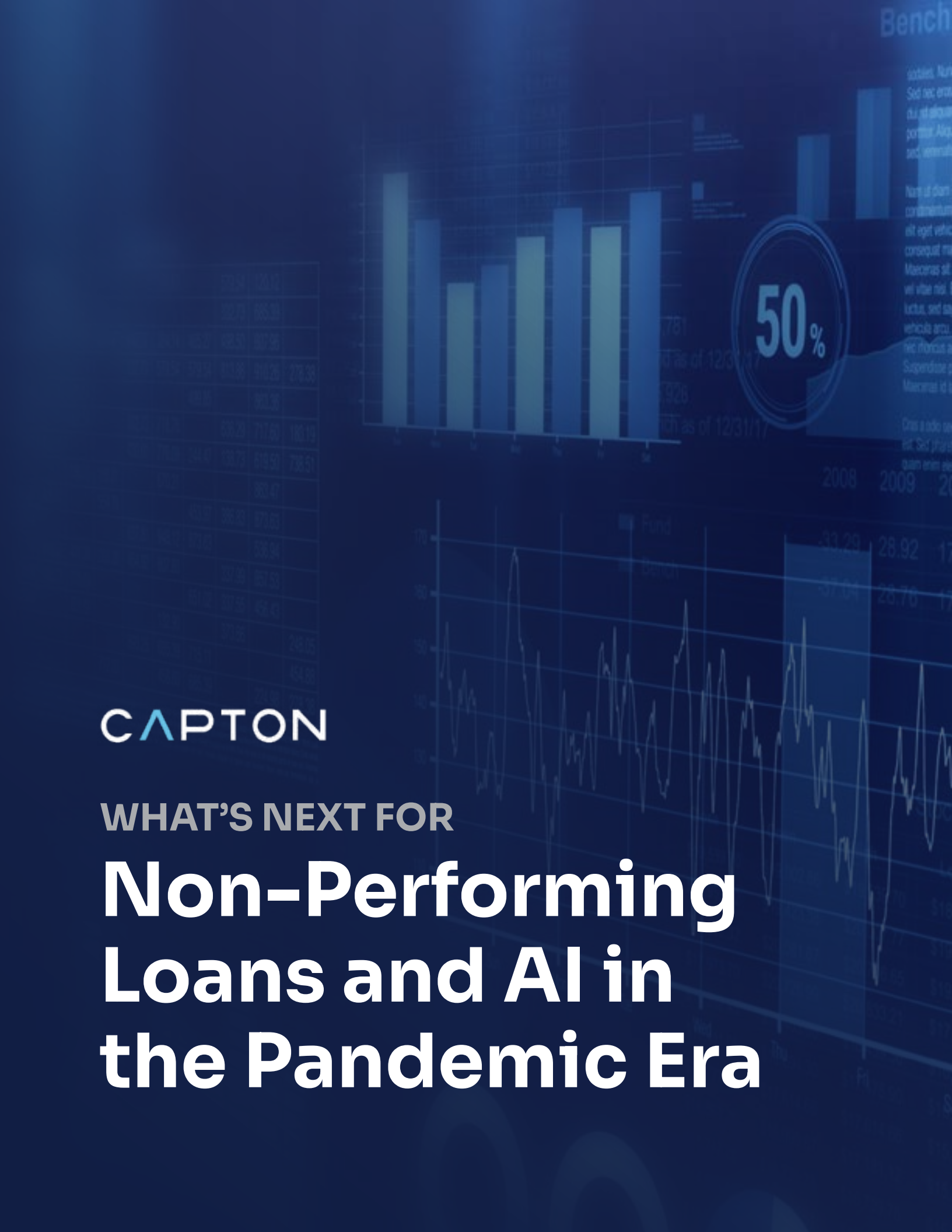




The background features a collage of financial data visualizations. On the left, there is a table of numbers. In the upper center, a bar chart displays several vertical bars of varying heights. To the right of the bar chart, a circular gauge prominently shows '50%'. Below the bar chart and to the right, a line chart tracks data over time, with labels for 'Fund' and 'Debt' and a legend. The overall aesthetic is professional and data-driven, with a dark blue color scheme.

CAPTON

WHAT'S NEXT FOR

Non-Performing Loans and AI in the Pandemic Era



“The lack of information about an NPL portfolio that goes on the market often leads to reduced offers or even a complete lack of buying interest.

TASSOS KOTZANASTASIS

CEO, 8G Capital Partners

Summary

Being able to effectively predict Non-Performing Loans can save financial institutions millions of dollars annually. For high-growth banks and lending institutions, proactively assessing the risk that a loan could potentially become a non-performing asset can result in significant savings.

Since Covid-19, banks are more vulnerable than during the last global financial crisis. Developing an early warning system utilizing the latest technology can complement a human-intelligence driven loan workout strategy.

With early predictions and customer behavioral intelligence, banks can discover and automate processes to convert these “potential NPLs” back into well-performing assets. Innovative AI technology - ranging from Machine Learning, Neural Networks, Natural Language Processing and Behavioral Analytics can help increase the accuracy of predicting NPLs and decrease the risk of increased costs and non-compliance.





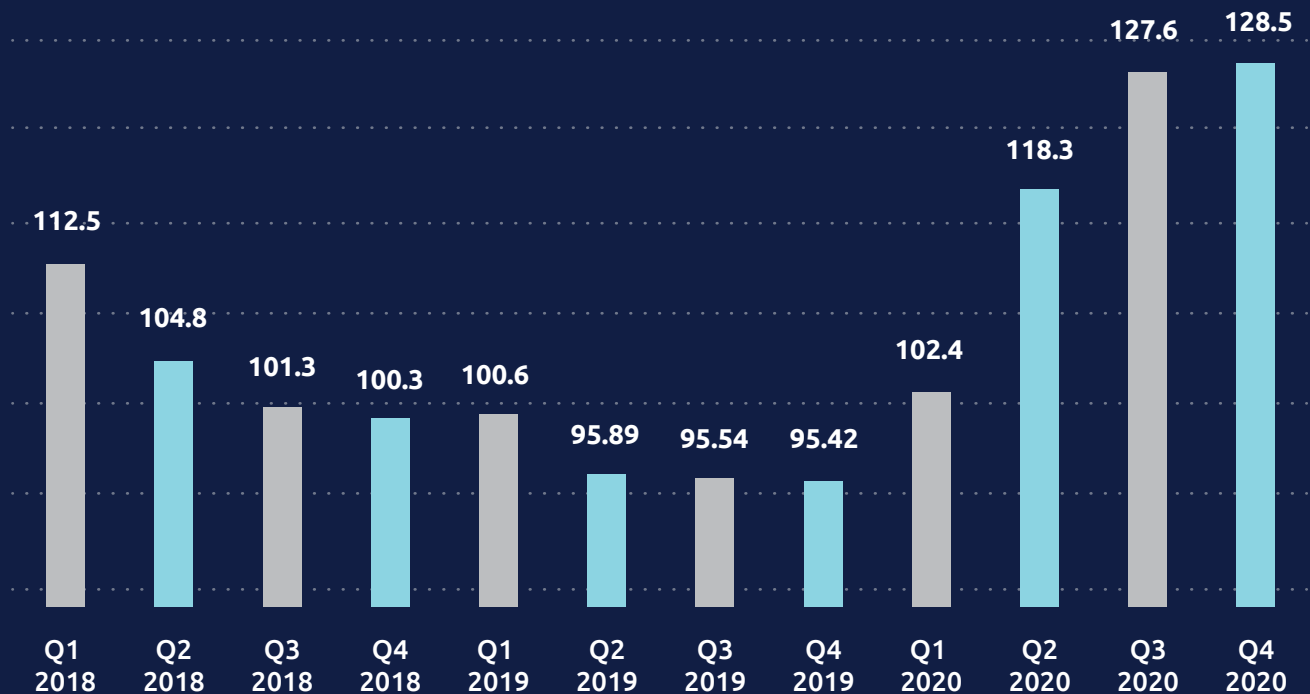
Market Trends & Impact of the COVID-19 Global Pandemic

The “**Black Swan**” event that is the COVID-19 crisis is unprecedented with regard to macroeconomic and financial market developments. Financial market volatility has been as severe as it was during the Global Financial Crisis. Globally, economies are reeling from the COVID-19 crisis.

As COVID-19 continues to strain the global economy and millions of people have lost their jobs, banks have started to prepare for an increase in bad loans on their books.

In the United States, In Q4, 2020, 128B of the 10.8Trillion of the loans that banks in the United States held, were non-performing loans.

Nonperforming Loans (Billions)

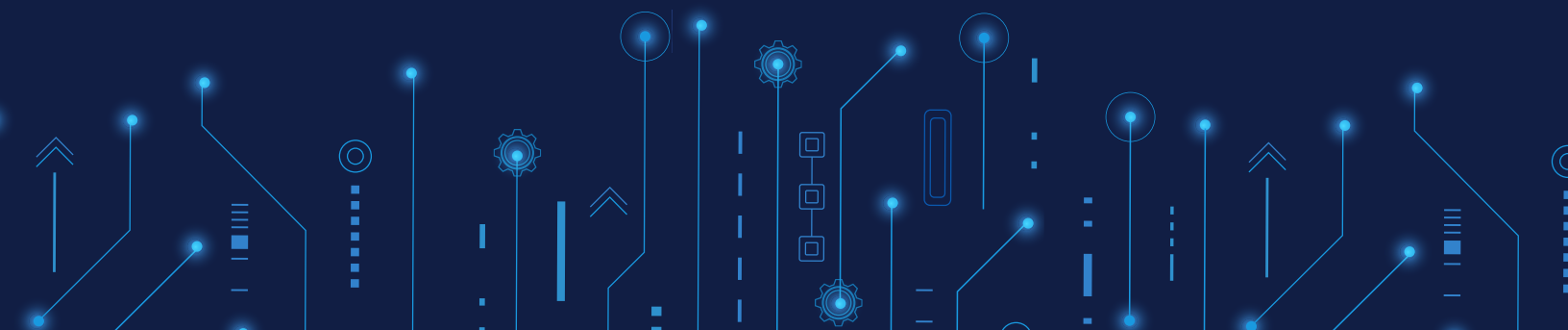


Source: Bankregdata

Unemployment is a leading indicator of Non-Performing Loans. [Bain & Company](#), for instance, predicts NPL levels of 1x-2x 2008 levels for the US due to the pandemic fallout. With unemployment soaring, **a sharp increase in non-performing loans is a question of 'when, not if'.**

A recent S&P Global [Report](#) forecasts worldwide credit losses of USD 2.1 trillion for 2020 and 2021, spurred on by the pandemic. Approximately USD 1.3 trillion of the total is expected to occur by the end of 2020; more than double what banks experienced in 2019.

The World Bank [describes](#) the need for timely response "... in the face of potentially the worst economic crisis since the Great Depression in the 1930s, there is no room for complacency. The challenges associated with rapidly rising NPLs require a prompt, proactive, and comprehensive policy response..... Failure to respond quickly and comprehensively significantly increases the chances of a repetition of the post-GFC (Global Financial Crisis) scenario"



The Discipline of Predicting Non-Performing Loans

Predicting the potential for a loan to go bad, is historically a very labor-intensive process. Segments of the bank's loan portfolio are assigned to officers who monitor them quarterly for signs of trouble. This monitoring is largely manual, involving phone calls and requests for reports. Analysis tends to be structured and focused on "checking boxes," and often misses signs of trouble. Existing staff may not always have the bandwidth to restructure loans, exercise collateral rights if necessary, or seek cash settlement or recovery through bankruptcy and insolvency procedures. When banks have to sell the portfolio of NPLs to a collection agency the result is immediate loss in revenues and increased impairment costs.

Small and medium sized banks especially may not have the resources to focus on proactive prediction. Waiting for defaults to occur before remedying them is often the de-facto, strategy. When defaults occur, it over-leverages current staff, which does not have the resources or skills to handle this crisis.

Banks are looking for cost-effective ways to predict which the loans which will fall into default. The more they can swiftly and proactively take preventative action before loan defaults occur, the stronger their financial and compliance/risk posture. (or stronger their loan workout strategy & risk posture)

While conventional loan monitoring and analysis has been primarily human-driven, several financial institutions have been utilizing technology to automate and enhance their processes. Small and medium banks are leveraging advanced technologies to match large banks with in-house NPL monitoring and analytics departments.

Developing an early warning system utilizing the latest technology can complement a human-intelligence driven loan workout strategy. With early predictions and customer behavioral intelligence, banks can discover and automate processes to convert these "potential NPLs" back into well-performing assets.

Artificial Intelligence for Predicting Non-Performing Loans

Recent years have seen a rapid acceleration in the pace of disruptive technologies such as AI and Machine Learning in Finance.

The banking sector, specifically, has seen a steep rise in the use cases of machine learning. Innovative AI technology -ranging from Machine Learning, Neural Networks, Natural Language Processing and Behavioral Analytics can help increase the accuracy of predicting NPLs and decrease the risk of increased costs and non-compliance.





Machine Learning/Deep Learning/Neural networks

Machine learning (ML) is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves. A neural network is a series of algorithms that endeavors to recognize underlying relationships in a set of data through a process that mimics the way the human brain operates. Applying ML/ANN to bank data can enable better risk models and increase the accuracy of predictions based on vast collections of data. Core banking data can include the last late payment received, the revolving joint balance, hardship flags or deferrals, loan amounts and ages, and interest rates. This data can be complemented with a wide variety of external data that is automatically pulled into a risk model used to assess loan portfolio assets, including: Tax liens, FICO range (both high and low), employment length and status, country GDP, an individual's specific job industry growth, etc. Predicting NPLs can increase in accuracy as data sets grow.

Conversational AI/Natural Language Processing

Conversational AI is the set of technologies behind automated messaging and speech-enabled applications that offer human-like interactions between computers and humans. Conversational AI combines natural language processing (NLP) with machine learning. Conversational AI is enabling the digital transformation of financial institutions by reshaping customer experience. 90% of bank-related interactions will be automated by 2022 using chatbots. Conversational AI can help resolve customer issues in real-time, simplifies form filling, and enhances the engagement experience.

Behavioral Analytics

Behavioral analytics is an area of data analytics that focuses on providing insight into the actions of people. Behavioral analytics includes demographic and geographic data, but it also goes deeper by profiling a user's past activity, pulling in any additional data that is available. It can enable **"Predictive models for individual customers"** based on already established demographics like their age, the type of work they are, their job title and salary, and a detailed history of their recent interactions with the bank. This allows for a predictive approach to assessing credit worthiness as well as gauging loan performance.

Emotion AI

Emotion AI, also known as affective computing, is essentially all about detecting emotions using artificial intelligence. Machines with this kind of **emotional intelligence are able to understand not only the cognitive but also the emotive channels of human communication.** Banks and credit unions have increasingly been using artificial intelligence that discerns and analyzes emotion to pick up elusive signals over text, audio and video. This technology can be used for predictive models that evaluate customers in real-time and help transform banking processes with better profiling for prioritization and restructuring of NPLs.



The Opportunity



For banks dealing with rapid growth in their loan portfolio, AI technology offers innovative applications to predict the potential of non-performing loans with greater precision and time horizons. For larger banks, AI technology offers an adjunct to the human intelligence in their existing processes, to make better decisions in complex situations. In all cases, intelligent automation and prediction using Artificial Intelligence can help predict, prevent and remediate the impact of NPLs thus enhancing returns, reducing costs and increasing compliance. Products like Capton™ AI NPL Early Warning System can enable sophisticated prediction of Non-Performing Loans, by applying AI/Machine Learning to a combination of core banking data and dynamic behavioral data. For more information on how applying risk models to existing and new data sets and continuous learning to increase prediction accuracy over extended time horizons please reach out.

[Contact Us](#)

CAPTON