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STATISTICAL ANALYSIS OF THE FINANCIAL SITUATION OF THE BANKING SECTOR

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Abstract

Statistical analysis is the process of collecting large volumes of data and then using statistics and other data analysis techniques to identify trends, patterns, and insights. If you're a whiz at data and statistics, statistical analysis could be a great career match for you. The statistical analysis of the situation in the banking sector is a process of studying the main indicators that characterize banking activity in modern conditions. An important direction in the analysis of the banking sector is to determine its reliability and sustainability. The reliability and stability of the banking system are largely determined by the financial performance of the banks. With a dynamic, structural, factor analysis of analytical and statistical information about the processes taking place in this area, tendencies in the banking sector are revealed. The statistical analysis covers the main indicators of the bank's resource base and the efficiency of its operation. The statistical analysis analyzes the main trends of changes in the structure of liabilities and assets of the banks and provides an analysis of the coefficients of loans and deposits. The financial analysis of the state of the banking sector includes the study of the factors that influence the activities of banking institutions. Statistics in banking is becoming increasingly important to the extent that modern banking at all levels would be impossible without the application of statistical methods. In the professional world, banking statistical analysts take raw data and find correlations between variables to reveal patterns and trends to relevant stakeholders. Working in a wide range of different fields, banking statistical analysts are responsible for new scientific discoveries, improving the health of our communities, and guiding business decisions.

Keywords: collecting, techniques, stability, information, resource, statistical methods.

Introduction

Stable, strong banks are important both in good economic times as well as in bad ones. In good times, they help to finance enterprises which, in turn, drive economic growth and provide employment. In bad times, unstable banks can pose a threat to the integrity of the financial system and damage the economy. The global banking market is a highly competitive and dynamic industry that is constantly evolving to meet the changing needs of consumers and businesses: (Statista, 2023)

- Traditional banks have a long history in the industry and are well-established players. They offer a wide range of financial products and services, including savings accounts, checking accounts, loans, mortgages, and credit cards. These banks typically have a physical presence, with branches located in various cities and countries. They also have extensive networks of ATMs and other banking facilities.
- On the other hand, neobanks are relatively new players in the industry that operate entirely online. They offer similar financial products and services to traditional banks but with a focus on convenience and flexibility. They use digital technologies to provide a seamless and frictionless banking experience, often with no fees or low fees. Neobanks also leverage data analytics and AI to offer their customers personalized financial advice and recommendations.

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- In recent years, neobanks have seen significant growth, especially among younger consumers who prefer digital channels for their banking needs. However, traditional banks still hold the lion's share of the market, and many of them have launched their own digital banking platforms to compete with neobanks.
- One of the biggest challenges facing the retail and commercial banking industry is regulatory compliance. Banks must comply with a myriad of regulations, including anti-money laundering (AML) and know-your-customer (KYC) regulations, which can be costly and time-consuming. Moreover, data privacy and cybersecurity concerns have become increasingly important, especially in light of recent high-profile data breaches.
- Another challenge is the changing consumer behavior and preferences. With the rise of digital technologies, consumers are becoming more accustomed to personalized and convenient experiences. Banks must adapt to these changing expectations by providing more personalized products and services and leveraging data analytics and AI to offer more relevant recommendations.

Central bank tightening in most large economies has enabled commercial banks to raise their lending rates, swelling interest income. That propelled a $280 billion profit increase for the global industry in 2022: (Mellow, 2023)

- The longer higher rates persist, the more they become a challenge, and they may be here for a while. Depositors are shaking off their lethargy and demanding higher returns, squeezing those net interest margins. Borrowers look increasingly shaky as economies slow, forcing banks to curtail lending, bolster loan-loss provisions, and hoard capital. Loan growth in the US will slow to 2% this year from 9% in 2022,
- Regulatory requirements, including capital requirements, must be aligned with actual risk, so that banks bear the responsibility for their own risk-taking include booking losses on securities still in the portfolio (all those out-of-the-money bonds) and raising the risk weighting of numerous assets.
- Banks in Europe face new regulations that will prevent them from taking certain commissions from asset managers or insurers whose investment products the banks recommend to customers.
- Longer term, banks are losing out to other intermediaries in the competition for new capital. The threat from online startup “neobanks” has somewhat faded. Many of the upstarts have failed or slowed down as both debt and equity capital dried up. The threat from other nonbank financial institutions—insurance companies, pension funds, sovereign wealth funds, and private credit—is only growing. These alternatives siphoned off “more than 70% of the net increase of financial funds” in the US from 2015 to 2022, McKinsey reports. “The traditional core of the banking sector—the balance sheet—now finds itself at a tipping point,” the consultancy concludes.

Methods

By establishing analytics as a true business discipline, banks can grasp the enormous potential. Analytics can involve much more than just a set of discrete projects. If banks put their considerable strategic and organizational muscle into analytics, it can and should become a true business discipline. A look around banks today—at all the businesses and processes powered by extraordinary IT—is a strong reminder of the way a new discipline can radically reshape the old patterns of work.

Any bank’s ability to perform analytics has been significantly boosted by the exponential increase of computing power (which makes it possible to undertake, in just seconds, an analysis that in the past would have taken weeks) and by new data-storage technologies.

Advanced analytics is the industrial-scale solution to exploit data for authentic business insights and vastly improved decision-making.The tools are there; banks must now carry them forward into actions that can drive meaningful change. Rich real-time data—numbers, yes, but also text, voice, and images—now exist for literally every action that customers make, every product that banks sell, and every process that banks use to deliver those products.
Advanced analytics can help banks wring small improvements out of almost all their everyday activities, boosting the traditional P&L levers. Potential moves include the following: McKinsey & Company, 2023)

- Accelerating growth, even in an anemic environment. Deeper and more detailed profiles of customers, together with transactional and trading analytics, can improve the acquisition and retention of clients, as well as cross- and upselling. For example, one bank used credit card transactional data (from both its own terminals and those of other banks) to develop offers that gave customers incentives to make regular purchases from one of the bank's merchants. This boosted the bank's commissions, added revenue for its merchants, and provided more value to the customer.
- Enhancing productivity. Every banking process can become faster and more effective. Among other things, banks can use advanced analytics to provide faster and more accurate responses to regulatory requests and give teams analytics-enhanced decision support. One bank we know used machine learning to understand the way the characteristics of code affected a mainframe's running time and the resulting costs; by optimizing the code, it cut them by 15 percent. Another bank used new algorithms to predict the cash required at each of its ATMs across the country, combining this with route-optimization techniques to save money.
- Improving risk control. Banks can lower their risk costs through analytics-aided techniques, such as digital credit assessment, advanced early-warning systems, next-generation stress testing, and credit-collection analytics. The expense of compliance and control has soared in recent years, and banks can use analytics to get economic returns from their considerable investments. Further out, banks will be able to use analytics to reduce fraud losses.
- A second vector of impact is the way that analytics can help deliver the promise of digital banks and offer a much better customer experience at a fraction of the current cost. In some regions up to 65 percent of customers now interact with their banks via multiple channels. Their paths through them are extraordinarily complex: they often start in one channel, perform intermediate steps in others, and finish in yet another—with plenty of pauses and information-gathering loops along the way. Successful digital banks deliver a truly seamless multichannel experience by gathering real-time data and using analytics to understand the customer and build the proper (and always consistent) journey view.
- Finally, analytics can help banks find new sources of growth, and even new business models. Banks may be able to reap income from their data—for example, by sharing customer-analytics capabilities with new ecosystem partners, such as telecom companies or retailers. Taken to a logical but not implausible extreme, banks can use data and analytics to shape a new business model and out-fintech the fintechs. The bank as data company can sit at the center of a consumer ecosystem where the revenue pools include not just banking but also many other B2C and B2B businesses. Great analytics isn't the only requirement here: banks must get many other things right to be relevant to and trusted by customers. But that can be done, and already more than a dozen leading banks are taking positive steps in this direction.
- Most banks have invested significantly in data infrastructure (mostly as a result of regulation) and experimented with advanced-analytics techniques.

- Avoiding the pitfalls and accessing the broad set of opportunities requires develop two assets: a strategy for the transformation and a robust analytics organization to assist and empower the businesses as they learn to use analytics in their everyday work.
- To extend the metaphor, analytics should resemble the human nervous system; every part of the body knows what to do when presented with certain stimuli. The big difference among banks will probably be the pace at which they can build and train their systems.
- Many bank leaders look at analytics and fear an outsized investment. That's not unreasonable, since in recent years institutions have had to spend billions on things, they could not have anticipated, and budgets are very thin. But analytics is not a bet-the-bank investment with no graceful exits; it's a short-cycle flow of investments with lots of options to kill unsuccessful pilots. The small but immediate payoffs from the initial work can finance the next wave of projects, which in turn finance more and larger efforts. Once the system is built, the investment is over and the margins become enormous—like those of software or tech companies.

Banking is a popular topic for empirical and methodological research that applies operations research methods and artificial intelligence. Banks examines major research topics including bank efficiency, risk assessment, bank performance, mergers and acquisitions, banking regulation, customer-related studies, and financial performance in the banking industry. The results of the research provide a comprehensive insight into the contribution of empirical and methodological research methods and artificial intelligence in banking. (Doumpos, 2022)

Results

According to the data of the National Bank of the Republic of North Macedonia: (National Bank of the Republic of North Macedonia, 2022)

- The global economy gradually recovers. Economic activity expanded by 6.1% globally in 2021. The economic recovery varied among countries, mainly as a result of the speed of immunization and the size of the stimulus packages. The economic recovery was also challenged by the need for occasional reintroduction of health care measures given the new corona virus strains. Such movements on a global scale caused disruptions in supply chains, which led to a slower recovery of industrial output and growth in commodity prices, primarily oil and food, on world stock markets, and to a significant increase in electricity and gas prices in the last months of the year.

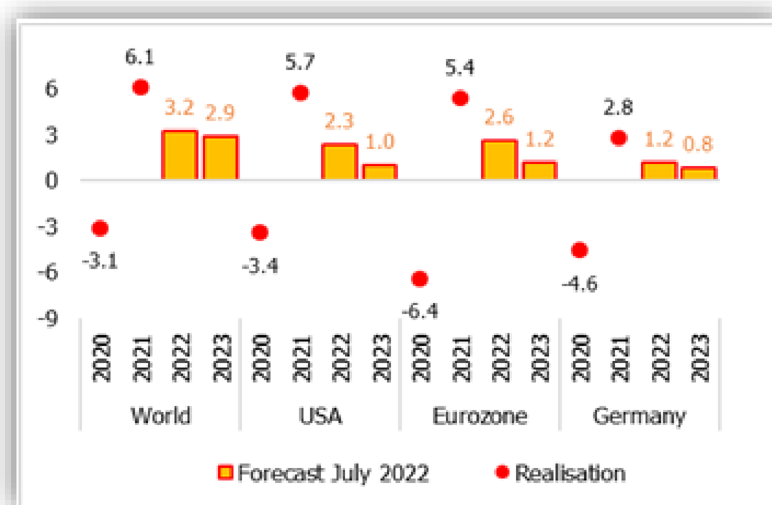

Chart 1 Economic growth In early 2022

- After the deep decline of 6.4% in 2020 as a result of the health and economic crisis caused Chart 2 Contribution to the real annual GDP growth by the COVID-19 pandemic, the euro in the euro area economy in 2021 grew by 5.4%. growth comes almost equally from all its components. Within the euro area, Germany, as the largest EU economy and the country with the largest share in the foreign trade of the Republic of North Macedonia, went up by 2.8% in 2021, despite the decline of 4.6% in the previous year. Having a low base effect, such performance results from the expanded economic activity in conditions of easing of containment measures due to the mass immunization, as well as further stimulating monetary and fiscal policy. Germany as one of the engines of the European economy, this brought certain optimism, including for economies that have significant trade with this country, such as the Macedonian. Apart from Germany, economic expansion was also observed in all member states. Observations for the coming period so far point to further economic recovery, but at a slower pace. The euro area economy is expected to continue to grow in 2022 and 2023, but at a slower pace, with annual rates of 2.6% and 1.2%, respectively.

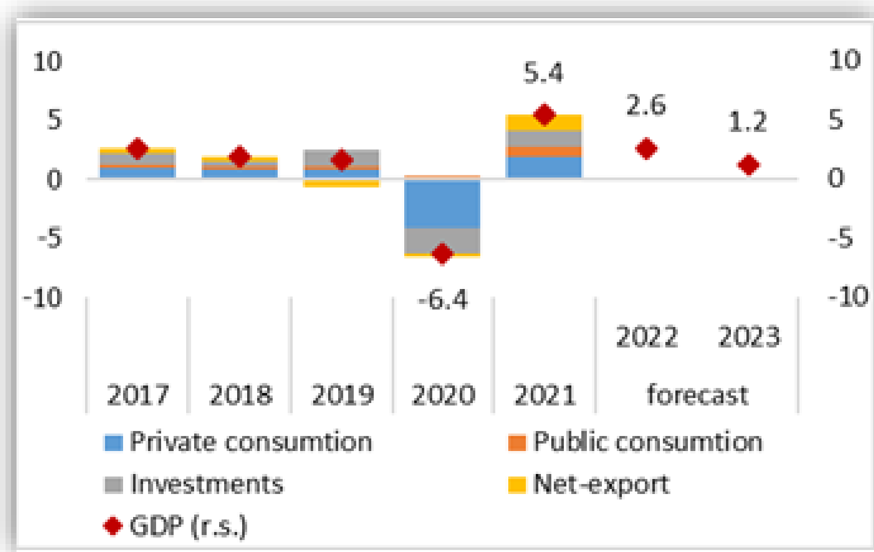

Chart 2 Contribution to the real annual GDP growth

The average inflation rate in the euro area accelerated significantly and in 2021 averaged 2.6% (0.3% in 2020). The acceleration of price growth is mainly driven by the movement of global commodities prices, especially food and energy. Price pressures mainly arise from supply factors related to price changes in the global markets, which are associated with disruptions in energy markets and the global supply chains. Uncertainty about price changes is still present and extremely high. Given the increased food and energy prices and expectations for further growth, the euro area inflation for 2022 is expected to average 7.3%, while in 2023 the average level will stabilize at 3.9%.

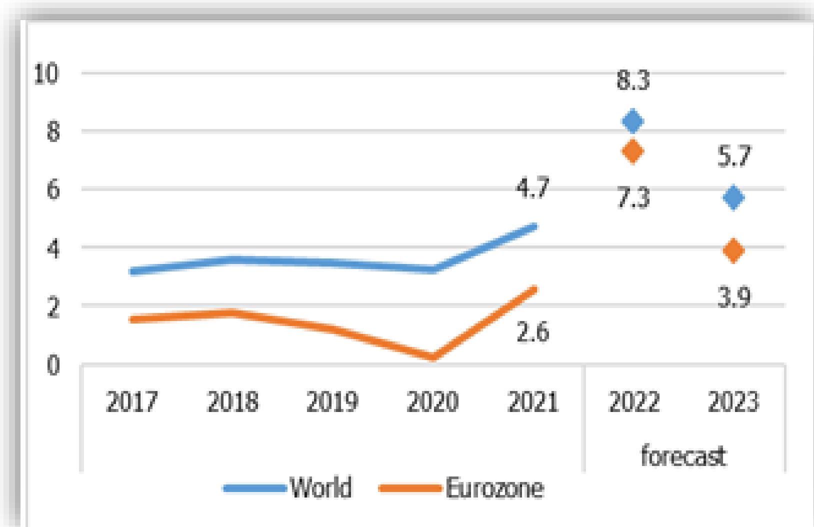

Chart 3 Inflation, Annual average rate, in %

The US and euro area stock markets registered upward movements. The stimulus measures of policymakers ensured the smooth functioning of financial markets, ensuring an upward trend of the values of stock market indices in 2021. Movements in stock market indices affect the assets of domestic financial institutions that invest in foreign markets. Pension funds' placements in foreign stocks and units and stocks in foreign investment funds -to-total pension funds' assets equal 28.9% (for mandatory pension funds) and 28.4% (for voluntary pension funds)6. The share of foreign equity instruments in total investment funds' assets equals 31.3%7. This share in banks and insurance companies is insignificant, making the direct exposure to price changes in these markets for these financial institutions highly limited. In early 2022, as a result of the increased uncertainty arising from the economic consequences of the war in Ukraine, the US and euro area stock market indices saw a significant downward movement.

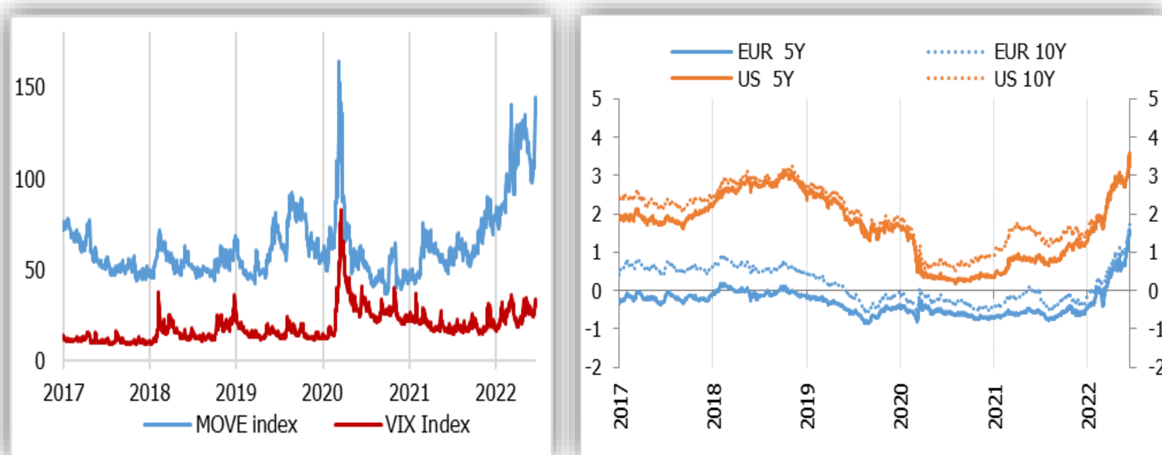

Chart 4 Movement of stock market share indices

- The value of the US dollar against the euro continued to increase. At the end of 2021, the US dollar was higher by 8%, on an annual basis (the currency pair EUR/US dollar was 1.1326). The trend of strengthening the US dollar against the euro particularly intensified in the first half of 2022, largely due to the faster tightening of monetary

policy by the Fed relative to the ECB, and the increasing interest of investors in the US dollar, amid high uncertainty and pronounced geopolitical risks (the Russia-Ukraine war). In the domestic context, given the policy of nominal denar/euro exchange rate peg and the largest representation of the euro among foreign currencies in the banks' balance sheets, changes in the euro/US dollar currency pair do not have a significant impact on the currency structure of the balance sheets of the Macedonian banks.

Chart 5 Euro/US dollar

- The accelerated recovery of economic activity significantly reduced budget deficits in almost all euro area countries, which subsequently affected debt positions. The improved performance of budget deficits is largely explained by the automatic stabilizers and improved budget revenues, despite the continuation of stimulus measures related to the pandemic in certain countries. The budget deficit across the euro area in 2021 was 4.7% of GDP and decreased on an annual basis (7.1% of GDP in 2020). Government debt in the euro area was estimated at 97.4% of GDP at the end of 2021 (99.2% of GDP in 2020) and is expected to further decline over the next two years to 92.7% of GDP in 20238. However, the tightening of financing conditions, amid high uncertainty surrounding the developments of the Russia-Ukraine war, increases the risks for the sustainability of public finances within the euro area, which, given the high public debt, emphasizes fiscal vulnerability.

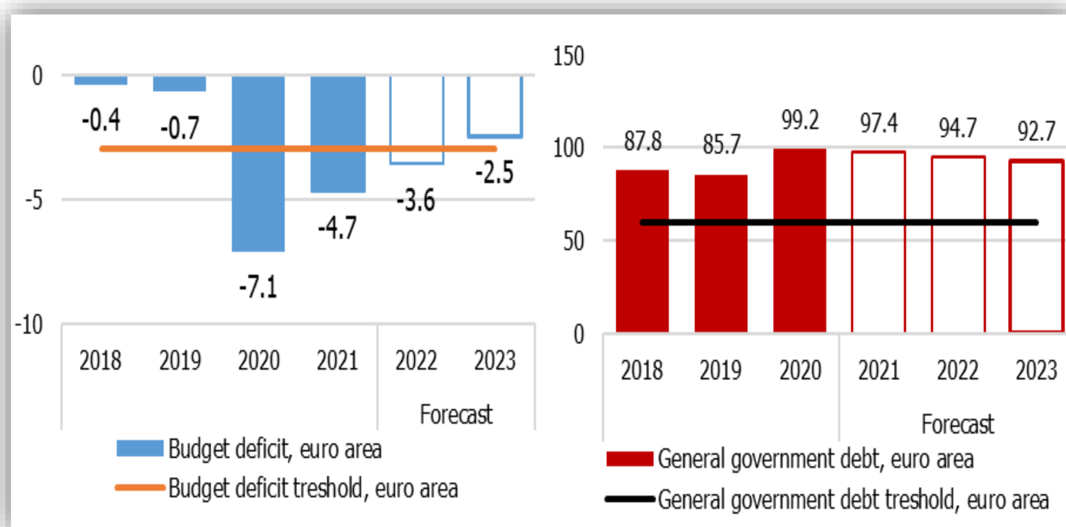

Chart 6 Budget deficit, euro area in % of GDP **Chart 7** Government debt*, euro area in % of GDP

- During 2021, the domestic economy recovered from the health crisis effects and reported a real annual GDP growth of 4%. Domestic demand, particularly personal consumption, and investments, are drivers of growth, given the more favorable environment, strong fiscal stimulus to ease crisis effects, and loose monetary policy. On the other hand, net exports had a negative contribution to GDP, amid imports acceleration, especially in the last quarter, partly under the pressure of the energy crisis. Analyzed by activity, the growth was driven by services (trade, transport, tourism), which were among the most affected by the health crisis. Given the disruptions in supply chains and rising prices of raw materials, the industry had a neutral contribution to growth in 2021, while construction once again declined.

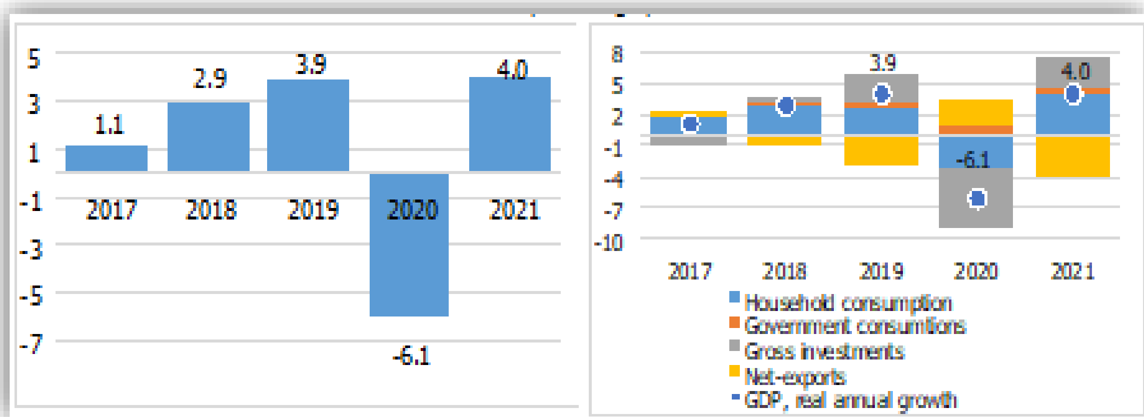

Chart 8 Real GDP growth in %

Chart 9 GDP structure, by component contributions,in percentage points

- In 2021, a key feature of the international and domestic environment was the gradual economic recovery from the pandemic, which in the previous year posed serious health and economic challenges to the countries worldwide. Such movements were highly conducive to the domestic financial sector and to the maintenance of financial stability. However, since early 2022, with the growth of geopolitical tensions and the outbreak of the war in Ukraine, the positive prospects for economic recovery have deteriorated sharply, primarily for the European countries due to their geographical proximity and economic and financial links with conflict areas. The new circumstances have significantly exacerbated inflation risks, with price pressures present since the second half of 2021 due to disrupted energy and commodity markets and disruptions in global supply chains caused by the pandemic. The central banks responded to the inflationary pressures by normalizing the monetary policy, which influenced the expectations of global financial markets, which already indicated the tightening of financing conditions, after the long period of low interest rates. All this significantly changes the environment for the domestic financial sector and creates challenges to financial stability, which has been successfully maintained throughout the pandemic period.

Discussion and conclusions

The banking industry is in a much healthier place now than it was after the financial crisis of 2008. Total global assets climbed to $154,211 in 2022, up 3.79 percent YoY from 148,583 in 2021, according to The Banker's Top 1000 World Banks Ranking for 2022.
The most prevalent trend in the financial services industry today is the shift to digital, specifically mobile and online banking (more on each of those in a bit). In today's era of unprecedented convenience and speed, consumers don't want to have to trek to a physical bank branch to handle their transactions. This is especially true of Millennials and the older members of Gen Z, who have started to become the dominant players in the workforce (and the biggest earners).
Banking industry challenges are adding up after a decade of unprecedented change following the global financial crisis. Though the financial sector has grown significantly over the past ten years, a good portion of that growth comes from technologies and practice that challenge the traditional banking model.
As the industry evolves, it's transforming into a customer-centric, digital-first landscape — particularly through mobile and online banking — which is radically shifting the way traditional banks have approached their business.
There's a new kind of promise in the banking industry. Economic fundamentals are strong, the regulatory climate is favorable, and transformation technologies are more readily accessible, powerful, and economical than ever before. Along with the banking industry's potential transformation, however, comes significant challenges if banks want to stay competitive.
As with other industries, digital disruption is everywhere in banking. With the increased use of the Internet to buy banking services, banks are no longer just competing with traditional local competitors. New FinTech options offer some banking services with zero fees.
Technologies that enable transformation have become more powerful, accessible, and easier to implement. The question is, how much of it is purposeful and strategic, and how much of those efforts are simply investing in technology for the sake of becoming a tech company.
Fintech generally refers to technology that gives consumers more power over how they manage, spend and invest their money. The most visible application of generative AI will be chatbots, with customers increasingly communicating with banking apps and online money services in natural language.
In the next years in the banking sector, customer experience (CX) will be driven by the emergence of technology that enables every touchpoint of the customer journey to be analyzed to reduce friction and improve satisfaction. On top of that, new and immersive technologies like VR are starting to provide new, more engaging ways for us to interact and engage. With CX increasingly playing a major role in buying decisions, there's a direct connection between customer loyalty and business success, and more financial service businesses will prioritize leveraging.
Thanks to AI and its ability to spot patterns in data, will be seen more banks offering personalized products based on an assessment of an individual's risk. In theory, a more accurate risk assessment will lead to fairer banking and lower costs. However, the industry will face challenges around privacy and data protection, as well as the risks of AI bias.

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