - 2.6
NSE:SBIN	STATE BANK OF INDIA	# MAR	17 - 6	17 - 8	123 - 91	NM - NM	910 - 545	18 - 10	10.1	-	0.0	0.0	NM	969.0	1.0 - 0.7	0.0 - 0.0	0.0 - 0.0	1.1 - 0.0	1.1 - 0.8	2.2 - 0.9
SEHK:3328	BANK OF COMMUNICATIONS CO., LTD.	DEC	5 - 4	6 - 4	7 - 5	7 - 6	7 - 6	7 - 5	101.4	52.2	44.8	32.4	45.7	37.1	10.9 - 6.9	9.3 - 7.3	9.8 - 6.0	6.5 - 4.8	6.2 - 4.8	5.7 - 4.8

Note: Data as originally reported. CAGR:Compound annual growth rate.  
Source: S&P Capital IQ.

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