

ON POINT

ECONOMIC AND POLICY INSIGHT FROM THE OCC

Bank Performance Under a High Inflation Scenario

If the recent increase in inflation were to prove persistent, this would be positive for bank profits overall.¹ As a result of higher inflation, nominal gross domestic product (GDP) growth would be stronger, driving up bank credit and revenues at a more rapid pace than implied by the Blue Chip consensus inflation outlook.² Higher inflation could also compel the Federal Reserve to raise interest rates earlier than planned.³ The yield curve could widen initially, but like previous post-World War II tightening cycles, term spreads would soon flatten sharply. This would also be positive for most banks' profits because net interest margins (NIM) would increase as elevated levels of liquid assets would reprice upward faster than liabilities. Small banks would experience less of a boost to profits than large institutions because they are more sensitive to term structure shocks.

Inflation also puts upward pressure on banks' expenses, particularly wages. If current price pressures endure, however, wages and total noninterest expenses may not increase as rapidly relative to inflation and bank revenues as in other periods, such as the 1960s and '70s. During those periods, escalating inflation pushed up bank noninterest costs relative to revenue, cutting into profits. Banking business models were more labor-intensive and labor unionization rates were higher than today, and globalization was not sufficiently entrenched to restrain wages.

Overall, the expectation is that the effects of higher inflation on nominal GDP and bank profits would be positive and this could extend into 2023. Nominal GDP growth could later slow, however, once Federal Reserve policy begins to rein in inflationary pressures. At that point, bank profit growth would begin to fall below that implied by the consensus inflation and economic outlook.

¹ "Bank" refers to all commercial banks insured by the Federal Deposit Insurance Corporation (FDIC).

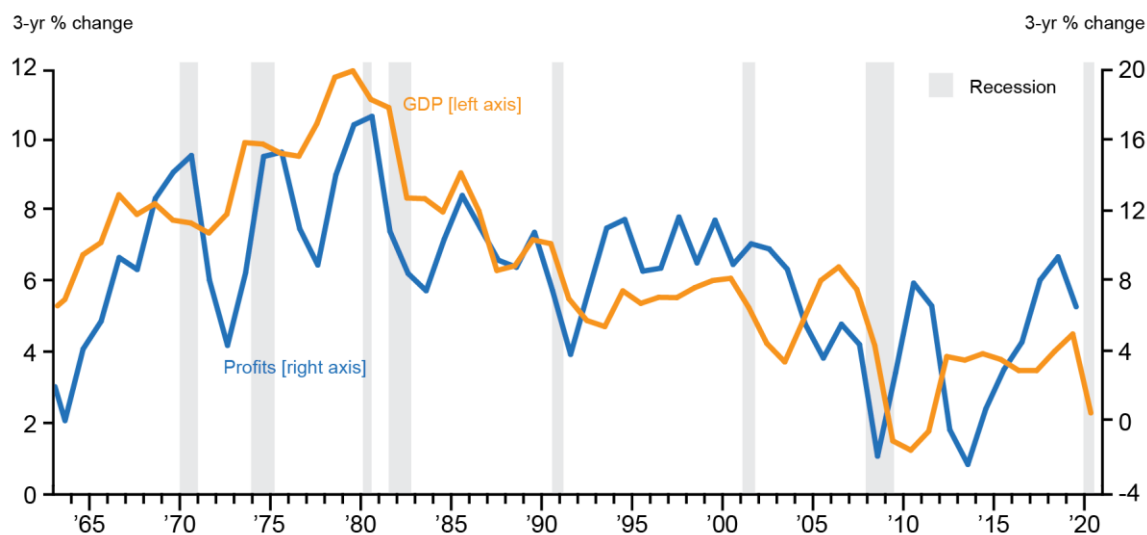
² The consensus outlook in the August 2021 issue of *Blue Chip Economic Indicators* predicts that the recent jump in inflation is temporary and that consumer price index (CPI) inflation will ease back steadily until it falls to 2.2 percent at an annual rate in the fourth quarter of 2022, not far above the Federal Reserve's target range. The consensus also expects the Federal Reserve to keep short-term rates near zero through 2022.

³ Due to higher interest rates, real GDP growth would be weaker than under the Blue Chip consensus outlook, although it is assumed here that the economy would avoid a recession.

Impact of Higher Inflation and Interest Rates on Bank Profits

Bank profits would benefit if the recent jump in inflation persists because banks deal in nominal financial instruments. A faster expansion in inflation and nominal GDP typically powers stronger growth in bank credit and revenues. At the same time, higher interest rates boost NIMs. This is reminiscent of the period between 1965 and 1980 when inflation surged and both nominal GDP and profit growth trended upward (Figure 1). However, elevated inflation would have far less of a positive influence on bank return on assets (ROA) and return on equity (ROE) than on profits because inflation would affect the numerator and denominator of these ratios to a similar degree. For example, during that period ROA declined slightly.

Figure 1 Nominal GDP Versus Bank Profits



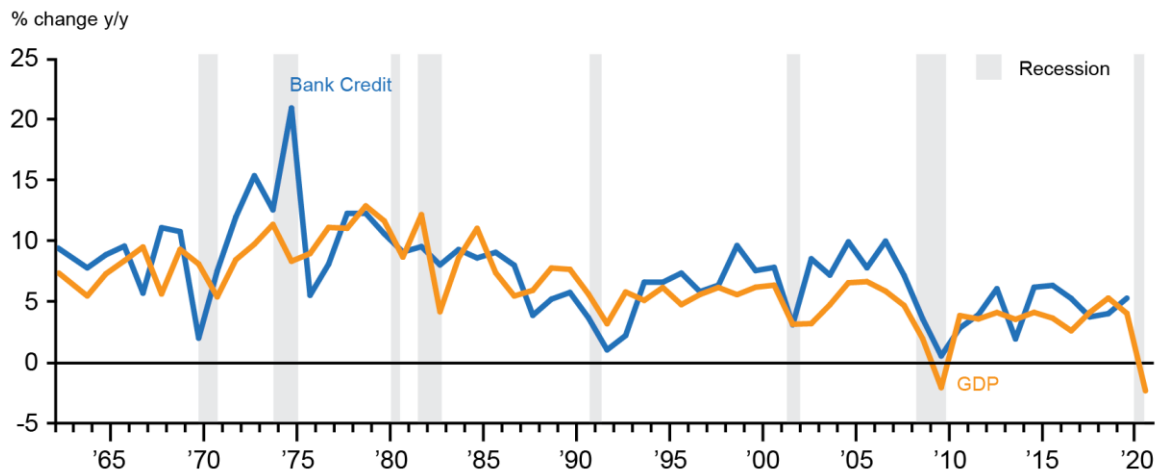
Sources: FDIC, Bureau of Economic Analysis/Haver Analytics

Note: Pre-provision net revenues

Bank Credit

Throughout the post-World War II period, growth in bank credit (i.e., loans and securities) has been closely aligned with the trajectory of nominal GDP (Figure 2). If nominal GDP is assumed to grow more rapidly under the high inflation scenario than under the consensus outlook of relatively stable inflation and interest rates, then bank credit growth also would be proportionally stronger if inflation is higher.

Figure 2 Bank Credit Versus Nominal GDP



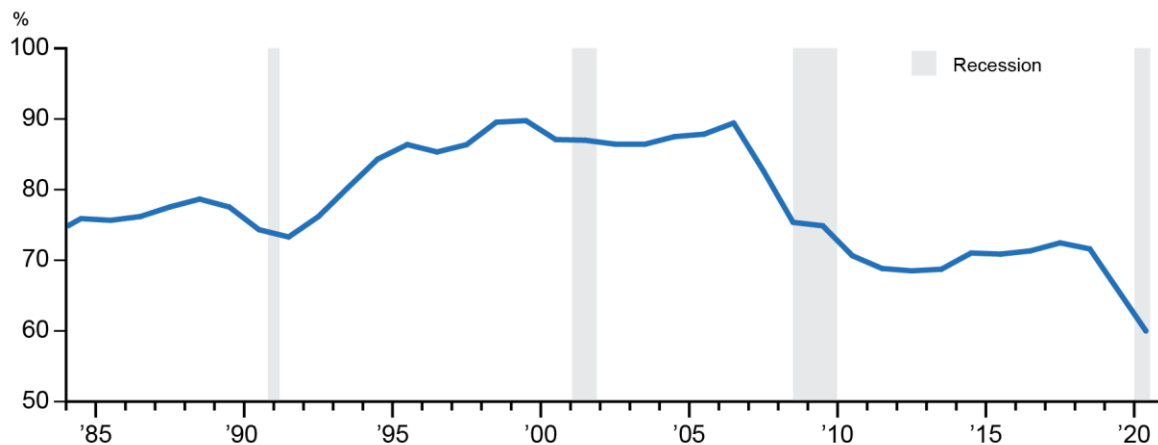
Sources: FDIC, Bureau of Economic Analysis/Haver Analytics

Note: Pre-provision net revenues is the measure of profits used here and applies only to FDIC-insured commercial banks.

Net Interest Margins (NIMs)

NIMs are likely to increase under a hypothetical scenario of higher inflation with rising interest rates. As illustrated in Figure 3, loan-to-deposit ratios at U.S. banks have plummeted since the end of 2019 and are now at historical lows. This occurred as total loans outstanding fell sharply because of pandemic-related weakness. Meanwhile, deposits grew rapidly as banks became a safe haven for households and businesses building a buffer stock of cash. Massive Federal Reserve asset purchases further boosted deposits (as well as reserves and cash assets).

Figure 3 Loan-to-Deposit Ratio



Sources: Federal Reserve/Haver Analytics, OCC Economics & Policy Analysis

Note: Loan-to-deposit ratio is for all U.S.-chartered depositories.

Flush with deposits and cash, banks would feel less pressure to compete intensively for deposit or nondeposit funds if the Federal Reserve tightens and market interest rates rise. As a result, rates on deposits would likely remain near current historical lows initially. In addition, the

business models of the nation's largest banks have evolved rapidly—now offering a wide range of brokerage and other services to attract and hold deposits rather than competing for deposits based on price.

Moreover, bolstered by Federal Reserve large-scale asset purchases and more stringent liquidity rules, banks' liquid assets currently make up an elevated 34 percent of total assets, which is high by historical standards. Rates on these assets are expected to adjust upward quickly as market interest rates rise supporting higher NIMs. Furthermore, if higher inflation persists, the Federal Reserve will likely taper and eventually end its asset purchase program. This would also prop up NIMs as low margin reserves and cash assets at banks decline.

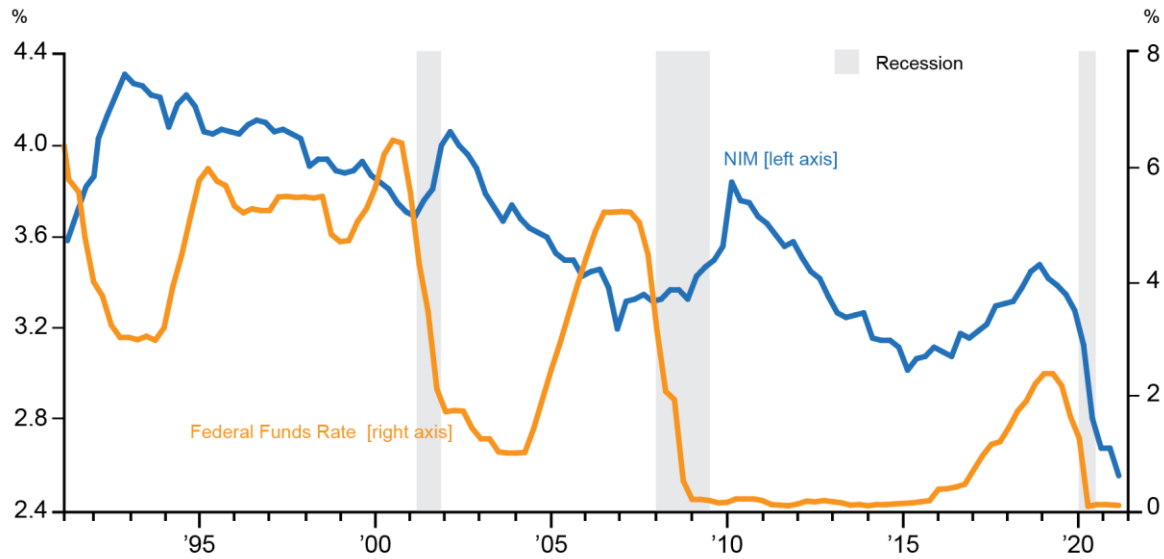
At some point deposit rates will begin to drift upward as the central bank continues to tighten and the pace of NIM improvement slows. The eventual updrift in deposit rates would occur as strong growth in nominal GDP pushes up loan demand, resulting in a rising loan-to-deposit ratio.⁴ In addition, if the central bank ends its asset purchase program, this would slow growth in bank deposits. A fading desire by the public to hold precautionary balances at banks as the economy improves could also restrain deposit growth, further boosting the loan-to-deposit ratio. As a result, institutions will eventually come under pressure to lift deposit rates to keep and attract funds. If this proves to be the case, NIMs may continue to rise, but the pace of NIM improvement would slow. A significant period of time could pass before deposit rates begin to drift upward since the rise in loan-to-deposit levels would be starting from such a depressed point historically.

This NIM improvement is similar to the behavior of NIMs during the most recent Federal Reserve tightening cycle in 2015–19 (Figure 4). Loan-to-deposit ratios had fallen sharply before the start of that cycle as well (Figure 3). Like the present, banks were carrying high levels of liquid assets that repriced quickly as market interest rates rose. Banks did not experience outflows of low-cost deposits for some time after the Federal Reserve began to hike rates in 2015. By contrast, in the tightening cycles of 1993–95, 1999–00, and 2004–06, NIMs fell when interest rates rose as banks were forced to pass through more of the Federal Reserve rate increases to depositors (Figure 4). Banks' rising deposit costs were not compensated for by rising asset yields or higher loan volume.⁵

⁴ Other things being equal, a higher loan-to-deposit ratio would be expected to bolster NIMs, since loans typically yield more than securities. In past Federal Reserve tightening cycles, however, "yield" effects have typically outweighed "share" effects in terms of the impact on margins.

⁵ The high inflation period of 1965–80 is not directly comparable to the high inflation scenario assumed here in terms of its impact on NIMs (although, as discussed earlier, it is similar in terms of its impact on nominal GDP, bank credit, and noninterest revenues). Before 1980, the economy was operating under the strictures of Regulation Q interest rate ceilings, and banks and thrifts could not legally raise deposit rates on savings accounts above these ceilings (which hovered around 5 percent in the 1970s). In addition, commercial banks were not permitted to pay any interest on checking accounts. So deposit rates remained low during that period as the Federal Reserve tightened and market interest rates rose; banks experienced deposit outflows or slowing deposit growth and could not legally raise deposit rates when market interest rates increased. When the Federal Reserve pushed rates above the ceiling levels, depositors shifted their funds out of banks and thrifts into Treasury securities or other instruments that paid market rates of interest. Unlike today, there was no simple relationship between loan-to-deposit ratios and NIMs. Therefore, the seeming insensitivity of deposit rates to increasing market rates was not a positive influence on bank performance. (Deposit ceilings were phased out after 1979).

Figure 4 NIM Versus Federal Funds Rate



Sources: FDIC, Federal Reserve Board/HaverAnalytics

Note: NIM is for FDIC-insured commercial banks.

Noninterest Income

Trend growth in noninterest income is driven to a large extent by nominal GDP growth. Although stronger nominal GDP growth would be expected to boost noninterest income under the high inflation scenario, the relationship is weaker than for other components of bank profits. One reason for this weaker relationship is the catchall category of “other” noninterest income.⁶ This category accounts for 48 percent of total noninterest income but has essentially no discernible relationship with the major components of GDP. Moreover, the relative importance of the components of “other” noninterest income shift over time. By contrast, nominal GDP has a substantial direct influence on revenues from fiduciary activities, trading revenues, and additional defined categories of noninterest income.

Efficiency Ratio and Noninterest Expenses

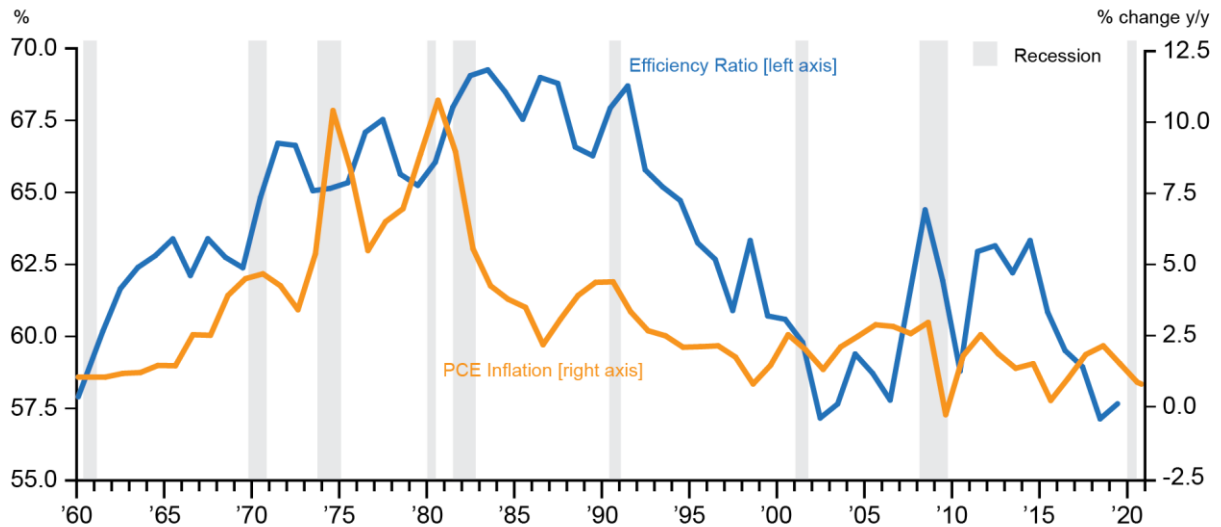
Historically, escalating inflation tended to push up the ratio of noninterest expenses to bank revenues, cutting into profits (Figure 5).⁷ However, this time may be different. During the inflation surge of the mid '60s to late '70s, wages within the United States (and at banks) generally increased far more rapidly than inflation. From 1965 to 1979, personal consumption

⁶ “Other” noninterest income is composed of fees from sales of bank drafts, acceptance and issuance of commercial letters of credit, gains from performing transactions involving foreign currency, credits resulting from litigation, interchange fees from bank card and credit card transactions, and other miscellaneous items. Specific line-item names for other interest income components have changed over time on the bank call report form, but the substance for other noninterest income as a whole remained similar.

⁷ This is the “efficiency ratio,” defined as noninterest expenses (operating income – loan loss provision). A higher efficiency ratio is less desirable because it indicates that a bank is spending more to generate every dollar of income. Salaries and employee benefits make up almost 50 percent of bank noninterest expenses and are a key driver of bank efficiency ratios.

expenditure (PCE) inflation measured 5.5 percent on average, and compensation per hour of U.S. workers rose at a faster annual rate of 7.2 percent on average. Compensation per hour of bank employees rose at an even faster annual rate of 9.7 percent over that period .

Figure 5 Efficiency Ratio Versus Inflation



Sources: FDIC, Bureau of Economic Analysis/Haver Analytics

Note: Efficiency ratio includes only FDIC-insured commercial banks.

By contrast, from 2001 to 2020 (just before the pandemic), inflationary pressures were far lower than during the 1960s and '70s. Over this more recent period, PCE inflation was 1.8 percent on average. The pace of increase in compensation per hour of both U.S. and bank employees continued to run above that of inflation, but by far less than during the high-inflation 1960s and '70s.

During the 1960s and '70s, close to 25 percent of wage and salary workers belonged to a union, more than twice today's rate of under 11 percent. Higher union membership bolstered wage growth even in industries that were not heavily unionized such as banking. Moreover, globalization was not sufficiently entrenched in the 1960s and '70s to restrain wages in the United States. As a result of globalization, lower rates of unionization, and less labor-intensive banking models,⁸ wages and total noninterest expenses may not increase as rapidly relative to inflation and bank revenues in 2021–23 as was the case in the 1960s and '70s, current price pressures notwithstanding.

Small Bank Performance

A higher inflation scenario would be expected to have a positive impact on the profits of smaller banks, but somewhat less so than for the banking system overall (the system-level data are

⁸ The pandemic accelerated the shift to even greater automation and less utilization of labor-intensive bank branch distribution networks. Future bank staffing costs likely reflect fewer, but more highly paid employees, yet the net effect on bank profitability is uncertain.

driven by large banks).⁹ Stronger nominal GDP growth, as assumed under the high inflation scenario, would probably boost growth in bank credit by similar amounts at both small and larger institutions. In the high inflation, rising interest rate period of the 1960s and '70s, small and large bank efficiency ratios performed in a similar manner. The hypothetical scenario examined here assumes that this will also be the case. However, like the 2015–19 tightening cycle, which also followed a period of massive Federal Reserve asset purchases and near zero interest rates, NIMs at smaller institutions would likely be boosted less than at larger banks (Figure 6). There are several reasons for this:

- The loan-to-deposit ratio at small banks is currently 71 percent, well above the 58 percent at the system level. So small banks should expect to see deposits repriced more rapidly than at larger institutions.
- Noninterest-bearing deposits are slightly lower as a share of assets at small banks than at larger institutions. This could result in a bigger increase in deposit costs at smaller institutions if the Federal Reserve were to tighten. Liquid assets at small banks are also relatively lower as a share of those banks' balance sheets. This could result in small bank assets repricing upward at a slower pace than at larger institutions as interest rates rise.
- In addition, if the Federal Reserve raises interest rates to counter higher than expected inflation, then it is assumed here that the yield curve would be higher and flatter than in the Blue Chip consensus outlook.¹⁰ NIMs at small banks typically display greater sensitivity to a flattening yield curve than at larger institutions.¹¹ Small banks usually carry more interest rate risk than larger institutions due in part to less extensive use of derivatives for hedging. Small banks tend to have more mismatched books than larger banks, which also makes them more sensitive to term structure shocks. In addition, smaller institutions hold a far lower percentage of trading assets than large banks and earn a higher proportion of their revenues from nontrading activities. Income generated by nontrading activities is more vulnerable to a flattening yield curve.¹²

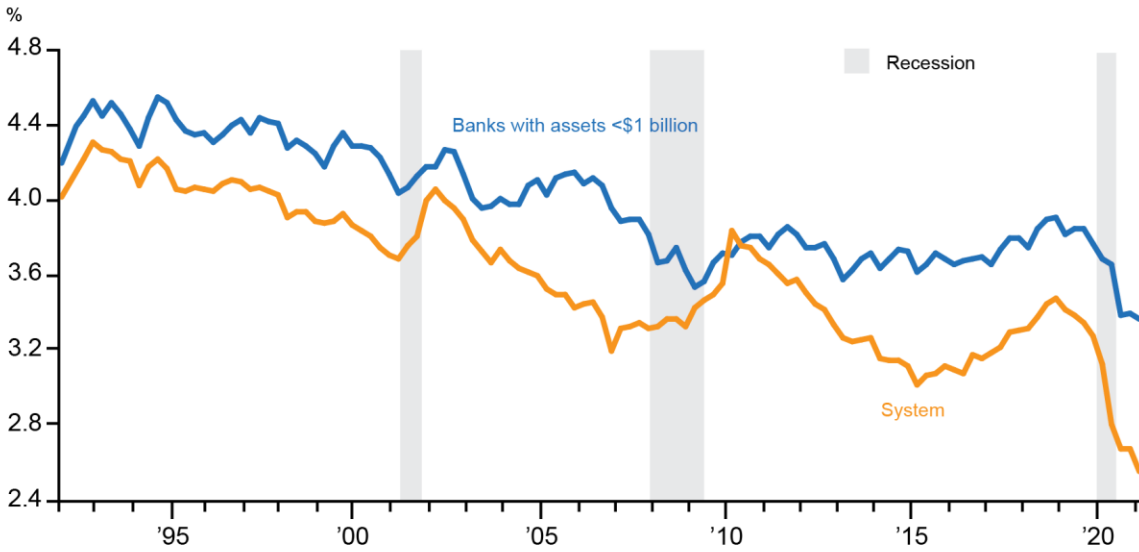
⁹ Small banks are defined here as those with assets under \$1 billion. "System" refers to all commercial banks, not just the federal banking system of OCC-supervised institutions.

¹⁰ In the 11 tightening cycles since the mid-1950s, the yield curve has only steepened once—in the 1993–95 cycle. And even in that instance, the steepening only occurred over a brief period before term spreads began to narrow sharply. Short-term interest rates are generally more volatile than longer-term rates over the business cycle. As a result, when the Federal Reserve hikes short rates, long rates typically rise by a lesser amount and the yield curve flattens. The greater volatility of short rates is fundamental and built firmly into the mathematics of bond prices.

¹¹ A 2018 study by the Federal Reserve Bank of Dallas found that NIMs of large banks display only a marginal degree of sensitivity to a flattening yield curve. For the first five quarters following a one-time, 100 basis point (bp) reduction in the 10-year/three-month Treasury term spread, NIMs of banks exceeding \$15 billion in assets declined marginally. However, the study also found that large bank NIMs increased significantly 10 quarters after the term spread narrowed. By contrast, small banks displayed more sensitivity to a flattening yield curve. These banks saw margins shrink for two quarters following the reduction in term spreads. (Kapinos, Pavel, and Musatov, Alex, "[Smaller Banks Less Able to Withstand Flattening Yield Curve](#)," June 2018.)

¹² Hanweck, Gerald, and Ryu, Lisa, [The Sensitivity of Bank Net Interest Margins and Profitability to Credit, Interest Rate and Term Structure Shocks Across Bank Product Specializations](#), FDIC Working Paper 2005-02, January 2005.

Figure 6 Small Bank NIM Versus System NIM



Sources: FDIC, Haver Analytics

Note: "System" refers to all FDIC-insured commercial banks.

The Point?

Absent an unlikely surge in labor costs, the net positive effects of higher inflation on bank profits could extend at least into 2023, but longer-term profit trends will be determined in part by the direction of monetary policy.