Quantifying politics

Applying Thorfinn political indices to trade macro assets

We all know that politics impacts markets. However, it can be tricky to understand how to quantify political risk and use it as an input in the investing process. Here we take an updated look at the returns from applying Thorfinn's political indices to trade a basket of macro assets. During our sample period from June 2018, an equally weighted strategy consisting of a passive long only macro basket and an actively traded basket using Thorfinn's TSI index, has risk adjusted returns of 2.22 and drawdowns of 1.6%. This considerably outperforms a basket which is exclusively passive long only, which has risk adjusted returns of 0.88 and drawdowns of 14.4%.

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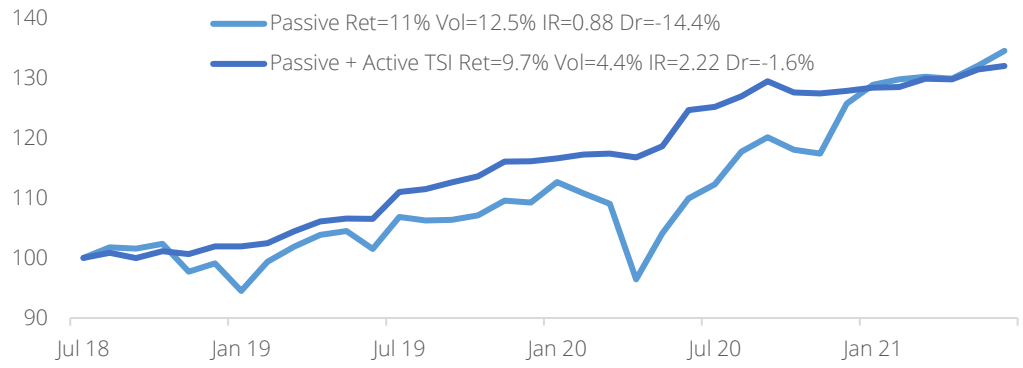
Introduction

In our earlier paper (Amen 2020[1]), we introduced the idea of using Thorfinn's Sensitivity index (TSI) which quantifies political risk, to trade macro assets. In this paper, we update some of the analysis from that, and also present some new results. In particular, we show how combining a passive long only strategy of macro assets and one which trades them actively using TSI, considerably outperforms a pure passive long only strategy of macro assets (see Figure 1), both on a risk adjusted returns basis and from the perspective of reducing drawdowns.

Figure 1: Passive long only strategy vs. passive/Thorfinn Sensitivity Index strategy



Source: Thorfinn AI, Cuemacro, Bloomberg

[1] Amen: Political Market Making 26 Jun 2020 (Cuemacro)

A refresher on the Thorfinn Sensitivity Index (TSI)

Typically, most approaches to understanding political risk involve a purely qualitative approach. However, the qualitative approach can be difficult to incorporate into an investing framework.

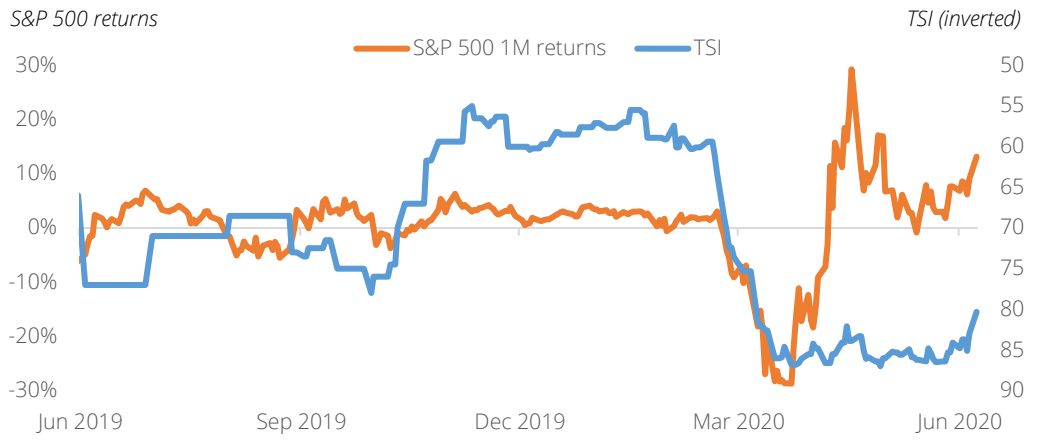
Rather than having qualitative outputs, the Thorfinn Sensitivity Index quantifies risks in geopolitics and areas associated with it. Its inputs are collected from over 30,000 daily feeds. This text is processed in an automated way using natural language processing and machine learning. Developments are collected into 72 drivers and these are later aggregated into 12 categories. At the final step, a group of experts with experience in both market and policy decision making, assigns a daily score to each of these 12 categories. Hence, the final output uses a combination of artificial intelligence and human expertise. For readers wishing to have a more detailed explanation of the construction of the TSI, we refer them to (Amen 2020).

Relationship between TSI and macro markets

If we want to use TSI to trade macro markets, we first need to understand the relationship between the TSI and markets. In other words, how does political risk, as measured by the TSI, impact macro assets? We update a chart from (Amen 2020), showing 1 month S&P 500 returns against the TSI which has been inverted.

We see a steep increase in TSI during March 2020, when the coronavirus took hold, and an accompanying decline in S&P 500. This fits in with market intuition that risky assets (such as S&P 500) fall when there is risk aversion. Political risks as measured by TSI, remained elevated for several months and then subsequently began to decline following the US presidential election in Nov 2020.

Figure 2: S&P 500 futures 1M returns vs. TSI (inverted)



Source: Thorfinn AI, Cuemacro, Bloomberg

We can also compute the correlation between the TSI and several macro assets to understand this dynamic better.

Let's use a data sample between June 2018 and April 2021 to compute our correlations. As in (Amen 2020), we'll stick to using use monthly data because, prior to August 2019, TSI was generated on a monthly basis and we would like to have as large a sample as possible.

We shall look at several macro assets, which we list below grouped by asset class:

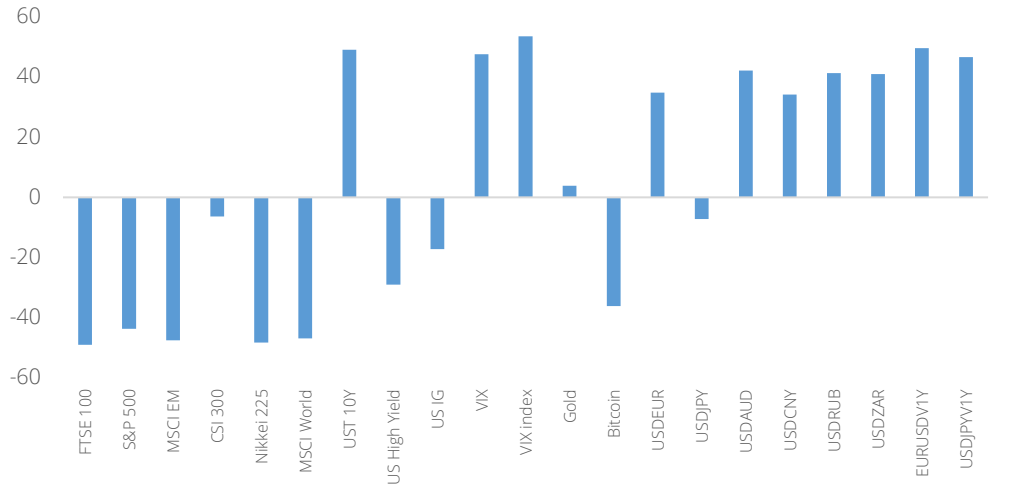
- Equity futures: FTSE 100, S&P 500, MSCI EM, CSI 300 and MSCI World 1st dated futures
- Bonds futures and ETF: UST 10Y 1st dated futures, US HY ETF and US IG ETF
- Volatility futures: VIX 1st dated futures
- Commodity futures: Gold and bitcoin 1st dated futures
- FX: USD vs. EUR, JPY, AUD, CNY, RUB and ZAR
- Volatility: VIX index, EURUSD 1Y implied vol and USDJPY 1Y implied vol

Our futures time series have been back-adjusted for each contract roll and for FX we have used total returns indices. In Figure 3, we present these correlations between the TSI and each of the above assets.

We can identify those assets which are "risky" as those which have a large negative correlation with TSI. These include most equity futures, US High Yield, US IG and bitcoin. By contrast, the assets which have a positive correlation with TSI tend to be viewed as "safe havens". These include UST 10Y, VIX, VIX Index, most USD crosses and FX vol. Note that we have quoted the FX crosses, with USD as the base currency for consistency. These classifications broadly fit in with intuition, namely that during times of risk aversion, investors dump equities, and seek to buy option hedges and assets like UST 10Y.There are some assets which so not have strong correlations either way like CSI 300, Gold and USDJPY, although the signs of correlation are still what we'd expect.

In Figure A, in the Appendix, we also present correlations between all the components of TSI and also assets, flagging where the correlations are greater than +25% and more negative than -25%.

Figure 3: Correlation between markets and TSI



Source: Thorfinn AI, Cuemacro, Bloomberg

Based on the correlations, we define which assets are safe havens (ie. rise when there's risk aversion/TSI rises) and risky assets (ie. fall when there's risk aversion/TSI rises):

- safe havens: UST 10Y, VIX, VIX index, USDEUR, USDAUD, USDCNY, USDRUB, USDZAR, EURUSDV1Y, USDJPYV1Y and to a lesser extent Gold
- risky assets: FTSE 100, S&P 500, MSCI EM, CSI 300, Nikkei 225, MSCI World, US High Yield, US IG, Bitcoin and USDJPY

Creating trading strategies using TSI

We'll use the TSI within a systematic trading rule. When we interpret the TSI, we need to change the sign of our trading signal depending on whether we are trading a safe haven or risky asset.

We'll be using the trading rules created in (Amen 2020), which we'll explain here. Figure 2 seems to suggest that we should treat moves in TSI differently depending on their magnitude. When there are large jumps in TSI, it can be a sign of major risks and potential market unwinds. During these periods, we should be willing to sell risky assets and buy safe haven assets during this period. When the moves are smaller in TSI, it is likely that the market will quickly price in such risks. Hence, rather than going with such moves, it might pay to fade them, giving rise to price action which is more mean reverting.

We can see a parallel with volatility. Typically, it tends to be mean reverting. However, when vol spikes higher, it can be very risky to sell volatility. Just like with vol, with TSI, we want to fade small moves in risk, to "buy the dip", but to sell risk when there are massive spikes.

We quote two trading rules from (Amen 2020) which we label "range" and "jump" along these lines. For the range trading rule:

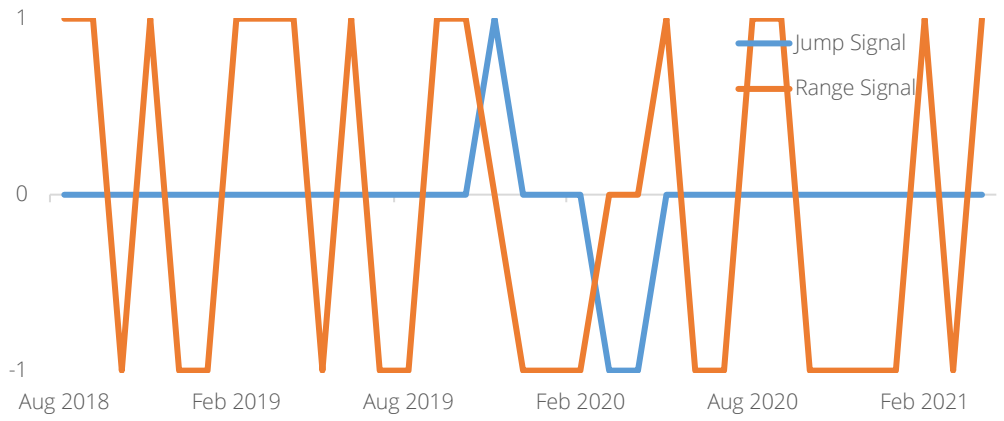
- when there are small increases in TSI, we "fade" the move by buying risky assets and selling safe haven assets
- when there are small decreases in TSI, we "fade" the move by selling risky assets and buying safe haven assets
- when there are any large jumps to the upside or downside in TSI, we have flat exposure

For the jump trading rule:

- when there are large jumps in TSI, we go with the big jump by selling risky assets and buying safe haven assets
- when there are large falls in TSI, we go with the large falls by buying risky assets and selling safe haven assets
- when there are any small changes in TSI, we have flat exposure

Large jumps as being greater than +10 change in TSI and a large fall as being in excess of -10 change in TSI. We illustrate these trading rules in Figure 4. The jump rule, as we might expect trades relatively rarely, going short risky assets during the coronavirus turmoil of March 2020, and long risky assets during Autumn 2019, when markets were more benign. By contrast the range bound rule generates a signal relatively often.

Figure 4: Jump and Range based TSI trading rule signals

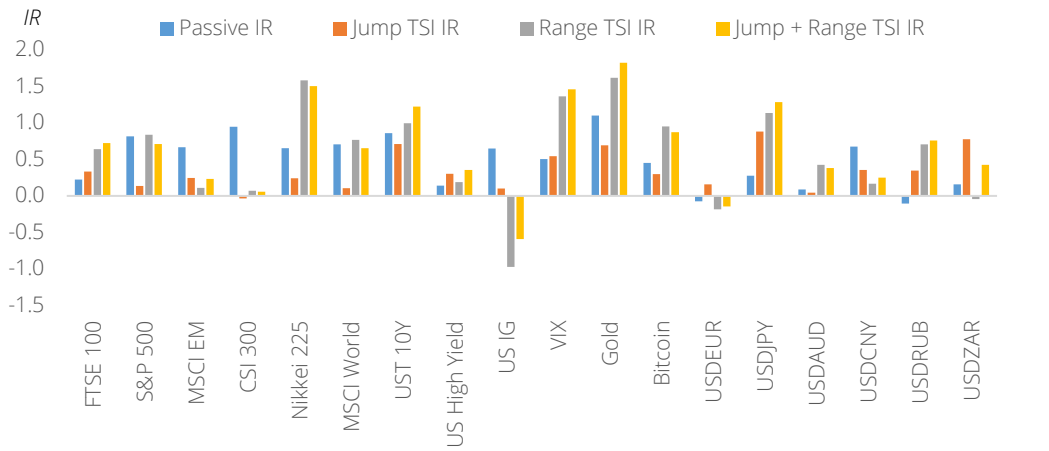


Source: Thorfinn AI, Cuemacro, Bloomberg

We also include a combined jump + range trading rule. Our "passive" long only basket is the typical static position of most investors, i.e. long equities, long bonds and long gold.

Our monthly data is between June 2018-April 2021. We trade on the first business day of each month. We present the risk adjusted returns (information ratios) in Figure 5 for these trading rules. In Figure B, in the Appendix, we present a full table showing the returns and volatilities as well, and a full list of the assets in our backtest, which are a subset of those in Figure 3. Funding costs or dividends are not included in the ETFs. These are already implicitly included in the futures contracts and FX total return indices, and these represent the vast majority of our portfolio. Transaction costs are 5bp bid/ask in all cases.

Figure 5: Risk adjusted returns for a passive position and TSI based trading rules



Source: Thorfinn AI, Cuemacro, Bloomberg

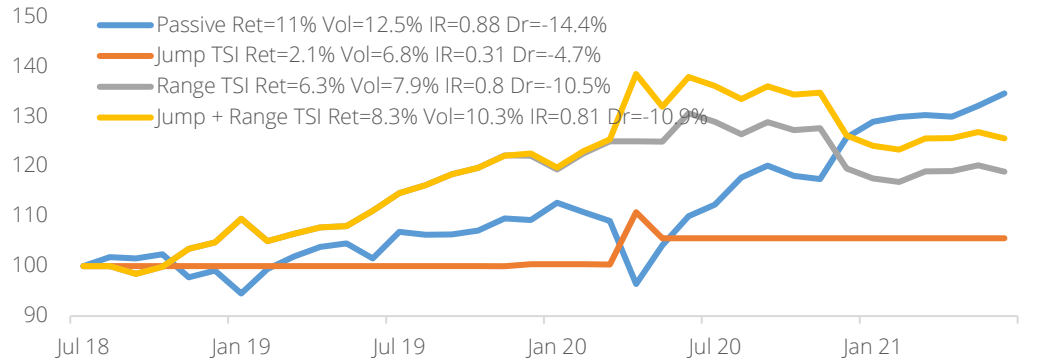
We see that that, in general, either the range based TSI trading rule or the combined jump + range TSI trading rule have the highest risk adjusted returns, outperforming passive exposures. There are, however, some exceptions, like CSI 300 and US IG ETFs, where passive exposure outperformed our trading rules. For UST10Y the passive (long) exposure yielded similar risk adjusted returns.

Developing a trading basket using TSI

In this section, we create a trading basket using TSI. We shall omit both VIX futures and bitcoin from our basket given that they are more "exotic" instruments and are less likely to be in trading mandates.

We repeat the backtest we did earlier on the four different trading rules on our basket. Both the passive and jump + range baskets appear to have similar performance on a risk adjusted basis, of 0.81 and 0.88 respectively. However, the drawdowns for the passive basket are 14.4% which is considerably worse than the jump + range basket. Another thing we note is that during periods of strong performance of the jump + range basket, such as March 2020, the passive basket underperformed. Conversely, when passive performed very strongly, the active strategy of jump + range, underperformed. This suggests that combining the two strategies could be beneficial, and we shall investigate that next.

Figure 6: Return statistics for TSI based trading rules



Source: Thorfinn AI, Cuemacro, Bloomberg

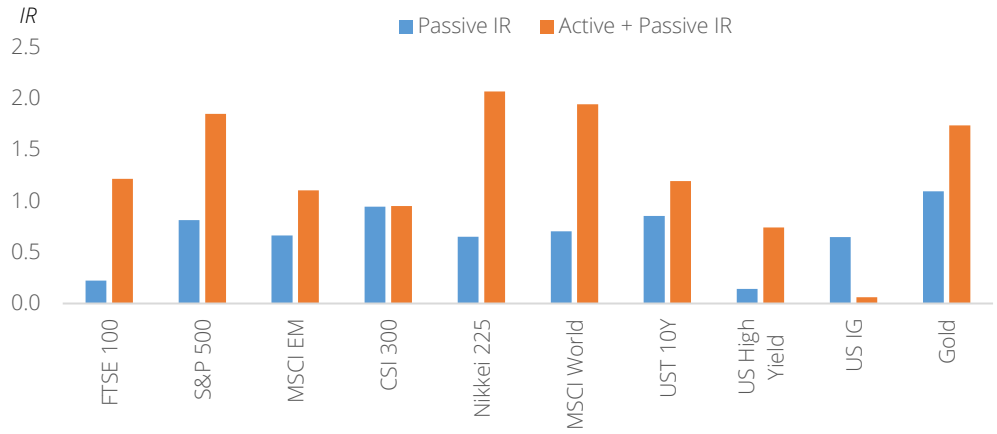
Combining passive and active trading rules

We noted earlier that strong performance of the passive strategy, occurred at times of weakness for the active strategy (ie. jump + range) and vice versa. Hence, it seems reasonable to create a combined basket using both strategies, given that they may be complementary to one another.

In our case, this involves creating an equally weighted strategy which is 50% passive and 50% traded actively using the jump + range signal on the TSI. In Figure 7, we present the risk adjusted returns for this strategy, comparing it with a passive long only strategy. We have reduced the assets in this backtest to the subset we have earlier defined as passive (namely, long equities, bonds and gold).

We see that in most cases, this equally weighted mix of active and passive outperforms the passive only strategy based on risk adjusted returns. The main exception is in US IG. Also in CSI 300, both strategies have similar risk adjusted returns.

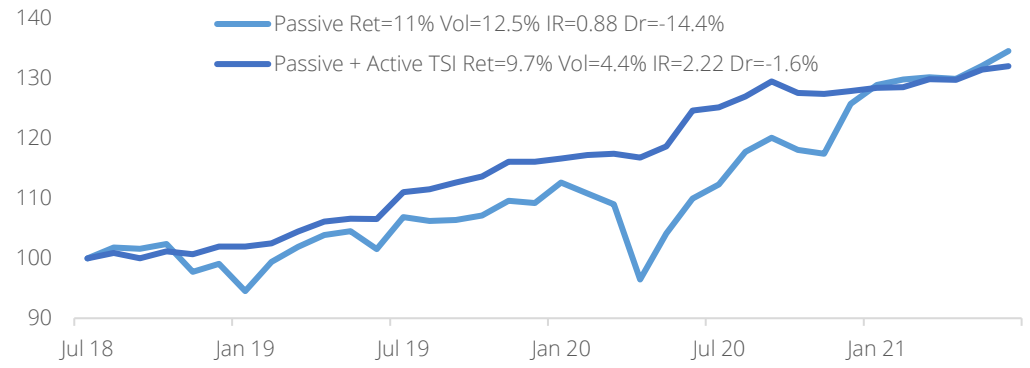
Figure 7: Return statistics for Passive and Active + Passive based trading rules



Source: Thorfinn AI, Cuemacro, Bloomberg

In Figure 8, we combine these two trading rules on a basket level, for the assets listed above. We note that both strategies performed well during this period. A passive strategy has yielded a risk adjusted return of 0.88 during our sample. However, the cost has been significant drawdowns of 14.4% which occurred largely during the market panic associated with the coronavirus in March 2020. By contrast, our basket consisting of 50% passive exposure and 50% of activate managed exposure using the jump + range TSI rules had a minimal drawdown of 1.6% during this period. The risk adjusted returns were also significantly higher at 2.22. Hence, we see that trading political risk can add significant value for long only investors, compared to a purely passive approach.

Figure 8: Combining passive and active TSI baskets



Source: Thorfinn AI, Cuemacro, Bloomberg

Conclusion

In this paper, we revisited and updated much of our analysis from (Amen 2020) showing how to trade macro assets based on political risk, as measured by Thorfinn's Sensitivity Index (TSI). We discussed the relationship between the TSI and commonly traded macro assets, noting that risky assets then to have a negative correlation with the TSI, whilst safe haven assets tend to be positively correlated.

We showed several active trading strategies based upon the index, notably trading its range, and also breakouts in the TSI. Later, we created basket consisting of 50% of passive long only macro risk (long equities, bonds and gold) and 50% based upon actively trading the TSI. This basket had risk adjusted returns of 2.22 and drawdowns of 1.6%, considerably outperforming a completely passive long only strategy on the same assets which had risk adjusted returns of 0.88 and much larger drawdowns of 14.4%. This suggests that passive long only investors could benefit from allocating a portion of their portfolio to a more actively traded TSI trading rule.

Appendix

In Figure A, we present the long-term correlations between major financial markets and the components of TSI. Our sample is monthly data between June 2018 and April 2021. We have highlighted those entries where the magnitude of the correlations are greater than 25%. We see that the narrower the categories of the components, generally the smaller the size of the correlations.

Figure A: Long term correlations between markets and TSI components

	US Domestic	US Foreign	SoKo Japan	NoKo	Taiwan	India Pakistan	Hong Kong	EU	Gulf	China Tariffs	EM	Russia	TSI
FTSE 100	-19	-25	-7	15	-13	-11	1	-57	-24	-34	-55	-64	-49
S&P 500	-31	-43	12	2	-7	-8	3	-54	-35	-18	-46	-50	-44
MSCI EM	-30	-50	4	5	-5	7	-17	-52	-28	-37	-48	-46	-48
CSI 300	-12	-37	17	7	11	39	11	-36	-5	-32	-26	-3	-6
Nikkei 225	-12	-36	-9	1	-23	-18	6	-55	-38	-24	-39	-48	-48
MSCI World	-31	-39	5	7	-11	-14	0	-56	-31	-22	-45	-52	-47
UST 10Y	5	19	21	4	38	15	6	26	37	33	43	45	49
US High Yield	-17	-40	21	6	6	11	7	-52	-25	-11	-53	-47	-29
US IG	-19	-28	30	10	11	18	10	-50	-12	-4	-52	-40	-17
VIX	13	45	-4	-7	27	13	12	48	32	12	49	52	48
VIX index	29	44	12	-12	15	17	10	52	34	20	46	52	54
Gold	-18	-19	9	-1	32	16	-7	-11	7	8	-4	7	4
Bitcoin	-9	-44	11	0	-9	21	6	-57	-24	-33	-63	-43	-36
USDEUR	21	35	8	5	4	3	26	36	0	34	28	11	35
USDJPY	8	-12	5	-10	-24	3	9	-13	-25	13	-5	-6	-7
USDAUD	38	56	-7	-11	-7	5	11	49	15	34	39	41	42
USDCNY	31	32	5	-13	21	-5	23	32	11	44	16	13	34
USDRUB	17	48	-10	-15	14	3	-3	63	21	28	50	47	41
USDZAR	24	41	-16	-18	22	6	18	44	21	28	41	47	41
EURUSDV1Y	20	29	7	-20	25	27	3	54	41	-4	47	62	50
USDJPYV1Y	12	24	14	-7	20	20	-4	44	44	11	38	61	47

Source: Thorfinn AI, Cuemacro, Bloomberg

In Figure B, we present the full return statistics for the various TSI based trading rules discussed in the paper alongside a passive strategy which can be used as a benchmark, and also the combined active + passive strategy.

Figure B: Return statistics for TSI based macro trading rules

	Passive			*Jump TSI*			*Range TSI*			*Jump + Range TSI*			*Active + Passive*		
Asset	**Ret**	**Vol**	**IR**	**Ret**	**Vol**	**IR**	**Ret**	**Vol**	**IR**	**Ret**	**Vol**	**IR**	**Ret**	**Vol**	**IR**
FTSE 100	3.7%	16.7%	0.22	3.1%	9.4%	0.33	8.6%	13.5%	0.64	11.8%	16.3%	0.72	7.8%	6.4%	1.22
S&P 500	17.6%	21.5%	0.82	2.0%	14.8%	0.14	13.3%	15.8%	0.84	15.3%	21.6%	0.71	16.5%	8.9%	1.85
MSCI EM	13.5%	20.3%	0.67	2.9%	11.9%	0.25	1.9%	16.8%	0.11	4.8%	20.5%	0.23	9.2%	8.3%	1.11
CSI 300	21.4%	22.6%	0.95	-0.3%	7.9%	-0.03	1.6%	22.1%	0.07	1.3%	23.4%	0.06	11.4%	11.9%	0.95
Nikkei 225	14.8%	22.6%	0.65	2.6%	10.8%	0.24	28.7%	18.2%	1.58	31.3%	20.8%	1.50	23.0%	11.1%	2.07
MSCI World	14.7%	20.8%	0.71	1.5%	13.6%	0.11	12.0%	15.7%	0.77	13.5%	20.7%	0.65	14.1%	7.2%	1.95
UST 10Y	3.5%	4.1%	0.86	1.1%	1.6%	0.71	3.7%	3.7%	0.99	4.8%	3.9%	1.22	4.2%	3.5%	1.20
US High Yield	1.5%	10.8%	0.14	2.6%	8.7%	0.30	1.2%	6.3%	0.19	3.8%	10.7%	0.36	2.7%	3.6%	0.74
US IG	5.1%	7.9%	0.65	0.6%	5.8%	0.10	-5.3%	5.4%	-0.97	-4.7%	8.0%	-0.59	0.2%	3.5%	0.06
VIX	48.4%	96.1%	0.50	30.3%	55.9%	0.54	98.8%	72.4%	1.36	129.1%	88.6%	1.46	88.7%	34.5%	2.57
Gold	14.0%	12.7%	1.10	3.1%	4.5%	0.69	18.2%	11.3%	1.62	21.4%	11.7%	1.82	17.7%	10.1%	1.74
Bitcoin	25.9%	57.0%	0.45	12.4%	41.7%	0.30	36.2%	38.0%	0.95	48.6%	55.7%	0.87	37.2%	26.9%	1.38
USDEUR	-0.4%	5.3%	-0.07	0.2%	1.2%	0.16	-0.9%	5.1%	-0.18	-0.8%	5.3%	-0.14	-0.6%	2.7%	-0.21
USDJPY	1.3%	4.8%	0.28	0.7%	0.7%	0.88	5.1%	4.5%	1.13	5.8%	4.5%	1.28	3.5%	2.8%	1.28
USDAUD	0.9%	10.4%	0.09	0.2%	5.7%	0.04	3.7%	8.6%	0.43	3.9%	10.3%	0.38	2.4%	5.5%	0.44
USDCNY	3.2%	4.7%	0.67	0.4%	1.2%	0.35	0.7%	4.5%	0.17	1.2%	4.6%	0.25	2.2%	2.2%	0.97
USDRUB	-1.7%	16.4%	-0.10	3.9%	11.2%	0.34	8.3%	11.7%	0.71	12.1%	16.0%	0.76	5.2%	8.5%	0.61
USDZAR	2.9%	18.5%	0.16	8.3%	10.7%	0.77	-0.6%	14.6%	-0.04	7.7%	18.1%	0.43	5.3%	11.0%	0.48

Source: Thorfinn AI, Cuemacro, Bloomberg

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