The Macro Minute – A Nonlinear View of Market Dynamics

The y/y Index of leading economic indicators remains negative for the 15th month in a row. The markets have experienced a spate of bank failures: Silicon Valley, Signature Bank, and Frist Republic – over half a trillion dollars. US Nominal GDP decelerated from 12% in 2021 to 2% in 2023. Savings rates have sharply fallen, and credit card revolving balances have risen with rates exceeding 22%. The list of grievances regarding the current economy are widespread and well known. Yet, the S&P 500 and the NASDAQ are only about 5% and 12% off their peak 2021 November price peak, respectively. What is going on?

In something as derivative as markets, it's never just about one thing, and yet in complex systems sometimes the simplest models can carry the most explanatory power. In economics, the term for the method by which different factors affect markets or the economy is referred to as a channel. Accordingly, the portfolio rebalance channel is the impact on market prices as investors rebalance at monthly or quarterly intervals to maintain diversification in the holdings. The largest inflow into equity markets is from retirement funds, and the largest share of those assets is in target date funds. Over the past decade, target date funds rose from about 17% to nearly 40% of defined contribution plan assets. More importantly, per Vanguard, target date funds now capture over 60% of all market assets. To sum up, most assets in markets no longer even give thought to valuation or the economy when allocating capital. They run on very simple programs: cash comes in, I buy; cash flows out, I sell.

These retirement plans are required to maintain their allocation weights, and so if a large market moving event with systematic / undiversifiable risk affects markets, such as Central Bank rate hikes, this has an impact on markets and requires a follow-on rebalancing effort that will likewise impact markets. In a very simplistic world, we could imagine an investor with a 60/40 stock / bond portfolio who is affected by the central bank policy. His or her bond holdings have a duration of 6.30, the duration of the Vanguard total bond fund incidentally, and so a 0.25% rate hike lowers bond prices by ~1.6%. This hypothetical investor is now underweight bonds and overweight stocks and must therefore rebalance his or her holdings to the target 60/40 allocation. The new portfolio value is 98.74, and we continue to repeat this simple reaction to systematic risk through the remainder of the bulk of the Fed's tightening policy in 2022. The table below illustrates the cumulative effect of policy and rebalancing.

60/40 Split Portfolio

Assumptions	
Initial Value	$ 100.00
Bond Duration	6.30
Stock Weight	60.0%

Hypothetical

		Hike	Rebalance	Hike	Rebalance	Hike	Rebalance	Hike	Rebalance	Hike	Rebalance	Hike	Rebalance
Period	**Month 0**	**Month 1**	**Month 2**	**Month 3**	**Month 4**	**Month 5**	**Month 6**	**Month 7**	**Month 8**	**Month 9**	**Month 10**	**Month 11**	**Month 12**
Stock Index	60.00	60.00	59.24	59.24	57.75	57.75	55.57	55.57	53.47	53.47	51.45	51.45	49.50
Bond Index	40.00	38.74	39.50	37.01	38.50	34.86	37.05	33.54	35.65	32.28	34.30	31.06	33.00
Total Portfolio ($)	$100.00	$98.74	$ 98.74	$96.25	$ 96.25	$92.61	$ 92.61	$89.11	$ 89.11	$85.74	$ 85.74	$ 82.50	$ 82.50
			-1.26%		-3.75%		-7.39%		-10.89%		-14.26%		-17.50%
FOMC Rate Hike Schedule		0.25%	0.00%	0.50%	0.00%	0.75%	0.00%	0.75%	0.00%	0.75%	0.00%	0.75%	0.00%

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The interesting comparison to make with our simple, hypothetical portfolio is to the actual real-world results of a 60/40, globally diversified portfolio which returned -21.56% in 2022, shown below. In fact, the hypothetical example that was constructed explains slightly less than 70% of the variation in returns from the actual 60/40 portfolio results in 2022.

Academia has replicated this same experiment in the research work of Jonathan Parker, Hanno Lustig, and Xu Lu on the Portfolio Rebalancing Channel. The result in our very naïve test of these researchers' hypothesis basically replicates the results from Xu Lu in “Monetary Transmission and Portfolio Rebalancing: A Cross-Sectional Approach, April 7, 2023,” which opined that ~2/3s of the financial market impact comes through the portfolio rebalance channel. The relationship is also noted to be non-linear. Meaning as the Fed continues hiking rates, we get a decreasing net impact on markets. In layman’s terms, “markets throw in the towel.” This is consistent with behavioral financial research on prospect theory and loss aversion, originally developed by Nobel Prize winners Daniel Kahneman and Amos Tversky.

This allows for the recent October bottom in equities to become clearer. Near October 2022 month end is where the bond market began to push back on the Chairman Powell’s, et al monetary policy. October 2022 was the peak in longer term rates.

	Asset Class Analysis								Portfolio Analysis					
Year	US Large Cap (Russell 1000)	US Small Cap (Russell 2000)	Developed International (MSCI EAFE)	Emerging Market (MSCI EEM)	US Long Bonds (ICE US 20+ Treasury)	Cash (Treasury Bills 1-3mos)	REITs (MSCI Investable Real Estate)	Commodities (BBG Commodity Index)	Equal Weighted Market Portfolio Return	60/40 Portfolio	Pct Rank Equal Wt Portfolio	Pct Rank 60/40 Wt Portfolio	Trailing 5Y Equal Wt Portfolio Return	Trailing 5Y 60/40 Portfolio Return
2010	16.08	26.81	8.34	19.24	9.38	0.14	27.91	16.67	15.57	12.35	80.0%	60.0%	5.87	6.61
2011	1.50	(4.18)	(11.68)	(18.16)	29.93	0.07	8.04	(13.37)	(0.98)	8.37	20.0%	40.0%	2.50	5.66
2012	16.38	16.34	17.90	18.57	3.55	0.08	18.07	(1.14)	11.22	11.56	60.0%	60.0%	3.07	5.94
2013	33.13	38.82	23.44	(2.26)	(12.66)	0.05	2.42	(9.58)	9.17	11.47	50.0%	50.0%	11.69	11.91
2014	13.24	4.90	(4.32)	(1.97)	25.07	0.03	30.12	(17.04)	6.25	12.97	40.0%	70.0%	8.10	11.33
2015	0.91	(4.41)	(0.28)	(14.61)	(1.21)	0.03	3.18	(24.70)	(5.14)	(1.24)	10.0%	20.0%	3.92	8.50
2016	12.01	21.21	1.59	11.72	1.32	0.26	8.77	11.37	8.53	6.15	50.0%	30.0%	5.84	8.05
2017	21.68	14.63	25.70	37.79	8.53	0.81	5.22	0.75	14.39	17.66	70.0%	90.0%	6.44	9.21
2018	(4.79)	(11.03)	(13.31)	(14.28)	(1.84)	1.83	(4.64)	(12.99)	(7.63)	(5.85)	0.0%	10.0%	2.94	5.58
2019	31.42	25.49	22.77	18.82	14.83	2.21	25.98	5.44	18.37	21.94	90.0%	90.0%	5.19	7.21
2020	20.89	19.87	8.37	18.73	17.65	0.54	(7.93)	(3.49)	9.33	16.75	50.0%	80.0%	8.21	10.85
2021	26.43	14.78	11.87	(2.32)	(4.65)	0.04	43.25	27.05	14.56	9.35	70.0%	40.0%	9.39	11.52
2022	(19.14)	(20.46)	(13.91)	(19.81)	(29.26)	1.52	(24.33)	13.75	(13.95)	(21.56)	0.0%	0.0%	3.34	2.83
2023	19.70	12.64	14.87	8.50	2.93	2.62	9.98	(6.02)	8.15	11.19	40.0%	50.0%	6.65	6.31
7Y Sharpe	0.63	0.46	0.32	0.30	(0.01)	0.00	0.25	0.38	0.42	0.35			2.06	2.26
7Y Mean Gain	12.64	9.21	6.15	7.24	0.94	1.03	6.62	5.98	6.23	6.35			5.91	7.89
7Y Median Gain	20.89	14.78	8.37	11.72	1.32	0.81	5.22	5.44	9.33	9.35			5.84	8.05
7Y Risk (SD)	18.29	17.67	15.80	20.44	15.71	0.83	22.43	12.98	12.23	15.36			2.37	3.03
Inception: 1973														
*Annualized, since inception return									6.00%	6.40%				
Number of periods with portfolio declines greater than -5%, over 30Y look back									5	4				

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The market cap of the largest US listed stock, Apple Inc., is $3,028.2B in July 2023. The largest eight stocks in the index: Facebook, Apple, Netflix, Microsoft, Amazon, Google, NVIDIA, and Tesla (FANMAG + NT) are over 27% of the S&P 500 Index holdings. As a result, when a retirement index product, such as a target date fund, invests cash inflows from pre-tax contributions made by US workers these stocks are what is primarily purchased.

Imagine you are a “Portfolio Manager” at one of these indexed funds handling the cash inflows. If you were to receive biweekly flows, and $10MM would need to go into Apple (AAPL) in order to minimize the tracking error your retirement index has with the S&P 500, most PMs would think that price movement from that inflow of .08% - .09% (8-9 bps.) on the stock price as those inflows are invested is reasonable given the volume weighted average price and shares trading that day. This is called slippage, a form of trading costs many retail investors may not be aware but is ardently tracked by indexers to manage. The main point being made here is that I think many PMs would view price impact of 9 bps as very reasonable.

Given the size of stock like Apple that 9 bps impacted its market cap by $2.724B. To put it another way: $10MM of flows just added nearly $3B to Apple’s market cap! That effect is wildly disproportionate to the amount of money that it took to create that market distortion. Economists use a term, “inelasticity” to describe a good’s price that is ultra sensitive to changes in supply and demand. What we are observing in markets is increased inelasticity and resulting fragility from the dominance of indexing products.

Given the size of the largest eight stocks in the index and the dominance of “passive” indexing, especially via retirement target date funds, attentive readers are likely now guessing what is causing the rapid rise in both the market capitalization of the FANMAG + NT stocks and the rate of increase in the index. To that point, the more concentrated the index becomes the more inelastic the prices become to inflows and outflows from passive.

The intent here is not to scare monger but to point out that the crux of the matter facing investors today is this change in market structure. These flows are entirely dependent upon the employment picture, as employed persons are the source of inflow into the dominant target date fund complex.

US Initial Jobless Claims have risen from about 200m / week at the start of the year to 249m / week at 06/30/2023. This not cataclysmic, but it is of note that when claims / week exceed 300k, the risk that they continue to accelerate, and historically this cascades very quickly, becomes more acute.

As long as the great majority of Americans are employed, and they continue making contributions to their retirement plans, the inflows support indices and remain largely unabated by frictions like price discovery supplied by active managers and short sellers, in an increasingly inelastic market. This is why we carefully track the macro developments in the US economy. They have real market impacts and implications for portfolio construction.

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Markets at a Glance

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Equity - TR (%)	1M	3M	YTD	1Y
NASDAQ COMPOSITE	4.2	17.0	35.0	19.9
MSCI EM LATIN AMERICA	2.4	15.9	22.4	38.1
CRSP US Total Market	5.3	10.8	19.3	16.4
S&P 500 INDEX	4.9	10.6	19.8	17.0
MSCI WORLD	4.5	7.8	17.9	16.9
MSCI WORLD SMALL CAP	6.6	6.6	11.7	11.5
MSCI EM	2.9	5.2	8.1	5.8
DOW JONES INDUS. AVG	5.2	5.2	8.2	13.5
MSCI AC ASIA PACIFIC	2.3	4.1	8.4	7.2
MSCI WORLD x USA	4.1	2.3	14.2	17.7
MSCI EAFE	3.9	2.2	14.6	18.8
Sectors - TR (%)	**1M**	**3M**	**YTD**	**1Y**
Information Technology	4.5	21.9	45.0	31.8
Consumer Discretionary	3.7	17.4	34.5	11.9
Communications	1.1	13.8	37.2	16.7
Industrials	6.4	9.4	12.8	23.7
Financials	8.6	7.8	4.9	10.9
Real Estate	8.3	5.8	6.8	-4.7
Materials	5.3	3.8	9.0	14.2
Healthcare	3.4	1.5	1.2	6.9
Energy	10.8	0.2	-0.2	26.1
Consumer Staples	2.7	-0.3	3.5	7.2
Utilities	5.3	-1.4	-1.4	1.7
Alternatives - TR (%)	**1M**	**3M**	**YTD**	**1Y**
S&P LISTED PRIV EQUITY	10.7	12.4	20.5	12.9
ALERIAN MLP INDEX	8.0	8.6	15.0	31.3
BBG Galaxy Bitcoin Index	-5.9	6.1	75.0	28.4
FTSE NAREIT All Eq REITS	8.9	5.9	6.4	-4.5
LS Managed Futures Index	-0.2	-0.5	1.3	-0.1

US Style Returns (%) - Russell Indices	Value	Core	Growth
1M			
Large	6.4	5.1	3.9
Mid	8.0	7.3	5.9
Small	9.3	7.8	6.3
YTD			
Large	8.7	19.6	31.1
Mid	9.2	12.6	18.4
Small	7.9	12.2	16.3

US Factor Returns (%)	1M	3M	YTD	1Y
S&P 500 High Beta	7.6	16.4	26.7	23.5
MSCI Growth	3.7	16.0	35.6	22.0
MSCI Quality	4.1	13.3	26.0	21.3
MSCI Size	7.2	8.7	12.6	11.9
MSCI Value	5.6	5.7	7.2	6.7
MSCI High Dividend Yield	4.9	3.5	3.3	7.4
MSCI Momentum	3.2	2.0	0.7	8.6
Commodities TR (%)	**1M**	**3M**	**YTD**	**1Y**
Wheat	1.5	13.2	-6.4	-5.0
Sugar	5.6	3.5	40.7	48.9
BBG Commodities Index	5.2	1.6	-4.6	-7.6
WTI Oil	13.8	1.5	0.0	-2.5
Gold	1.9	-1.5	7.5	14.0
Natural Gas	-6.1	-2.7	-35.9	-46.7
Copper	0.8	-3.1	0.9	14.3
Silver	9.1	-4.5	0.0	27.6

Index Characteristics	P/E FTM	P/E TTM	P/S TTM	Div Yield
S&P 500	18.8	21.8	2.5	1.5
MSCI EAFE	13.1	14.6	1.3	3.4
MSCI EM	11.4	13.3	1.2	2.9

US Treasury Yield Curve

Fixed Income - TR (%)	1M	3M	YTD	1Y
U.S. Corporate High Yield	1.9	2.1	6.5	5.7
Municipal Bond Index	0.7	0.9	3.4	2.2
1-3 Yr	0.2	-0.2	1.5	0.6
Corporate	0.5	-0.3	3.6	-0.8
10 - 20 Yrs	-0.1	-0.3	5.1	-0.8
US Agg 1-7 Yrs.	0.1	-0.6	1.7	-0.8
Interest Rates (%)	**06/30/23**	**06/30/23**	**03/31/23**	**08/31/22**
US Fed Funds Effective Rate	5.08	5.08	4.83	2.33
US Generic Govt 1 Mth	5.11	5.11	4.40	2.22
US Generic Govt 3 Mth	5.28	5.28	4.69	2.90
US Generic Govt 12 Mth	5.39	5.39	4.59	3.48
US Generic Govt 5 Yr	4.16	4.16	3.57	3.35
US Generic Govt 10 Yr	3.84	3.84	3.47	3.19
BBG Tax Muni AGG YW	5.08	5.08	4.87	4.67
BBG UA Corporate YW	5.48	5.48	5.17	4.83
BBG U.S. Corp HY YW	8.50	8.50	8.52	8.42

- In the month, small caps bucked the trend of their performance YTD. Regardless, through the quarter and the year, the NASDAQ continues to hold the leadership position by a country mile.
- Curiously, energy and financials saw a large bid in the month. The usual suspects in tech, consumer discretionary, and communications dominate for the year but the significant jump –especially in financials, for the month is noteworthy.
- Growth leads value for the YTD, but again we saw a significant divergence in the month where small and value rotated into leadership positions.
- Within commodities sugar is taking a breather yet continues to trend positive. Wheat has taken dominance in the quarter on a potential crop disruption as geopolitical risk increased in Eastern Europe, and oil likewise jumped in the month.
- YTD fixed income displays an odd couple: high yield has led and despite rising bankruptcy filings. Duration, mainly in the 10-20 maturity, is 2nd YTD.

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