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Economics Weekly

Fed Independence, Fiscal Dominance, and How Government Debt Problems Manifest

Please refer to important disclosures on pages 15 and 16. Analyst certification is on page 15.

One of the questions we often hear from clients concerns the size of the U.S. debt and deficits, and at what point these will become a major problem for the U.S. What these investors seem to be really asking, however, is when will bond investors balk at the size of the debt and refuse to fund the Treasury, and we start to see failed auctions, interest rates skyrocket, and a classic emerging market-type debt crisis start to unfold? That sort of crisis does not seem likely anytime soon, even though we may experience periodic bouts of fear of one. Yet, this in no way means that the size of the debt is not a problem; the reality is that it is already causing problems, and these problems will only get worse unless something changes. **One area where we can already see such issues starting to manifest is in a creeping drift toward fiscal dominance and a gradual erosion of Fed independence. Such a transition has important implications for the economy and the investment landscape, and is the topic of this *Economics Weekly.***

What Is Fiscal Dominance?

The short answer is that fiscal dominance is an economic regime where monetary policymakers, often due to the government's increased financing needs and the threat of financial market instability, are no longer willing and/or able to drive the bus on economic policy. Their hands are tied, and they become passive economic policy participants with regard to directing policy toward fighting inflation. In this world, fiscal policy takes the helm, and its budgetary stance (decisions on spending, taxation, and debt issuance) becomes the new anchor for inflation. The role of the monetary authority is then to monetize the debt and implement other measures to suppress yields, in order to prevent greater financial instability.

In such a situation, they lose their power to act preemptively to maintain low and stable inflation, and necessarily become reactive to policy choices being made in the fiscal policy realm. Our cozy world of forward guidance is tossed out the window, as the central bank necessarily has to take its cue from fiscal policy decisions.

Effectively, it is a role reversal that takes place, whereby the monetary policymakers' goal shifts from being purely the achievement of price stability to one of passively ensuring debt sustainability. Conversely, the fiscal policymakers' job switches from one of passive debt sustainability to actively guiding the price level of inflation. Higher inflation is often the result, as central bank debt monetization increases raise the money supply, which in turn either increases the general price level (CPI inflation) or feeds into asset price inflation (financial market prices or other asset prices). Both result in a loss of purchasing power for households not holding real or financial assets.

Which Regime Is Better?

Neither regime is necessarily bad or good; rather, the answer will depend on how it is run. In recent decades Western economies have tended to favor monetary dominance with an independent central bank as the best policy choice, due to fears that once politicians get their hands on the levers of power, spending will inevitably soar, inflation will soon follow, and our economies will soon resemble Argentina's.

Fiscal policy dominance is often the norm in times of crisis, when the central bank cooperates with the government to fight a war or a pandemic, but that regime quickly reverses once the crisis is over. Some countries, such as China, however, have managed to successfully run fiscally dominant regimes more permanently.

Japan is perhaps the glaring exception, as despite such high debt levels it has been able to avoid fiscal dominance. This has been due to the fact that its debt is mostly domestically owned, where confidence in its government remains high (despite recent political changes), and it has a positive net international investment position that helps provide a healthy buffer against fiscal shocks.

On the flip side, monetary policy too comes with its own set of issues. Many have argued for years now that monetary policymakers need to take more of the blame for many of today's economic problems—the unintended consequences of keeping interest rates too low, for too long, which allowed bubbles to blow and then burst. Those who disproportionately benefited were the financial elite—the owners of assets—but it was the public who were inevitably forced to pick up the bill when the crash came, resulting in massive transfers of debt from the private sector's balance sheets to the public's.

What About Both at the Same Time?

One problem is that the two policy regimes cannot both be dominant simultaneously.

Why? Because of what economists call the intertemporal budget constraint, which means that investors at some point need to believe that the debt will be paid off and that the government is not running a Ponzi scheme. They need to believe that today's debt equals the present value of all the primary surpluses it promises will be achieved in the future. To help ensure that belief, either fiscal policy must be dominant (i.e., the government commits to achieving those primary surpluses in the future, and lower inflation) or monetary policy needs to commit to anchoring inflation with appropriate levels of interest rates (which forces fiscal policymakers to adjust their tax and spending decisions).

The Game of Chicken—When No One Wants to Give Up Control

Unfortunately, there is not always a comfortable consensus between the two sides as to who gets to run the show. And when there is disagreement, it can sometime lead to what the economists Thomas Sargent and Neil Wallace once described in their famous 1981 paper "Some Unpleasant Monetarist Arithmetic" as effectively a game of chicken. In this scenario, both sides continue to push for dominance, and in so doing push the economy closer to the brink of a crisis, hoping that the other side will blink first to avert one.

There are numerous examples of this game that have played out throughout history. One of our favorite examples of this was during 2010 debt crisis in Argentina, when the government of President Cristina Fernandez de Kirchner demanded that the central bank president at the time, Martin Redrado, resign and hand over the bank's reserve assets to pay down the country's debts, drive down skyrocketing interest rates, and prevent a government default.

Central Bank President Redrado felt this was crossing the line of central bank independence, that the reserves were being used to pay down previous bad spending decisions to support a corrupt and crony government, that using them would further deepen the crisis, and that President Kirchner did not have the constitutional authority to fire him. In the end, President Kirchner finally marched to the bank and was forced to bang on its locked doors, and after finally being admitted, she accessed and released the reserves. Redrado was relieved of duty shortly thereafter.

A second example was during the European debt crisis, when the ECB was pitted against the 16 national fiscal authorities of the Euro Area (arguably viewed as one single dislocated fiscal authority). The ECB's role of price stability was under threat, as many fiscal authorities were not keen on enacting deep austerity measures and were hoping to see higher inflation help erode the value of their debt. In this case, the ECB was more than a match for the individual countries and won. Countries such as Greece, Ireland, Spain, and Portugal were forced to undertake grueling fiscal rectitude measures, with their governments also shortly being deposed.

Lastly, a more recent example of a game of chicken with the central bank was the "Liz Truss Moment" in 2022, when, after just Truss took office as prime minister, her chancellor Kwasi Kwarteng announced a "mini budget" that, despite 10% inflation at the time, called for a series of unfunded tax cuts and spending increases. The gilt (bond) market started to aggressively sell off, causing mortgage rates to soar along with fears of a major pension fund crisis due to margin calls on a leverage-driven investment strategy they were using at the time. The Bank of England, which was still in the process of raising interest rates and shrinking its balance sheet, was forced to step in, reverse QT, and restart QE by purchasing gilts once again to restabilize the market. In this case it was the Bank of England that blinked first—that is, until Prime Minister Truss's 50th day in office, when she too was forced to blink and resign, whereupon her mini budget was abandoned.

Who Normally Wins?

Historically, it is normally the fiscal authorities that win these battles. It is generally much easier for the monetary authority to give in and monetize the debt than it is for fiscal authorities to make the difficult decisions to raise taxes and cut the spending and benefits to a population that may already be under immense stress due to a potentially unfolding crisis. Secondly, a central bank's president and boards are political appointments, and monetary policymakers know that ultimately they operate at the pleasure of the fiscal authorities.

In the U.S., for example, the Fed only managed to regain its power to freely set interest rates in 1951 through the famous Treasury-Fed Accord of 1951. It previously lost that power in 1942 following America's entrance into the war. Following the war, Congress had been reluctant to return that power, but finally acquiesced. Yet the lesson for today is that, if the current battle between the Trump Administration and the Fed really does come to heavy blows, it is the fiscal authorities that have the upper hand and will undoubtedly win.

The Central Banker's Interest Rate Paradox

In an adverse fiscal dominance scenario, central bankers will find themselves in a Catch-22: If they raise interest rates to dampen demand and lower inflation, this ends up worsening the already difficult fiscal situation by raising the interest expense on the government debt. Yet even if the central bank raises interest rates, that still might not bring down inflation given that the underlying cause of the inflation is the structurally larger fiscal deficits being pursued by the fiscal policymakers.

If, however, the bankers succumb to the demands of fiscal policymakers and lower interest rates, while this would help ease the interest cost debt burden, it will also come at the expense of further exacerbating inflationary pressures, not to mention a further loss of the bank's independence and credibility. It is a tricky course to navigate.

Are We Seeing Fiscal Dominance Today?

Not exactly, but the switch from one to the other is not binary and should be thought of as taking place in stages. The economist David Beckworth, citing a paper by Olivier Jeanne, suggests there are three stages to fiscal dominance.

Stage 1 – No financial repression: This is when government debt to GDP is below 100%, and Treasury issuance is easily absorbed by the private sector. This is monetary policy dominance.

Stage 2 – Balance Sheet Financial Repression: This is when debt to GDP is between 100% and 120%, and, through increasing regulatory measures and other versions of financial repression, banks, insurance companies, and public sector pension funds are "encouraged" to absorb more government debt onto their balance sheets.

Stage 3 – Quasi-fiscal Financial Repression: This is the final stage, when debt is above 120% of GDP and the central bank is forced to monetize the debt (buy up issuance to maintain stable financial markets) and/or take other measures such as lifting its inflation target. This is fiscal dominance.

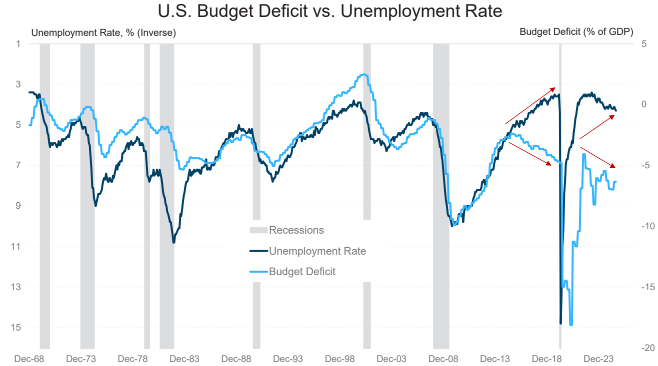
At present, the U.S. is nearing stage 2, with debt already 100% of GDP, and rising pressure from an administration in Washington to take on more of the burden by lowering interest rates to help reduce the size of the national debt, while simultaneously easing up on achieving its mandated 2% inflation target.

Meanwhile, we are also not seeing what normally happens in a monetary policy dominant world, which is that when fiscal policy is forced into prominence because of a war or a crisis, once that crisis is over, fiscal policy retrenches and austerity measures are taken to return deficits to their pre-crisis levels.

As exhibit 1 indicates, this is not happening today, nor is it expected to in the future looking at just about any credible estimates of debt in the coming decades. As a result, there is seemingly little happening to prevent us moving further toward stage 2 and then eventually into stage 3, which, according to the CBO's debt trajectory, could take place as soon as 10 years from now when the debt is scheduled to surpass 120% of GDP.

Exhibit 1

U.S. Budget Deficit vs. Unemployment Rate



Sources: Congressional Budget Office, Bureau of Labor Statistics, William Blair Equity Research

We are also seeing some evidence of fiscal policy dominance emerging in financial markets. The continued steady appreciation in the price of gold is in part based on geopolitical fears and foreign central banks looking for reserve diversification (exhibit 2).

Exhibit 2

Inflation Adjusted Price of Gold
(deflated by the CPI, Jan 1971 = 100)

Sources: Bloomberg, Bureau of Labor Statistics, William Blair Equity Research

It can arguably also be seen in the behavior of the yield curve. Exhibits 3 and 4, for example, show the spread between nominal 30-year T-bond yields against real 5-year T-note yields. The higher yield for 30-year T-bonds is consistent with investors demanding increased compensation for inflation risks and duration, whereas the falling real 5-year yield is consistent with the view that the central bank either cannot or will not increase short rates to manage that inflation.

Exhibit 3
Fiscal Dominance Proxy
(30 Year Nominal T-Bond Yield - 5 Year Real Yield)

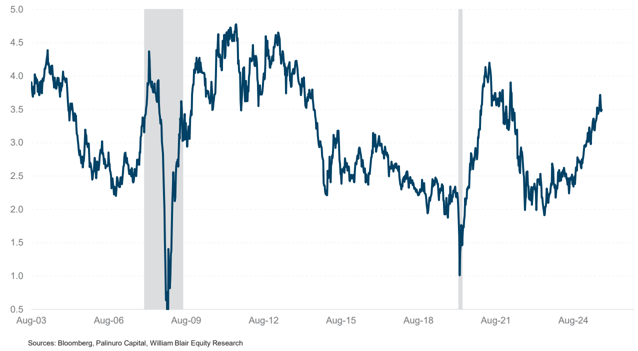
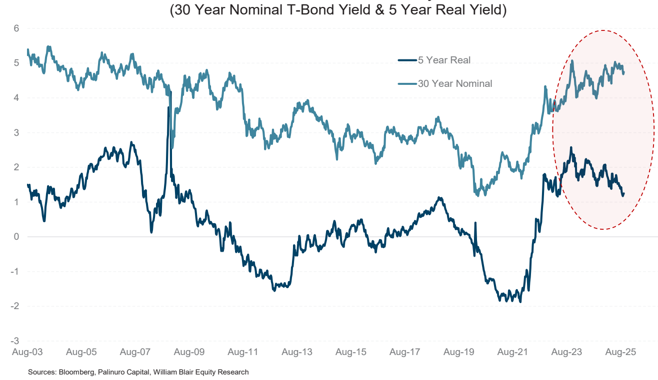


Exhibit 4
Fiscal Dominance Proxy
(30 Year Nominal T-Bond Yield & 5 Year Real Yield)



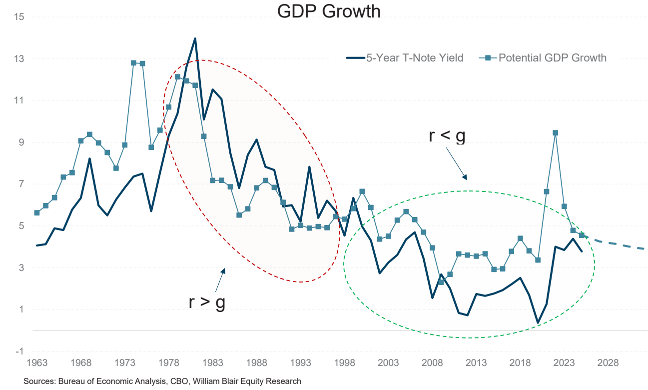
How Is the Problem Eventually Resolved?

Debt reduction is normally achieved through five means. First, governments can try to grow their way out of their problems—this is easily the best way, but it is also the hardest to achieve. Second, countries can default on their debt, often the worst of all options. Third, they can choose austerity: drastic cuts to public spending and tax increases. Fourth, they can undertake some forms of financial repression, which typically involves engineering negative real interest rates, either by capping them or engaging in yield curve control, for example. Or they might force entities to purchase government issued debt. The fifth and often the second-favorite option is to allow unexpected bouts of inflation to erode the value of the debt. The key here is inflation being unanticipated, otherwise the inflation premium on the bonds will increase and neuter the impact. Typically, a government will try some combination of all of these, barring default.

Why the U.S. Is Unlikely to Have a Major Crisis (But Could Still Experience Fiscal Dominance)

While the U.S. is seemingly creeping toward a situation of fiscal dominance, where high debt levels could increasingly start to tie the hands of the central bank, an all-out debt crisis is not likely due to several reasons. The first is that it is virtually impossible for the country to involuntarily default on its debt, since all of it is printed in dollars. Secondly, there is still strong demand for U.S. debt, either due to an aging population or the continued dollarization of global trade and finance, potentially to be accelerated by the growth in stablecoins. Third is that for the moment, the rate of interest on the debt (proxied in exhibit 5 by the yield on the 5-year T-note) is still below the rate of nominal GDP growth, hence r<g. This is also likely to remain the case if the U.S. is now about to embark on a major productivity surge. Lastly, the U.S. is still the world's largest, most diverse, and most innovative economy, which has the capacity to deal with such a heavy debt burden.

Exhibit 5
5-Year T-Note Yield on Federal Government Debt vs Nominal Potential GDP Growth



Conclusion

The U.S. today is not in a fiscal crisis and bond yields have not gone through the roof; however, debt-to-GDP is rising and it does look as though it is moving closer to a regime of fiscal policy dominance brought on by decades of excessive debt growth. This is seemingly now being accelerated by fiscal policymakers who are keen to limit its independence and encourage it to lower interest rates to ease the debt burden. Measures such as DOGE that were instituted to aggressively reduce the size of the deficits have so far failed due to the ingrained structural nature of the debt—the "untouchable" entitlements.

Nevertheless, the policy choices being made increasingly look as though they are starting to shift toward a combination of growth (encouraging AI and other investment spending), financial repression (e.g., encouraging the Fed to lower rates, talk of removing interest on reserves, potentially forcing foreigners to purchase government debt), and unexpected bouts of inflation (due to deglobalization, aging populations, and an increased susceptibility to supply-side shocks). For investors, this would generally not be seen as a favorable environment for government bonds, particularly as they are also no longer negatively correlated with equities. Rather, this is an environment that would more generally favor equities (including foreign equities to take advantage of a weaker dollar), real assets (e.g., real estate), and gold.

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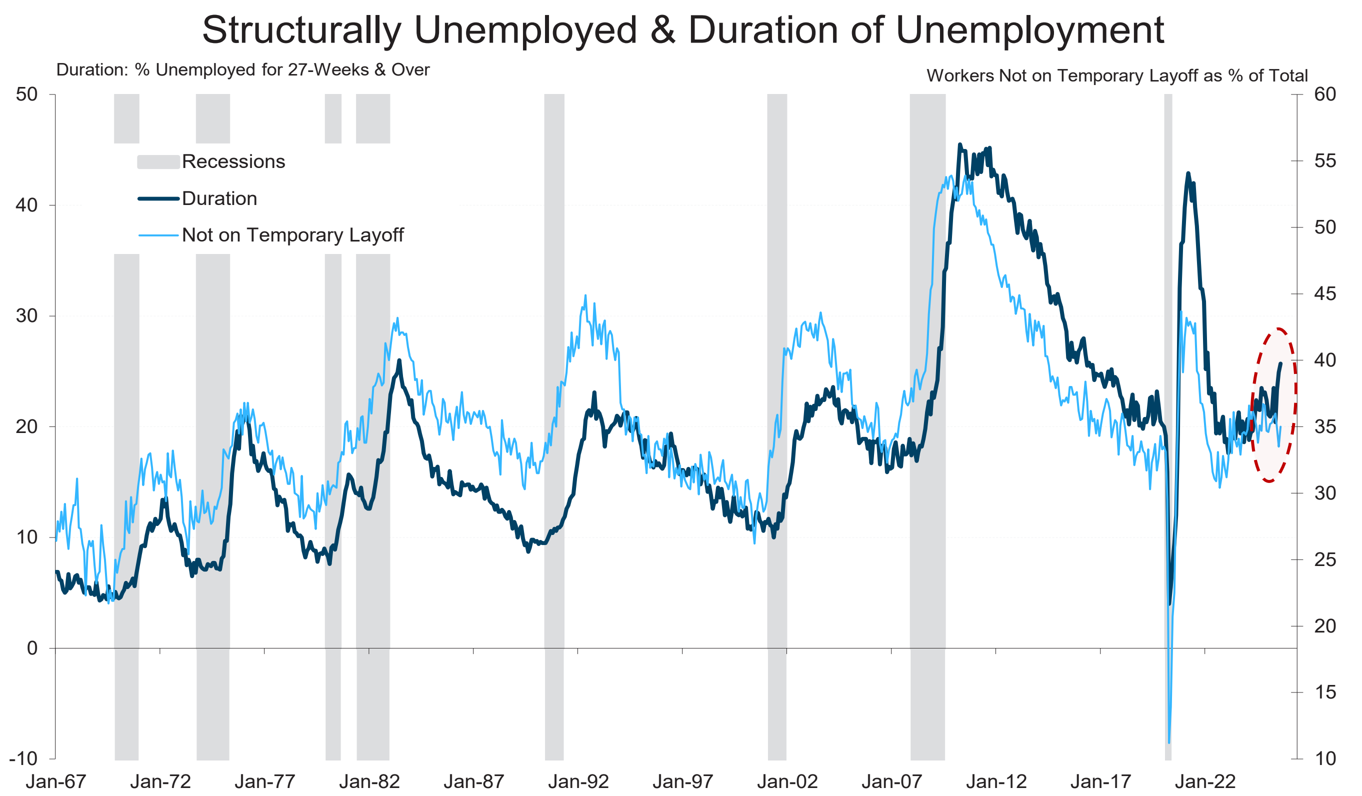
Highlights in the Week Ahead

Date	Time (ET)	Indicator	Last	Consensus	WB Estimate	Actual
30 Sep	10:00 a.m.	JOLTS (Aug)	7181K	7100K	NA	
30 Sep	10:00 a.m.	Consumer Confidence (Sep)	97.4	95.8	96.0	
1 Oct	10:00 a.m.	ISM Manufacturing (Sep)	48.7	49.2	49.9	
3 Oct	8:30 a.m.	Nonfarm Payrolls (Sep)	22K	50K	40K	
		Unemployment Rate	4.3%	4.3%	4.3%	
		Average Hourly Earnings	0.3%	0.3%	0.3%	
3 Oct	10:00 a.m.	ISM Services Index (Sep)	52.0	52.0	51.5	

Sources: Bloomberg, William Blair Equity Research

Indicator of the Week: Employment Situation



Source: BLS, William Blair Equity Research

Economic Scorecard

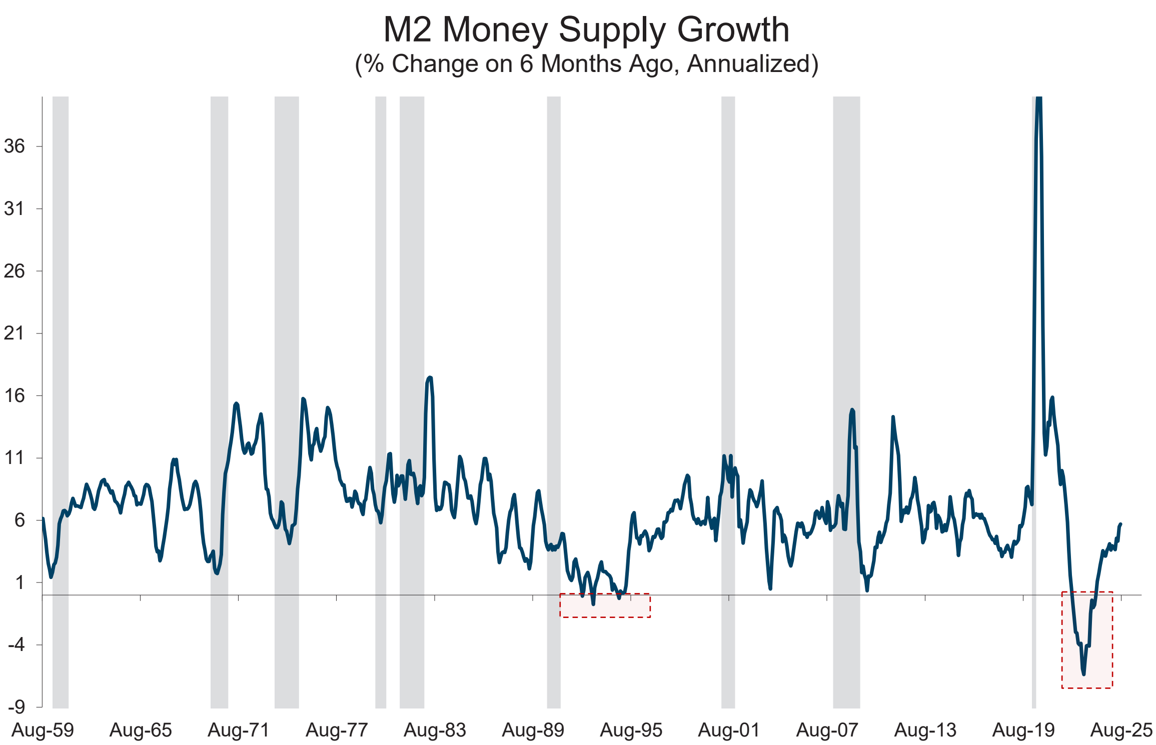
Rolling monthly heat map, % Change on Year Ago (unless otherwise noted)

	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
Growth																			
US Leading Indicators	-5.5	-5.4	-5.0	-4.5	-4.7	-4.6	-4.3	-3.7	-3.0	-3.0	-2.7	-3.0	-3.6	-4.3	-3.9	-4.0	-3.4	-3.6	
US Coincident Indicators	2.1	1.7	1.9	2.1	1.7	1.7	1.6	1.6	1.3	1.7	1.5	1.5	1.8	2.0	1.4	1.4	1.4	1.5	
US Lagging Indicators	1.2	1.4	1.2	1.1	1.0	0.8	0.3	0.1	0.0	0.1	-0.1	0.1	-0.1	0.0	0.8	0.7	0.8	0.9	
Consumer																			
Total Retail Sales	3.4	2.6	2.8	2.3	3	1.8	2	3.1	3.9	4.6	4.6	3.9	5.1	5	3.4	4.4	4.1	5.0	
Personal Income	5.9	5.7	5.5	5.4	5.3	5	4.8	5.2	5.1	5.2	4.3	4.6	4.7	5.3	4.6	4.7	5		
Real Disposable Personal Income	3.1	2.8	2.8	2.7	2.6	2.4	2.4	2.5	2.3	2.2	1.3	1.5	1.9	2.7	1.7	1.7	2		
Real Personal Consumption	2.7	2.4	2.8	2.9	2.9	2.9	3.2	3.1	3.1	3.1	2.9	2.5	2.8	2.9	2.2	2.2	2.1		
Personal Saving Rate (%)	5.2	5.1	4.9	4.8	4.3	4.2	3.8	4.1	3.9	3.5	4.2	4.4	4.4	5	4.5	4.4	4.4		
Consumer Confidence (Conference Board)**	103.1	97.5	101.3	97.8	101.9	105.6	99.2	109.6	112.8	109.5	105.3	100.1	93.9	85.7	98.4	95.2	98.7	97.4	
Employment																			
Employment Growth	1.5	1.5	1.4	1.3	1.3	1.2	1.3	1.2	1.3	1.3	1.3	1.2	1.1	1.1	1.0	1.0	1.0	0.9	
ASA Temporary Staffing Index	-8.2	-9.3	-10.2	-9.9	-12.5	-12.2	-12.0	-9.5	-6.6	-21.0	-8.2	-7.5	-8.7	-6.4	-5.8	-5.3	-0.8	-0.9	
ISM Employment Index Manufacturing*	47.5	48.2	50.4	48.4	43.6	45.8	44.6	44.8	48.1	45.4	50.3	47.6	44.7	46.5	46.8	45	43.4	43.8	
ISM Employment Index Services*	48.5	46.6	47.5	46.7	51	49.6	48.2	52.2	50.9	51.3	52.3	53.9	46.2	49	50.7	47.2	46.4	46.5	
Unemployment Rate, %	3.9	3.9	4	4.1	4.2	4.2	4.1	4.1	4.2	4.1	4	4.1	4.2	4.2	4.2	4.1	4.2	4.3	
Average Hourly Earnings	4.2	4	4.1	3.9	3.6	4	3.9	4.1	4.2	4	3.9	3.9	3.9	3.8	3.8	3.7	3.9	3.7	
Initial Jobless Claims (avg. wkly. chg. '000s)	216	210	222	237	237	230	225	236	219	222	218	227	223	226	235	241	221	231	
Jop Openings	-15.5	-23.7	-15.1	-19.4	-12.8	-17.6	-23.5	-10.9	-7.3	-12.5	-8.3	-11.4	-11.0	-2.9	-2.4	-0.7	-4.3	-6.1	
Layoff Announcements	0.7	-3.3	-20.3	19.8	9.2	1	53.4	50.9	26.8	11.4	-39.5	103.2	204.8	62.7	47	-1.6	139.8	13.3	
Housing Market																			
Housing Starts	-4.7	2.3	-16.9	-6.6	-13.4	5.6	-1	-1.2	-14.5	-0.5	-1.7	-4	3.3	0.9	-2.6	4.1	13	-6	
New Home Sales	6.3	8.1	-10	-0.4	1.1	7.4	5.3	-8.8	10.7	11.7	-2.8	-2.4	-4.6	-1.8	-5.7	0.7	-6.5	15.4	
Existing Home Sales	-3.3	-2.6	-3.1	-5.1	-2.5	-3.7	-3.0	3.1	6.7	9.7	2.3	-0.9	-2.4	-2.0	-0.5	0.0	0.8	1.8	
Median House Price (Existing Homes)	-0.6	-0.5	-1.6	-0.9	-1.6	-8	-1.2	2.1	-7.4	1.1	-0.2	-1.4	-5.4	-0.4	2.5	-2.5	-7.9	1.9	
Existing Homes Inventory (Mths' supply)	3.5	3.5	3.5	3.8	3.7	3.9	4	3.9	3.8	3.7	3.9	3.8	4.2	4.3	4.3	4.4	4.3	4.3	
New Homes Inventory (Mths' supply)	8.1	7.7	8.5	8.4	7.9	8.2	7.9	9.3	8.7	8.2	9	9.3	9.2	8.5	9.6	8.9	9	7.4	
NAHB Homebuilder Sentiment*	51	51	45	43	41	39	41	43	46	46	47	42	39	40	34	32	33	32	32
Inflation																			
Consumer Price Index	3.5	3.4	3.3	3	2.9	2.5	2.4	2.6	2.7	2.9	3	2.8	2.4	2.3	2.4	2.7	2.7	2.9	
CPI Less-food & energy	3.8	3.6	3.4	3.3	3.2	3.2	3.3	3.3	3.3	3.2	3.3	3.1	2.8	2.8	2.8	2.9	3.1	3.1	
Producer Price Index	2.0	2.3	2.5	2.9	2.4	2.1	2.1	2.8	2.9	3.5	3.8	3.4	3.2	2.4	2.7	2.4	3.1	2.6	
PPI Less-food & energy	2.3	2.5	2.7	3.3	2.6	2.8	3.3	3.6	3.4	3.7	3.9	3.7	3.8	3.1	3.2	2.6	3.4	2.8	
PCE Price Index	2.8	2.7	2.6	2.4	2.5	2.3	2.1	2.3	2.5	2.6	2.6	2.7	2.3	2.2	2.4	2.6	2.6		
PCE Prices Less-food & energy	3.0	2.9	2.7	2.6	2.7	2.7	2.7	2.8	2.8	2.9	2.7	2.9	2.7	2.6	2.7	2.8	2.9		
Business Activity - US																			
Industrial Production	-0.3	-0.8	0.0	0.9	-0.5	-0.1	-0.7	-0.4	-0.9	0.4	1.4	1.1	1.0	1.2	0.7	0.9	1.3	0.9	
New Cap Gds Orders less-aircraft & parts	-1.5	2.1	-2.8	-4	-0.6	-1.8	0.5	0.2	-1.1	1.9	3.3	-0.9	2.2	0.5	2.2	4.5	4.5	2.9	
Business Inventories	0.3	0.2	0.6	1.2	1.6	2.1	2.1	1.9	2.2	2.6	1.9	2.5	2.3	2.5	2.2	1.7	1.6	1.5	
ISM Manufacturing PMI*	49.8	48.8	48.5	48.3	47	47.5	47.5	46.9	48.4	49.2	50.9	50.3	49	48.7	48.5	49	48	48.7	
Markit US Manufacturing PMI*	51.9	50	51.3	51.6	49.6	47.9	47.3	48.5	49.7	49.4	51.2	52.7	50.2	50.2	52	52.9	49.8	53	
ISM Services Index*	51.3	49.6	53.5	49.2	51.4	51.6	54.5	55.8	52.5	54	52.8	53.5	50.8	51.6	49.9	50.8	50.1	52	
Markit US Services PMI*	51.7	51.3	54.8	55.3	55	55.7	55.2	55	56.1	56.8	52.9	51	54.4	50.8	53.7	52.9	55.7	54.5	
Business Activity - International																			
Germany Manufacturing PMI Markit/BME*	41.9	42.5	45.4	43.5	43.2	42.4	40.6	43	43	42.5	45	46.5	48.3	48.4	48.3	49	49.1	49.8	
Japan Manufacturing PMI Jibun Bank*	48.2	49.6	50.4	50	49.1	49.8	49.7	49.2	49	49.6	48.7	49	48.4	48.7	49.4	50.1	48.9	49.7	
Caixin China Manufacturing PMI*	51.1	51.4	51.7	51.8	49.8	50.4	49.3	50.3	51.5	50.5	50.1	50.8	51.2	50.4	48.3	50.4	49.5	50.5	
China Manufacturing PMI*	50.8	50.4	49.5	49.5	49.4	49.1	49.8	50.1	50.3	50.1	49.1	50.2	50.5	49	49.5	49.7	49.3	49.4	
UK Manufacturing PMI Markit/CIPS*	50.3	49.1	51.2	50.9	52.1	52.5	51.5	49.9	48	47	48.3	46.9	44.9	45.4	46.4	47.7	48	47	
France Manufacturing PMI Markit*	46.2	45.3	46.4	45.4	44	43.9	44.6	44.5	43.1	41.9	45	45.8	48.5	48.7	49.8	48.1	48.2	50.4	
Currencies*																			
Euro (EUR/USD)	-0.5	-3.2	1.5	-1.8	-1.6	1.9	5.3	2.9	-2.9	-6.2	-4.2	-4.0	0.2	6.2	4.6	10.0	5.4	5.8	
Renmimbi (USD/CNY)	5.1	4.7	1.9	0.2	1.2	-2.3	-3.8	-2.7	1.6	2.8	1.1	1.2	0.5	0.4	-0.6	-1.4	-0.4	0.6	
Yen (USD/Yen)	13.9	15.8	12.9	11.5	5.4	0.4	-3.8	0.2	1.1	11.5	5.6	0.4	-0.9	-9.3	-8.4	-10.5	0.5	0.6	
Sterling (GBP/USD)	2.3	-0.6	2.4	-0.5	0.2	3.6	9.6	6.1	0.9	-1.7	-2.3	-0.4	2.3	6.7	5.6	8.6	2.7	2.9	
Canadian $ (USD/CAD)	0.2	1.7	0.4	3.3	4.7	-0.1	-0.4	0.4	3.3	8.6	8.2	6.5	6.3	0.2	0.8	-0.5	0.3	1.8	
Mexican Peso (USD/MXN)	-8.2	-4.8	-3.8	7.0	11.2	15.8	13.0	11.0	17.2	22.7	20.1	20.5	23.6	14.4	14.3	2.3	1.4	-5.4	
US Equities																			
S&P 500	27.9	20.8	26.3	22.7	20.3	25.3	34.4	36.0	32.1	23.3	24.7	16.8	6.8	10.6	12.0	13.6	14.8	14.4	
S&P 400 Midcap	21.3	14.9	23.9	11.7	13.5	16.9	24.8	30.9	31.3	12.2	18.6	7.1	-4.2	-0.3	0.6	5.9	1.7	5.3	
S&P 600 Smallcap	13.8	10.4	18.1	6.6	12.0	15.1	23.5	27.6	30.9	6.8	14.5	4.5	-5.0	-3.6	-3.4	2.8	-6.3	1.8	
Russell 2000	17.9	11.6	18.3	8.4	12.5	16.7	24.9	32.1	34.6	10.0	17.5	5.3	-5.3	-0.5	-0.2	6.2	-1.9	6.7	

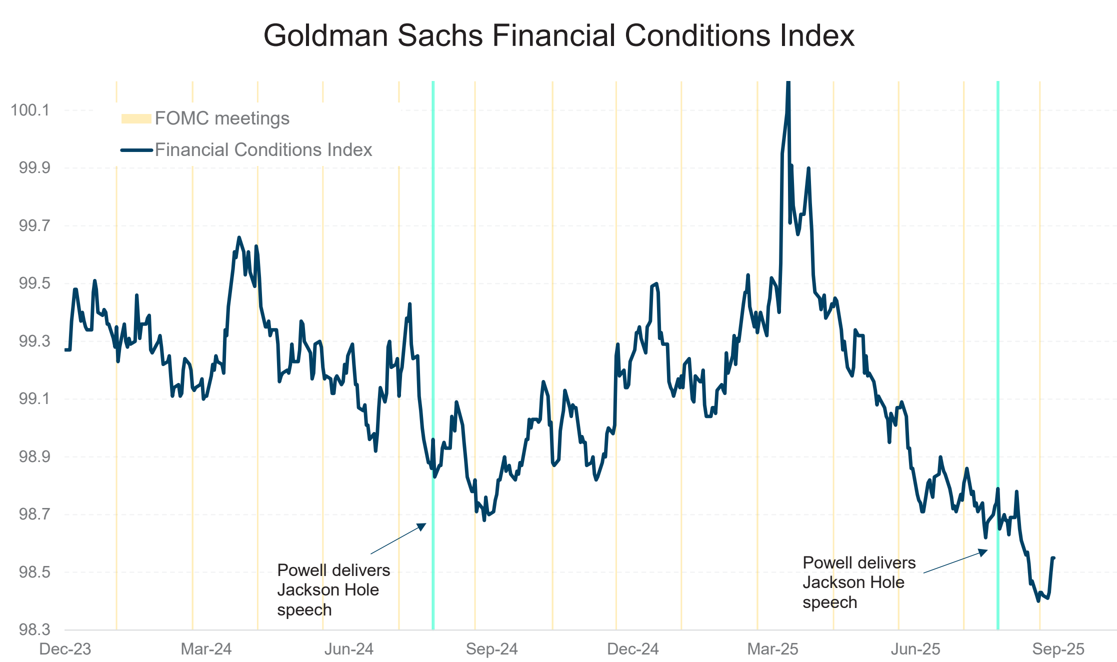
* Diffusion Index, **1985=100, ***Currencies - green/red = strengthening/weakening foreign currency vs dollar

Source: ISM, Federal Reserve, Census Bureau, Bureau of Labor Statistics, Conference Board, Bloomberg, William Blair

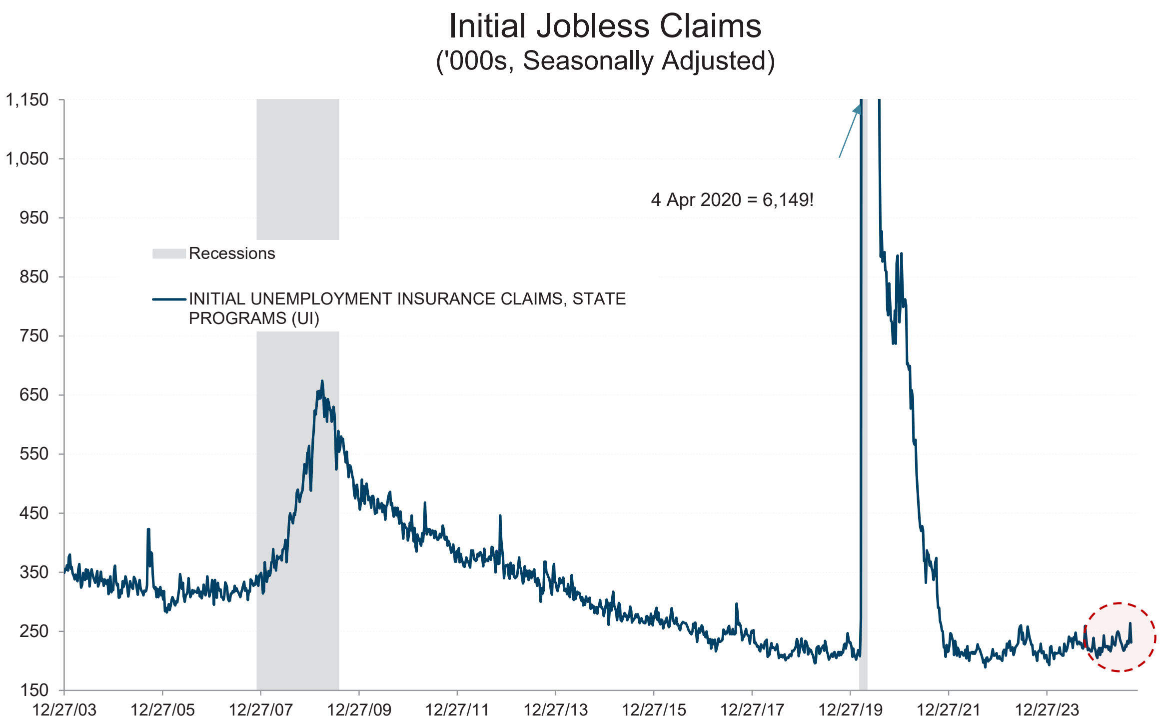
Other Economic Indicators



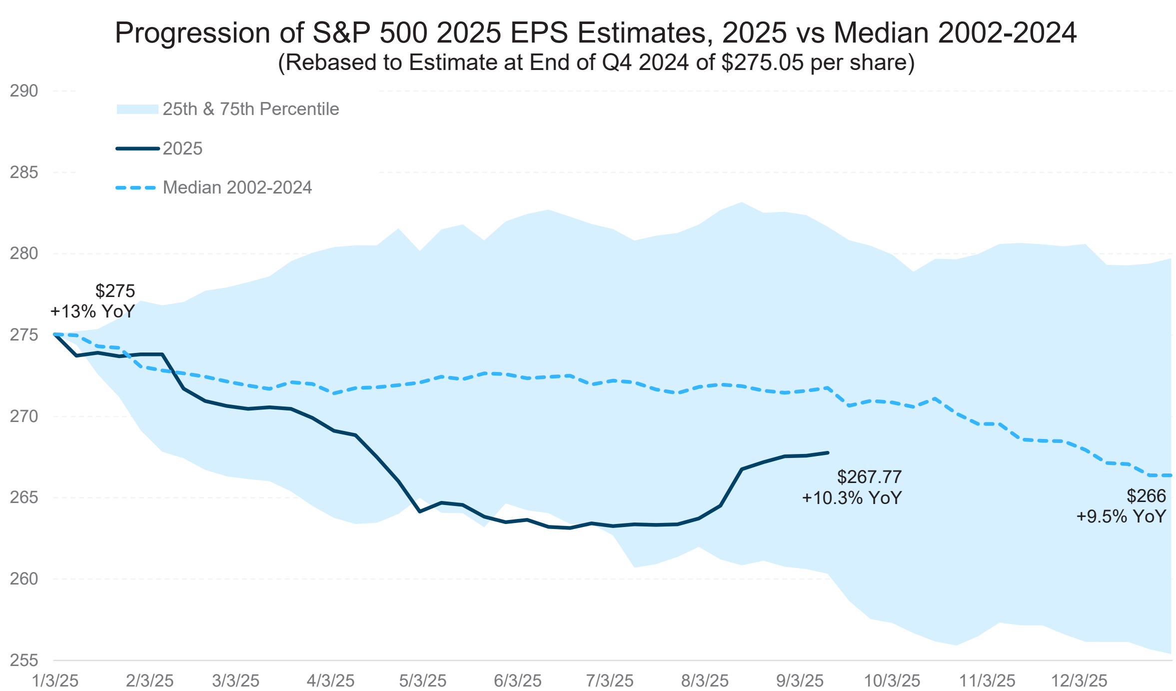
Sources: Federal Reserve, William Blair Equity Research



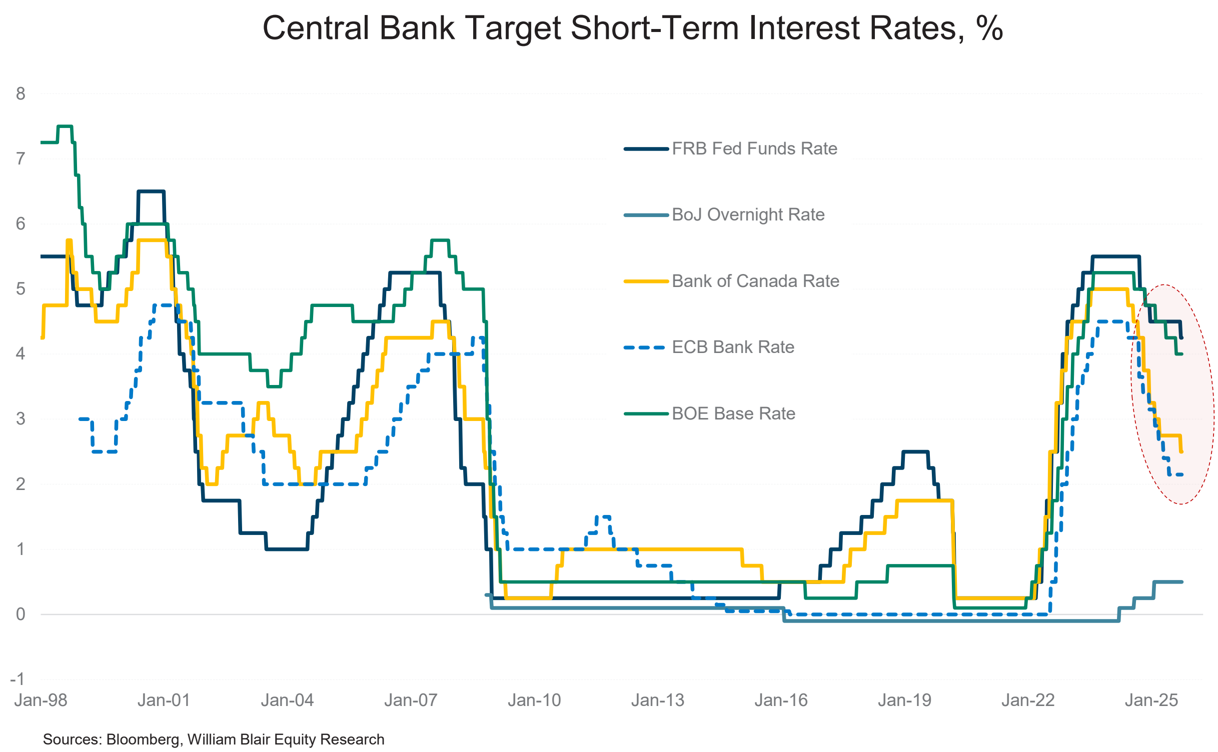
Sources: Bloomberg, William Blair Equity Research

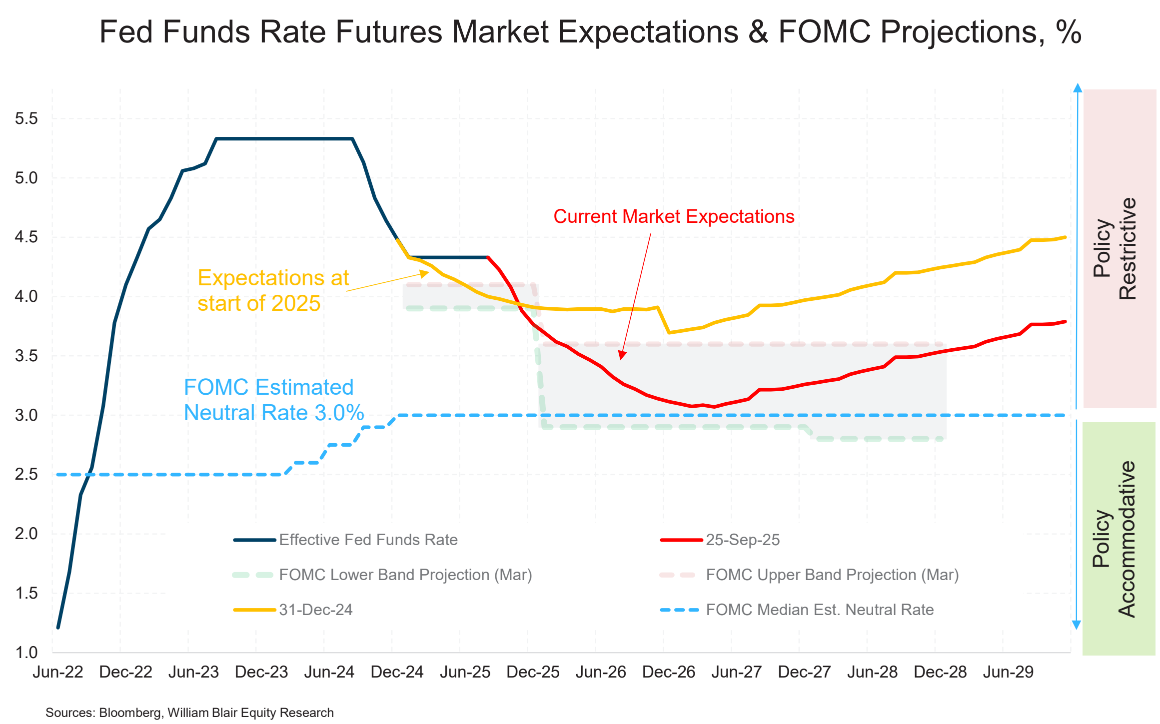


Source: Department of Labor, Bloomberg, William Blair Equity Research



Sources: LSEG, William Blair Equity Research


Central Bank Target Short-Term Interest Rates, %
FRB Fed Funds Rate
BoJ Overnight Rate
Bank of Canada Rate
ECB Bank Rate
BOE Base Rate
8
7
6
5
4
3
2
1
0
-1
Jan-98
Jan-01
Jan-04
Jan-07
Jan-10
Jan-13
Jan-16
Jan-19
Jan-22
Jan-25
Sources: Bloomberg, William Blair Equity Research


Fed Funds Rate Futures Market Expectations & FOMC Projections, %
Current Market Expectations
Expectations at start of 2025
FOMC Estimated Neutral Rate 3.0%
Policy Restrictive
Policy Accommodative
Effective Fed Funds Rate
25-Sep-25
FOMC Lower Band Projection (Mar)
FOMC Upper Band Projection (Mar)
31-Dec-24
FOMC Median Est. Neutral Rate
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Jun-22
Dec-22
Jun-23
Dec-23
Jun-24
Dec-24
Jun-25
Dec-25
Jun-26
Dec-26
Jun-27
Dec-27
Jun-28
Dec-28
Jun-29
Sources: Bloomberg, William Blair Equity Research

S&P 500 Sector Performance

Global Industry Classification System	Current Weight* 25-Sep-25	Week Ago 18-Sep-25	Month Ago 25-Aug-25	Qtr-to-Date 30-Jun-25	Year-to-Date 31-Dec-24
S&P 500 Index	**100.00**	**-0.41**	**2.57**	**6.44**	**12.29**
S&P400 MidCap Index		**-2.24**	**0.10**	**4.25**	**3.64**
S&P600 SmallCap Index		**-2.80**	**0.09**	**7.31**	**1.64**
Dow Jones Industrials		**-0.42**	**1.47**	**4.20**	**8.00**
Nasdaq Composite		**-0.38**	**4.36**	**9.89**	**15.92**
Communication Services	**10.34**	**-2.37**	**6.65**	**12.71**	**24.68**
Advertising	0.07	2.73	-7.34	-24.58	-35.86
Broadcasting	0.08	1.84	3.99	12.25	31.20
Cable & Satellite	0.25	0.50	-6.01	-16.50	-16.78
Integrated Telecommunication Services	0.64	-1.98	-1.74	-1.09	16.23
Interactive Home Entertainment	0.15	-2.31	1.57	3.03	23.27
Interactive Media & Services	7.31	-3.03	9.97	21.75	28.94
Movies & Entertainment	1.36	-0.19	0.64	-6.32	26.36
Publishing & Printing	0.03	-0.79	-0.86	0.48	9.62
Wireless Telecommunication Svcs	0.44	-0.37	-5.48	-0.14	7.80
Consumer Discretionary	**10.67**	**-2.29**	**1.25**	**7.80**	**3.25**
Apparel Retail	0.34	1.38	3.66	15.16	12.17
Apparel & Accessories & Luxury Goods	0.09	-2.46	-1.51	-3.54	-17.61
Auto Parts & Equipment	0.03	-0.76	7.47	24.19	34.29
Automobile Manufacturers	2.51	1.51	20.18	31.66	5.86
Automobile Retail	0.27	-0.82	-0.25	10.82	23.91
Broadline Retail	3.94	-5.48	-4.33	-0.15	0.14
Casinos & Gaming	0.10	-2.16	-3.61	14.89	5.97
Computer & Electronics Retail	0.03	0.62	-0.18	10.52	-13.53
Consumer Electronics	0.08	-0.23	1.71	13.40	14.75
Distributors	0.06	-3.17	-3.64	2.15	-0.96
Footwear	0.16	-4.69	-11.56	-1.69	-18.54
Home Furnishings	0.01	-5.44	-4.93	19.76	5.38
Home Improvement Retail	0.91	-2.96	-0.60	12.16	4.42
Homebuilding	0.21	-4.04	-3.86	18.53	9.34
Hotels, Resorts & Cruise Lines	0.87	-0.29	-3.29	-0.47	10.32
Leisure Products	0.02	-0.43	-8.02	1.00	33.35
Restaurants	0.91	-0.18	-2.13	-4.14	0.47
Other Specialty Retail	0.09	-2.91	-3.60	10.52	13.56
Consumer Staples	**5.40**	**-1.23**	**-2.15**	**-3.17**	**1.76**
Agricultural Products	0.08	0.13	-6.28	10.70	15.27
Brewers	0.01	-5.31	-13.95	-7.65	-22.52
Distillers & Vintners	0.05	-0.77	-18.03	-15.54	-38.22
Drug Retail	0.02	0.00	0.09	4.36	28.40
Food Distributors	0.06	-0.99	2.26	7.10	6.09
Food Retail	0.07	-0.76	-6.63	-8.70	7.10
Household Products	0.83	-3.22	-3.34	-5.77	-10.44
Packaged Foods & Meats	0.46	-1.51	-2.39	-3.92	-7.98
Personal Care Products	0.08	-8.39	-17.47	-14.20	-13.37
Soft Drinks	0.95	-0.93	-5.11	-2.98	-0.49
Tobacco	0.61	1.56	-2.24	-4.49	32.50
Energy	**2.89**	**2.34**	**3.74**	**7.43**	**6.42**
Integrated Oil & Gas	1.44	1.27	2.67	9.04	8.03
Oil & Gas Equipment & Services	0.20	3.84	5.16	15.57	0.94
Oil & Gas Exploration & Production	0.59	2.81	0.19	2.83	0.13
Oil & Gas Refining & Marketing & Transportation	0.28	6.16	13.12	21.10	34.47
Oil & Gas Storage & Transportation	0.37	2.06	6.13	-3.54	-2.66

Financials	**12.91**	**-0.87**	**0.63**	**2.10**	**10.67**
Asset Management & Custody Banks	1.09	-2.87	0.79	9.15	7.45
Consumer Finance	0.68	-1.74	4.19	6.15	19.11
Diversified Banks	3.17	-0.18	5.40	9.10	24.59
Diversified Financial Services	7.66	-1.46	-0.86	0.46	7.76
Financial Exchanges & Data	1.04	-2.60	-6.71	-7.38	4.92
Insurance Brokers	0.52	1.02	-2.65	-5.37	-1.36
Investment Banking & Brokerage	1.37	-0.30	4.85	10.08	30.28
Life & Health Insurance	0.30	0.52	-0.63	1.33	-0.06
Multi-Sector Holdings	1.13	0.91	1.81	1.89	9.20
Property & Casualty Insurance	0.97	0.47	-0.18	-2.86	4.87
Regional Banks	0.27	-1.53	0.68	7.54	8.70
Reinsurance	0.02	3.12	1.14	1.57	-4.76
Transaction & Payment Processing	2.22	-2.26	-4.65	-5.70	-1.42
Health Care	**8.39**	**-1.98**	**-1.25**	**-0.46**	**-2.46**
Biotechnology	1.45	-2.24	0.21	5.29	9.18
Health Care Distributors	0.32	3.67	5.30	-2.65	27.67
Health Care Equipment	1.88	-1.72	-3.81	-4.96	3.87
Health Care Facilities	0.18	3.67	3.60	8.41	33.68
Health Care Services	0.37	-1.00	0.13	-1.80	26.69
Health Care Supplies	0.06	-3.49	-8.57	-15.81	-24.10
Life Sciences Tools & Services	0.75	-5.44	-7.30	2.78	-15.41
Managed Health Care	0.73	2.37	8.77	-0.11	-28.38
Pharmaceuticals	2.65	-3.27	-1.97	-0.70	-4.96
Industrials	**7.91**	**-0.57**	**-0.05**	**2.52**	**14.79**
Aerospace & Defense	2.09	0.11	3.12	6.69	34.73
Agricultural & Farm Machinery	0.21	-1.98	-4.35	-8.22	10.15
Air Freight & Logistics	0.25	-0.29	-1.39	-3.99	-20.22
Building Products	0.46	-2.19	-4.97	-5.40	6.15
Cargo Ground Transportation	0.07	-1.55	-9.00	-11.93	-20.98
Construction & Engineering	0.15	1.14	4.44	4.50	25.02
Construction Machinery & Heavy Trucks	0.59	-1.54	4.32	14.41	17.34
Data Processing & Outsourced Services	0.05	-3.17	-8.50	-3.35	3.89
Diversified Support Svcs	0.21	0.33	-5.60	-9.05	-3.84
Electrical Components & Equipment	0.54	-2.30	0.65	1.48	7.88
Environmental & Facilities Services	0.35	0.03	-2.52	-4.23	9.38
Heavy Electrical Equipment	0.27	-0.57	0.86	14.81	84.69
Human Resource & Employment Services	0.31	-1.30	-5.65	-6.56	-3.24
Industrial Conglomerates	0.35	-1.32	-4.35	-6.80	0.56
Industrial Machinery	0.63	-1.91	-1.32	1.42	1.68
Passenger Airlines	0.14	-4.42	-4.18	14.33	-2.88
Passenger Ground Transportation	0.34	3.06	2.57	4.61	61.81
Railroads	0.44	3.99	4.22	4.68	7.48
Research & Consulting Svcs	0.18	-2.12	-2.83	-4.85	1.71
Trading Companies & Distributors	0.27	-1.49	-3.69	10.09	17.91
Information Technology	**33.16**	**1.29**	**5.57**	**11.30**	**19.87**
Application Software	2.76	-0.14	2.72	1.08	8.18
Communications Equipment	0.90	-2.03	2.56	9.29	16.12
Electronic Components	0.36	-0.03	13.44	30.62	73.24
Electronic Equipment & Instruments	0.15	-2.31	1.27	5.35	5.46
Electronic Manufacturing Services	0.14	-2.55	3.50	17.33	49.04
Internet Software & Services	0.09	-2.07	1.14	-10.71	-7.84
IT Consulting & Services	0.78	2.09	4.94	-13.29	-8.65
Semiconductor Equipment	0.80	2.99	22.76	19.76	46.09
Semiconductors	11.90	-0.01	3.14	14.18	33.73
Systems Software	8.51	-0.71	3.18	3.07	21.71
Technology Distributors	0.03	-3.63	-5.70	-12.11	-9.81
Technology Hardware, Storage & Peripherals	6.73	7.43	13.07	25.05	4.06
Materials	**1.68**	**-2.83**	**-3.66**	**0.58**	**5.58**
Commodity Chemicals	0.05	-7.54	-12.38	-15.81	-40.38
Construction Materials	0.13	-1.62	1.07	11.91	16.11
Copper	0.08	-21.34	-19.11	-18.48	-7.20

Fertilizers & Agricultural Chemicals	0.12	-1.85	-4.47	-7.74	15.86
Gold	0.15	6.83	17.68	43.61	124.80
Industrial Gases	0.47	-2.42	-2.84	-0.52	7.88
Metal & Glass Containers	0.02	-1.48	-8.57	-13.59	-12.08
Paper Packaging	0.16	-3.31	-6.44	-3.21	-16.03
Specialty Chemicals	0.41	-2.18	-5.67	-1.41	-2.88
Steel	0.08	-0.82	-5.72	4.87	16.88
Real Estate	**1.84**	**-0.62**	**-1.20**	**0.24**	**1.96**
Data Center REITs	0.22	-0.17	1.39	-1.63	-11.81
Health Care REITs	0.29	1.78	3.62	10.87	21.66
Hotel & Resort REITs	0.02	-1.59	2.49	12.76	-1.14
Industrial REITs	0.17	-1.69	1.43	7.69	7.10
Multi-Family Residential REITs	0.00	-1.43	-1.82	-6.51	-11.14
Office REITs	0.02	-3.08	8.15	11.70	1.35
Other Specialized REITs	0.11	0.74	1.78	-1.72	2.79
Real Estate Service	0.14	-6.22	-6.55	7.84	17.68
Retail REITs	0.25	0.68	1.93	6.91	4.39
Self-Storage REITs	0.13	-2.15	-2.70	-5.33	-7.03
Single-Family Residential REITs	0.13	-2.15	-2.70	-5.33	-7.03
Telecom Tower REITs	0.25	0.26	-8.88	-12.01	3.61
Timber REITs	0.03	-1.50	-8.79	-5.91	-14.13
Utilities	**2.19**	**1.87**	**0.86**	**4.64**	**12.75**
Electric Utilities	1.41	2.46	0.83	4.76	12.59
Gas Utilities	0.04	2.48	0.61	8.01	19.53
Independent Power Producers & Energy Traders	0.13	-3.50	4.87	6.09	38.95
Water Utilities	0.05	-0.22	-6.44	-2.88	8.53
Multi-Utilities	0.57	1.79	0.63	4.34	8.24

*Current Weight is market cap based, based on calculations by William Blair Intl. Ltd.

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DOW JONES: 45947.30
S&P 500: 6604.72
NASDAQ: 22384.70

Additional information is available upon request.

Current Rating Distribution (as of September 26, 2025):

Coverage Universe	Percent	Inv. Banking Relationships *	Percent
Outperform (Buy)	73	Outperform (Buy)	10
Market Perform (Hold)	27	Market Perform (Hold)	3
Underperform (Sell)	1	Underperform (Sell)	0

*Percentage of companies in each rating category that are investment banking clients, defined as companies for which William Blair has received compensation for investment banking services within the past 12 months.

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