W U T I S

WUTIS Macro Outlook

Karl Just, Alexander Lotz

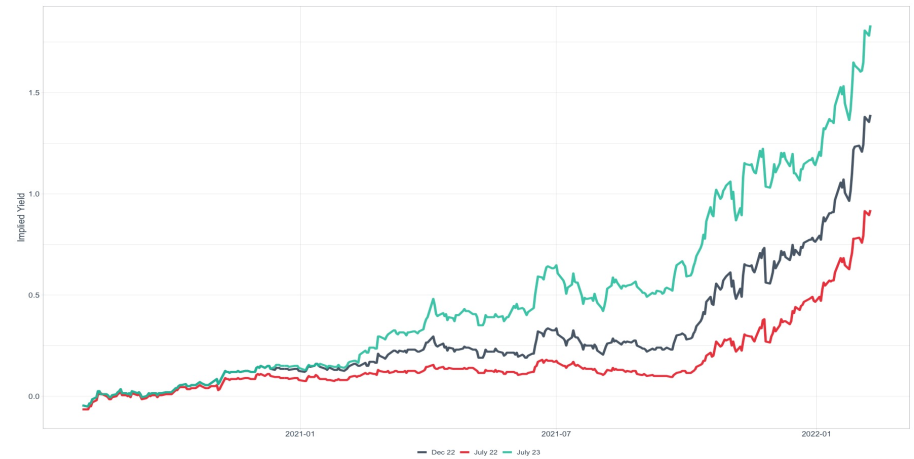
The FED became Hawkish

Fed Funds Futures are super hawkish a indicates between 5-6 hikes in 2022

Is it too much?

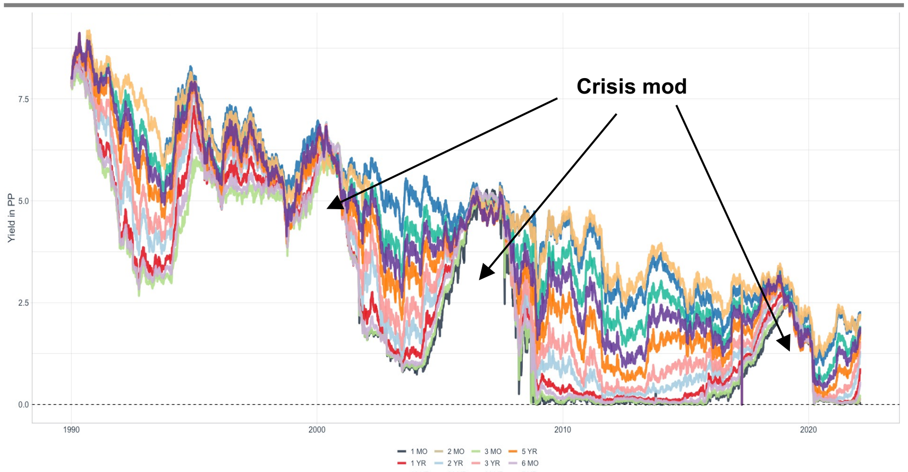
- The term structure in FED Funds markets indicates a tremendous hiking cycle this year
- For 2020, markets expect 5-6 hikes (blue line) – almost 4 hikes until July Up to 1% Fed Funds rate within five months
- Markets also expect slightly more than 7 hikes until July 2023
- Given the long term trend and the current flattening yield curve, we think this is too pessimistic

Implied Fed Funds Yield



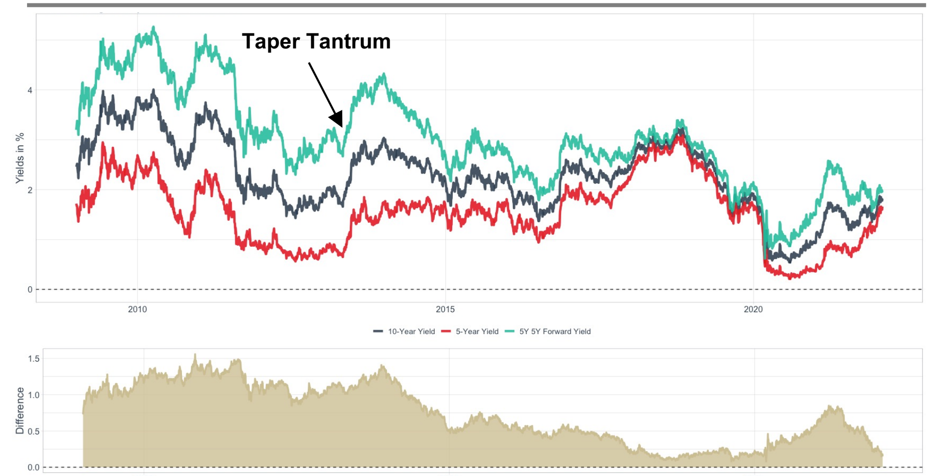
Source: Yahoo, Own Calculation

Secular trend in nominal yields at the long end



Source: Quandl, WUTIS Calculation

No taper tantrum – rather bear flattening



Source: Yahoo, Tidyquant, WUTIS Calculation

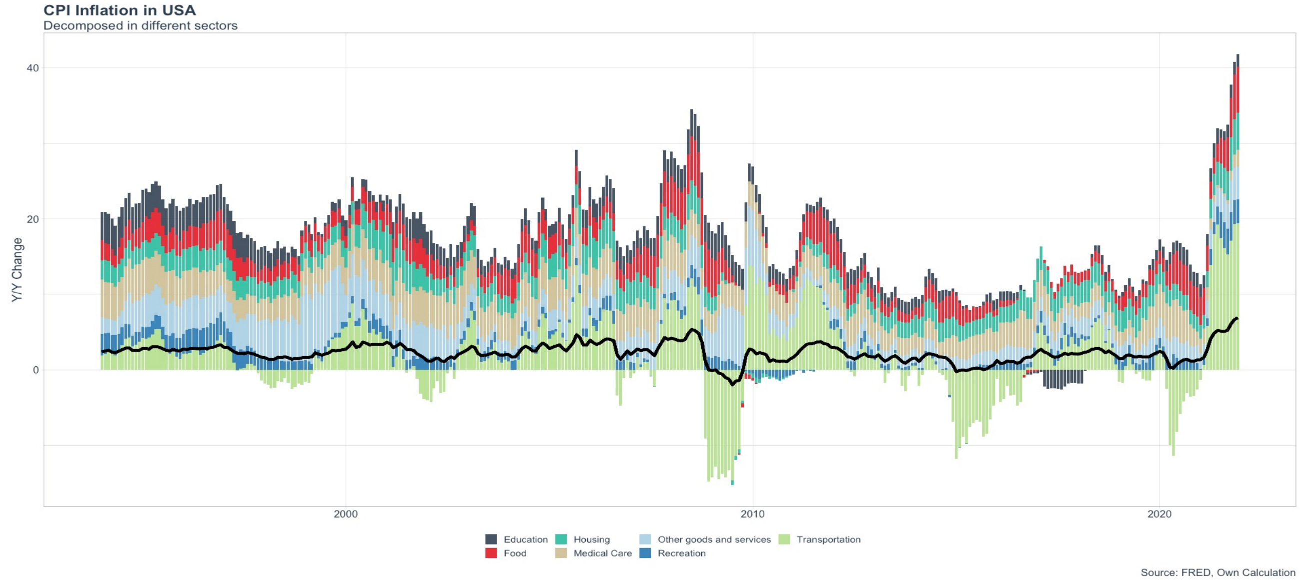
Inflation Composition

W U T I S

The strongest driver of CPI Inflation currently is Transportation (Energy)

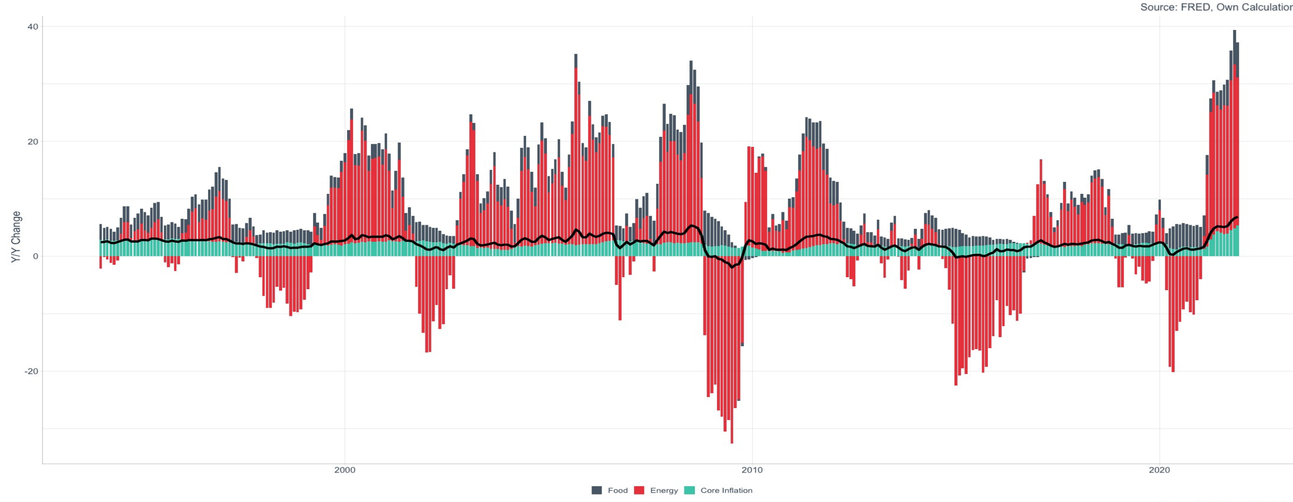
Inflation per sector

- The strongest driver of CPI Inflation currently is *Transportation*
- Furthermore, Transportation is the most cyclical one – it captures economic activity
- Hence, with a hawkish stance by the FED economic activity



Core, Energy and Food

- Using a different approach, we see that *Energy* is boosting inflation numbers
- As in the other approach, Energy is the most cyclical part of the overall CPI calculation
- Hence, current elevated Inflation is a supply issue, even though core infaltion is elevated as well



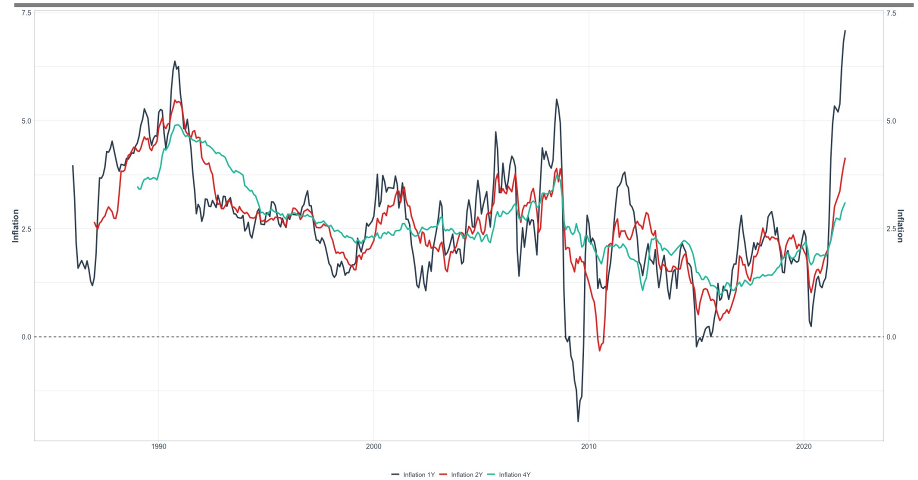
Inflation Outlook

Good for USA, bad for Europe

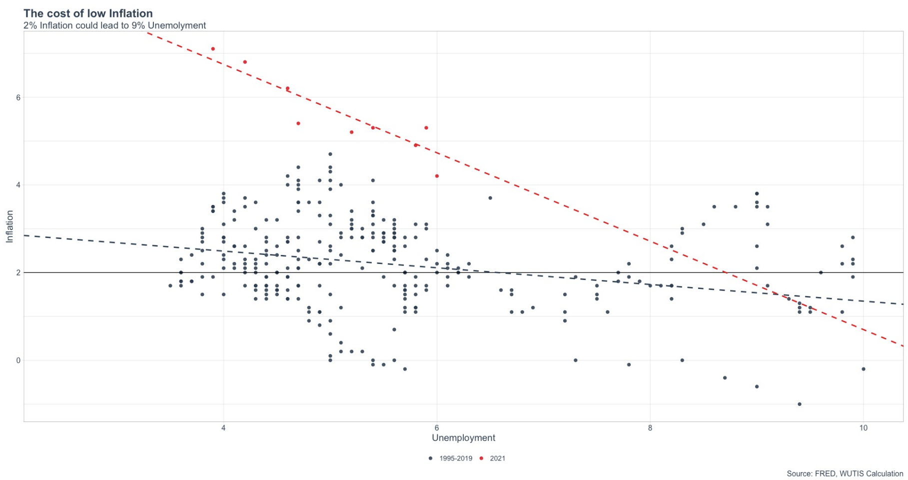
Key Findings

- Adjusted by Baseline-Effects, annualized 2Y Inflation rate is not above 1992 levels, annualized 4Y Inflation rate suggest CPI is at 2008 levels
- Inflation is being driven by supply constraints, not demand – and this makes life difficult for central banks.
- Higher interest rates reducing demand – not supply bottlenecks
- We think getting inflation down to 2% through rate hikes could come at a cost of almost 10% unemployment.
- Higher yields let balance sheets shrink (wealth effect) and send many people into unemployment (lower inflation is expensive)

Inflation Composition



Inflation and Unemployment



Inflation - 6 years below the target

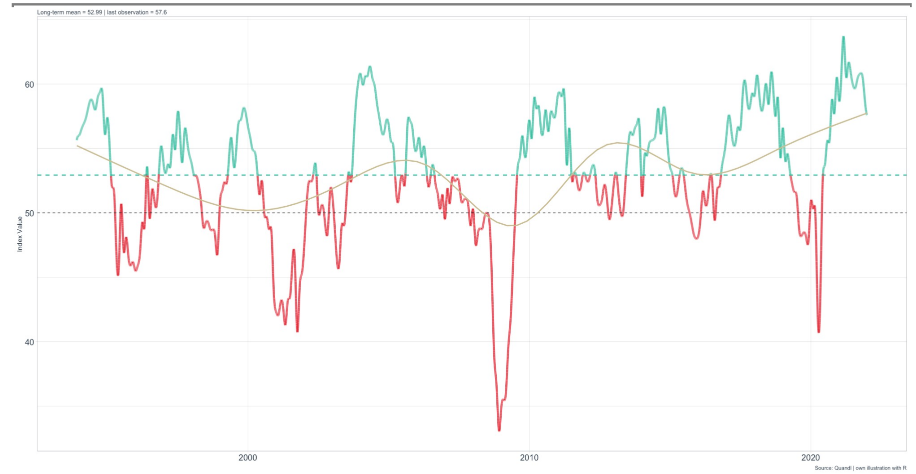
Inflation Outlook

Good for USA, bad for Europe

The conditions are mixed

- The Purchasing Managers Index (PMI) is losing momentum, but remains above long term average. And well above the 50 threshold, which would indicate shrinking economic activity
- Funding costs (10 Year real tips yield + BAA/Treasury Spread) are at an all time *low* still
- Bond markets are still supportive in favor of companies

PMI loses momentum



Factors that will keep interest rates low

- **Savety trap:** Since 2008, the supply of government bonds considered save has been reduced (South Europe, …)
- **Savings glut:** Low investments, high savings, weak innovation, low growth…greetings from Adam Smith
- **Secular Stagnation:** To get lending and borrowing into equilibrium, interest rates (r*) needs to be negative
- **Demografics:** As the number of retirees increases relative to the number of working people due to demographic factors, more must be saved.

Real funding conditions – BAA + 10-Year Tips yield

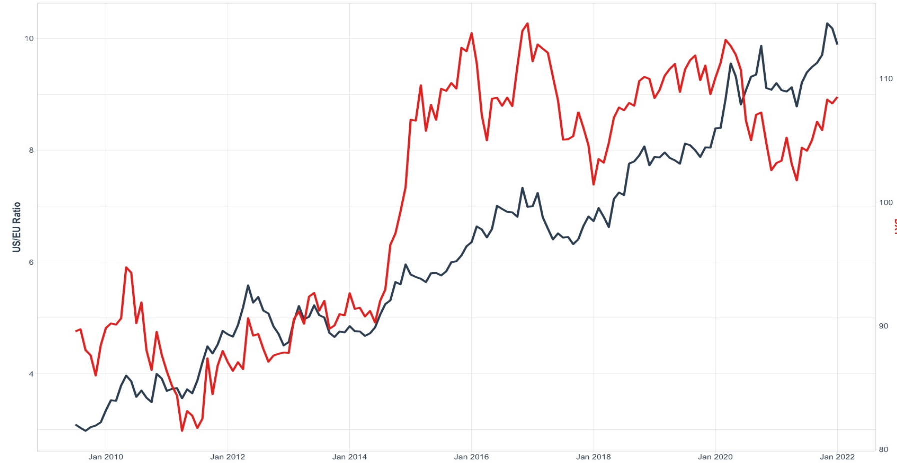
Dollar Index and Equity Markets

Good for USA, bad for Europe

Relative Outperformance

- We found that the huge appreciation was still supportive/not damaging for US Equities
- With a hawkish FED, and rising EU Member Yield spreads, interest rate differentials between US and EU will boost the Dollar
- Hence, a stronger dollar could lead to an outperformance of US Equities again (like in 2015 and 2016)

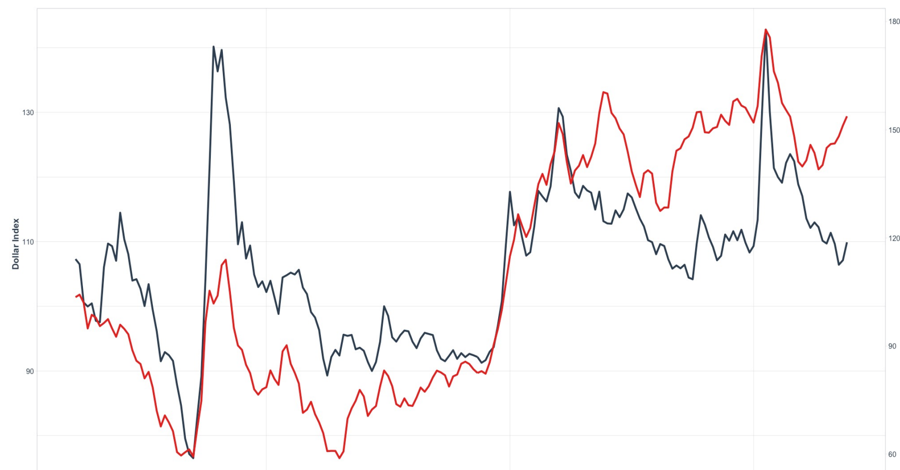
SPY over FEZ outperformance



Dollar Index Drivers

- In the short run, variations in Exchange Rates can be explained by changing interest rates
- Economic fundamentals are the long term driver for the external value of a currency
- E.g. GDP per capita, net foreing assets, and terms of trade
- In particular, terms of trade (what a country pays for imports and gets from exports) is a key indicator for FX-rates

Terms of Trade and DXY



Dollar Index and Equity Markets

Good for USA, bad for Europe

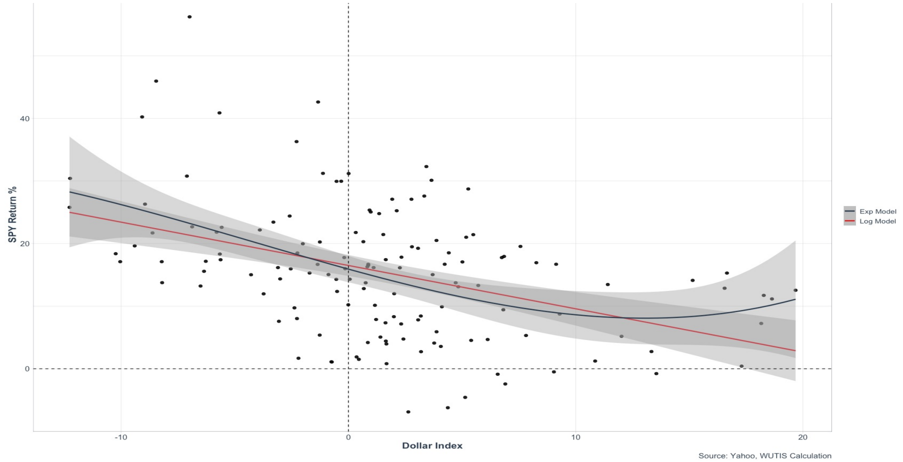
Key Findings

- Even though a strong dollar is in generall negative for Equity Markets, it led to an outperformance of US Equities
- The scatter plots shows this different effects of the Dollar
- On average, an appreciating Dollar leds to lower (but not negative) returns
- The exponential (blue) line suggest that is weaker the higher the Dollar is rising

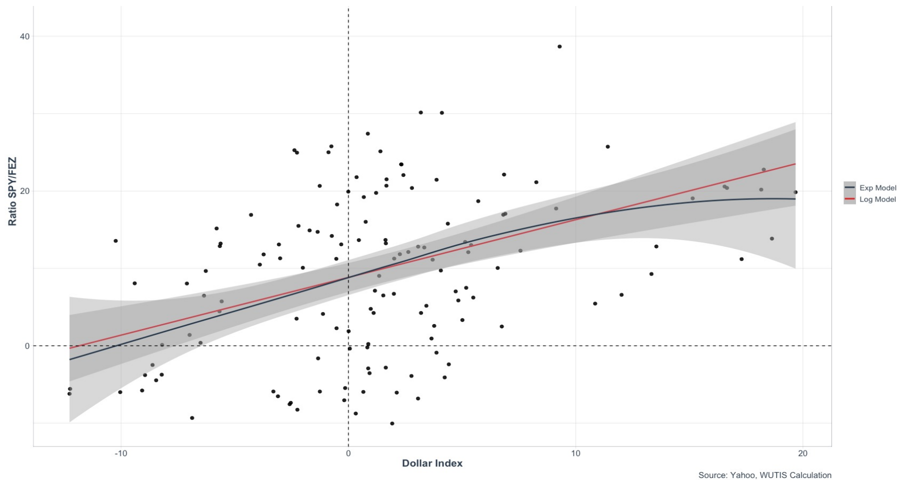
Strong Dollar is supportive for US Equities

- On the other hand, a strong Dollar suggests, on average, that an outperformance of US Equities is more likely
- However, EU Corporations with exposure to US Consumer Market get more interesting as well since a strong dollar makes imports cheaper for US citizens

SPY Returns and DXY



US Outperformance and DXY



W U T I S

Bayesian Vector Autoregressive

Bayesian Vector Autoregressive Model

Good for USA, bad for Europe

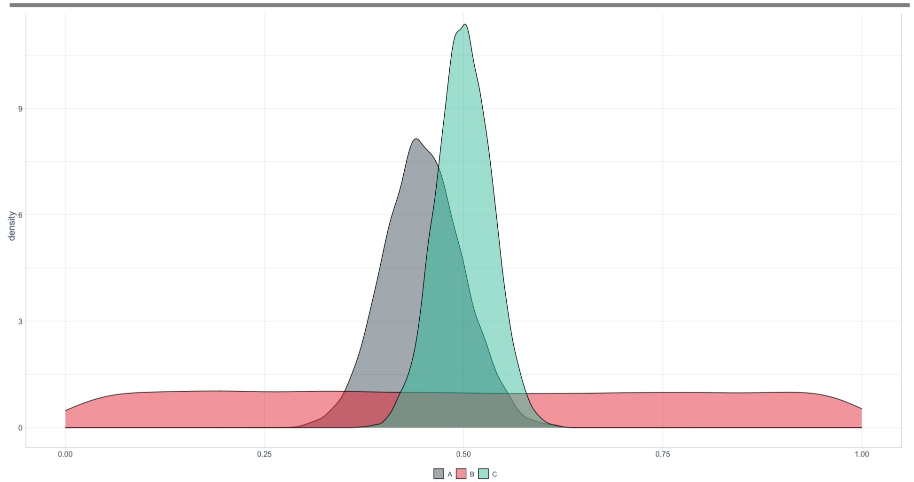
What does BVAR mean

- The vector autoregressive (VAR) model is a multivariate time series model that relates current observations of a variable with past observations of itself and past observations of other variables in the system.
- BVAR differs from standard VAR models in that the model parameters are treated as random variables with prior probabilities rather than as fixed values.
- Bayes Rule: $P(A|B) = \frac{P(B\,|A)*P(A)}{P(B)}$

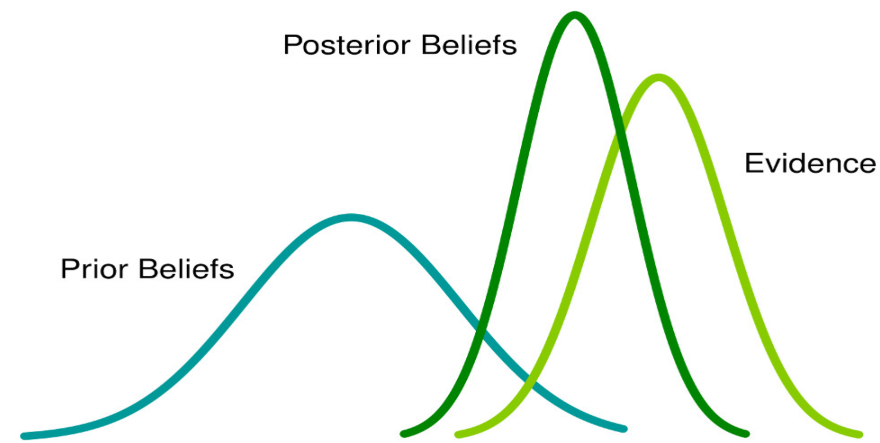
Bayesian Approach

- **PRIOR:** Usually, the prior is any relation based on economic theory. It's states how probable the hypotheses is before observing any data (hence prior).
- **LIKELIHOOD:** the empirical evidence from the data
- **MARGINAL:** the probability of the new evidence under all possible hypotheses
- **POSTERIOR:** the actual probability of an event.

SPY Returns and DXY

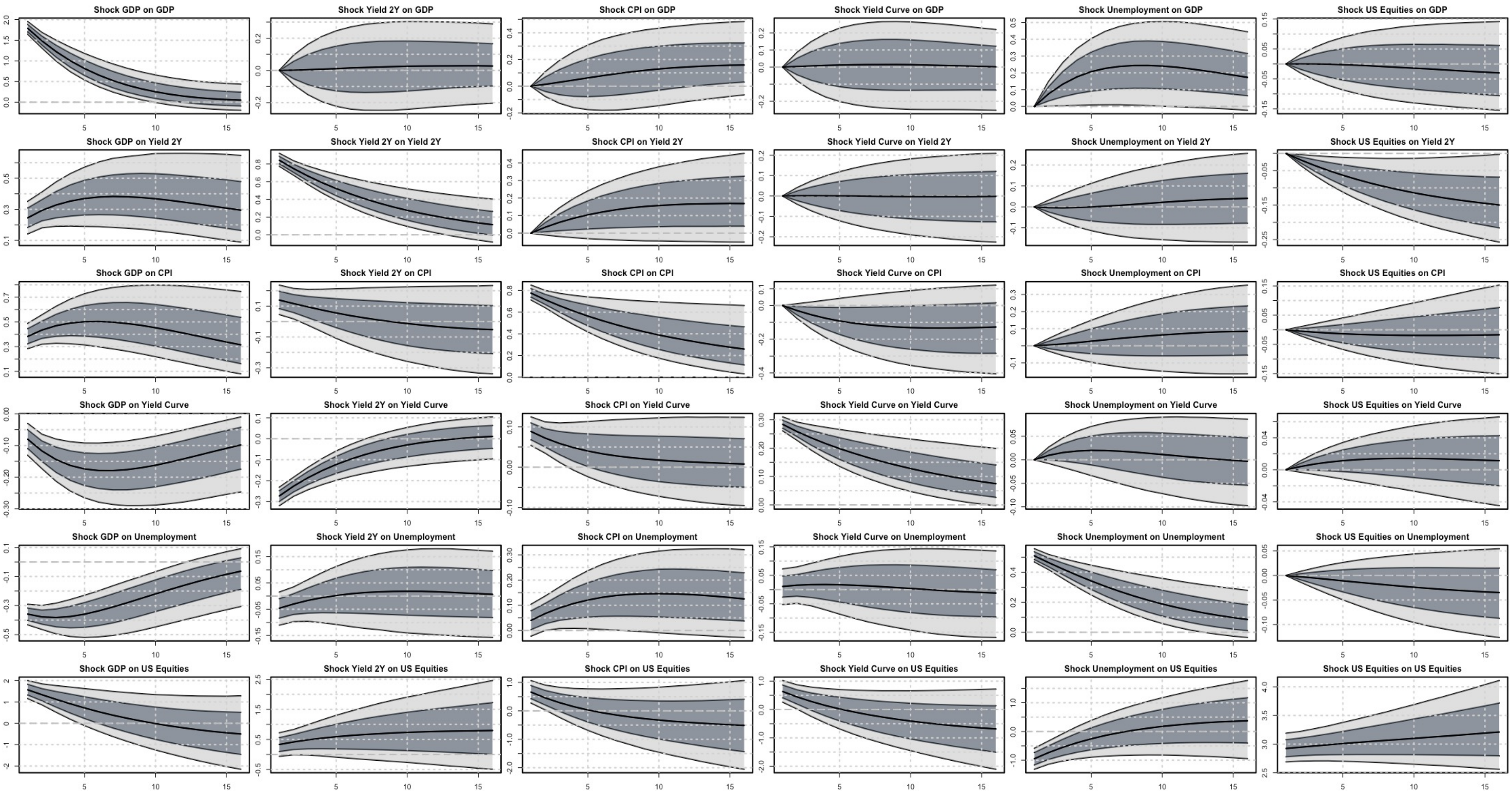


US Outperformance and DXY



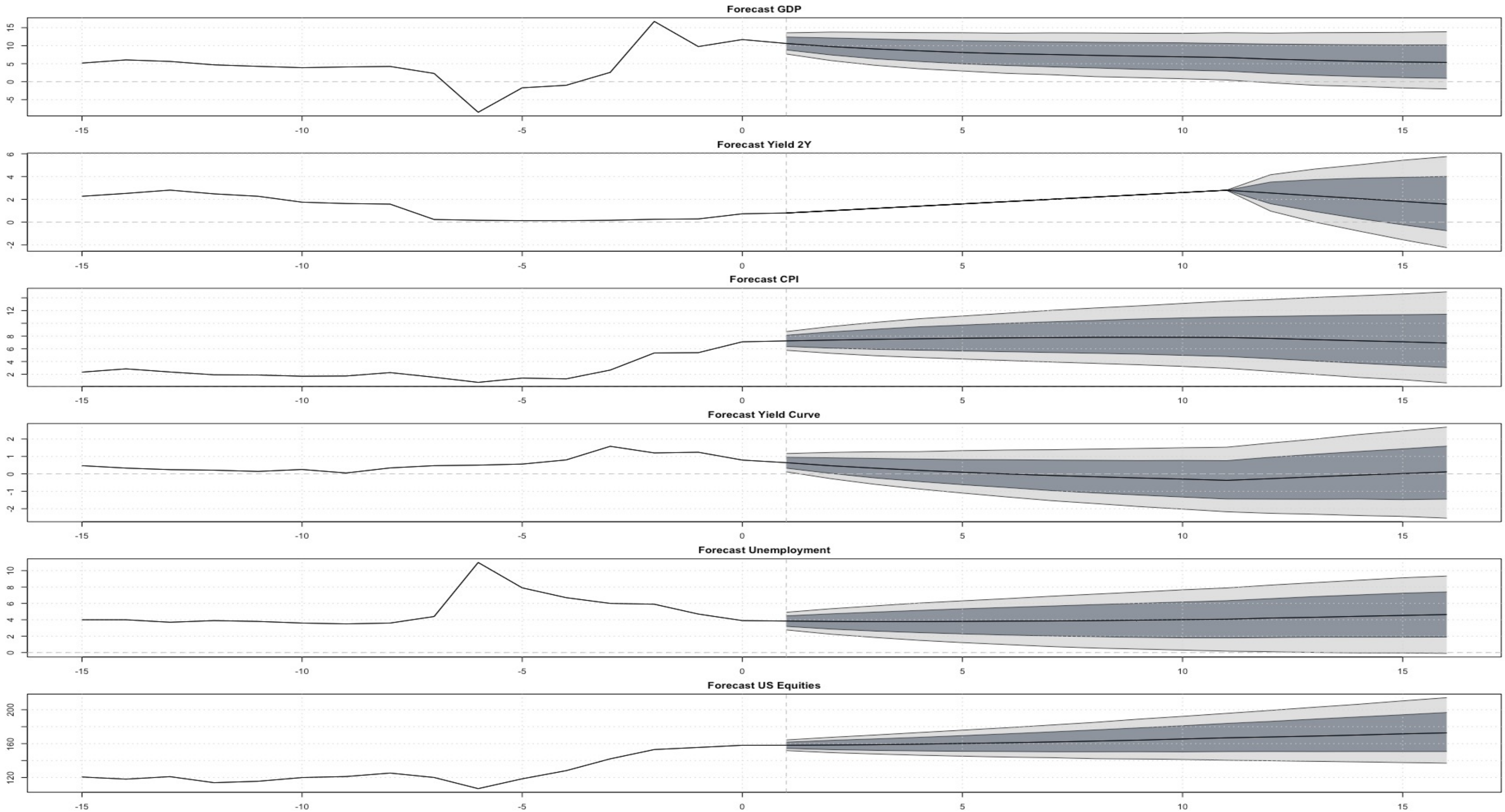
Bayesian Vector Autoregressive Model

Always updating its believes



Bayesian Vector Autoregressive Model

Forecasting the future based on conditional hawkish stance

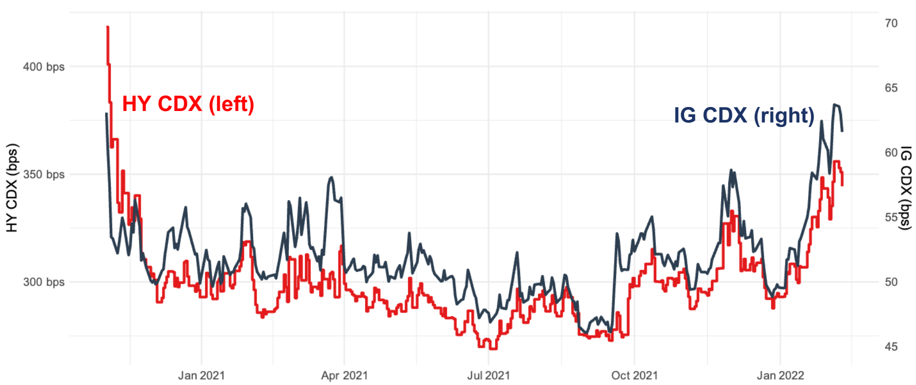


Closing Remarks

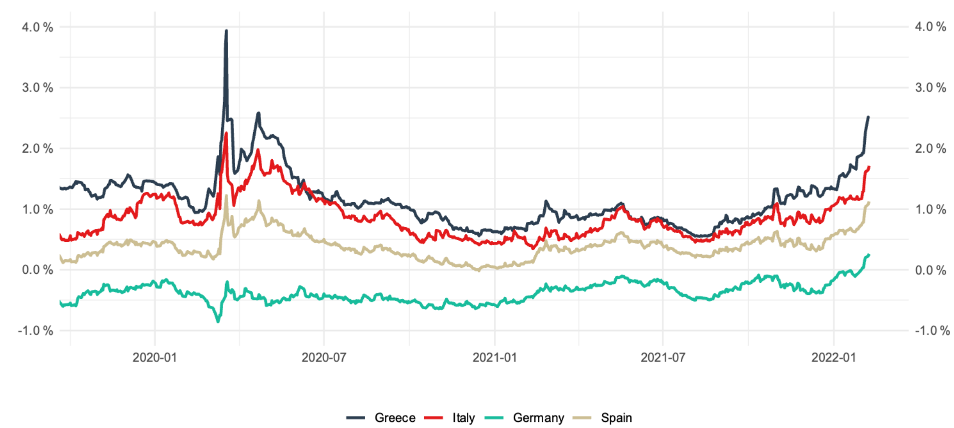
Bond Market Pain

Facebook earnings were not that special

US IG and HY CDX rise most since pandemic



10y Spreads to Bund widen most since pandemic



"The situation has changed": 6 sigma move in German 2-year yield

- 6m Euribor priced to be positive by end of year
- EU sovereign spreads widening most since pandemic
- 6 standard deviation move in German 2y yield
- Corporate spreads widening globally, from IG to Junk
- Corporates expect far higher funding costs
- Reduction of asset purchases

What does the market price in?

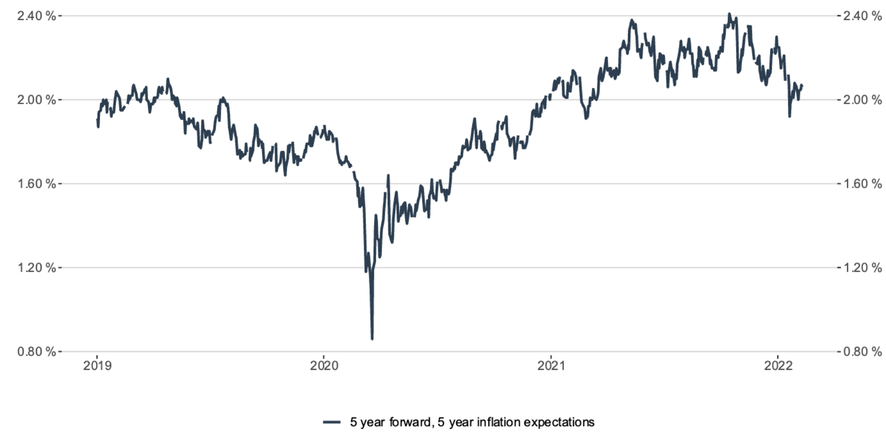
Team transitory is (somewhat) back: At least inflation is not expected to rise anymore

US: 2s10s and 1 year forward 2s10s signal flatter curves

- According to Bloomberg, 1yr US-Inflation swaps are pricing in 3% inflation in 2023 and 2,75% in 2024
- 5 year, 5 year forward (long term expectations) are pricing exactly 2% - the FEDs target

German 5s30s: Also curve flattening

Long term inflation expectations sink: 5y 5y forward

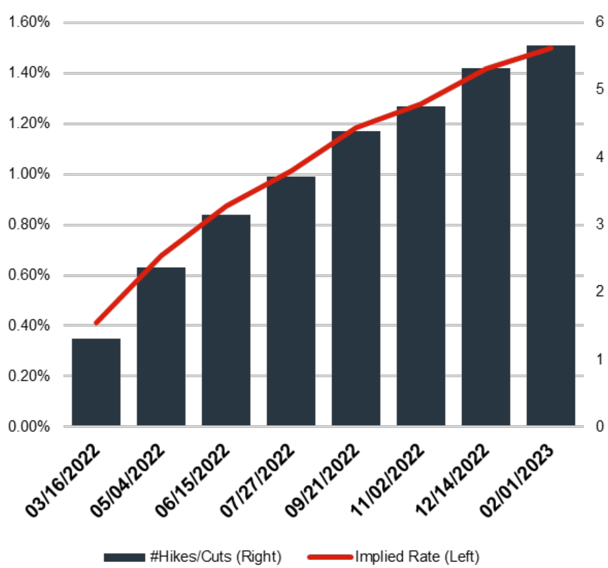


Over reacting, stimulus widthrawal symptoms or incoming policy mistake?

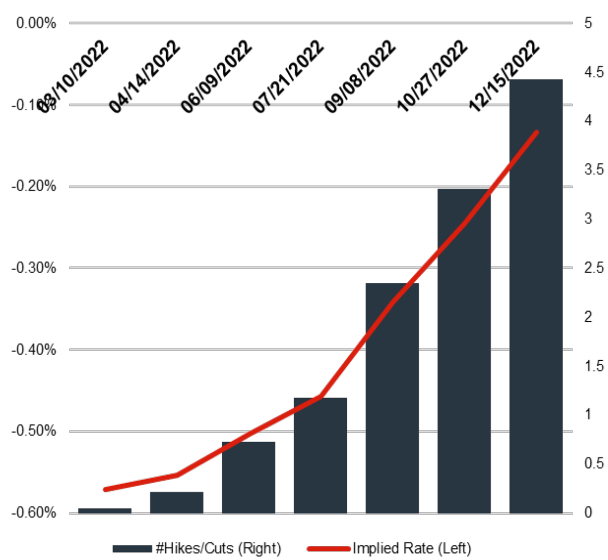
W U T I S

- Banks are expecting 5 – 7 FED hikes in aggressive tightening cycle
- Bond markets scream that the markets aren't prepared but price it in anyway
- FED very likely to not follow through to the end and adjust dynamically to market conditions just like it did with the "maybe not so transitory" inflation
- Front end of global yield curves to remain under heavy upward pressure but long end will not sell off as hard
- Central banks unite in global show of force against inflation but will wave the white flag when volatility returns and economic growth is heavily influenced

FED Funds Pricing for the coming year



ECB OIS Pricing for the coming year



Maybe not so hawkish in the near future