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Bond-Stock Price Comovements: Evidence from the 1960s to the 1990s※

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Abstract
The correlation between sovereign bond prices and stock prices was positive from the 1970s to 2000 and then turned negative. Researchers have investigated this phenomenon using data from the 1970s to the present. This paper uses data beginning in the 1960s, when there were negative correlations between bond and stock prices, to investigate how positive bond-stock price comovements arose. Evidence from identified vector autoregressions indicates that monetary policy shocks beginning in the late 1960s caused bond and stock prices to covary positively. Evidence from estimating a multi-factor model indicates that news of both monetary policy and inflation contributed to positive bond-stock comovements. The findings imply that rising inflation now that elicits contractionary monetary policy could alter bonds' risk characteristics, causing them to again covary positively with stocks. To this end, policymakers should be vigilant that large budget deficits do not stoke inflation.

Keywords: Bond-stock comovements; Inflation; Monetary policy

JEL classification: G1, G12

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1. Introduction

Treasury bonds occupy an important role in portfolios. The U.S. government, to finance its budget deficits, must find willing holders for its bonds. To understand the government's ability to borrow and investors' demand for bonds, it is necessary to investigate bonds' risk characteristics.

Bonds' risks should depend on their comovements with stocks. As Campbell et al. (2025) discussed, stocks are negatively correlated with the stochastic discount factor (SDF). They are thus risky. If bonds covary positively with stocks, they are thus also risky and investors will require a higher return to hold them. Campbell et al. reported that bond and stock prices covaried positively from the 1970s to around 2000. Their covariances then turned negative.

Many have investigated what causes bond-stock covariances to be positive or negative. Cieslak and Pflueger (2023), for instance, distinguished between "good" and "bad" inflation. Good inflation in New Keynesian models is driven by demand shocks. These will cause inflation to be pro-cyclical. Since inflation decreases bond prices, bond prices will decrease when consumption and output are low. Since low output is correlated with lower stock prices, bond-stock comovements will be negative in this case. Bad inflation is driven by supply shocks. These will cause inflation to be counter-cyclical. Inflation during a recession will thus cause bond prices to decrease at the same time when reduced output causes stock prices to decrease. Bond-stock comovements will be positive in this case.

Pflueger (2025) calibrated a New Keynesian model centered around the 1980s and the 2000s. The first period was characterized by volatile supply shocks and anti-inflationary monetary policy. The second experienced quiescent supply shocks and dovish monetary policy. Her model generated positive bond-stock comovements during the first period and negative comovements during the second period. Counterfactual simulations indicated that both supply shock volatility and hawkish monetary policy are necessary to produce positive bond-stock covariances over the latter period.

This paper investigates bond-stock comovements beginning in the 1960s. During the early and middle 1960s, inflation was pro-cyclical and inflation expectations remained quiescent. At this time bond-stock comovements were either negative or zero. Investors viewed bonds as safe. However, as large budget deficits stoked inflationary expectations and as the Fed focused on fighting inflation, bond-stock comovements turned positive.

Impulse-response evidence indicates that monetary policy innovations contributed to positive comovements beginning in 1967 and extending for the next 15 years. Over much of this period supply shocks arrived in spades. The Fed also declared war on inflation.

The exposure of a cross-section of asset returns to monetary policy and inflation news is also investigated over the 1973-1991 period. The results indicates that news of both these factors contributed to positive bond-stock covariances in a majority of the months investigated.

Much of the period from the late 1960s until the early 1990s thus corresponds to what Pflueger (2025) described as a perfect storm. Volatile inflationary shocks and aggressive anti-inflationary monetary policy magnified the risks of holding bonds. Policymakers at present need to be careful not to recreate this dangerous combination. In particular, fiscal policymakers need to ensure that they do not stoke inflation.

The next section reviews literature on the determinants of bond-stock comovements. Section 3 highlights macroeconomic policy, supply shocks, and inflationary outcomes between 1964 and 1991. Section 4 reports bond-stock betas over this period. Section 5 presents evidence from impulse-response functions concerning how monetary policy contributed to bond-stock comovements. Section 6 contains evidence from a multifactor model concerning how news of monetary policy and inflation impacted bond and stock returns. Section 7 discusses the findings. Section 7 concludes.

2. Understanding Bond-Stock Comovements

Campbell et al. (2025) investigated the risk characteristics of stocks and bonds. An asset's risk premium over the risk-free rate (r_f) depends on its covariance with the SDF. An asset's Sharpe ratio (the ratio of its expected return over r_f divided by the standard deviation of its return over r_f) depends on its correlation with the SDF. Assets with high negative correlations with the SDF pay less at risky times when the SDF is high. They must offer higher expected returns relative to r_f and thus have higher Sharpe ratios. Since stocks have high Sharpe ratios, they tend to be negatively correlated with the SDF. Campbell et al. thus treated the correlation of other assets with stocks as a proxy for their correlation with the SDF.

Campbell et al. (2025) showed that the risk premium on a two-period nominal bond depends positively on the SDF's correlation with real bond returns and current and expected future inflation. Higher inflation lowers bond prices. When current or expected inflation covary positively with the SDF, bond returns are low when the SDF is higher. Since investors value returns more when the SDF is high, they will treat bonds as risky in this case and require a higher expected return to hold them. When current or expected inflation covary negatively with the SDF, bond returns are high when the SDF is higher. Investors will treat bonds as hedges in this case and accept a lower risk premium or even a negative premium to hold them.

In consumption-based asset pricing models, innovations in the SDF are related to innovations in current and future consumption. With Epstein-Zin preferences and assumptions about the time discount factor, the coefficient of relative risk aversion, and the elasticity of intertemporal substitution, Campbell et al. (2025) showed that innovations in the SDF are negatively related to innovations in current and future consumption. Interpreting stocks as a claim on consumption, stocks under plausible assumptions will have a strong negative correlation with the SDF. Campbell et al. then demonstrated that nominal bonds will covary positively with stocks when innovations in current and expected inflation are negatively correlated with innovations in current and expected consumption growth. In other words, stock and bond prices can move together when inflation is countercyclical.

Pflueger (2025) endogenized consumption and production decisions within a three-equation New Keynesian model. She employed a consumption Euler equation, a Phillips Curve, and a monetary policy rule equation. She solved for the dynamics of the output gap, wage inflation, and the nominal risk-free rate as functions of shocks to the three equations. Price inflation then depends on wage inflation and productivity.

Pflueger (2025) calibrated her model over two periods, one centered around the 1980s and the other after 2000. In the first period, supply shocks are volatile and the monetary policy rule assigns a high weight to inflation. In the second period, demand shocks are more important, supply shock volatility is lower, and monetary policy assigns less weight to fighting inflation. Consistent with historical experience, the bond-stock comovements generated during the first period are positive and the bond-stock comovements during the second period are negative.

Pflueger (2025) then ran a counterfactual scenario to try to obtain positive bond-stock comovements using the calibration from the 2000s. She reported that supply shock volatility is necessary but not sufficient to generate the large positive bond-stock betas observed in the 1980s. Monetary policy also has to assign a high weight to inflation. Intuitively, if monetary policy allows the real rate to decrease following a negative supply shock, the economy will avoid a recession. Thus, while bond prices fall due to inflation, stock prices do not fall because monetary policy cushions the decline in output. On the other hand, if monetary policy is hawkish, the higher inflation due to the supply shock will be accompanied by a decrease in output. The higher inflation reduces bond returns and the decline in output reduces stock returns. Thus stock and bond prices will move together.

3. Macroeconomic Policy, Supply Shocks, and Inflation between 1964 and 1991

In February 1964 the U.S. government cut personal and corporate taxes. The Federal Reserve kept interest rates constant (Okun, 1970). President Johnson then escalated U.S. involvement in the Vietnam War. Johnson contravened his economic advisors by increasing spending on both the war and on domestic programs without raising taxes. The budget deficit relative to GDP in 1968 approached 3%. This was its highest level in more than 20 years. By 1969, the inflation rate approached 6%. This was also the highest level in 20 years.

Rudd (2022) documented how the Fed in the 1960s got far behind the curve in containing inflation. To remedy this it focused on fighting inflation from the end of 1967 and the end of 1969. It restricted money supply growth, causing the federal funds rate to grow by more than 600 basis points. Contractionary monetary policy caused short- and long-term interest rates to soar.

Figure 1 plots unemployment and inflation between 1960 and 1971. It indicates that inflation between 1960 and 1969 was pro-cyclical. Figure 2 presents the overall consumer price index (CPI) and the CPI for both energy and food. There were no spikes in energy and food prices over the 1960-1971 period. Few supply shocks hit the U.S. economy at this time.[1]

However, expansionary fiscal policy could have raised expected inflation. As Pflueger (2025) noted, a shock to inflation expectations due to fiscal policy can have the same impact as a shift in the Phillips Curve. In Figure 1, the worsening of the inflation-unemployment tradeoff between 1969 and 1971 could have reflected an increase in inflationary expectations caused by expansionary fiscal policy.

Beginning in 1972, adverse supply shocks multiplied. In the summer of 1972, the U.S. government engaged in the largest grain sale in history to the Soviet Union. U.S. grain stocks plummeted and prices soared (Coppess, 2019). The dollar depreciated 20% between August 1971 and July 1973, increasing food exports and raising domestic food prices (Pierce and Enzler, 1974). In 1972 El Nino weather patterns decimated Peruvian anchovy catches. Feedstock makers replaced anchovies with soybeans, raising soybean prices. Flooding in the Midwest further raised soybean prices. Rising prices for soybeans used in animal feed also increased prices for meat. Figure 2 shows that food inflation in 1973 reached 17%.

Pierce (1979) observed that monetary policy was too expansionary between 1971 and 1973. President Nixon instituted wage and price controls at this time. Fed Chairman Arthur Burns believed that these controls would contain inflation, allowing the Fed to focus on stimulating the economy. As Pierce noted, what happened instead was the wage and price controls combined with stimulative policies increased inflationary pressures.

[1] The General Motors strike from September to November 1970 caused prices of new automobiles to increase by 9%. Prices then reverted back to their pre-strike levels. President Nixon abandoned the Bretton Woods system of fixed exchange rates in August 1971. By the end of 1971, however, the U.S. dollar had only depreciated by 6%. The increase in food prices at the end of 1969 was not driven by a supply shock but by increased demand.

Inflation then exploded when Arab oil producing countries stopped selling oil to the U.S. between October 1973 and March 1974. Oil prices in the U.S. quadrupled. As Figure 2 shows, U.S. energy price inflation reached almost 30% in 1974. Pierce (1979) noted that energy and food inflation drove CPI inflation for the first four months of 1974, and that removing wage and price controls after this further drove inflation. The CPI inflation rate in 1974 exceeded 11%.

Bernanke et al. (2007), using vector autoregression (VAR) techniques, reported that the surge in inflation led to contractionary monetary policy in 1974. The funds rate rose by 400 basis points between February and June 1974. Pierce (1979) called this the tightest monetary policy ever implemented in the U.S. Okun said in June 1974 that the public supported the Fed's inflation fight because it viewed inflation as public enemy number one.[2] Longer-term interest rates also increased, decimating housing, automaking and other interest-sensitive sectors. The unemployment rate increased by 4 percentage points, peaking at 9% in May 1975. This painful medicine contributed to reducing the core inflation rate by 2 percentage points between 1974 and 1976 (Ball, 1994).

A second oil price shock arrived in 1979. It was precipitated by the Iranian Revolution and fed by the Iran-Iraq War. As Figure 2 shows, the shock contributed to energy prices increasing by 40%. The overall inflation rate in 1980 approached 14%.

Fed Chairman Paul Volcker then implemented even tighter monetary policy than the Fed had in 1974. He used nonborrowed reserves as an intermediate instrument to reduce money supply growth. The funds rate increased by 8 percentage points and long-term corporate and Treasury rates increased by 5 percentage points. Spending on housing and durable good

[2] Quoted in Pierce (1979).

plummeted and the U.S. experienced the deepest recession since the Great Depression. The unemployment rate at the end of 1982 approached 11%.

Ball (1994) reported that trend inflation fell 8 percentage points between 1979 and 1982. In July 1982, the Fed eased policy. The funds rate fell from 14.92% on 2 July 1982 to 10.4% on 3 September 1982 (Dupor, 2025). The Fed also implemented a series of discount rate cuts. The recession ended in November 1982.

The economy expanded for almost 9 years. At the time this was the longest peacetime expansion. As Figure 2 shows, inflation also remained contained. The figure also shows that there was a large positive supply shock in 1986 as oil and energy prices plummeted.

Fed policy remained measured. It increased the funds rate by 320 basis points between March 1988 and March 1989 to fight inflation. It then lowered the funds rate by 540 basis points up to the end of 1991. Figure 2 shows there was a spike in oil prices in late 1991 associated with Iraq's invasion of Kuwait.

4. Estimating Bond Market Betas

This paper aims to estimate bond/stock betas beginning before they turned positive. To do this requires data beginning in the 1960s. Campbell et al. (2025) estimated betas using U.S. 10-year nominal Treasury return data calculated from Gürkaynak et al.'s (2007) yield data. These data begin in the third quarter of 1971. However Gürkaynak et al. (2007) also provided data for 7-year nominal Treasury yields beginning in the 1960s. Changes in 7-year yields move very closely with changes in 10-year yields. Regressing the change in the 7-year yield on the change in the 10-year yield over the August 1971 to November 2025 period gives a coefficient of 0.99 and a t-statistic of 455. This paper thus uses 7-year yields.

Nominal yields on 7-year zero coupon Treasury securities are used to calculate log bond returns. Log bond returns are then regressed on log returns on the Standard and Poor's 500. Daily data are used. Regressions are performed using 90-day windows beginning with the first quarter of 1964 and extending to the last quarter of 1991. The estimated equation takes the form:

$$R_{7,t} = \beta_0 + \beta_1 R_{S\&P,t}, \qquad (1)$$

where $R_{7,t}$ equals the daily log nominal U.S. government bond returns on 7-year bonds and $R_{S\&P,t}$ equals the daily return on the Standard & Poor's 500 Index.

Figure 3 plots betas that are statistically significant at at least the ten percent level. Between 1964Q1 and 1967Q3 the betas are never positive and statistically significant. The beta is negative and statistically significant in 1966Q1. Betas then become positive and significant beginning in 1967Q4. Between 1967Q4 and 1971Q3 betas are positive and statistically significant in 10 of the 16 quarters.

There are no statistically significant betas between 1971Q4 and 1974Q2. After this, betas are positive and significant in 49 quarters. They are never negative.

The betas are especially large between 1979Q4 and 1981Q3. When statistically significant, they average above 0.50 over this period. During this time, the Iran Crisis pushed energy prices up 40% and the Federal Reserve declared war on inflation.

An increase in the betas is closely related to an increase in the yield on the 7-year Treasury bond. Regressing average yields on 7-year zero coupon Treasury securities in quarter *t* ($Yield_{7,t}$) on the bond betas for quarter *t* obtained from estimating equation 1 ($\beta_{1,t}$) produces[3]:

[3] Values in Figure 3 when the betas are not statistically significant are set equal to zero. The average yield for the betas that are not statistically significant are included as an observation when beta equals zero. The results are similar if values when the beta are not statistically significant zero are excluded.

$$Yield_{7,t} = \underset{(47.3)}{684.3^{***}} + \underset{(231.4)}{921.0^{***}}\beta_{1,t},$$

Adjusted R-squared = 0.304, Standard Error of Regression = 184.1, N = 64, Heteroskedasticity and autocorrelation consistent standard errors are reported in parentheses,
*** indicates statistical significance at the 1% level.

The results indicate that a ten-basis point increase in β_1 is associated with a 92-basis point increase in yields. This implies that as bonds become riskier, as measured by their betas with stocks, their yields soar. Investors require higher interest rates to hold bonds as they become riskier. This in turn multiplies government debt service costs.

5. How Monetary Policy Affects Stock and Bond Returns

Pflueger (2025), Campbell et al. (2025), and others have presented evidence indicating that monetary policy shocks may contribute to positive bond-stock comovements. Christiano et al. (1996) employed a VAR to identify monetary policy shocks over the 1960:Q1-1992:Q period. They included gross domestic product, the consumer price index, an index of sensitive commodity prices, the federal funds rate, nonborrowed reserves, total reserves, and then the variable under investigation in their VARs. They measured monetary policy shocks by innovations in the federal funds rate and sometimes in nonborrowed reserves.

Thorbecke (1997) used Christiano et al.'s (1996) identification strategy and monthly data to investigate how monetary policy shocks impact asset returns. He employed the July 1967 to December 1990 sample period. The VAR included the growth rate of industrial production, the inflation rate, the log of a commodity price index, the federal funds rate, the log of nonborrowed reserves, the log of total reserves, and asset returns, a constant, and six lags is estimated. Thorbecke following Christiano et al. in using federal fund rate orthogonalized innovations to measure monetary policy. He also followed their order of orthogonalization, with the variables ordered as listed above. The last variable he included was asset returns. Since investors should rapidly capitalize how news of monetary policy shocks impact future discount factors and cash flows, he examined the response of asset returns in the initial period to monetary policy shocks.

This identification strategy is employed here. VARs are estimated over five-year periods beginning in 1962-1966, then 1963-1967, and so on up until 1987-1991. The response of both bond and stock returns are investigated. Data on industrial production, the federal funds rate, nonborrowed reserves, and total reserves are obtained from the Federal Reserve Bank of St. Louis FRED database. Data on the CPI inflation rate, the return on 20-year Treasury bonds, and the return on the Standard and Poors'500 index are obtained from Ibbotson Associates (1994). Data on the Dow Jones Spot Average for commodity prices are available from the online data appendix accompanying Uhlig (2005).[4]

Table 1 presents the results for bond and stock returns. It reports all of the periods when there was a statistically significant response at at least the 10% level of bond or stock returns to federal funds rate innovations. Positive federal funds rate shocks first started decreasing both bonds and stocks over the 1967-1971 period. They continued to decrease both assets returns up until the 1976 to 1980 period.

The response of bond and stock returns to funds rate changes was also quantitatively important. On average over the 1967 to 1979 period, a 100-basis point positive innovation in the funds rate lowered bond returns by 2.9% and stock returns by 3.7%. Bernanke and Kuttner

[4] These data are available at: https://www.estima.com/procs_perl/uhligjme2005.zip .

(2005), using daily data on unexpected funds rate changes over the 1989-2002 period, reported in their baseline model that a 100 basis point funds rate increase would decrease U.S. stock returns by between 2.6% and 4.7%. Thus the stock market responses reported here are similar to those Bernanke and Kuttner found.

While federal funds rate shocks did not impact bond returns over the 1977-1981 and 1978-1982 periods, it is important to take account of the fact that nonborrowed reserve rather than the funds rate was the intermediate target for monetary policy over the October 1979 to August 1982 period. A one-standard deviation unexpected increase in nonborrowed reserves raised stock returns by 1.8% and bond returns by 2.0 percent over this period.[5] In both cases the responses are significant at the 1% level. Since an increase in nonborrowed reserves represents expansionary policy, the results over the 1979-1982 period are consistent with the results over previous years indicating that federal funds rate decreases increased stock and bond returns.

Positive funds rate innovations reduce stock returns for all five-year periods between 1967 and 1984. They also reduce stock returns over the 1982-1986 period. Positive funds rate innovations reduce bond returns over the 1983-1987 and 1985-1989 periods. After 1982, however, there are no five-year periods when federal funds rate changes were simultaneously impacting bond and stock returns.

6. Evidence from a Multi-Factor Asset Pricing Model

As Ross (2001) showed, in a multi-factor asset pricing model such as the Arbitrage Pricing Theory, returns on an asset are given by:

$$R_i = \lambda_0 + \sum_{j=1}^{K} \beta_{ij}\lambda_j + \sum_{j=1}^{K} \beta_{ij} f_j + \varepsilon_i \quad (2)$$

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[5] During the period when nonborrowed reserves were the intermediate target, nonborrowed reserves were placed ahead of the funds rate in the recursive ordering.

where R_i is the return on asset i, λ_0 is the return on the risk-free asset, λ_j is the risk price associated with macroeconomic factor j, β_{ij} is the beta or factor loading of asset i to factor j, f_j is the unexpected change in factor j and ε_i is a mean-zero error term capturing the effect of idiosyncratic news on asset i.

McElroy and Burmeister (1988) stacked equation (2) across assets and estimated the system using an iterated nonlinear seemingly unrelated regression method. This approach permits imposition of the nonlinear cross-equation restrictions that the intercept terms depend on the risk prices (λ_j). McElroy and Burmeister showed that this technique yielded consistent estimates of the parameters.

The macroeconomic factors used build on the variables employed by Chen et al. (1986). They used the difference between returns on Treasury bonds and Treasury bills (the horizon premium), the difference between returns on corporate bonds and Treasury bonds (the default premium), unexpected inflation, the change in expected inflation, and the growth rate of industrial production. Since these variables are noisy, Chen et al. treated them as innovations.

The horizon premium contains information about inflation and monetary policy. Campbell and Ammer (1993) found that long-term Treasury rates are driven by inflationary news. Bernanke and Blinder (1992) reported that the difference between 10-year Treasury rates and a short-term rate reflects monetary policy changes. To try to distinguish between assets' exposure to inflation and monetary policy, the horizon premium is dropped and measures of inflation and monetary policy are included separately.

Following Boudoukh et al. (1994), unexpected inflation is calculated by regressing monthly inflation on lagged inflation and on current and lagged Treasury bill rates. The change in expected inflation is also calculated using this approach. Following Chen et al. (1986), the growth rate of industrial production and the default premium are also included as factors.

To calculate monetary policy, innovations in the federal funds rate are used. This follows a large literature including Bernanke and Blinder (1992) and Christiano et al. (1996) indicating that federal funds rate innovations provide a good measure of surprise monetary policy changes between the 1960s and 1990s. Unexpected changes in the federal funds rate are measured as the residuals from an autoregressive integrated moving average model of the federal funds rate.

The left-hand side variables include returns on 61 assets including industry portfolios, assets related to gold and silver, and the return on 20-year Treasury securities. A variety of asset returns are included to try to increase the cross-sectional variation of asset returns. The return on one-month Treasury bills is treated as the risk-free rate and subtracted from all of the asset returns.

Data on asset returns are obtained from the Datastream database and from Ibbotson Associates (1994). Data on the CPI inflation rate and industrial production come from the Federal Reserve Bank of St. Louis FRED database. Data on industry portfolio returns are available from Datastream beginning in 1973. The sample period thus extends from February 1973 to December 1991. This sample provides 227 observations.

Over this sample period both inflation and monetary policy loomed large on the horizon. If investors foresaw higher inflation, they would purchase assets that benefit from inflation and sell assets exposed to inflation. This would increase returns on assets that benefit from inflation (those with positive inflation betas) and decrease returns on assets that are harmed by inflation (those with negative inflation betas). There should thus be a positive relationship between assets' returns and their betas on months when news of higher inflation arrives and a negative relationship on months when news of lower inflation arrives. The same logic applies to asset returns and their monetary policy betas on months when monetary policy news arrives.

In a second stage regression, assets' returns each month are regressed on their inflation and monetary policy betas. This approach provide high frequency evidence on how inflation and monetary policy news are impacting financial markets. The evidence can also indicate if this news is contributing to positive bond-stock comovements.

Table 2 presents assets betas to inflation and monetary policy. For inflation 43 out of the 61 assets have statistically significant exposures at the 5% level and six more have statistically significant exposures at the 10% level. For monetary policy 32 assets have statistically significant exposures at the 5% level and 14 more have statistically significant exposures at the 10% level. The evidence that so many assets are exposed to inflation and monetary policy should increase the precision of the second stage regression estimates.

Table 3 presents the risk prices associated with the macroeconomic factors. The prices associated with the change in expected inflation, the default premium, and industrial production growth are statistically significant at the 5% level. The price associated with monetary policy innovations is statistically significant at the 10% level.

Figures 4 and 5 plot the findings from regressing the 61 asset returns each month on their inflation and monetary policy betas. To facilitate interpretation, the monthly cross sectional regression coefficients are multiplied by the betas for the three stock portfolios most exposed to inflation and the betas for the three stock portfolios most exposed to contractionary monetary policy. Since the inflation and monetary policy betas are negative for the most exposed assets, the products of the monthly regression coefficients and the betas for the three assets most exposed to inflation and monetary policy are positive when investors expect lower inflation or easier monetary policy. The products are negative when investors expect higher inflation or tighter monetary policy.

To also shed light on how bonds are impacted by inflation and monetary policy news, the monthly cross sectional regression coefficients are also multiplied by the inflation and monetary policy betas for Treasury bonds. Table 2 reports that higher inflation and contractionary monetary policy reduce Treasury bond returns.

Figures 4 and 5 plot all of the months when the monthly regression coefficients are significant at at least the 10% percent level. The results in Figure 4 indicate that news of monetary policy influenced stock and bond returns in 143 of the 227 months. The results in Figure 5 indicate that news of monetary policy influenced stock and bond returns in 145 of the 227 months. The findings also indicate that monetary policy and inflation news are driving stocks and bonds in the same direction. Thus this news contributed to positive bond-stock comovements over the 1973-1991 period.

7. Discussion

This paper investigates bond-stock comovements before and while they became positive from the 1960s to the 1990s. The results indicate that there were not a statistically significant positive relationship between bond and stock returns until the 1967Q4. At this point, large budget deficits associated with President Johnson's domestic and Vietnam War initiatives drove inflation expectations higher. The Fed, after waffling on inflation, embraced anti-inflationary monetary policy.

Pflueger (2025) found that supply shock volatility combined with hawkish monetary policy are necessary to generate positive bond-stock betas. There were no major supply shocks in the late 1960s. As Pflueger (2025) noted, an inflationary expectations shock due to expansionary fiscal policy can have the same impact as a negative supply shock. When combined with hawkish monetary policy that the Fed embraced at the end of 1967, it explains why bond-stock comovements became positive at this time.

Bond market betas remained positive until 1971Q3. They were then not statistically significant until 1974Q3. As Pierce (1979) noted, monetary policy was overly expansionary between 1971 and 1973. President Nixon instituted wage and price controls in August 1971 and the Fed believed this would contain inflation. The Fed thus stimulated the economy even as inflationary supply shocks arrived in spades. In 1974, as Pierce discussed, the Fed decided that inflation was public enemy number one. The combination of massive supply shock volatility and contractionary monetary policy can explain why bond-stock comovements again turned positive in 1974.

Bond market betas remained positive and soared between 1979 and 1981. When statistically significant, they average above 0.50 between 1979Q4 and 1981Q3. This was the largest over the entire 1964-1991 sample period. The combination of negative supply shocks arising from the Iranian Revolution and the Iran-Iraq War and the Fed's war on inflation drove positive bond-stock comovements. Bond-stock covariances remained positive until the end of the sample period in 1991.

Campbell et al. (2025), Pflueger (2025), and others highlighted how monetary policy can contribute to positive bond-stock comovements. Evidence from impulse-response functions reported in Table 1 indicate that monetary policy first began contributing to positive bond-stock covariances over the 1967 to 1971 period. This was when the combination of expansionary fiscal policy that drove inflation expectations and contractionary monetary policy arrived. Monetary policy then continued contributing to positive bond-stock comovements until 1982.

Figures 4 and 5 present higher frequency evidence of how monetary policy and inflation news influenced bond and stock returns over the 1973 to 1991 period. It showed that news of both monetary policy and inflation pushed bonds and stocks in the same direction in the majority of months between 1973 and 1991.

Positive bond-stock covariances thus arose beginning in the end of 1971 when profligate fiscal policy and anti-inflationary monetary policy arrived. As supply shocks multiplied, news of inflation and monetary policy then contributed to positive bond-stock movements until the end of 1991.

The sample period in this paper ends in 1991. It thus predates the widespread adoption of inflation targeting, forward guidance, and unconventional monetary policy tools. Even when the instruments of monetary policy differed, the combination of inflationary shocks and anti-inflationary monetary policy generated positive bond-stock comovements as Pflueger (2025) found they did more recently.

8. Conclusion

Bonds did not covary positively with stocks during the early 1960s. Investors views government bonds as low-risk assets. As inflationary shocks and contractionary monetary policy hit the economy in the late 1960s, bonds and stocks began to comove positively. Investors demanded a risk premium to hold bonds.

Bonds again covaried negatively with stocks beginning at the turn of the century. Bonds were viewed as less risky during this great moderation period. Recently, however, the U.S.

government has run profligate fiscal policy. The risk characteristic of bonds may be changing, as Campbell et al (2025) reported that bond-stock covariances may have turned positive over the 2023-2025 period. One lesson learned from the 1960s to the 1990s is that irresponsible fiscal policy and other drivers of inflation that elicits contractionary monetary policy can make bonds risky. As the U.S. has huge quantities of new and existing bonds that they need investors to willingly hold, they should reduce their budget deficits and avoid stoking inflation.

The results in Section 4 indicate that an increase in bonds' riskiness causes yields to soar. A ten-basis point increase in bonds' betas with stocks is associated with a 92-basis point increase in yields. To reduce debt service costs on its mushrooming debt, the U.S. government should be vigilant to reduce the riskiness of its bonds.

Table 1. Responses of U.S. Bond and Stock Returns to Federal Funds Rate Innovations**.**

(1)	(2)	(3)	(4)
Sample Period	Size of Federal Funds Rate Innovation (basis points)	Response of Bond Returns to Federal Funds Rate Innovation (percent) with standard errors in parentheses	Response of Stock Returns to Federal Funds Rate Innovation (percent) with standard errors in parentheses
1962-1966	13.3	NSS	NSS
1963-1967	12.7	NSS	NSS
1964-1968	13.4	-0.36* (0.21)	NSS
1965-1969	19.4	-0.65** (0.26)	NSS
1966-1970	29.4	-0.93*** (0.34)	NSS
1967-1971	29.9	-1.23*** (0.36)	-1.11** (0.50)
1968-1972	27.4	-1.36*** (0.34)	-1.06** (0.48)
1969-1973	37.5	-1.44*** (0.35)	-0.93* (0.47)
1970-1974	45.4	-1.27*** (0.35)	-1.30*** (0.48)
1971-1975	44.9	-1.04*** (0.31)	-1.44*** (0.52)
1972-1976	44.3	-0.93*** (0.26)	-1.39** (0.53)
1973-1977	44.0	-0.91*** (0.27)	-1.66*** (0.55)
1974-1978	37.0	-0.41* (0.23)	-2.04*** (0.54)
1975-1979	40.6	-1.19*** (0.25)	-1.84*** (0.45)
1976-1980	86.5	-0.82** (0.37)	-1.47*** (0.49)
1977-1981	93.1	NSS	-1.20** (0.49)
1978-1982	105.9	NSS	-1.68*** (0.57)
1979-1983	107.9	NSS	-1.08** (0.53)
1980-1984	107.3	NSS	-1.64*** (0.52)
1981-1985	77.9	NSS	NSS
1982-1986	50.0	NSS	-1.01** (0.48)
1983-1987	32.9	-0.99** (0.44)	NSS
1984-1988	33.0	NSS	NSS
1985-1989	27.4	-0.68* (0.37)	NSS
1986-1990	24.3	NSS	NSS
1987-1991	17.2	NSS	NSS

Note: The coefficients in columns (3) and (4) represent the responses of bond and stock returns in the initial period to a one standard deviation innovation in the federal funds rate. The responses are obtained from an orthogonalized vector moving average process. The vector contains industrial production growth, the consumer price index inflation rate, the log of an index of sensitive commodity prices, the federal fund rate, the log of nonborrowed reserves, the log of total reserves, and either the return on 20-year Treasury

bonds or the S&P 500 Index. The order of the variables in the vector is the same as the order in which they are listed above. The original vector autoregression is estimated with a constant and two lags. The sample period uses monthly data over the five-year periods listed in column (1). Column (2) lists the size of a one-standard deviation federal funds rate innovation over each five-year period. Standard errors are listed in parentheses. NSS means not statistically significant at the 10% level.
***(**)[*] denotes significance at the 1% (5%)[10%] level.

Table 2. Iterated Nonlinear Seemingly Unrelated Regression Estimates of Assets' Sensitivities to Unexpected Inflation

(1)	(2)	(3)	(4)	(5)
Asset	Inflation Beta	Standard Error	Monetary Policy Beta	Standard Error
Aerospace/Defense	-3.127*	1.703	-0.033**	0.014
Aerospace	-4.301**	1.752	-0.035**	0.014
Airlines	-6.065***	2.256	-0.023	0.019
Aluminum	-4.353**	2.042	-0.030*	0.017
Apparel Retail	-7.601**	3.249	-0.045*	0.027
Asset Managers	-4.637	3.184	-0.029	0.026
Auto & Parts	-2.382	1.505	-0.038***	0.012
Auto Parts	-4.693***	1.508	-0.032***	0.012
Automobiles	-1.264	1.729	-0.039***	0.014
Basic Materials	-4.513***	1.551	-0.029***	0.013
Basic Resources	-4.227***	1.740	-0.033***	0.014
Beverages	-5.975***	1.491	-0.027***	0.012
Broadcast & Entertainment	-4.586	3.093	-0.038	0.025
Broadline Retailers	-6.595***	1.834	-0.010	0.015
Brewers	-2.793	1.825	-0.008	0.015
Building Materials/Fixtures	-5.397***	1.877	-0.039**	0.015
Business Supply Services	-4.062***	1.609	-0.027**	0.013
Chemicals	-4.507***	1.541	-0.025**	0.013
Clothing & Accessories	-5.820**	2.414	-0.019	0.020
Commercial Vehicles/Trucks	-3.380*	1.781	-0.038***	0.015
Commodity Chemicals	-4.268***	1.569	-0.026**	0.013
Computer Hardware	-2.132	1.448	-0.023**	0.012
Computer Services	-4.082**	1.741	-0.035**	0.014
Construction & Materials	-3.573**	1.859	-0.041***	0.015
Consumer Discretionary	-4.116***	1.451	-0.031***	0.012
Consumer Finance	-6.027***	1.988	-0.0189	0.016
Consumer Goods	-2.873*	1.4853	-0.039***	0.012
Consumer Staples	-4.898***	1.215	-0.024**	0.010
Consumer Services	-4.784***	1.512	-0.023*	0.012
Container & Packaging	-5.486***	1.661	-0.033***	0.014

Conventional Electricity	-4.093***	1.091	-0.022**	0.009
Defense	-0.731	1.827	-0.032**	0.015
Distillers & Vintners	-4.777***	2.137	-0.030*	0.018
Diversified Industrials	-3.814***	1.468	-0.024**	0.012
Drug Retailers	-8.716***	2.663	-0.046**	0.022
Durable Household Products	-5.426***	1.752	-0.034***	0.014
Electronic Components & Equipment	-4.606***	1.503	-0.022*	0.012
Electricity	-4.140***	1.076	-0.020**	0.009
Electronic Equipment	-3.630*	2.103	-0.046***	0.017
Electronic & Electrical Equipment	-4.510***	1.508	-0.025**	0.012
Food & Drug Retail	-4.788***	1.438	-0.019	0.012
Food Producers	-4.640***	1.231	-0.021**	0.010
Food Retailers & Wholesalers	-4.360***	1.648	-0.023*	0.014
Financial Administration	-5.984***	2.162	-0.026	0.018
Financial Services	-5.696***	1.844	-0.028*	0.015
Financials	-5.090***	1.419	-0.024**	0.012
Gold Bullion	4.354**	1.834	-0.022	0.015
Gold Mining (Americas)	-1.049	2.437	-0.032	0.020
Gold Mining (Australasia)	-3.022	7.755	-0.164***	0.064
Gold Mining (World)	1.125	2.284	-0.024	0.019
Health Care	-4.689***	1.242	-0.023**	0.010
Oil & Gas	-1.082	1.426	-0.023**	0.012
Oil & Gas Exploration and Production	-0.567	1.833	-0.019	0.015
Other Financial Services	-5.681***	1.893	-0.028*	0.016
Pharmaceuticals & Biochemical Products	-4.486***	1.415	-0.023**	0.012
Real Estate Investment Trusts	-4.923**	2.254	-0.027	0.019
Silver (S&P GSCI)	5.238**	2.646	-0.043**	0.022
Technology	-2.641*	1.485	-0.029**	0.0122

Telecom	-3.051***	1.069	-0.016*	0.009
Treasury Securities (20-year)	-3.060***	0.775	-0.012*	0.006
Utilities	-3.784***	1.027	-0.019**	0.009

Note: The table presents iterated nonlinear seemingly unrelated regression estimates of assets' betas to unexpected inflation (column (2)) and monetary policy (column (4)) from a multi-factor model that includes returns on the 61 assets listed in column (1) (minus the return on one-month Treasury bills) on the left-hand side and the difference between returns on 20-year corporate bonds and 20-year Treasury bonds, unexpected changes in the federal funds rate obtained from an autoregressive integrated moving average model to measure monetary policy innovations, the monthly growth rate in industrial production, unexpected inflation, and the change in expected inflation on the right-hand side. Unexpected inflation is calculated as the residuals from a regression of the consumer price index inflation rate on lagged inflation and current and lagged Treasury bill returns. The change in expected inflation is also calculated from this model. The sample extends from February 1973 to December 1991.
***(**)[*] denotes significance at the 1% (5%)[10%] level.

Table 3. Risk Prices Associated with Macroeconomic Factors

(1)	(2)
Macroeconomic Factor	Risk Price
Unexpected Inflation	-0.00047 (0.00034)
Change in Expected Inflation	0.00059** (0.00028)
Federal Funds Rate Innovations	0.080* (0.047)
Default Premium	-0.0085*** (0.0030)
Industrial Production Growth	-0.0091*** (0.0016)

Note: The table presents iterated nonlinear seemingly unrelated regression estimates of the risk prices associated with the macroeconomic factors listed in column (1). The risk prices are obtained from a multi-factor model that includes returns on the 61 assets (minus the return on one-month Treasury bills) on the left-hand side and unexpected inflation, the change in expected inflation, unexpected changes in the federal funds rate obtained from an autoregressive integrated moving average model to measure monetary policy innovations, the default premium (the difference between returns on 20-year corporate bonds and returns on 20-year Treasury securities), and industrial production growth on the right-hand side. Unexpected inflation is calculated as the residuals from a regression of the consumer price index inflation rate on lagged inflation and current and lagged Treasury bill returns. The change in expected inflation is also calculated from this model. The sample extends from February 1973 to December 1991.

***(**)[*] denotes significance at the 1% (5%)[10%] level.

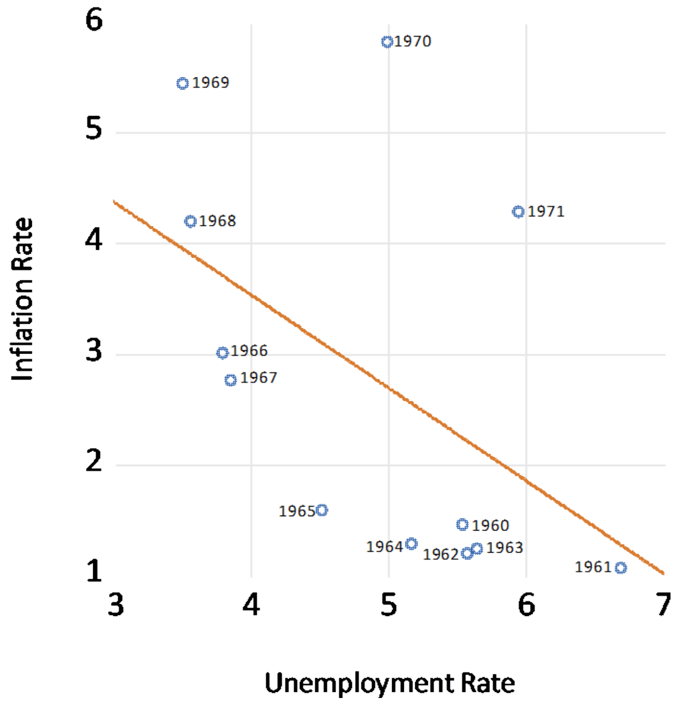

Figure 1. The Relationship between Unemployment and Inflation, 1961-1971.
Source: Federal Reserve Bank of St. Louis FRED Database.

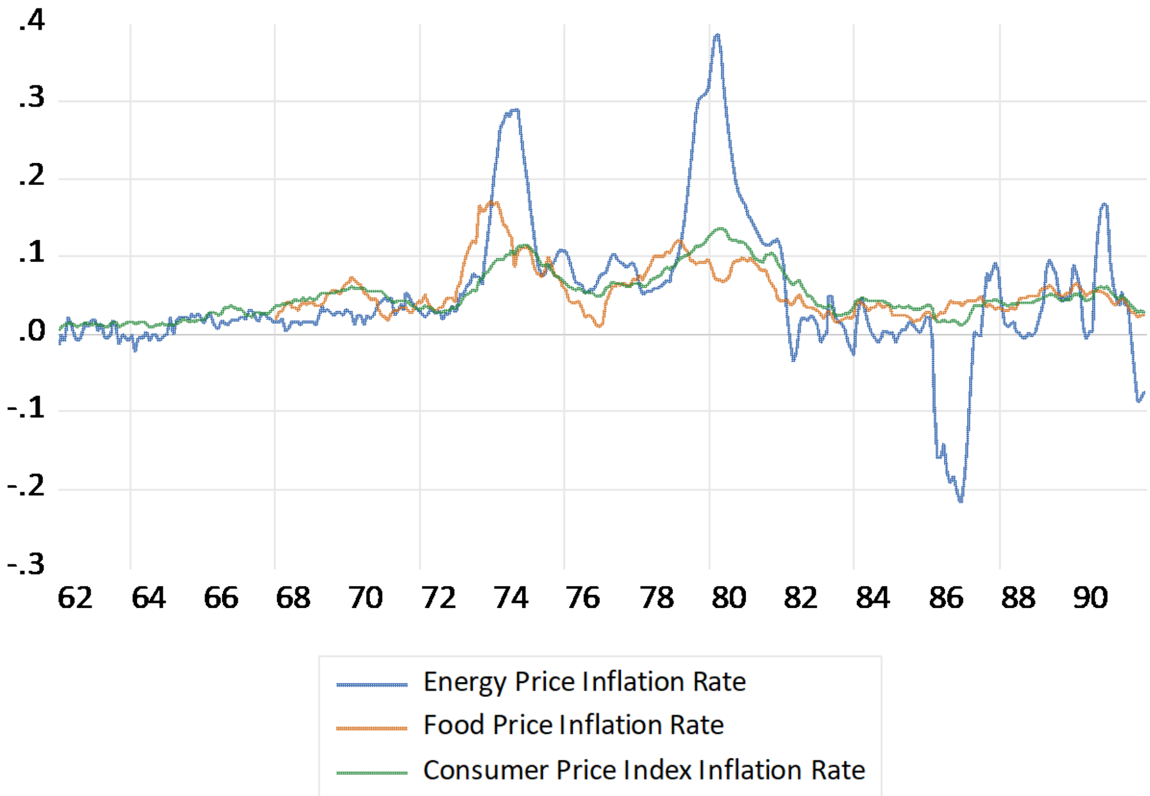

Figure 2. Energy, Food, and Consumer Price Index Inflation, 1962-1971.
Source: Federal Reserve Bank of St. Louis FRED Database.

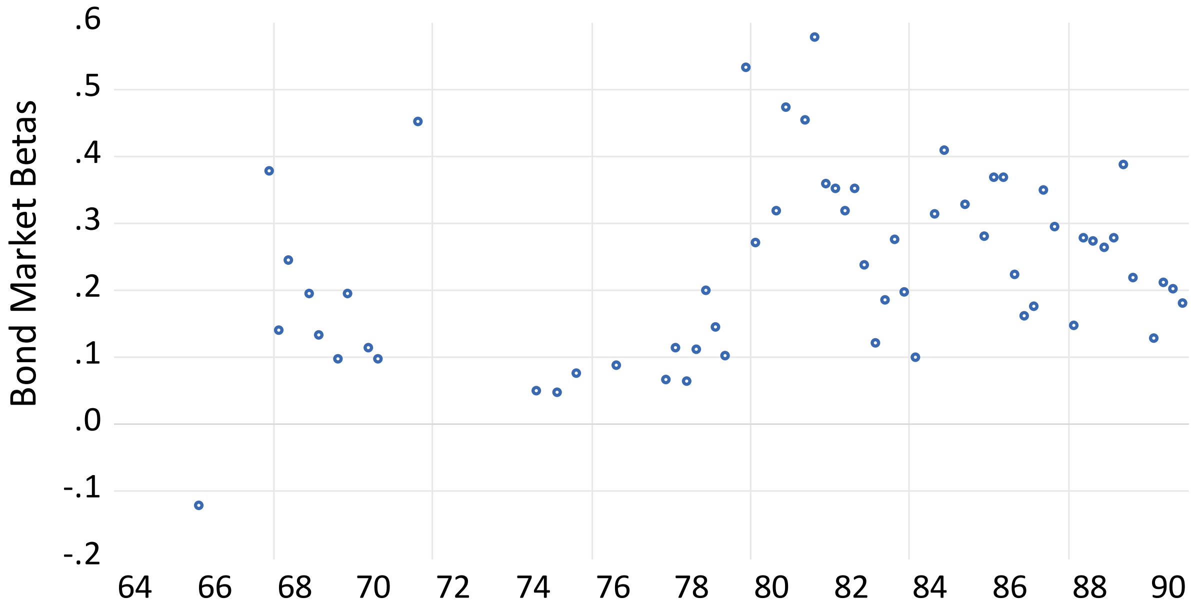

Figure 3. Beta Coefficients from Regressions of Bond Returns on Stock Returns.
Notes: The observations represent regression coefficients from regressing daily returns on 7-year U.S. Treasury bonds on daily returns on the Standard and Poors' 500 index. The regressions are performed quarterly between 1964Q1 and 1991Q4. The figure presents all quarters when the betas are statistically significant at the 10% level using heteroskedasticity and autocorrelation consistent standard errors.

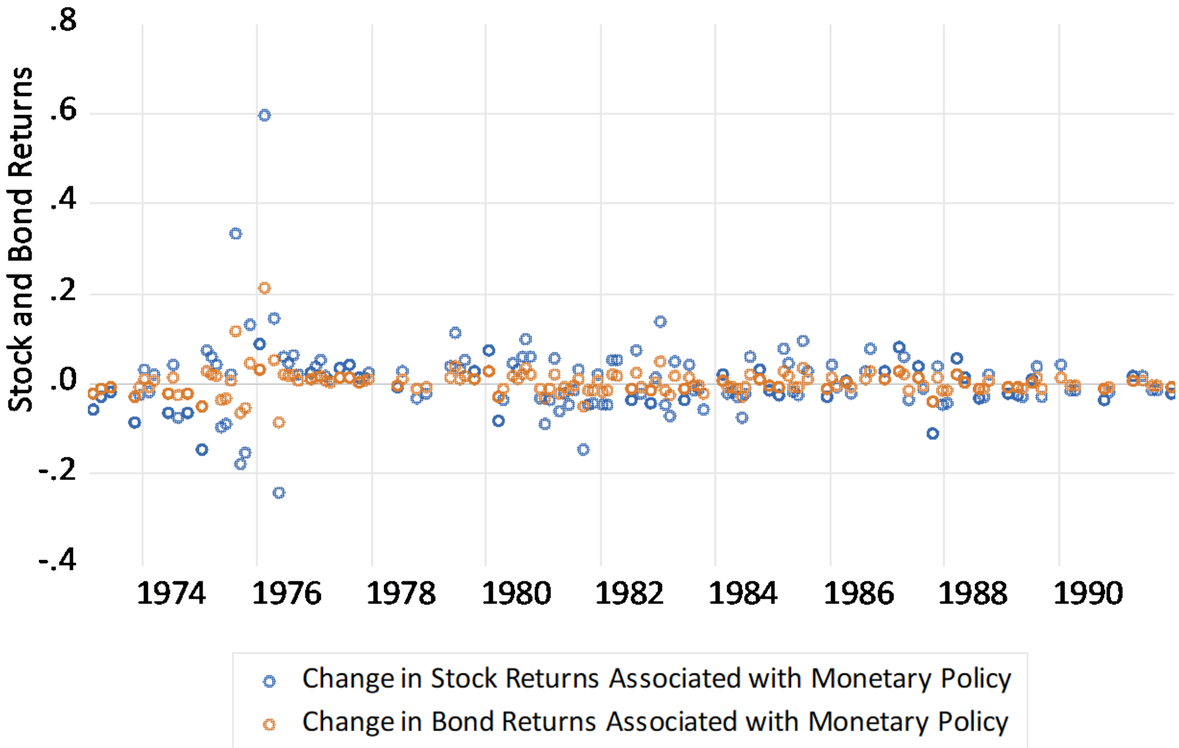

Figure 4. The Monthly Changes in Stock and Treasury Bond Returns due to Monetary Policy News.

Note: The figure presents and the change in stock and bond returns associated with monetary policy. To calculate the change in returns associated with monetary policy, assets' monetary policy betas are estimated. The betas are obtained from an iterated nonlinear seemingly unrelated regression (INLSUR) of returns on 61 assets (minus the return on one-month Treasury bills) on innovations in the federal funds rate obtained from an autoregressive integrated moving average model, the difference in returns between 20-year corporate bonds and twenty-year Treasury bonds, the monthly growth rate in industrial production, unexpected inflation, and the change in expected inflation. An unexpected increase in the federal funds rate represents a contractionary monetary policy surprise. If investors believe that monetary policy will tighten, they will purchase assets that benefit from contractionary monetary policy (those with smaller federal funds rate betas) and sell assets that are harmed by contractionary monetary policy (those with larger federal funds rate betas). There should thus be a negative relationship between asset returns and assets' federal funds rate betas on months when investors foresee monetary policy tightening. For each month between February 1973 and December 1991, returns on the 61 assets are thus regressed on the assets' monetary policy betas. To facilitate interpretation, the resulting regression coefficient is multiplied by the beta coefficient for the 3 stock portfolios from the INLSUR regression that are harmed the most by contractionary monetary policy. The change in stock returns associated with monetary policy in the figure thus represents the average change for the three stock portfolios that are most exposed to contractionary monetary policy. Since the average federal funds rate beta coefficient for these three assets is negative, positive values in Figure 6 indicate that investors expect easier policy and negative values that they foresee tighter policy. The figure only reports months when there is a statistically significant relationship (at at least the 10 percent level) between returns on the 61 assets and the assets' monetary policy betas.

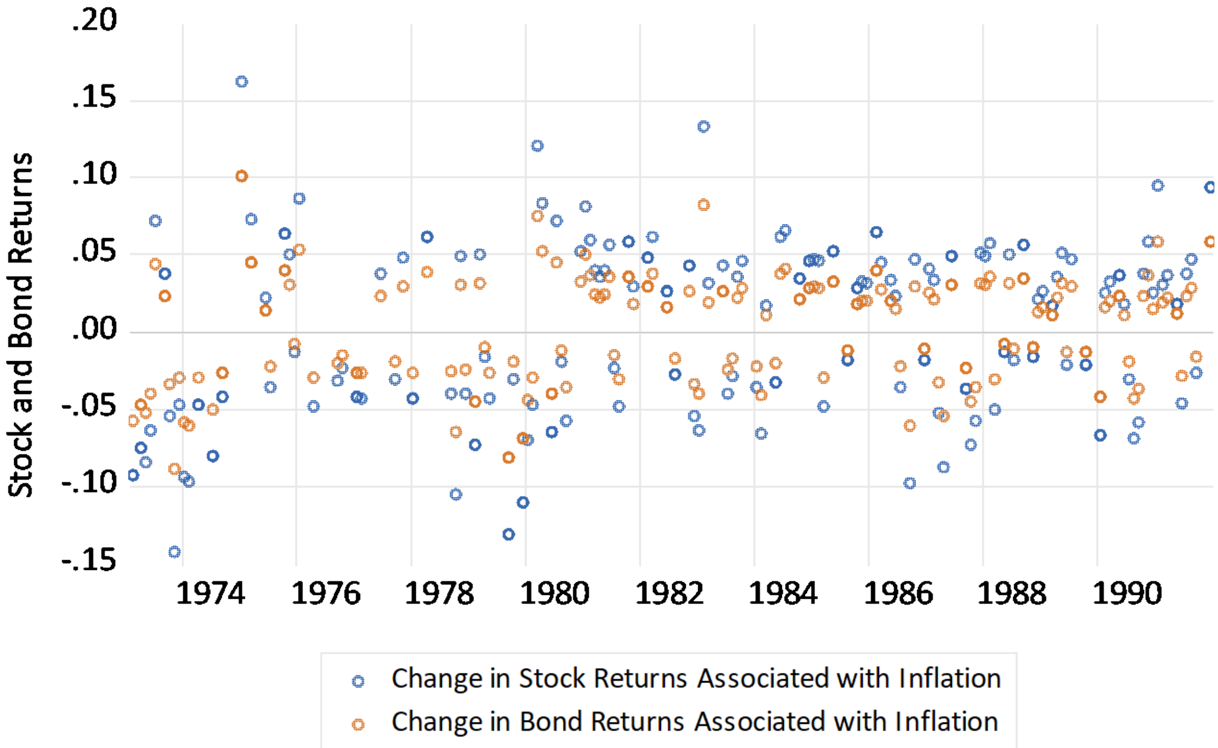

Figure 5. The Monthly Changes in Stock and Treasury Bond Returns due to Inflation News.

Note: The figure presents and the change in stock and bond returns associated with inflation. To calculate the change in returns associated with inflation, assets' betas to unexpected inflation are estimated. Unexpected inflation is calculated as the residuals from a regression of the consumer price index inflation rate on lagged inflation and current and lagged Treasury bill returns. The betas are obtained from an iterated nonlinear seemingly unrelated regression (INLSUR) of returns on 61 assets (minus the return on one-month Treasury bills) on innovations in the federal funds rate obtained from an autoregressive integrated moving average model, the difference in returns between 20-year corporate bonds and twenty-year Treasury bonds, the monthly growth rate in industrial production, unexpected inflation, and the change in expected inflation. If investors believe that inflation will increase, they will purchase assets that benefit from higher inflation (those with higher inflation betas) and sell assets that are harmed by higher inflation (those with smaller inflation betas). There should thus be a positive relationship between asset returns and assets' monetary policy betas on months when investors foresee higher inflation. For each month between February 1973 and December 1991, returns on the 61 assets are thus regressed on the assets' inflation betas. To facilitate interpretation, the resulting regression coefficient is multiplied by the beta coefficient for the 3 stock portfolios from the INLSUR regression that are harmed the most by inflation. The change in stock returns associated with inflation in the figure thus represents the average change for the three stock portfolios that are most exposed to inflation. Since the average inflation beta coefficient for these three assets is negative, positive values in Figure 6 indicate that investors expect lower inflation and negative values that they foresee higher inflation. The figure only reports months when there is a statistically significant relationship (at at least the 10 percent level) between returns on the 61 assets and the assets' inflation betas.

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