



Employ America Research Report

What Are You Expecting? How The Fed Slows Down Inflation Through The Labor Market

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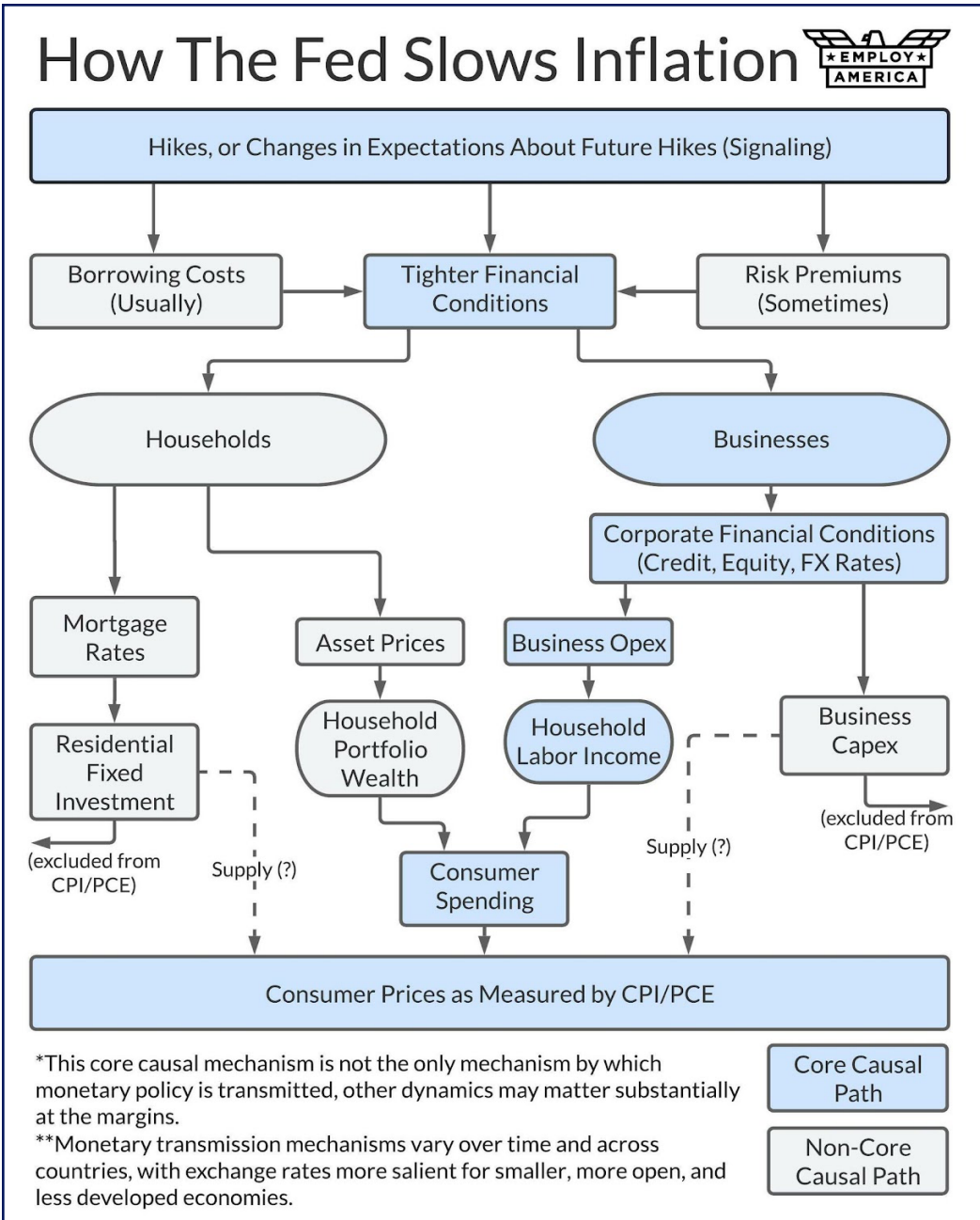


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How The Fed Slows Down Inflation

Now that inflation readings have remained high for multiple months, commentators and policymakers have begun calling more loudly for the Fed to address rising prices. Inflation can be caused by a wide variety of factors, but regardless of their cause, the Fed's response to inflation flows through its effects on financial conditions. In today's policy conversation, it's worth making sure that everyone is on the same page about the **primary pathway by which Fed policy slows inflation**. That rate hikes are linked to lower inflation has been conventional wisdom for so long that straightforward accounts of how exactly one turns into the other are hard to find.

Demands for the Fed to respond to inflation are understandably linked to the Fed's unique policy discretion. Yet the fact that the Fed has discretion to act does not answer basic questions about how it is that Fed policy works. Until we have those answers in hand, we cannot coherently reconcile the tradeoffs between the Fed's mandated employment and inflation goals. As much as some commentators might wish that the Fed could influence the economy independently of the labor market, the facts suggest that most of the Fed's ability to affect inflation outcomes derives from its ability to slow the growth of employment or wages.

Econ 101 stories that explain inflation as a direct outcome of an increase in the money supply ignore what the Fed actively controls—the level of short-term interest rates—to focus on variables the Fed does not control. Refined academic stories that explain inflation through the movement of expectations remain empirically under-identified or unfalsifiably post-hoc. We cannot see or measure the “expectations” that rescue the models, yet they are somehow the decisive factor regardless. Even if we assume that households and businesses are correct in their forward-looking inflation expectations, these theories rarely explain why the future inflation that households and businesses are front-running arises in the first place. **When economic agents base their inflation expectations on what the Fed does (or doesn't) do, what exactly do they expect the Fed to cause ultimately?** Analyses both inside and outside the Fed have acknowledged that the central bank lacks a working model of inflation¹ and that inflation readings can be driven by factors largely outside the Fed's influence over the business cycle.²

Investigating the full set of causal mechanisms behind today's high inflation readings is a worthwhile task, but one beyond the scope of this piece. Our goal is to explain the central economic mechanism for turning interest rate hikes into lower consumer price inflation under the United States' current economic structure. Naturally, there are dozens if not hundreds of other causal pathways that work over all different kinds of timelines, and work differently in different countries. **What we are interested in explaining today is the most important causal mechanism by which changes in interest rates act on short and medium run inflation.** Exploring this specific question requires that we relegate a wide array of interesting dynamics to the background in order to properly elucidate the most salient causal mechanism underlying monetary policy discussions today.

Where Do People Think Inflation Comes From?

Milton Friedman's dictum that "inflation is always and everywhere a monetary phenomenon" has long confused casual observers of the economy. The idea of "too much money chasing too few goods" seems clear and intuitive³ compared to the ambiguous and vague paths by which firm and sector-specific dynamics become increases in measured inflation.

The argument that all inflation could have been prevented if only the Fed was sufficiently committed to higher interest rates - the throughline between these pithy sayings - is true for the United States, but in an uninformative way. There are many conditions that have to line up⁴ for inflation to occur, but it would be ridiculous to pick each and every condition as the true "cause" of inflation. The same style of argument works if we want to claim—ridiculously—that excess greenhouse gas emissions are "always and everywhere a monetary phenomenon," since it is within the Fed's ability to cause a recession that incidentally reduces emissions. Just because a given dynamic is sensitive to monetary conditions does not make "always and everywhere a monetary phenomenon" the best description.

Rather than controlling the money supply, the Fed - like all modern central banks - influences the tightness or looseness of financial conditions by setting the level of short-term interest rates.⁵ Even programs like Quantitative Easing, where the Fed purchases US Treasuries, are virtually meaningless for macroeconomic outcomes, outside of the signals they send about the future path of interest rate policy. The "money supply" that the Fed and other central banks actually control - settlement balances⁶ - does not encompass the kind of money households and firms use in the economy every day. Instead, they are a narrow quantity used to settle transactions between different banks, and are only significant to the extent that they are a tool for calibrating control over short-term interest rates.

"Money supply" stories do a poor job explaining the path of inflation, but the "inflation expectations" stories used by most academics are little better. The identifiable evidence is sorely lacking. As Preston Mui⁷ and the Fed's Jeremy Rudd⁸ have written in much greater detail, measurements of "inflation expectations" quickly become empirically meaningless when subject to even the softest of identification thresholds.⁹ As empirical phenomena, "inflation expectations" can really only be rescued when they are treated as under-identified empirical phenomena relating to autocorrelation,¹⁰ time fixed effects,¹¹ or other residual dynamics that the Phillips Curve predictably fails to explain.¹²

There are many ways to explain the autocorrelation and idiosyncrasy observable in inflation data, but without proper identification, “inflation expectations” is a tentative label, not a serious causal description. In fact, the rise to dominance of “inflation expectations” as a causal story for realized inflation may owe more to the failures of the Phillips Curve. The affirmative evidence¹⁵ that households and firms base their expectations of price changes—and thus price-setting behavior—on the relative credibility of central banks is shockingly thin.

But even if we assume some version of an “inflation expectations” story holds, those stories still rely on the Fed having a tractable mechanism for lowering households’ consumption demand. There has to be some place where the rubber hits the road between monetary policy and the real economy, which the “expectations” mechanism—viewed in its best light—is amplifying or front-running. Otherwise, inflation expectations are nothing more than a Jedi mind trick.

If these stories can’t explain how exactly rate hikes inhibit the dynamics that economic agents expect and anticipate, the usefulness of expectations as a concept is severely diminished. Ultimately, the Fed’s effect on households’ demand for consumption must rely on a more specific set of causal mechanisms.

What Disinflationary Mechanisms Are Economic Agents Expecting?

No matter how they choose to explain inflation, policymakers and commentators often assume that the Fed gets its ability to slow inflation from its power to slow the creation of household credit or reduce household wealth through asset price declines. Each of these causal mechanisms provides an apparent explanation for how hawkish Fed policy could curtail consumer demand, backed by a reasonably deep literature of careful¹⁴ evidence.¹⁵ Unlike inflation expectations, these mechanisms and their marginal effects on consumption and inflation outcomes are more observable. However, neither credit flows nor asset prices appear proximate to the most cyclically-sensitive components of inflation. Neither credit flows nor asset prices do a great job of explaining the set of inflationary dynamics that are sensitive to business cycle processes—processes that most would agree the Fed can influence through financial conditions.

If we wanted to find out which inflation components Fed policy has the greatest impact on, we should emphasize the subset of inflation data that reliably tracks cyclical financial conditions. Thankfully, Stock & Watson’s 2020 paper “Slack and Cyclically Sensitive Inflation”¹⁶ goes a long way to uncovering which components are really doing the work for the Fed. A substantial proportion of the total components that make up aggregate price indices do not move reliably with the business cycle. Their paper also shows that the most reliably cyclical

inflation components are not the ones that fit the conventional wisdom about how the Fed might influence inflation. While the degree of cyclicity of each component can vary across time, the discrepancy between cyclical and acyclical components is substantial. If monetary policy is going to remain the de facto first responder to inflation, we should understand which kinds of inflation can be addressed reliably by monetary policy.

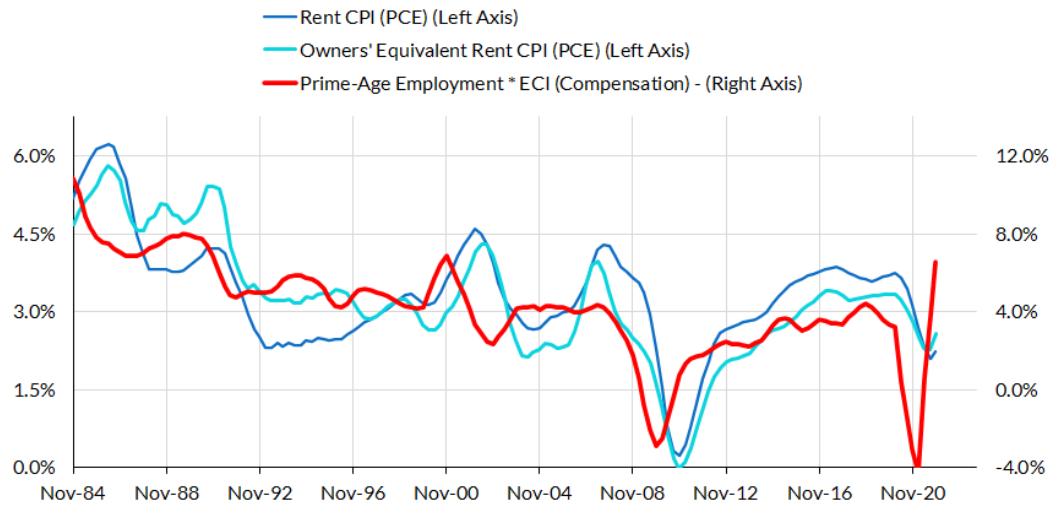
After adjusting both for weight in headline PCE and cyclical correlation, the two main categories that stand out are rent (including owners' equivalent rent) and food (including 'food at home' and food services).

Tables 3 & 4 From Stock, Watson (2020)
Correlations Between Inflation Components & The Composite Slack Measure
1984-2019Q1

<u>Component</u>	<u>Composite Correlation Score</u>	<u>Share (2000s)</u>	<u>Correlation Between Cyclical Slack Measure and...</u>	
			4Q Change in 4Q Inflation	"Bandpass Inflation"
Rent (& Owners' Equivalent)	<u>28%</u>	16%	62%	40%
Groceries (Food & Beverages for Off-Premises Consumption)	<u>20%</u>	8%	58%	42%
Food Services & Accommodations	<u>18%</u>	6%	67%	45%
Recreation Services	<u>11%</u>	4%	39%	27%
Other Services	<u>11%</u>	9%	13%	16%
Recreational Goods & Vehicles	<u>9%</u>	3%	35%	25%
Nonprofit Expenditures	<u>8%</u>	3%	31%	15%
Furnishings & Durable Household Equipment	<u>7%</u>	3%	31%	8%
Gas & Electric Utilities	<u>6%</u>	2%	24%	13%
Other Durable Goods	<u>5%</u>	2%	17%	8%
Transportation Services	<u>2%</u>	3%	3%	1%
Clothing & Footwear	<u>-4%</u>	3%	-2%	-9%
Gasoline & Other Energy Goods	<u>-5%</u>	3%	-6%	-10%
Other Nondurable Goods	<u>-7%</u>	8%	-11%	-3%
Health Care	<u>-10%</u>	16%	-4%	-11%
Financial Services & Insurance	<u>-11%</u>	8%	-12%	-17%
Motor Vehicles & Parts	<u>-11%</u>	4%	-27%	-33%

As is clear in the preceding and following figures, rent CPI has a strong and durable, if lagged, relationship to nominal labor income growth and the business cycle generally. However, “rent” is a relatively unique consumer price category. Residential fixed investment - the actual building of houses - is excluded from consumer price inflation. What consumers consume—and what is captured in consumer price inflation—is “housing services,” which are provided by either a landlord or by the homeowner themselves. Since no one keeps track of the rent homeowners implicitly pay themselves, the BLS derives both actual rent data and owner-imputed rent data from the rental housing universe. If mortgage credit flow dynamics were the dominant channel, rent inflation should be acyclical or countercyclical, because rental supply is a function of mortgage credit flow whereas rental demand is not. This should make clear that the demand-side influence on cyclical inflation—and thus rent inflation—likely stems from a funding source other than credit creation. Given how rent payments are typically funded, labor income growth is likely the more important ingredient for cyclical demand-sensitive inflation.

"Speed" of Employment & Wage Gains Affect "Persistent" Cyclical Inflation
 (Not The "Level" of Employment Itself)
 Year-over-Year % Change
 (4-Quarter Moving Average)



Even sectors like motor vehicles, which 1) should be interest rate sensitive primarily from the demand side and 2) are quintessentially cyclical in terms of nominal and unit sales, do not exhibit strongly cyclical pricing patterns. Of course, if pushed to an extreme, rate hikes can cause household balance sheets to collapse through elevated delinquencies and defaults,¹⁷ all while unlocking some residual vehicle supply through repossessions.¹⁸ But in the absence of such extreme and welfare-reducing measures, the Fed’s influence here is substantially overstated.

That rent and, to a lesser extent, food are important cyclical drivers of measured inflation has three subtle but important implications in the context of other facts about these segments of consumption:

1. Income Distribution and Wealth Effects According to the Consumer Expenditure Survey, rent and food are a larger share of consumption for those within the lowest income deciles.¹⁹ Those at the lower end of the income distribution do not typically have access to large liquid sources of wealth or credit, and certainly not the kind of wealth or credit associated with the deep capital markets that the Fed most directly affects. Fed policy aimed at influencing inflation by shifting the values of asset prices should mostly pass right by them.

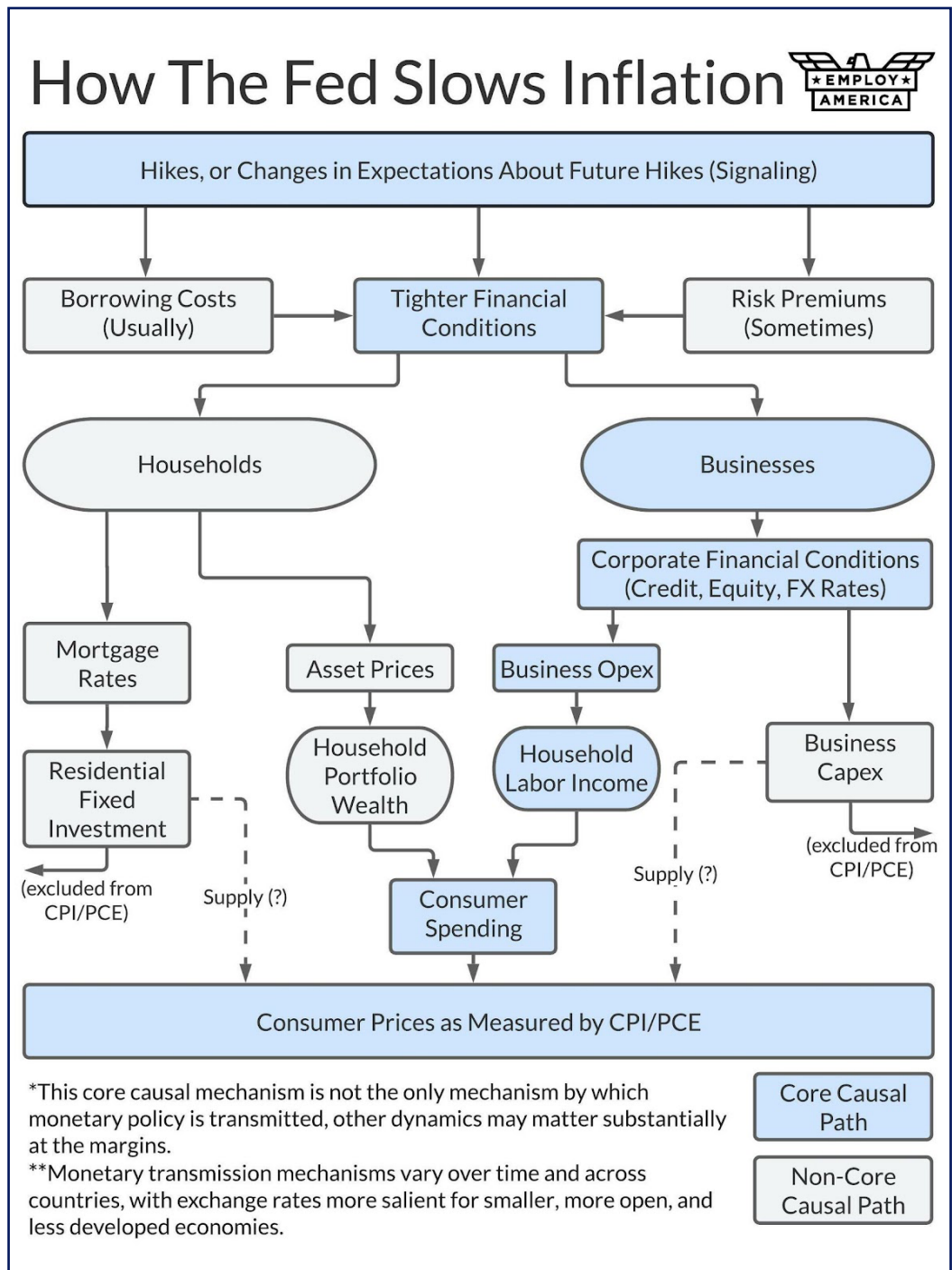
2. Credit Affects The Supply of Rentals...So Why Is Rent Demand-Sensitive? Mortgage rates take on a lot of responsibility in almost every account of how the Fed influences the economy. In this specific context, however, looser mortgage credit conditions should actually *reduce* rental inflation at the margin. The supply of rental housing typically relies on multifamily mortgages, while households tend not to pay rent using (Fed-sensitive) credit. In the rental context, the mortgage rate channel should affect fixed investment and the consumption patterns of homeowners, not renters. That rent is still so sensitive to the business cycle on the demand-side suggests that Fed influence over household credit flows is likely *not a good explanation of how the Fed influences inflation*.

3. The Elephant In The Room: Labor Income Households typically use labor income to pay for both rent and food. With the Stock-Watson analysis as evidence that the Fed can affect the demand-side of food and rent prices, the most straightforward way to tie the story together is through the labor market. Insofar as the Fed reduces pressure on these cyclically-sensitive inflation components, it does so by limiting households' access to labor income. This might mean lower rates of job growth, or lower rates of wage growth, but either way, the outcome is the same: lower aggregate inflation through lower aggregate paychecks.

These facts should be enough to force a harder reckoning about just how much influence the Fed really exercises over inflation, and the costs it imposes on labor markets - and most especially the lowest earning workers - by exercising that influence.

How Does The Fed *Actually* Slow Down Inflation?

That rent and food are the most prominent cyclical inflation components suggests that the Fed’s influence over shorter run inflation dynamics is predicated on its ability to affect the labor market. To understand the main mechanism by which the Fed influences inflation, we must necessarily understand how the Fed influences the labor market.



The above diagram highlights, within the broader set of potential mechanisms, the core causal mechanism by which Fed policy likely influences inflation. The path we are interested in today has been highlighted in blue, while some oft-cited but less-important paths are highlighted in gray.

As the diagram shows, the basic causal mechanism leads from rate hikes, to tighter financial conditions, to lower business spending on labor, which lowers aggregate household income. This depresses consumer spending, and thereby lowers price pressures from the demand-side. **Naturally, each step has its own complications and offsetting forces, too numerous to sketch here.**

What this diagram intends to show is **the strongest, likeliest, and most direct causal path from interest rate increases to disinflation in CPI or PCE-based measures.** For the Fed to impact inflation, it likely has to impact household demand through a mechanism that slows down the labor market. As a related implication, if firms are trimming their operating budgets and payroll in response to the effects of tighter financial conditions, they are also more likely to trim their capital budgets for the same reason.

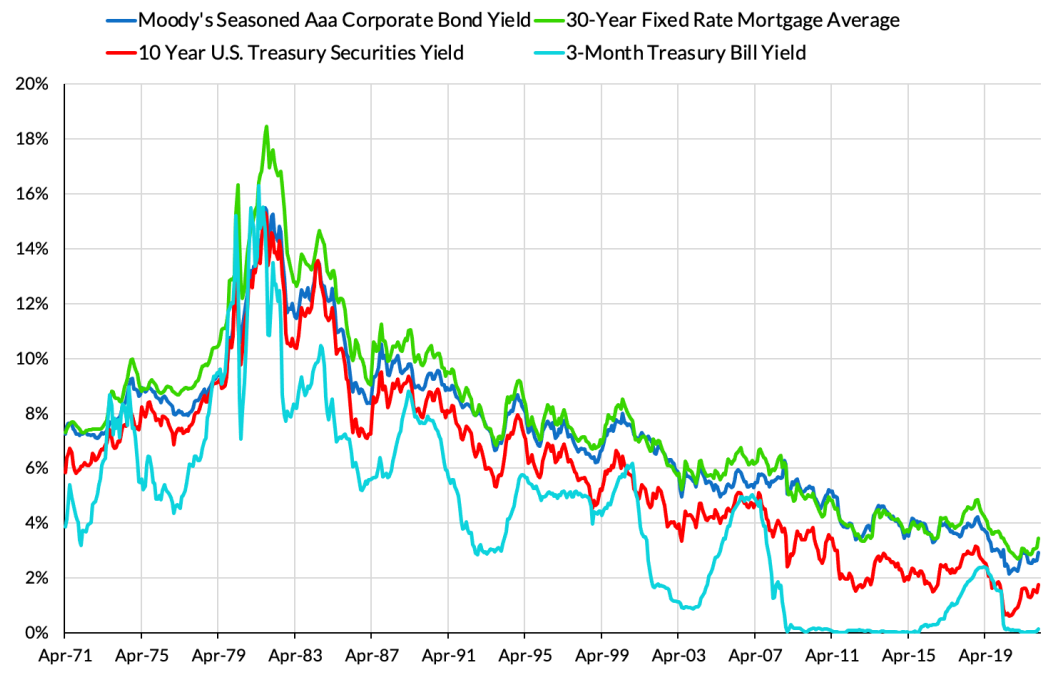
Interestingly, the Fed does not even need to hike to tighten financial conditions. All it needs to do is signal to market participants that policy will be tighter than they were expecting, and financial conditions will adjust. These kinds of expectations and effects can be complicated to understand; luckily, recent history provides us with some examples. In early 2016, the Fed had to lower its projections for rate hikes to help stabilize panicking credit markets amidst slowing growth. Late 2018 saw similar dynamics when the threat of continued Fed hikes amidst a nascent growth slowdown raised fears that the economy would be pushed into recession. In both cases, a more visible economic and labor market slowdown subsequently materialized and the stabilization of risk sentiment required a pivot in the Fed's policy trajectory.

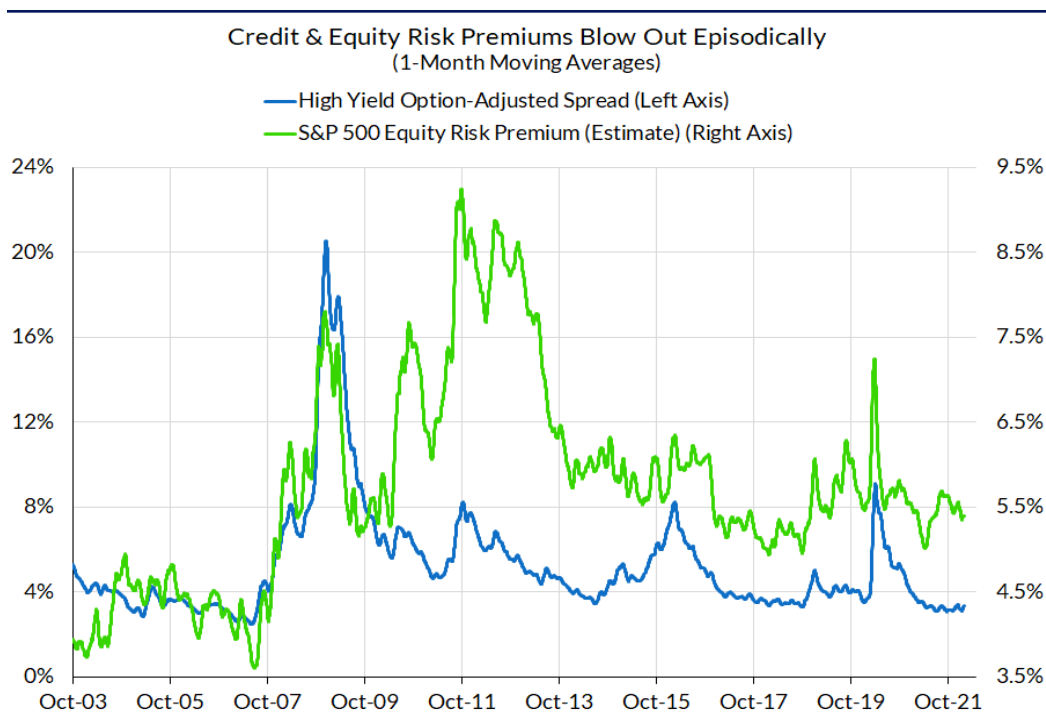
The first step in our flow chart shows that hikes lead to both higher borrowing costs and higher risk premiums that tighten conditions in financial markets across the board. Basic asset pricing theory tells us that the current price of a given asset is usually expressed as the present discounted value of the cash flows it will generate. A higher risk-free rate—the Fed's policy rate effectively—should imply, all else equal, higher discount rates for all assets, and thus lower present values.

Changes in policy rates can also shift the market's overall risk appetite in non-linear and time-varying ways. By tightening or loosening financial conditions, the Fed communicates the range of economic growth outcomes that it is willing to tolerate; risk premiums within and across different financial markets correspondingly adjust. Credit spreads and equity risk premiums do not always blow out with each rate hike, but sometimes hikes can stoke fears of a growth slowdown or a recessionary policy mistake. If that happens, those fears get priced into risk premiums, shifting asset prices and making investment and financing more costly for firms.

We can see this in the data fairly clearly. Both corporate borrowing costs and mortgage rates are sensitive to risk-free rates and their expectations. Sensitivity isn't 1:1, but the Fed's ability to influence borrowing costs in the private sector should not be particularly controversial. On the other hand, credit spreads and risk premiums tend to reflect fear and panic more episodically.

Corporate Borrowing Costs and Mortgage Costs Track Fed Funds
Trend and Local Variation

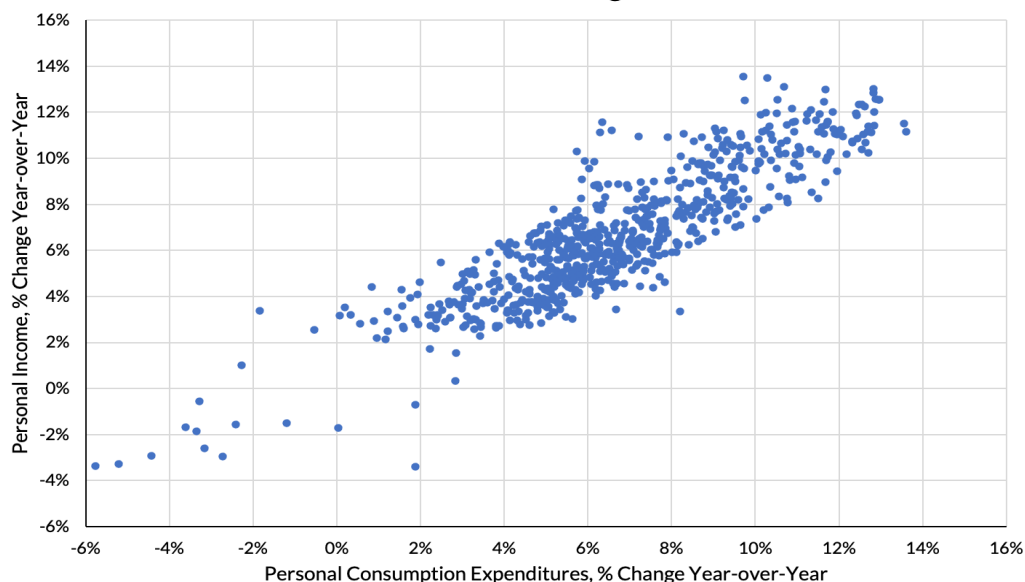




The most important impact of changes in asset prices and financing conditions is on the spending behavior of firms. However, given the number of actors with agency, and the number of causal steps, it can be difficult to identify these dynamics with high precision. The Fed is hardly the only or primary influence on spending behavior, nor is the Fed’s influence reliably constant over time. Nevertheless, lower financing costs and higher asset prices tend to support more expansive business expenditures, whether that be on capital or operations—including labor. Higher financing costs and lower asset prices generally encourage businesses to trim capital and operating budgets. These channels work even without businesses needing to take on additional credit at newly-changed interest rates: credit issuance and business expenditures almost never happen simultaneously, and the leads and lags between the two are rarely consistent or reliable.²⁰ Financial conditions reflect and affect risk appetite and the preference for liquidity.

When businesses spend more on labor, households earn more income from working, whether that be through more jobs or higher wages. While income and consumption don’t move in exact lockstep, there is a distinct correlation between the growth rates of nominal income and nominal consumption.

Nominal Personal Income and Nominal Consumption Are Tightly Correlated In The Long Term



In the long run, the impact of this relationship between employment and inflation is ambiguous, but in the short-run, there is a clear path from employment to inflation. Long-term, higher employment means more capacity to produce goods and services, and thus a better ability to meet elevated consumption demand. In the short run however - when the economy is adding jobs - household income and household demand increase much more quickly than new capacity. The most recently hired worker is not usually working to resolve the economy's most pressing production bottlenecks, but they are definitely spending a reliable percentage of their wages²¹ on the finite set of things the economy is already producing. Until those bottlenecks are resolved, the increase in demand from increased employment may well contribute to near-term inflation.

If the Fed is looking to control near-term inflation, the best causal explanation of how it actually does this is by making it less appealing for businesses to spend on labor. Quite the bank-shot if you think about it!

The problem with this approach is that, while it can reduce inflation over the nearer term, it does so at the expense of longer term benefits associated with investment and employment, especially if you assume these outcomes to have some path-dependence.²² In the most salient case, higher financing costs will slow down building activity, including, for example, the marginal new rental supply that might help cool off housing services inflation over the medium term. In the recessionary extreme, the Fed could decide to cause a deep enough set of job losses that the household demand shock will overwhelm the negative effect of higher mortgage rates on rental supply, but that doesn't sound like a welfare-

maximizing approach to policy. Higher financing costs, at the margin, limit businesses' willingness to increase capital expenditures and expand productive capacity. Inventory financing costs are also not trivial; should the cost of financing inventory rise, there is inherently a greater propensity to pass on those costs to consumers or to run inventory so tight that supply chain vulnerabilities may persist.

Conclusion

Insofar as the Fed can influence short-run inflation prints, it does so through financial conditions channels that cool off the labor market and likely at the expense of business investment in new capacity. This is a much more pernicious mechanism in its effects on the economy at large than what “changing inflation expectations” or “inducing wealth effects” might suggest. Contrary to popular belief, the institutional architecture of the United States does not have a direct discretionary tool to suppress households' demand for consumer goods and services, although such a tool is surely imaginable.

Taking economic policy seriously requires us to understand the actual causal path by which monetary policy takes effect and not simply wish-cast ourselves into believing that everything happens through the most harmless and anodyne channels. Interest rates are a blunt tool whose exercise often comes with serious side effects when the more proximate effects of rate hikes—namely labor market dynamics—are ignored. The Fed is usually given too much credit for its ability to directly fine-tune inflationary outcomes. That the Fed must fight inflation with the mechanisms it has is no excuse for blinding ourselves to how these mechanisms work.

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