Topics: Equity markets, inflation and the Federal Reserve; what it would take for the energy bill's projected GHG reductions to actually occur, and why it matters; and what will all those new IRS agents be doing?

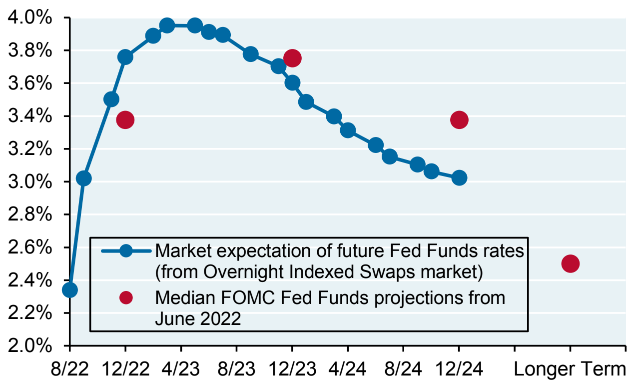
Earlier in the summer, I wrote that while there might be a "hurricane" coming for the US economy, a lot of hurricanes had already taken place in equity markets:

- By May, 50% of NASDAQ stocks were down by 45%, and 33% were down by 70% (May 17 EoTM), and by June the average Russell 1000 Growth and Small Cap stock was down by 50% (June 7 EoTM)
- In 6 prior major recessions, equities bottomed way before GDP and by the time GDP was rising again, equities had already risen substantially (June 7 EoTM)
- Investor capitulation: an all-time high on the % of stocks trading below their cash value (June 27 EoTM)

As a result, I was not surprised to see markets bounce from their June lows, particularly as hedge funds covered short positions[1]. That said, I was surprised at the *breadth* of the rally since the terminal Fed Funds rate for this cycle is still unknown. We may be past *peak* consumer price inflation, but the Funds rate required to bring inflation down to the Fed's target[2], and its impact on corporate earnings, is still unknown.

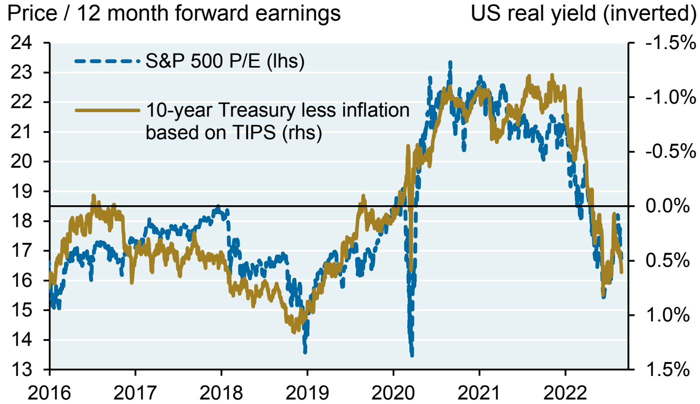
Markets and multiples. Markets are pricing a Fed Funds peak of 4% by April, followed by a decline to 3% by year-end 2024. While inflation linked to food/energy, auto parts, other goods and cyclical services are rolling over, less cyclical services and housing inflation are still rising [Ex. 1 and 2; see p.7-8]. And while business surveys suggest that wage pressures have subsided from peak levels, wage growth is still extremely high [Ex. 3 and 4] and payrolls and jobless claims have only weakened a small amount. **If the Fed is committed to restoring positive real interest rates (see chart, right), I find it hard to justify an increase in equity multiples**.

Implied Fed funds target rate: Fed vs market expectations
Percent



Source: Bloomberg, JPMAM. September 1, 2022.

S&P 500 P/E closely tracking real interest rates
Price / 12 month forward earnings US real yield (inverted)



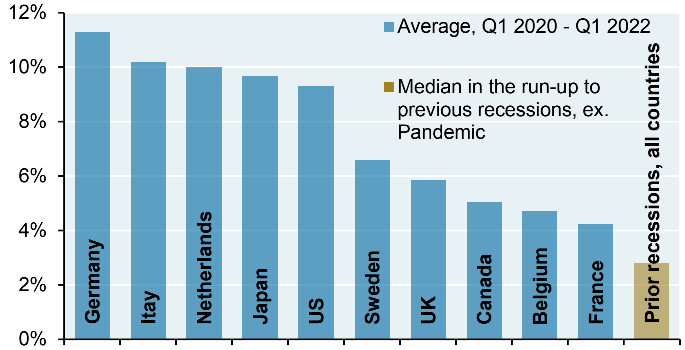
Source: Bloomberg, JPMAM. August 31, 2022.

The recent equity rally is often compared to two prior bear market rallies, but both involved deep recessions (1973-1975 and 2007-2009) that we do not anticipate this time. To be clear, a recession is still a significant risk over the next few months. The US avoided recession four times after prior Fed hiking cycles but each time, food/energy inflation was very low which isn't the case today [Ex. 5]. Furthermore, new orders have declined sharply relative to production, inventories are high [Ex. 6 and 7], housing is imploding and the US dollar is at a 20-year high (hurting 30%-40% of S&P revenues which are foreign-sourced). If there is a recession, I expect it to be a milder one: private sector savings are higher than before prior recessions, and a macroeconomic projection of the US business cycle points to a less severe contraction than in 2009 or 2020.

[1] **Short covering**. From the June lows, the S&P 500 rose by 12% while an index of the most shorted stocks rose by 35%.

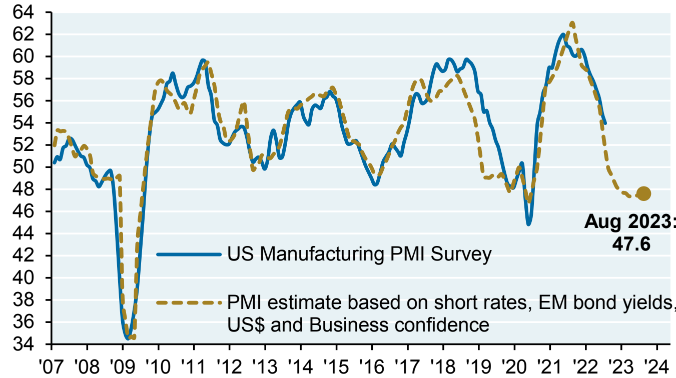
[2] Rob Portman (R-OH), a Senator I admire greatly and whose retirement is another sign of institutional decay in the Senate, released a report this year on how China's government targeted Federal Reserve employees in a decade-long infiltration campaign aimed at stealing US monetary policy secrets. **My question**: wouldn't the Fed's very poor track record in anticipating future inflation and policy rates dissuade people from wanting to steal its secrets and copy it?

Private sector savings: current vs prior recessions
% of GDP



Source: "*Why a Recession Would Likely Be Mild*", Hatzius & Struyven (GS). August 16, 2022.

Macro variables point to a shallower economic correction
US PMI survey, 3 month average



Source: Piper Sandler, JPMAM. July 31, 2022.

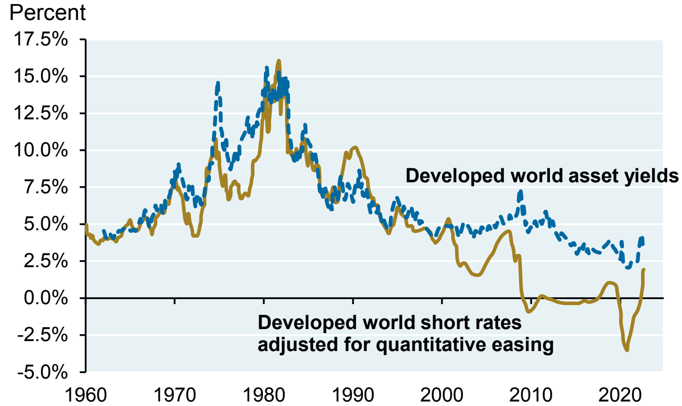
Bottom line for equity investors:

- While consumer price inflation may have seen its peak, it's still elevated and wage inflation has not rolled over yet [Ex. 4]. The labor force participation rate is still below pre-COVID levels [Ex. 8], but since almost all of the gap is due to the age 54+ cohort, there's less room for continued improvement (the LFPR for ages 25-54 is now back at pre-COVID levels). Furthermore, a measure of jobs openings plus employment vs the labor force shows the tightest labor markets in decades. So, the Fed will keep tightening. But if there is a recession, we expect it to be a milder one given the health of consumer balance sheets
- Leading indicators for the PMI manufacturing survey point to a mild recession next year (see chart above). The declining PMI is also a key input into leading indicators for S&P earnings [Ex.9]. The summer rally was due to rising P/E multiples [Ex. 10] which are unlikely to rise further given positive real interest rates and more quantitative tightening. Given weakening leading indicators and declining earnings, I expect a rollover in US equity markets this fall closer to the June lows for those looking for a better entry point
- The last Fed hike for the cycle, when it does occur, has historically been good news for investors; only during the 2000 cycle did the last Fed hike fail to result in a sustained rally [Ex. 11]
- See the two charts below: since 2009, financial repression resulted in 20%-60% of the stock market offering dividend yields above Treasury yields, and resulted in short rates that were way below asset yields. Both trends were only sustainable if inflation stayed low forever. **Some of you will miss TINA investing (e.g., "There Is No Alternative" to equities since interest rates are below inflation). I won't.** It spawned a lot of mindless risk-taking and ruined fixed income markets for a generation, negatively impacting defined benefit plans, insurers and families invested in funds that reduce risk with age. **Good riddance to bad policy**

Stocks with dividend yields above 10yr Treasury yield
Percent of total market cap

Source: Factset, JPMAM. August 30, 2022. Universe: CRSP all cap.

Gap between asset yields and short rates is finally closing
Percent



Source: Bridgewater. August 25, 2022.

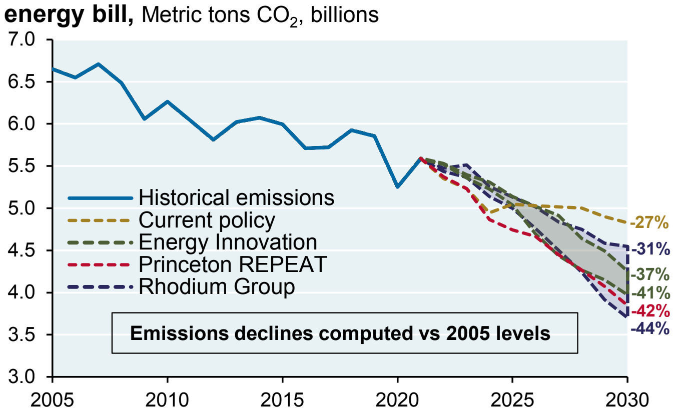
What it would take for the energy bill's projected GHG reductions to actually occur, and why it matters

I read a piece in the *Atlantic* entitled "*The Best Evidence Yet That the Climate Bill Will Work*" [August 3, 2022]. The author writes: "First we got the bill. Now we have the numbers". Really? What you have are projections from three energy modeling teams estimating that the bill could reduce GHG emissions by ~40% by 2030 vs 2005 levels, implying a *quadrupling* in the pace of decarbonization. There's no discussion in the *Atlantic* article of what would actually have to happen to get there.

I looked at the detailed assumptions made by one of the modeling teams. These analysts are very smart and very well informed on energy transition dynamics. **But: their models often assume perfectly optimal behavior by businesses and individuals based on prevailing incentives, and usually ignore frictional issues such as battery and critical mineral supply chain constraints[3], interconnection delays of wind/solar power and the difficulty in siting new transmission.** On the latter, House Democrats may block passage of the infrastructure project siting bill that Senate Democrats agreed to in exchange for Manchin's Inflation Reduction Act support[4].

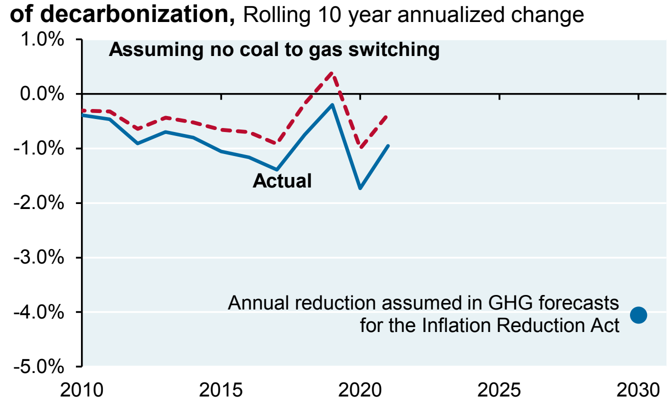
The next page compares their assumptions and ours. **The reason this is important**: if you believe the energy bill modelers, the US could start enacting policies to constrain the natural gas industry since the US will need a lot less gas in 2030, and even less after that. But if you believe that the future could be closer to our assumptions, **you would do no such thing** for fear of ending up like Europe: energy-dependent and facing a difficult winter. With gas reserves headed for 90% by November it looks like Germany will be able to make it through the winter without Russian gas, but only if they continue to cut consumption by 15% vs normal levels.

Estimates of GHG emissions declines resulting from US energy bill, Metric tons CO_2, billions



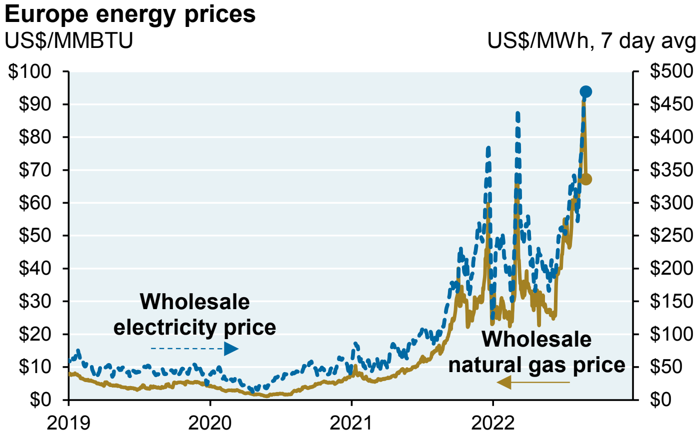
Source: Princeton REPEAT, Energy Innovation, Rhodium Group. 2022.

US GHG emissions target implies a quadrupling in the rate of decarbonization, Rolling 10 year annualized change



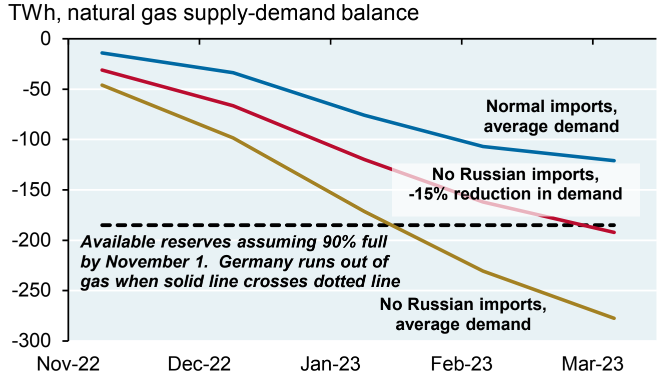
Source: BP Statistical World Energy Review, JPMAM. 2022.

Europe energy prices



Source: Bloomberg. August 31, 2022. Dots represent latest daily price.

Germany can make it through the winter but only by continuing to cut natural gas demand by 15%
TWh, natural gas supply-demand balance



Source: Cedric Gemehl, Gavekal Research. August 9, 2022.

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3 *Domestic content requirements for EV subsidies in the energy bill.* Critical mineral minimum extraction/processing percentages for US/Free Trade Area countries start at 40% in 2024 and rise to 80% by 2027. Battery component requirements for manufacturing or assembly in North America start at 50% in 2024 and also rise to 80% by 2027.

4 "*Prospects dim in House for Manchin's federal permitting measure*", Rollcall.com, August 17, 2022

Understanding the table. The table compares our assumptions for the year 2030 with one of the three modeling groups that analyzed the energy bill on behalf of the Senate. The color-coded column highlights the greatest differences between our assumptions and theirs; red = very different, green = very similar.

I emphasized the natural gas share of primary energy since it is a critical policy issue. It affects decisions on pipelines, electricity transmission, energy storage, export policy (European demand for LNG is expected to rise by 2.5x by 2030), winter heating regulations and decommissioning policies affecting coal/nuclear.

2021	Assumption	JPM 2030	Group X 2030	Comments
	Energy consumption			
	Final energy delivered, growth vs 2021	0%	-2%	Many forecasts of US energy demand are roughly flat, reflecting increased efficiency and reduced energy intensity offsetting population growth
	Electricity consumption growth vs 2021	4%	25%	
20%	Electrification of final energy delivered	21%	26%	
17%	Electrification of industrial energy use	17%	18%	
	Fossil Fuels			Primary energy figures based on EIA/BP convention of grossing up renewable energy generation by a 35% thermal equivalent
34%	**Natural gas share of primary energy consumption**	**32%**	**20%**	Excludes any US natural gas produced and exported for economic/NATO reasons
39%	Natural gas share of electricity consumption	31%	15%	
10%	Coal share of primary energy consumption	4%	5%	Despite potential for CCS to extend life of coal plants, shares of generation/primary energy still projected to decline
NA	Decline in gasoline/diesel consumption vs 2021 level	-10%	-28%	
6%	Biodiesel and renewable diesel share of diesel production	8%	??	Renewable fuel credit only extended to 2024
	Wind and solar			
109	Solar plus wind watts per capita per year of new capacity, 2022-2030 annual average	162	302	The largest amount of annual new electricity generation capacity ever installed in the US was 197 watts per capita, achieved in 2002 due to a surge in natural gas capacity
	Solar capacity additions (annual) 2022-2030 vs 2019-2021 pace	3.4x	6.9x	
4%	Solar share of electricity generation	18%	30%	
25%	Solar capacity factor	25%	25%	
	Wind capacity additions (annual) 2022-2030 vs 2019-2021 pace	1.7x	2.7x	
9%	Wind share of electricity generation	22%	28%	
35%	Wind capacity factor	35%	35%	
	Electric vehicles			EV category includes battery electric vehicles (BEVs) and plug in hybrids (PHEVs), excludes hybrid electric vehicles (HEVs). Any forecast must incorporate domestic/allied sourcing requirements for critical minerals and batteries included in the energy bill for $7500 subsidies to be available
4%	Passenger car/light truck/SUV EV share of **sales** in 2030	25%-40%	100%	
1%	Passenger car/light truck/SUV EV share of **fleet** in 2030	10%-15%	23%	
2.8	Passenger car/light truck/SUV EV miles per kWh in 2030	3.3	3.3	
0%	Medium duty truck EV share of **sales** in 2030	28%	88%	
0%	Medium duty truck EV share of **fleet** in 2030	10%	33%	
1.7	Medium duty truck EV miles per kWh in 2030	1.9	1.9	
0%	Heavy duty truck EV share of **sales** in 2030	28%	92%	
0%	Heavy duty truck EV share of **fleet** in 2030	10%	28%	
0.5	Heavy duty truck EV miles per kWh in 2030	0.5	0.5	
	Other assumptions			
22.9	Passenger car/light truck/SUV ICE car miles per gallon	27.5	29.5	
19%	Nuclear share of electricity consumption	15%	17%	Many unprofitable nuclear plants assumed to remain open due to IRA production tax credits
5%-10%	Cumulative transmission grid growth, 2021-2030	10%	37%	The historical 2021 figure of 10% represents the trailing 10 year grid expansion level, measured in GW-miles. Highly dependent on changes in Federal/state siting policies and eminent domain
6%	Electric heat pump share of residential and commercial heating	22%	21%	Significant grid implications depending on whether backup thermal heating systems remain, or if generation/distribution systems will have to handle coldest days of the year when electricity demand surges
0.8%	Hydrogen share of final energy consumption	1.0%	1.5%	Hydrogen is an energy carrier, not an energy source; projected increases vs 2021 are assumed to be from green hydrogen (renewable electrolysis), blue hydrogen (steam reformation of natural gas + CCS) or turquoise hydrogen (gasification or pyrolysis of MSW
27.1	Electricity stored and consumed later via pumped storage and other utility scale storage (batteries, flywheels, etc), TWh	136.9	46.3	Energy storage can reduce the need for gas peaker plants, transmission investment and smooth intraday demand imbalances
21	US carbon sequestration, million metric tons per year	150	200	While 45Q tax credits have catalyzed greater industrial interest in CCS, as of 2021, less than 1% of US CO2 was geologically sequestered. A forecast of 200 MMT per year would represent 10x growth but still represent just 3%-5% of current and future US CO2 emissions

Source: Modeling Group X, EIA, BP, JPMAM. 2022.

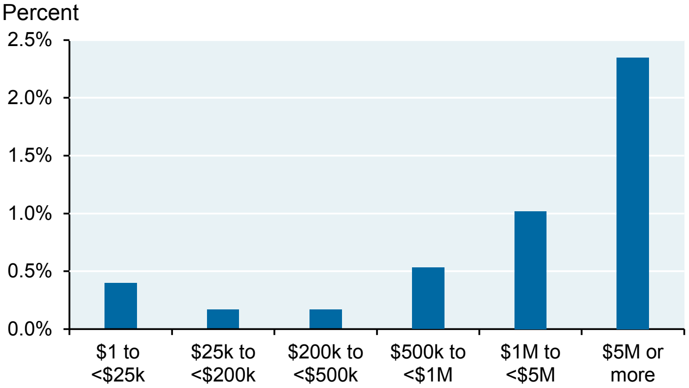
What will all those new IRS agents be doing?

The Inflation Reduction Act will dedicate $45 billion for tens of thousands of new IRS agents focused on tax enforcement, which the CBO estimates will raise $203 billion in additional revenues over a ten year period for a ~4x return. Sounds easy, doesn't it? Not so fast; a May 2022 report from the General Accounting Office suggests this could be difficult to do, particularly if the IRS directs new agents to only audit taxpayers with more than $400k in income as requested by Treasury Secretary Yellen and as reiterated by IRS Commissioner Rettig.

- The audit rate of individual income tax returns fell from 0.90% in 2010 to 0.25% in 2019. This decline is mostly attributed to reduced IRS funding and attrition of IRS agents. Audit rates decreased the most for those with incomes over $200k, although audits are still skewed towards incomes of $1mm+ (chart, left)
- From 2010 to 2019, incremental taxes raised were highest for audits of those earning **less than $200k** (chart, right); the average percent change in the amount owed was highest for this category as well
- In contrast, higher incomes had the highest rate of "no change to taxes owed" after audit
- Let's assume that the audit rate for those earning more than $400k reverts back to 2010 levels (i.e., it increases by a factor of 7x). We estimate that this would raise $8-$10 billion per year in 2031 based on data in the GAO report, far short of the $35 billion estimated by the CBO

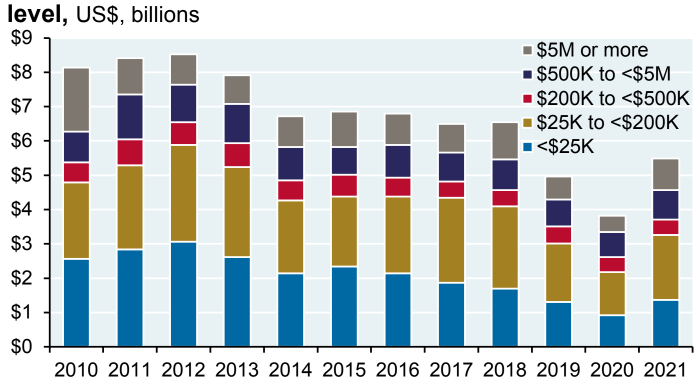
So, I'm not sure how the Act will raise the assumed revenues if new agents only focus on wealthier taxpayers. In late August, the CBO sent a letter to the House Ways and Means Committee indicating that they had already cut their estimate of revenues raised from $203 billion to $180 billion.

Audit rates by income for the 2019 tax year
Percent



Source: "*Trends of IRS Audit Rates and Results for Individual Taxpayers by Income*", Government Accountability Office. May 2022.

Estimated additional tax revenue from audit by income level, US$, billions



Source: "*Trends of IRS Audit Rates and Results for Individual Taxpayers by Income*", Government Accountability Office. May 2022.

Also: is the tax gap as large as advertised? What may be driving this initiative are estimates of a $300-$600 billion "tax gap" per year according to the Treasury[5]: the difference between what should be paid and what is paid. Most of the gap is due to underreporting of income rather than non-payment or non-filing. However, analysts at the Brookings Tax Policy Center cite several issues that result in tax gap overestimation[6]:

- The tax gap cited above includes additional taxes recommended by examiners even if the amount could be reversed on appeal or court challenge. And such reversals can be large: **only 63% of additional taxes recommended from 2015 through 2019 were ultimately assessed** after administrative appeals and abatements. That figure is likely to be even lower after further reductions following judicial review
- The IRS uses "detection controlled estimations" in its compliance studies to scale up the recommendations of all examiners to match those with the largest upward adjustments in personal income. In other words, the process is leveraged to revisions made by examiners with the largest estimates of income under-reporting. **This "highest common denominator" approach is estimated to account for two thirds (!!) of the entire individual income tax underreporting gap**

[5] "*The Case for a Robust Attack on the Tax Gap*", US Treasury, September 7, 2021

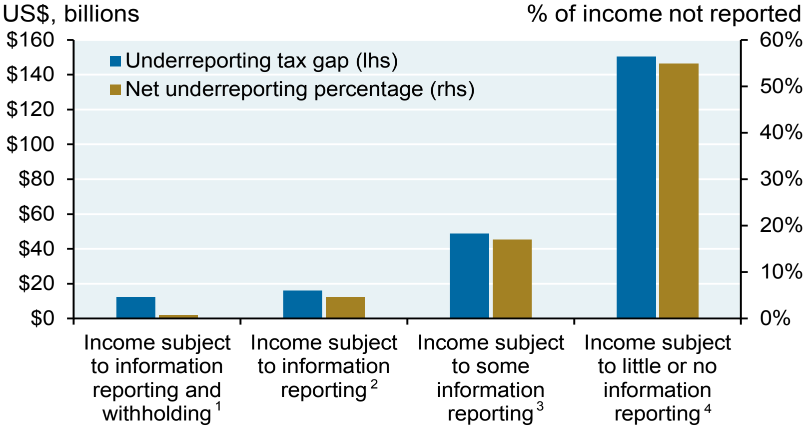
[6] "*The Tax Gap's Many Shades of Gray*", Hemel, Holtzblatt and Rosenthal (TPC), September 30, 2021

- The Treasury's estimate of the tax gap is partially based on a 2007 study citing $1 trillion in US taxpayer offshore wealth and non-payment of taxes on offshore interest and dividends. However: the IRS ramped up offshore enforcement efforts in 2008 after financial institutions in Switzerland, Liechtenstein, Israel and the Caribbean turned over thousands of names to the IRS, resulting in $6 billion in penalties paid. Since then, another $11 billion in penalties were paid by 56,000 taxpayers entering into the IRS Offshore Voluntary Disclosure Program. The Foreign Account Tax Compliance Act of 2010 made it even harder for US taxpayers to hide assets, and the IRS/Justice Department have consistently prosecuted FBAR violations over last decade, penalizing financial institutions that harbor violators. Bottom line: a lot has changed since 2007
- The Tax Cut and Jobs Act of 2017 caused more taxpayers to claim standard rather than itemized deductions, and the C Corporation tax rate declined from 35% to 21%; both are likely to reduce the degree of underreporting of income
- Some components of the tax gap reflect taxpayer-IRS disputes regarding the timing of depreciation deductions. While their resolution could increase taxes due in a given year, they do not imply perpetual underreporting of income since taxes due in future years would be lower in these cases

Whatever the tax gap is, new IRS agents are likely to focus on partnerships, sole proprietorships and owners of commercial and residential rental properties[7]. The Treasury believes that income underreporting could be 50%-60% for these entities given less withholding and information reporting (see chart). The Brookings paper also cites underreporting of pass-through income as a factor resulting in tax gap underestimation.

Last point: if you hold a lot of crypto, they may be coming for you as well if you exchange crypto for goods and services without recognizing appreciation as capital gains[8].

Underreporting of income, according to the US Treasury



1. Includes wages and salaries
2. Includes pensions, annuities, unemployment compensation, dividend income, interest income and taxable Social Security benefits
3. Includes partnership/S corporation income, capital gains and alimony income
4. Includes nonfarm proprietor income, other income, rents and royalties, farm income and Form 4797 income

Source: US Department of the Treasury. September 2021.

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7 **A partial list of what the IRS looks for**: allocations of ordinary income to tax-exempt partners, and allocations of deductions/long term gains to partners in high tax brackets, that are not in accordance with ownership interests; S corporations that do not pay sufficient wages to shareholder-employees, or which provide them with large non-wage distributions; work arrangements improperly structured as independent contractors so as to benefit from expanded pretax deferral options and qualified business income deductions.

8 **The IRS reportedly believes that there is a large degree of non-reporting by crypto holders**. Recent new rules include Executive Order 14067 instructing the IRS to focus on non-compliance; enhanced Form 1040 disclosure on crypto sales, exchanges and receipts; and Notice 2014-21/Rev. Rule 2019-24 providing guidance on crypto tax treatment. **What may come next**: comprehensive field exams of digital asset funds, principals and investors; enhanced information disclosures piercing some bearer aspects of crypto holdings; and assessment of economic and possibly criminal penalties which are well publicized in order to raise the bar for non-compliance.

Exhibits

Exhibit 1: inflation trends

Contributions to CPI inflation

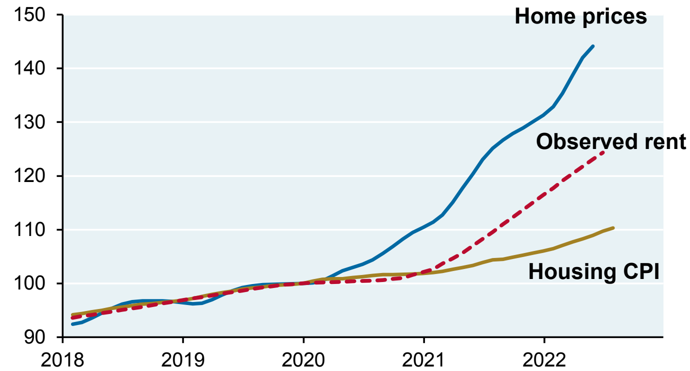
Category	CPI weight	Latest value	Forward estimate	Description
Food & energy	19%	5.25%	0.20% ↓	Quickly turning over to a drag on headline inflation as commodity prices have fallen
Autos & parts	8%	2.75%	2.10% ↓	Used car prices likely to fall substantially as supply recovers
Other goods	12%	2.80%	2.65% ↓	Weakening as demand for goods and supply strains fade but w ill be supported by strong w age grow th
More cyclical services	13%	3.30%	3.20% ↓	Moderating from extremes but likely to remain very high as demand continues rotating into services
Less cyclical services	16%	2.95%	3.05% ↑	Slow er moving; buoyed by the breadth of inflation and w age grow th to date
Housing	31%	3.90%	4.10% ↑	Extremely strong as higher market rents flow through to more tenants over time

Source: Bridgew ater, JPMAM. August 11, 2022.

Exhibit 2: housing inflation

US home prices, rents and housing CPI

Index (100 = Dec 2019)

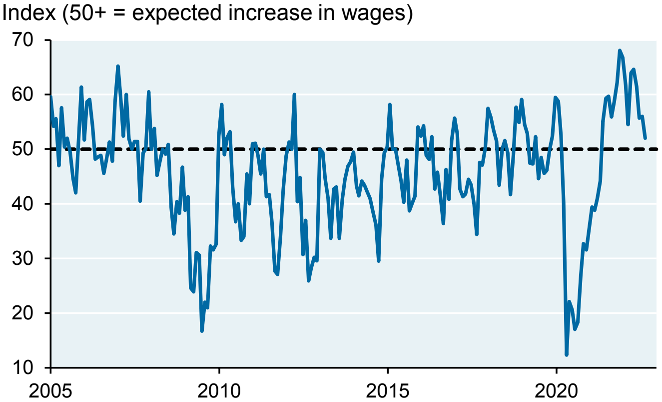


Source: BLS, S&P, Zillow, JPMAM. July 2022.

Exhibit 3: wage expectations

US Business Leaders Survey Wage Expectations

Index (50+ = expected increase in wages)

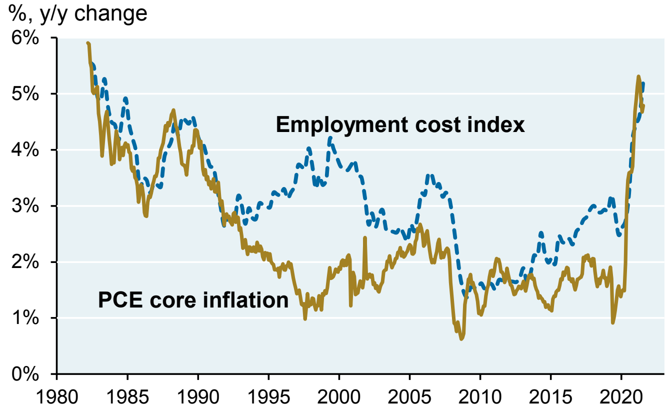


Source: NY Fed, JPMAM. August 2022.

Exhibit 4: consumer price and wage inflation

Employment cost index vs PCE core inflation

%, y/y change



Source: BLS, Bloomberg, JPMAM. June 2022.

Exhibit 5: the only time the US has avoided recession when the Fed hikes is when food/energy inflation is low (as shown in the red bars)

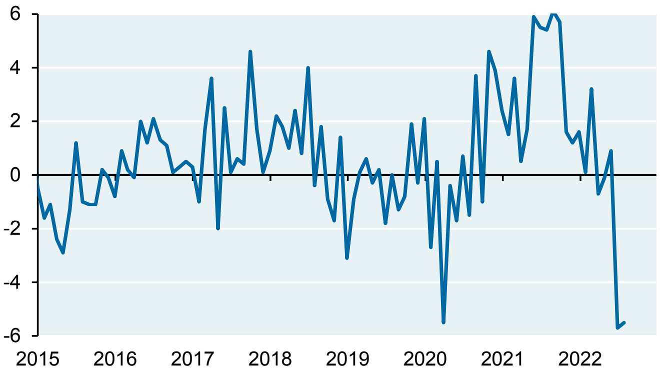
Recessions following Fed rate hikes and food and energy price spikes

Time period	Total Fed hike in bps from prior low	Peak funds rate	Did a recession occur after the hikes?	Peak US PCE food and energy level (y/y)
Oct 65 - Dec 66	168	5.74%	No	4%
Feb 71 - Jun 74	950	13.00%	Yes	22%
Dec 76 - May 81	1,412	20.00%	Yes	20%
Apr 83 - Aug 85	400	11.75%	No	4%
Nov 86 - May 89	387	9.75%	Yes	8%
Feb 94 - Jun 95	275	6.00%	No	4%
May 99 - Dec 00	175	6.50%	Yes	10%
Jun 04 - Jun 06	400	5.25%	Yes	15%
Dec 15 - Dec 18	200	2.50%	No	5%
Feb 22 - Present	?	?	?	22%

Source: Bloomberg, FRED, BEA, JPMAM. June 2022.

Exhibit 6: leading indicators

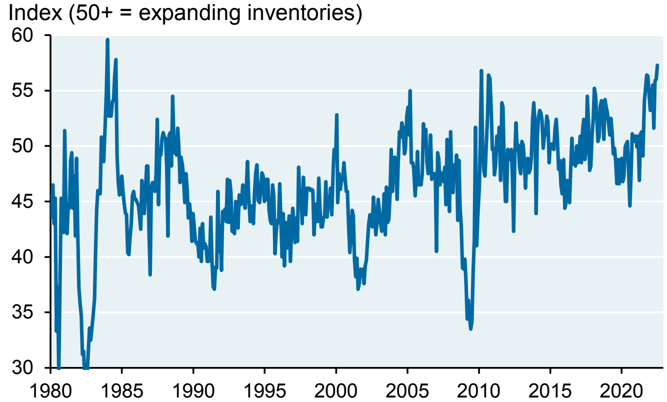
ISM Manufacturing PMI orders less production
New orders index less production index



Source: Bloomberg, JPMAM. July 2022.

Exhibit 7: inventories

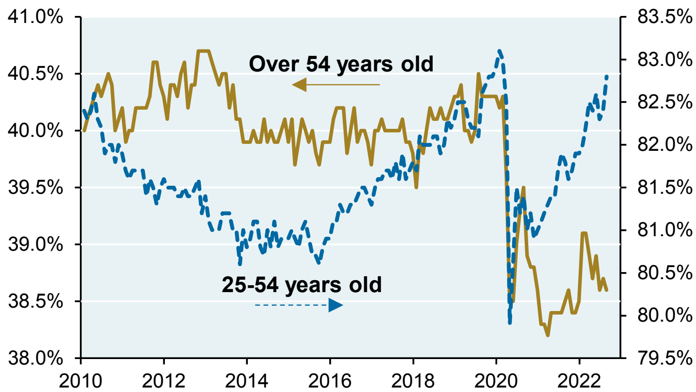
ISM Manufacturing PMI: inventories
Index (50+ = expanding inventories)



Source: Bloomberg, JPMAM. July 2022.

Exhibit 8: labor force

Labor force participation rate
Percent



Source: BLS, JPMAM. August 2022.

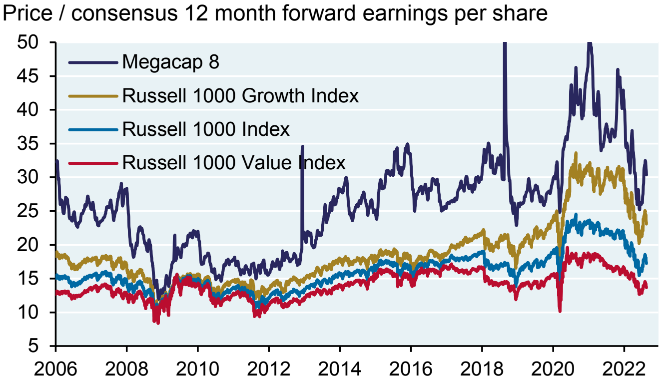
Exhibit 9: leading indicator for earnings

Leading earnings indicator model shows modest downside ahead, Percent

Source: Morgan Stanley US Equity Strategy. August 29, 2022.

Exhibit 10: price-to-earnings ratios

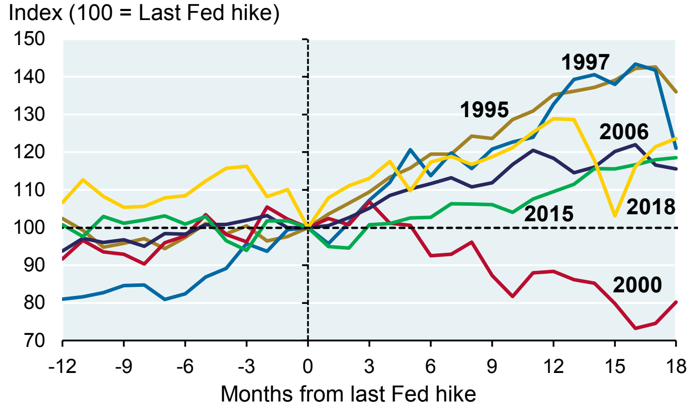
Forward PE ratios: Russell 1000, growth & value
Price / consensus 12 month forward earnings per share



Source: Datastream, Bloomberg, JPMAM. August 30, 2022. Megacap 8 includes GOOGL, AMZN, AAPL, FB, MSFT, NFLX, NVDA, TSLA.

Exhibit 11: equities and the last Fed hike

S&P 500 return before and after the last Fed hike
Index (100 = Last Fed hike)



Source: Bloomberg, JPMAM. 2022.

IMPORTANT INFORMATION

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