

ANALYSIS
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What if the Banking Crisis Is Not Over?

The recent collapse of Silicon Valley Bank precipitated a sudden loss of confidence in the banking system, prompting bank runs, and forcing the U.S. government to provide extraordinary support to the system. Unlike the global financial crisis over a decade ago, in which banks and other financial institutions suffered massive credit losses, the recent crisis was caused by surging interest rates, resulting in large declines in the market value of U.S. Treasury and government-backed mortgage securities held by the banking system. The crisis seems to have abated with the government's aggressive response, and the broader banking system remains well capitalized. But the system remains under significant pressure as interest rates continue to rise and the economy's growth slows. In our baseline economic outlook, we assume the worst of the crisis is over, and while the fallout on credit and economic growth will be meaningful, it will not be enough to tip the economy into a recession. But what if the banking crisis is not over?

What if the Banking Crisis Is Not Over?

BY MARK ZANDI, CRISTIAN DERITIS, DAMIEN MOORE, MARTIN A. WURM AND BERNARD YAROS

The recent collapse of Silicon Valley Bank precipitated a sudden loss of confidence in the banking system, prompting bank runs, and forcing the U.S. government to provide extraordinary support to the system. Unlike the global financial crisis over a decade ago, in which banks and other financial institutions suffered massive credit losses, the recent crisis was caused by surging interest rates, resulting in large declines in the market value of U.S. Treasury and government-backed mortgage securities held by the banking system. The crisis seems to have abated with the government's aggressive response, and the broader banking system remains well capitalized. But the system remains under significant pressure as interest rates continue to rise and the economy's growth slows. In our baseline economic outlook, we assume the worst of the crisis is over, and while the fallout on credit and economic growth will be meaningful, it will not be enough to tip the economy into a recession.

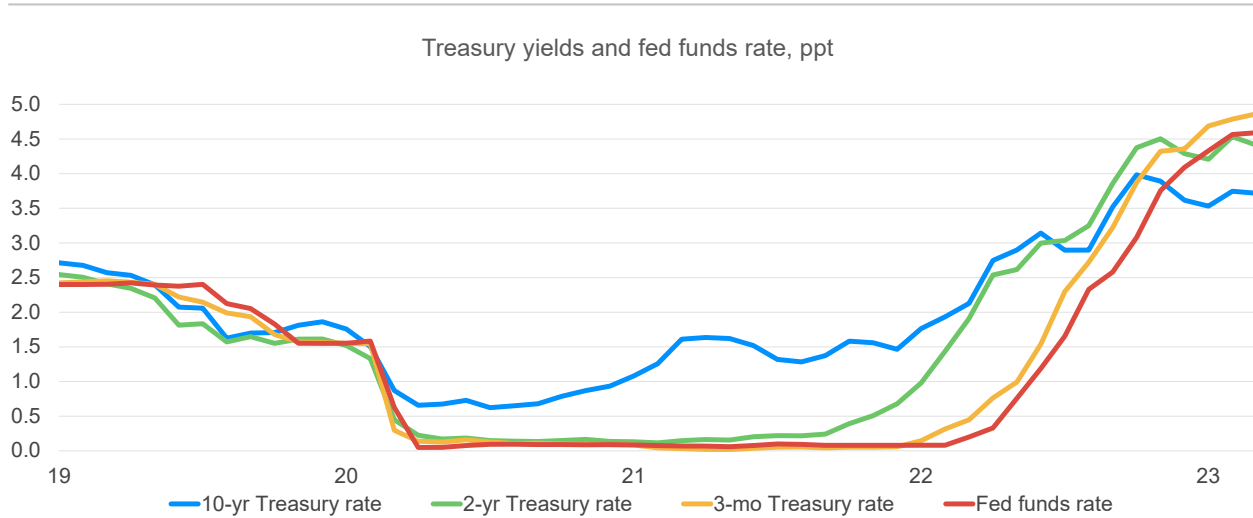
But what if the banking crisis is not over? We consider two alternative scenarios, the first assumes that the current calm in the financial system is brief. There are more bank failures, and depositors quickly lose faith that they will be made whole by the government and the deposit runs restart. The banking system significantly tightens its underwriting standards and restricts credit to households and businesses. In the second scenario, we assume that the crisis abates for a while, but inflation remains persistent, forcing the Federal Reserve to continue raising interest rates, resulting in more losses on banks' security holdings, prompting more failures and bank runs late this year and early next. Both scenarios depend on policymakers mistakenly failing to immediately fully backstop the banking system.

How we got here

While the collapse of Silicon Valley Bank happened suddenly, the bank's balance sheet had been under significant pressure for the past year as rapidly rising interest rates led to a sharp decline in the value of the Treasury and mortgage-backed securities it owned (see Chart 1). These losses continued to grow as rates rose through early March at the same time that depositors were actively drawing down their accounts. A failed attempt to raise additional capital along with a series of social media posts questioning the viability of the institution triggered a bank run that precipitated SVB's collapse.

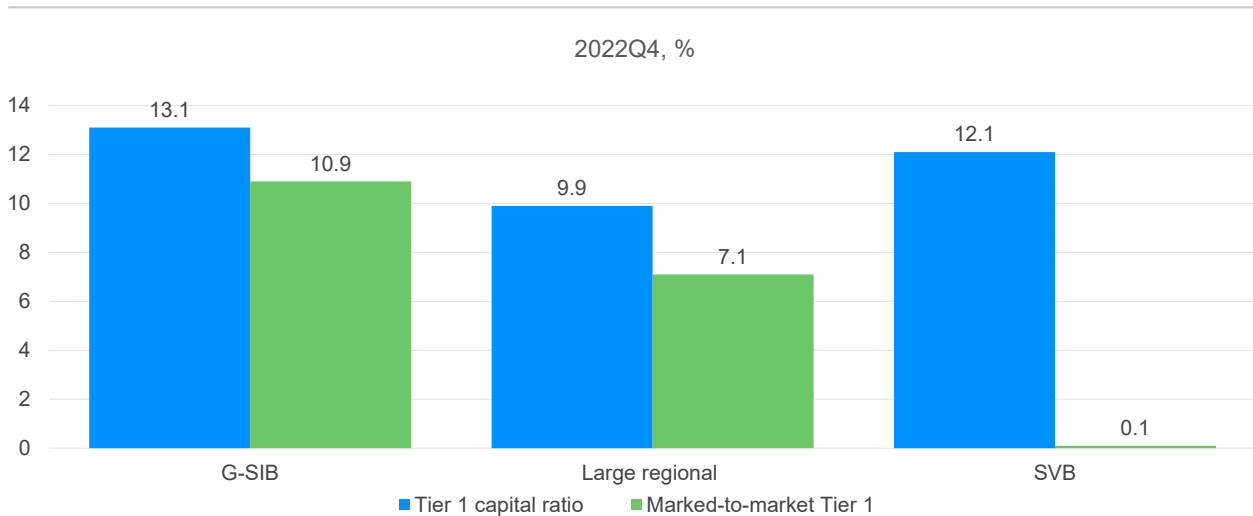
SVB differed from other financial institutions in critical ways that made it particularly vulnerable to failure. Particularly important, its portfolio was concentrated in long-term Treasury and government-backed mortgage securities. While these investments had no credit risk, they were fully exposed to interest rate risk. As interest rates rose rapidly last year, the marked-to-market value of the securities declined along with SVB's capital cushion (see Chart 2). Although global systemically important or G-SIB banks tend to have a higher

Chart 1: Rapidly Rising Interest Rates



Sources: Federal Reserve Board, Moody's Analytics

Chart 2: SVB Is an Outlier...

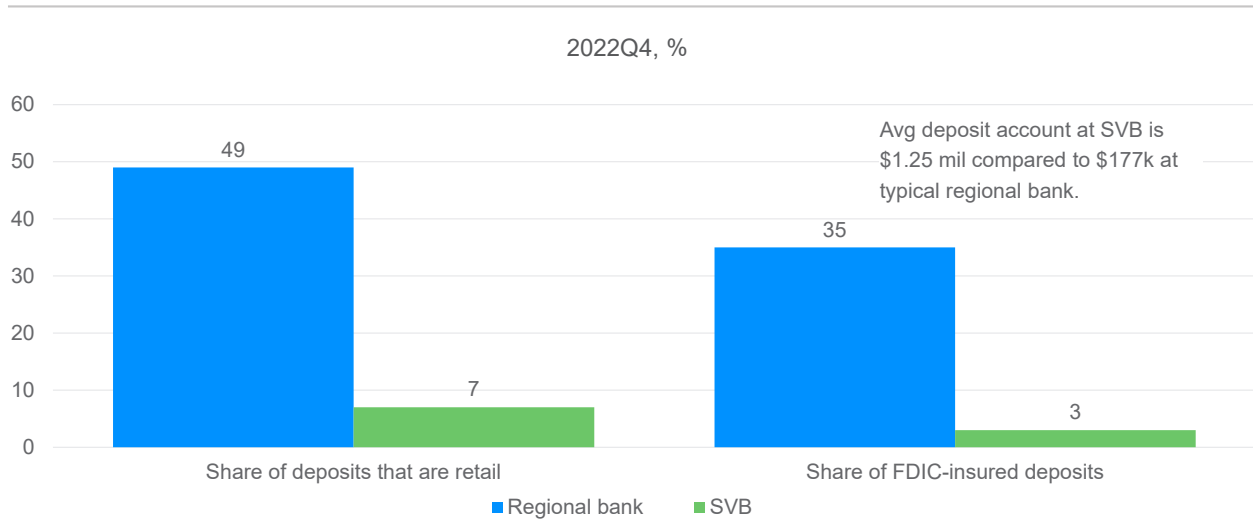


Sources: Goldman Sachs, Moody's Analytics

marked-to-market Tier 1 capital ratio and less risk of suffering catastrophic losses due to their globally diversified holdings and active interest rate hedging programs than regional banks, SVB's position was an outlier even among large regional banks.

In addition, the mix of SVB's liabilities differed significantly from its peers with a disproportionately small share of retail deposits and a large share of uninsured deposits that exceeded the Federal Deposit Insurance Corporation's \$250,000 deposit insurance threshold (see Chart 3). The average size of a deposit account at SVB when it failed is estimated at close to \$1.25 million, compared with \$177,000 at large regional banks. SVB's large commercial depositors had a strong incentive to move their deposits to higher yielding money market accounts when interest rates rose. Given the threat that they would lose their uninsured deposits, the depositors were especially sensitive when rumors of the bank's collapse started to circulate.

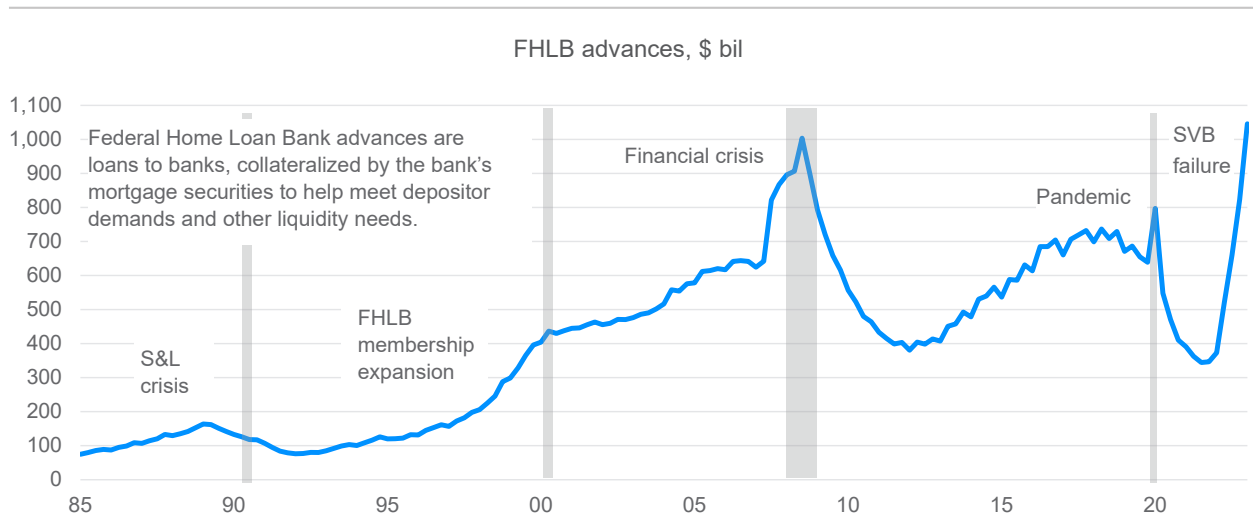
Chart 3: ...A Big Outlier...



Sources: Goldman Sachs, Moody's Analytics

The risk of additional bank failures due to similar asset liability mismatches remains but has been reduced by the recent actions of bank managers and regulators. Investors are scouring bank balance sheets for signs of weakness, while government agencies such as the FDIC, the Fed, and Federal Home Loan Banks are stepping in to identify and resolve risks and provide additional liquidity (see Chart 4).

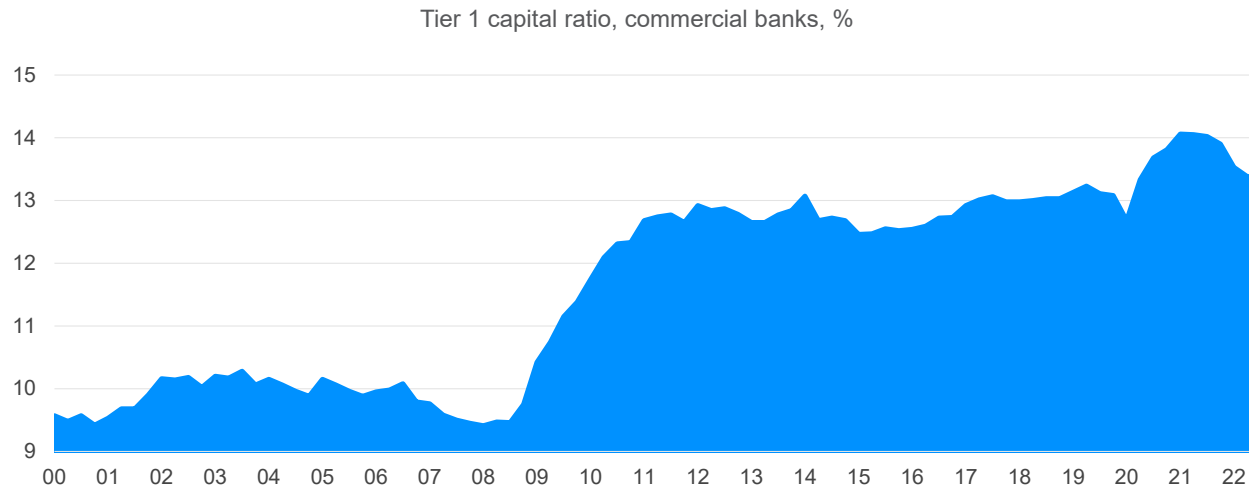
Chart 4: ...But the System Is Struggling to Find Liquidity



Sources: FHFA, BEA, Moody's Analytics

While the risk of bank runs and failures cannot be discounted, the financial system as a whole remains well capitalized. The system's Tier 1 capital ratio is as high as it has ever been (see Chart 5). Interest rate hedging along with held-to-maturity accounting also reduces the risk that institutions are deemed insolvent. Bank earnings and profitability may suffer as positions in securities are unwound, but this will be realized over years with little immediate consequence. And the banking system continues to be comfortably profitable, with a return-on-assets across the system of more than 1%.

Chart 5: Financial System on Firm Financial Ground



Sources: FDIC, Moody's Analytics

Baseline scenario

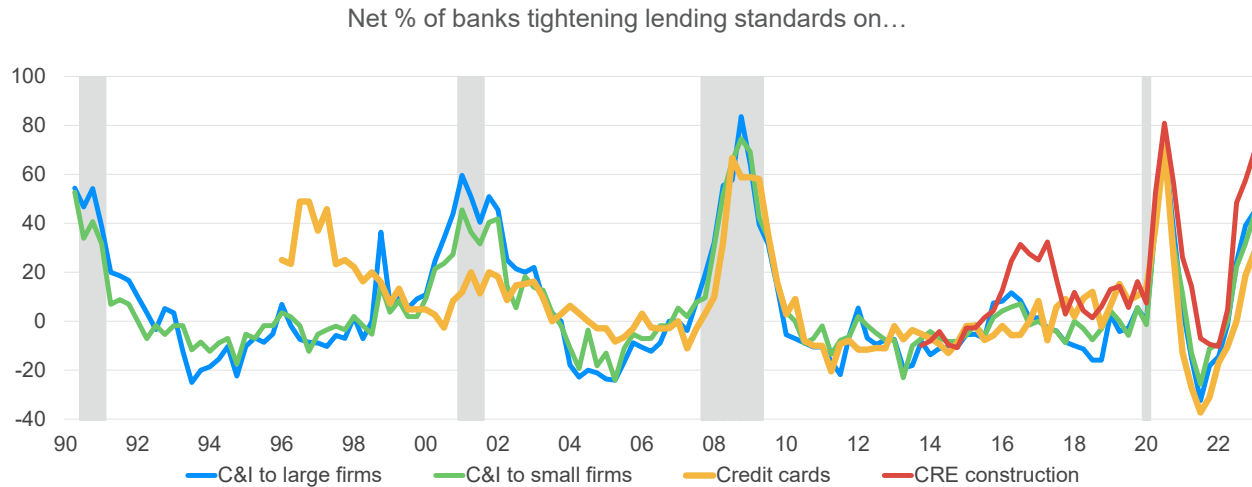
The Moody's Analytics March 2023 baseline (most likely) scenario assumes that scrutiny of bank portfolios and confidence-building measures undertaken by the U.S. Treasury, FDIC, and the Fed will limit contagion and the number of bank failures. Specifically, we assume that all bank deposits of failed banks will be guaranteed by the U.S. government, regardless of whether the deposits are below or above the FDIC's \$250,000 insurance limit. The government's full commitment to provide additional insurance appears to have calmed depositors' nerves and stemmed the outflow of deposits from small and midsize regional banks.

In addition, the Fed's discount window and newly established Bank Term Funding Program will provide sufficient funding available to eligible depository institutions to help ensure banks can meet the demands of all their depositors. The BTFP allows banks to borrow from the Fed using their Treasury and mortgage securities valued at par, not at their lower marked-to-market value. Banks are also able to shore up their balance sheets and ensure they have sufficient capital to meet withdrawal requests through the FHLB's advances program and intra-bank deposits. Business-as-usual operations from Fannie Mae, Freddie Mac and the Federal Housing Administration along with somewhat lower fixed mortgage rates will lead to only modest disruptions to the flow of single- and multifamily mortgage loans.

Although the banking crisis is short-lived in the baseline scenario, small and midsize banks become meaningfully more cautious in their underwriting standards, significantly curtailing lending to households and businesses. This is in addition to the tightening of lending standards that began a year ago (see Chart 6). Inflation-adjusted GDP in 2023 will be reduced by 0.3% relative to Moody's Analytics February 2023 baseline forecast, to 1.3%, as a result of lower consumption and investment.

The Fed continues to tighten monetary policy to bring down inflation in the near term but is assumed to be near the end of its tightening cycle as pressure on energy and other prices wanes and as tightening bank lending standards acts as a further brake on consumption and investment, equivalent to a 50- to 75-basis point increase in the federal funds rate. The terminal federal funds rate of 5%-5.25% is assumed to be reached by midyear and is expected to remain unchanged through early 2024, when inflation is closing in on the Fed's target.

Chart 6: Banks Batten Down the Hatches



Sources: FRB Senior Loan Officer Opinion Survey, Moody's Analytics

The labor market will be negatively impacted by the tightening in monetary policy and bank lending but remains relatively resilient given the strong demand for workers. Employers will reduce the pace of hiring and allow positions to go unfilled but will keep layoffs to a minimum out of fear that they will be unable to hire quickly when the economy begins to reengage. The unemployment rate is expected to modestly increase to just over 4% by this time next year as a result.

Alternative scenario 1: Crisis continues

In our first alternative downside scenario, we assume that despite recent calm in the financial system, there is another rash of small-bank failures as they struggle with continued deposit outflows. Depositors remain unconvinced that the U.S. government will step in and guarantee their deposits. Even though the failed institutions are small, their failure spooks depositors more broadly, further exacerbating deposit outflows. A broad-based bank run is ignited.

Despite the unraveling banking system and economy, the Fed delays cutting interest rates given ongoing concerns about persistently high inflation. The Treasury and FDIC also fail to convince depositors that they will guarantee all deposits, small and big, as they continue to provide the guarantee on a bank-by-bank basis and do not provide a blanket guarantee. These are significant policy errors, certainly in hindsight. Fortunately, lawmakers agree to raise the Treasury debt ceiling, avoiding the additional financial carnage a default on Treasury debt would bring. However, congressional gridlock and partisan infighting result in no additional fiscal measures to support the eroding economy.

The dramatic tightening in financial conditions and the collapse in confidence cause consumer spending and business investment to plunge, leading to a sharp decline in GDP, the loss of millions of jobs, and surging unemployment (see Charts 7 and 8). A severe recession begins by the third quarter of this year. In this scenario, the stock market plummets along with oil prices and the prices of other commodities. There is a global flight to quality, which lifts the value of the U.S. dollar and pushes long-term interest rates lower.

Chart 7: Real GDP Falls Sharply in Alternative Scenarios...

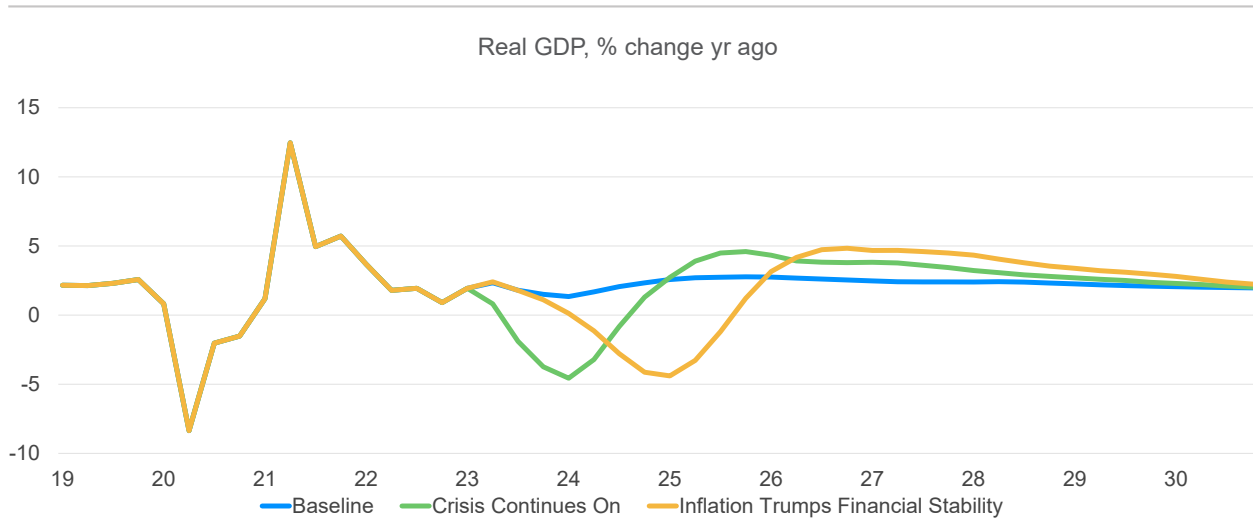
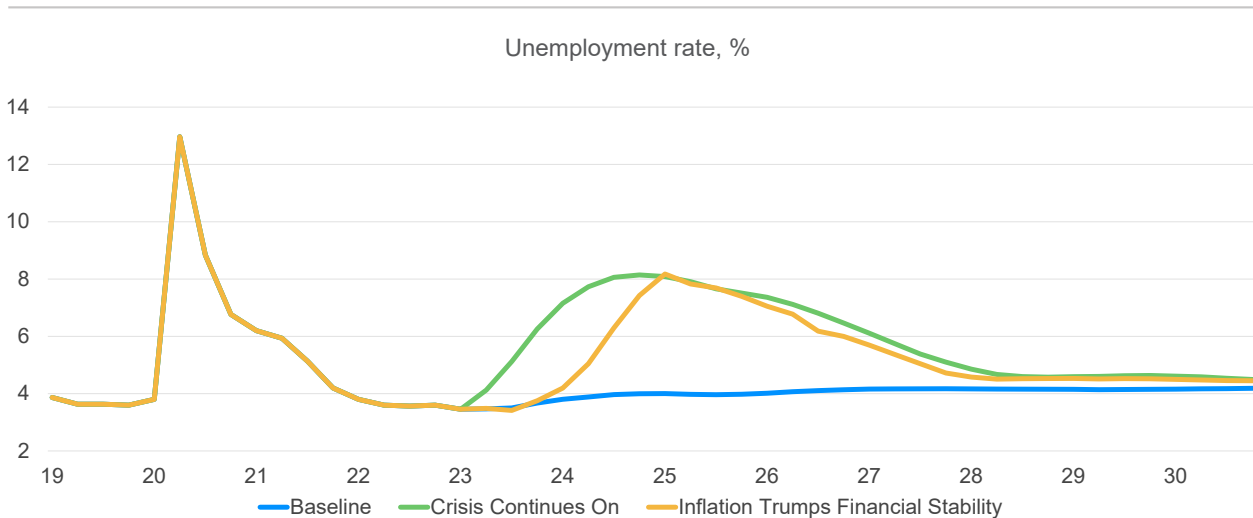


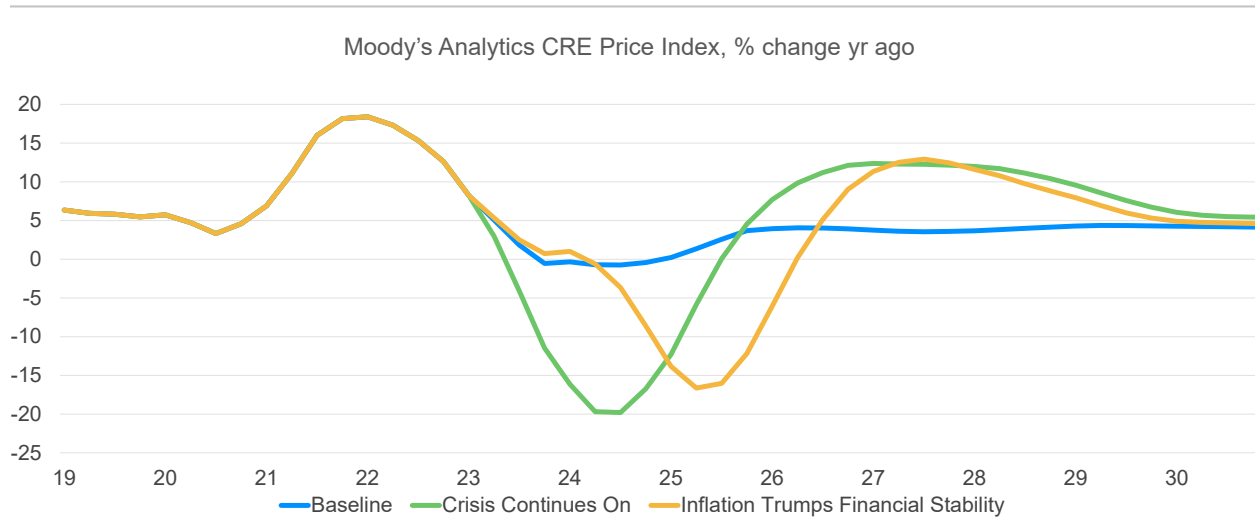
Chart 8: ...And Unemployment Surges



Rising loan defaults and weakening credit conditions further threaten bank capital and solvency, and banks respond by further tightening lending standards. Only borrowers with pristine credit characteristics can get credit, and those who do pay higher rates. Commercial real estate lending is disproportionately adversely impacted by the bank tightening as weaker rents and higher vacancy rates lead to big declines in commercial real estate prices (see Chart 9). A wave of CRE mortgage defaults further depresses prices, causing banks to book higher losses, further weakening their capital positions. House prices also drop nearly 20% peak to trough, hitting bottom in 2024 (see Chart 10).

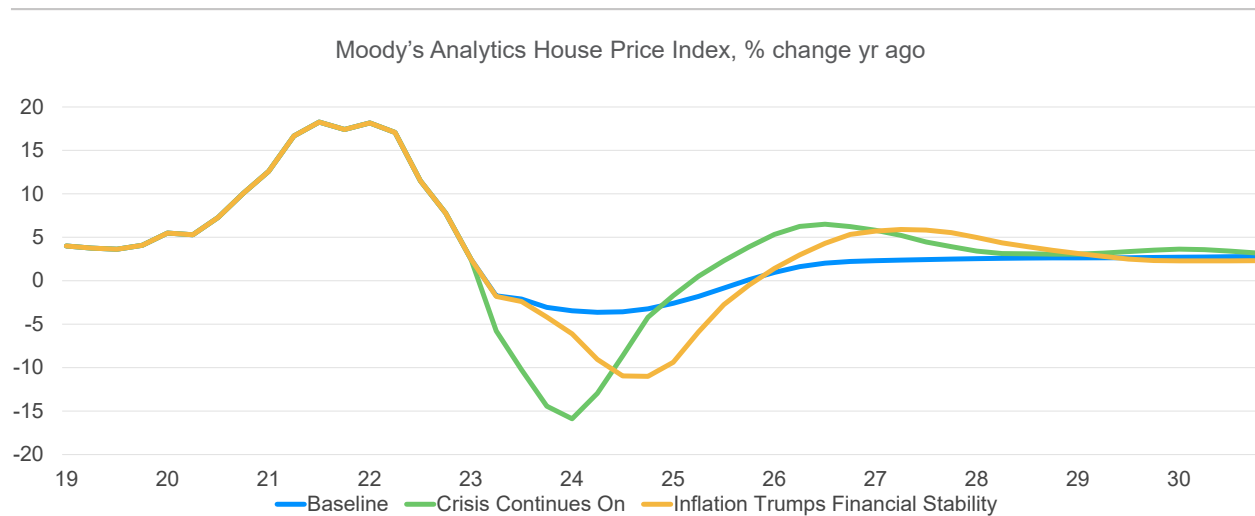
Policymakers ultimately reverse themselves in the face of these rapidly deteriorating conditions. By the fourth quarter of 2023, they commit to guarantee all bank deposits to calm depositors' nerves and stem the outflow of deposits from regional to large money center banks. The Fed's discount window and BTFP

Chart 9: Commercial Property Prices Collapse...



Source: Moody's Analytics

Chart 10: ...And House Prices Fall

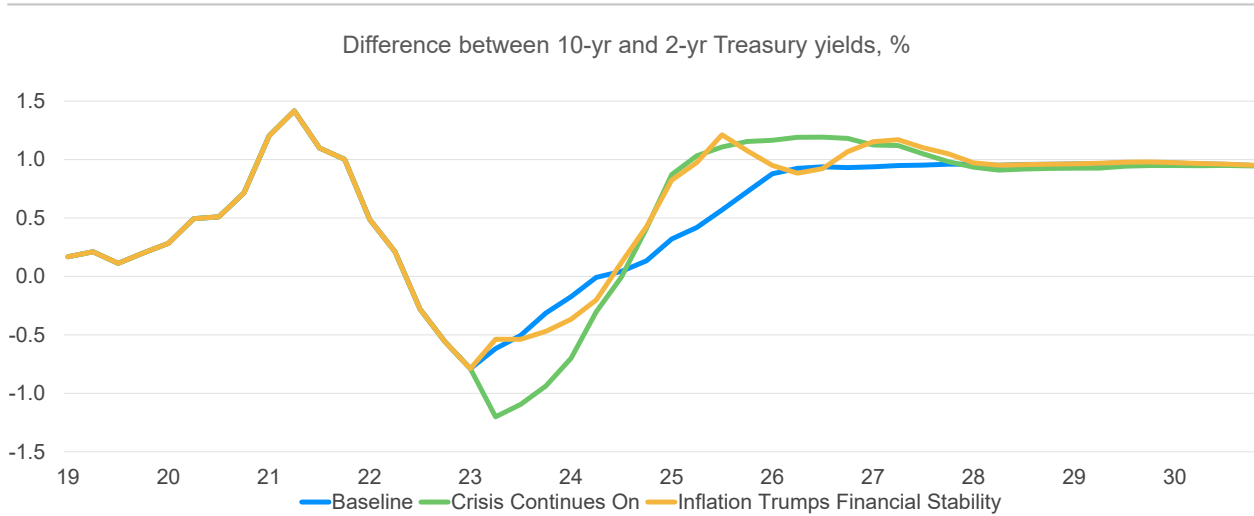


Source: Moody's Analytics

make additional funding available to eligible depository institutions, further reducing liquidity strains and the risk of bank runs. By the end of 2024, the Fed has cut the fed funds rate to as low as 1% to revive the struggling economy.

The lower interest rates ultimately support the value of bank holdings of Treasuries and mortgage securities, improving their liquidity positions and lowering the threat of additional bank runs. The Treasury yield curve remains inverted—with long-term rates below short-term rates—through much of 2024 but shifts to an upward slope by 2025, helping to stabilize bank balance sheets and earnings (see Chart 11). The reopening of the credit spigot that results supports the economic recovery led by home sales and new construction.

Chart 11: Treasury Yield Curve Remains Inverted for Longer



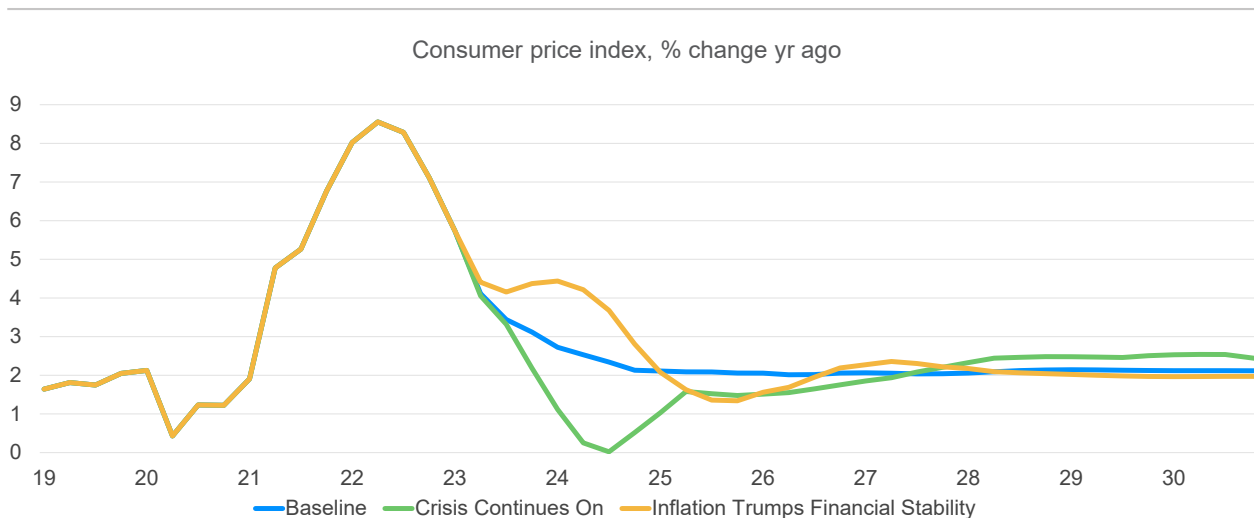
Sources: Federal Reserve, Moody's Analytics

The economy's long-run performance is diminished in this scenario as weaker business investment permanently weighs on productivity growth and lower labor force participation weighs on labor force growth. The level of real GDP is permanently lower, and the economy does not return to full employment until late in the decade. The full-employment unemployment rate is somewhat higher given the hysteresis created by the severity of the economic downturn.

Alternative scenario 2: Inflation trumps financial stability

In our second, somewhat more pessimistic alternative scenario, the banking crisis briefly goes dormant. Regulators forestall any bank failures for a while. However, inflation does not moderate as expected (see Chart 12), prompting the Fed to aggressively hike interest rates through this fall. The federal funds rate rises to well over 6% (see Chart 13). The Fed prioritizes bringing down inflation over concern about the stability

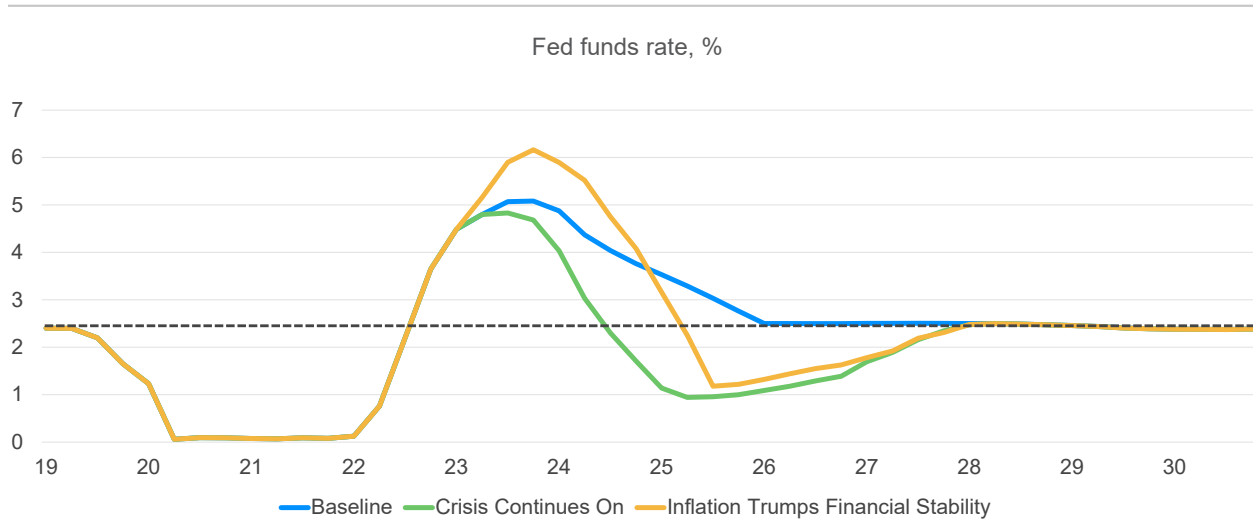
Chart 12: Higher and More Persistent Inflation...



Sources: BLS, Moody's Analytics

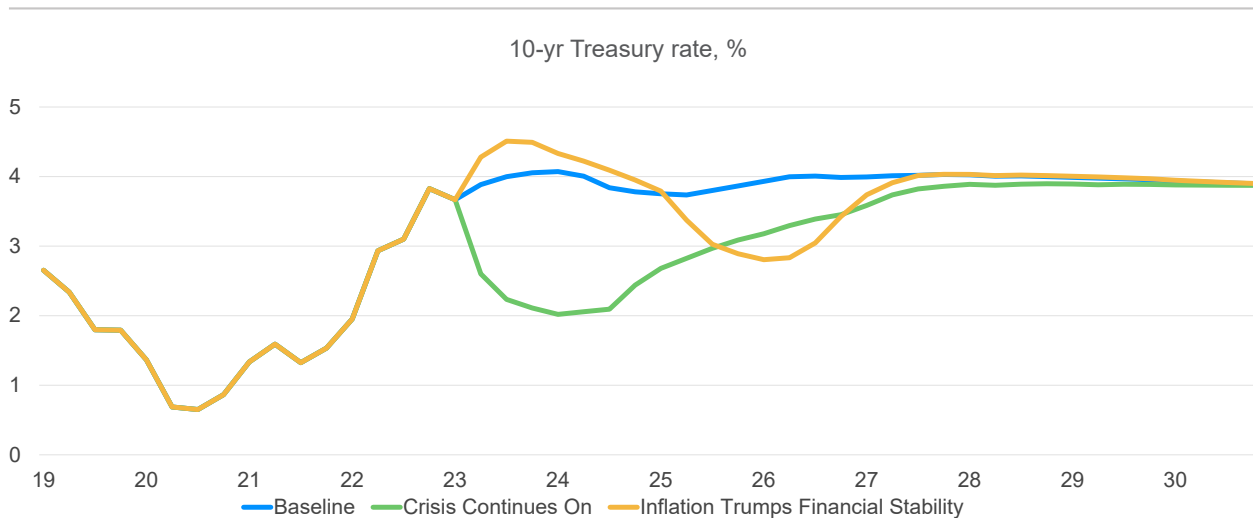
of the financial system. Long-term rates also rise due to the higher inflation and the monetary tightening (see Chart 14). The Treasury yield curve remains inverted through summer 2024, as the federal funds rate rises more than the 10-year Treasury yield.

Chart 13: ...Prompting Federal Reserve to Slam the Brakes



Sources: Federal Reserve, Moody's Analytics

Chart 14: Long-Term Treasury Yields Rise...



Sources: Federal Reserve, Moody's Analytics

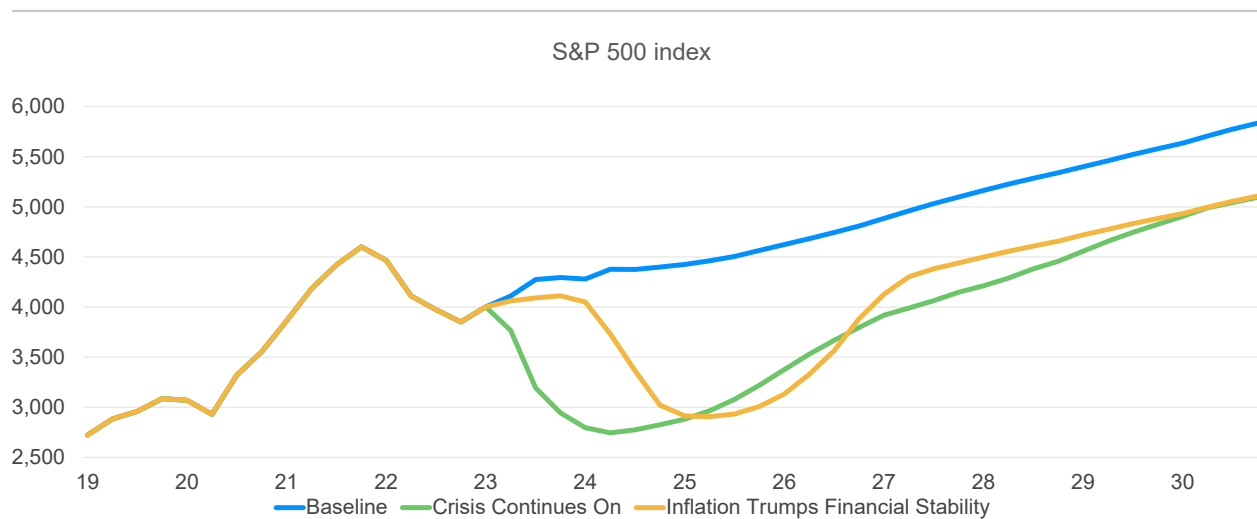
The higher interest rates further undermine the value of bank holdings of Treasury and mortgage-backed securities. Despite government efforts to shore up bank balance sheets and reassure depositors, a string of banks become insolvent and fail under the weight of their marked-to-market portfolio losses. Depositors at small and midsize banks shift more of their funds to large money center banks under the belief that larger banks are too big to fail, and big-bank deposits will be fully backstopped by the government.

Fanning these fears, policymakers make the mistake of providing deposit guarantees and addressing bank resolutions on a one-off basis. Depositors panic, including many small-business owners, threatening transactional accounts and payroll deposits. Confidence is shattered as banks fail. Contagion triggers a series of bank runs. The Fed's discount window and BTFP are expanded to make additional funding available to eligible depository institutions, but this is insufficient to restore confidence. Banks that take advantage of the facilities are viewed with increased suspicion, accelerating deposit transfers to larger banks, money market accounts, and short-term Treasury securities.

Lending to households and businesses dries up as banks focus on shoring up their liquidity. Flush with new deposits, large banks have the capacity to originate loans but tighten their lending standards as the recession intensifies and credit losses grow. CRE lending is hurt disproportionately since regional banks account for two-thirds of all CRE lending. Many property owners are unable to refinance their mortgages, triggering a wave of defaults, and price declines further erode the value of banks' loan portfolios. The multifamily market holds up somewhat better as government-backed Fannie Mae and Freddie Mac continue to provide financing to property owners.

A sharp contraction in consumption and business investment due to the credit crunch pushes the economy into a severe recession. GDP falls more than 4% in 2024, and the unemployment rate rises to a peak of over 8%. The rising unemployment rate leads to a sharp increase in the number of missed mortgage payments, triggering a wave of foreclosures. House prices drop due to additional defaults as millions of homeowners experience job losses and negative equity in their homes. Stock prices crater (see Chart 15).

Chart 15: ...And Stock Prices Crater



Sources: S&P, Moody's Analytics

The banking system and economy eventually stabilize, but only when the Fed and policymakers firmly reverse course and provide a blanket backstop to the financial system at the end of 2024. Not only do they guarantee all depositors, but much as they did during the global financial crisis, they also guarantee the debt issued by the banking system. This stabilizes confidence, the bank runs end, and banks begin to issue debt again at lower rates. The economy slowly recovers.

Conclusion

Angst over the banking crisis has receded significantly in recent days, consistent with our baseline scenario that the worst of the crisis is behind us, and the economic fallout will be modest. However, interest rates remain high, and odds are the Fed will feel compelled to raise rates further to fully rein in inflation. The banking system will thus remain under pressure given considerable unrealized losses on its security holdings. More bank failures are a clear threat as are failures in the nonbank or so-called shadow part of the financial system. Ruling out alternative, darker scenarios for the financial system and economy would thus be a mistake.

About the Authors

Mark Zandi is chief economist of Moody's Analytics, where he directs economic research. Moody's Analytics, a subsidiary of Moody's Corp., is a leading provider of economic research, data and analytical tools. Dr. Zandi is a cofounder of Economy.com, which Moody's purchased in 2005.

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He is a trusted adviser to policymakers and an influential source of economic analysis for businesses, journalists and the public. Dr. Zandi frequently testifies before Congress and conducts regular briefings on the economy for corporate boards, trade associations, and policymakers at all levels.

Dr. Zandi is the author of *Paying the Price: Ending the Great Recession and Beginning a New American Century*, which provides an assessment of the monetary and fiscal policy response to the Great Recession. His other book, *Financial Shock: A 360° Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis*, is described by *The New York Times* as the "clearest guide" to the financial crisis. Dr. Zandi is host of the *Inside Economics* podcast.

Dr. Zandi earned his BS from the Wharton School at the University of Pennsylvania and his PhD at the University of Pennsylvania.

Cristian deRitis is a senior director and deputy chief economist at Moody's Analytics, where he leads a team of economic analysts and develops econometric models for a wide variety of clients. His regular analysis and commentary on consumer credit, policy and the broader economy appear on the firm's Economic View web site and in other publications. He is regularly quoted in publications such as *The Wall Street Journal* for his views on the economy and consumer credit markets. Currently he is spearheading efforts to develop alternative sources of data to measure economic activity more accurately than traditional sources of data.

Before joining Moody's Analytics, Cristian worked for Fannie Mae and taught at Johns Hopkins University. He received his PhD in economics from Johns Hopkins University and is named on two U.S. patents for credit modeling techniques.

Damien Moore is a director of economic research at Moody's Analytics. He covers U.S. financial markets, provides research on finance-related topics, develops market risk models for stress-testing and other applications, and works on various Moody's Analytics models and tools related to government and corporate finances. He has broad expertise in financial economics including asset pricing, valuation methodologies, portfolio analytics, macro finance, and financial econometrics.

Prior to joining Moody's Analytics, Damien spent 12 years at the Congressional Budget Office, most recently as the head of the agency's Financial Analysis Division, where he supervised projects analyzing the federal role in the financial system and the costs of federal financial programs. Under his supervision, the division produced numerous reports including analyses of policies to rescue the U.S. financial system during the 2008 financial crisis, the federal conservatorships of Fannie Mae and Freddie Mac, the federal role in housing and mortgage markets, the Pension Benefits Guarantee Corporation, and federal student loan programs. Before his time at the CBO, Damien was a lecturer in the School of Business at the University of Sydney. He taught classes in investments, fixed income securities, and corporate finance.

Damien holds a PhD in economics from Northwestern University as well as undergraduate degrees in economics and accounting from the Australian National University.

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Bernard Yaros is an assistant director and economist at Moody's Analytics focused primarily on federal fiscal policy. He is responsible for maintaining the Moody's Analytics forecast models for federal government fiscal conditions and presidential elections, as well as providing real-time economic analysis on fiscal policy developments coming out of Capitol Hill.

Besides fiscal policy, Bernard covers the District of Columbia and Puerto Rico and develops forecasts for Switzerland. He regularly advises clients and policymakers of all levels on the Puerto Rico economic outlook after Hurricane Maria. He has been featured on a number of print media outlets from Bloomberg to Bond Buyer for his work on Switzerland and Puerto Rico.

His most recent research has ranged from U.S. fiscal multipliers to the regional impacts of the 2018-2019 government shutdown and federal disaster relief in Puerto Rico. Bernard has performed research on other subjects including stress-testing U.S. state budgets and forecasting the 2018 midterms.

Bernard holds an MSc in international trade, finance and development from the Barcelona Graduate School of Economics and a BA in political economy from Williams College.

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