A look back at Realindex strategies: Diamonds in the rough

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For Institutional Use Only

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Do you find yourself longing for the uncomplicated days of the 2010s, or the controlled chaos of the COVID pandemic? We live in strange times. For the bulk of 2022 and the start of 2023, so many changes to long term economic structures seem to have been wrought that the world seems very different. That said, much of what has happened over the last 12 months was driven by unexpected events or reflects a long awaited reversal of trends - some for the better, some not:

- War has returned to Europe
- Value has returned very strongly
- Very highly valued tech stocks have sold down dramatically
- Inflation has picked up and appears to be sticky
- Interest rates have moved off their long term lows in response to post COVID stimulus and inflation
- World trade is "deglobalising"

The next few years will be interesting, to say the least. While much of the strained and strange economic conditions preceding the COVID pandemic appear to be gone, it is not time to be nostalgic.

This study reviews the last 12 months from three points of view:

- What have been the returns and characteristics of markets and factors? We view these broadly and then drill down to a few interesting examples at a stock and sector level.
- What were the major macro themes of 2022? There are many, cutting these down to a manageable number or meaningful themes is not an easy task.
- How have Realindex strategies performed in 2022 and how are we placed for 2023? Here we look at performance and attribution of our strategies.

1. Markets and Factors in 2022 and Some Examples

There were a number of major events through 2022, summarised in Chart 1 and overlaid with the movement of the MSCI ACWI total return index and the US 10-year treasury yield that give a sense of how eventful and volatile the period was. The global equity market trended downwards slowly over the year, finishing approximately 15% lower by year end. Small rebounds in June-July and October could not reverse the overall trend.

Bond yields ran up very strongly throughout the year as inflation fears drove expectations of Central Banks tightening. Reversals corresponding to relief rallies in the equity market were short lived. Expectations for bond yields remain high, with some further tightening to come, although longer term inflation expectations appear to be peaking.

While there has been a great deal of newsworthy items during 2022, the Russia-Ukraine conflict has dominated, and continues to do so. The unexpected strength of the Ukraine resistance, its support from NATO and other allies, and the apparent lack of preparation by Russia for a long war, have all contributed to an extended and bitter ground war. The possibility of a dangerous spill-over into Eastern Europe and beyond has been a constant talking point and threat. Further, the economic sanctions imposed on Russia and its industries – financial and physical – appear to have caused significant damage to Russia's economy, but more importantly from our perspective are the energy and food shortages and supply chain issues that have resulted.

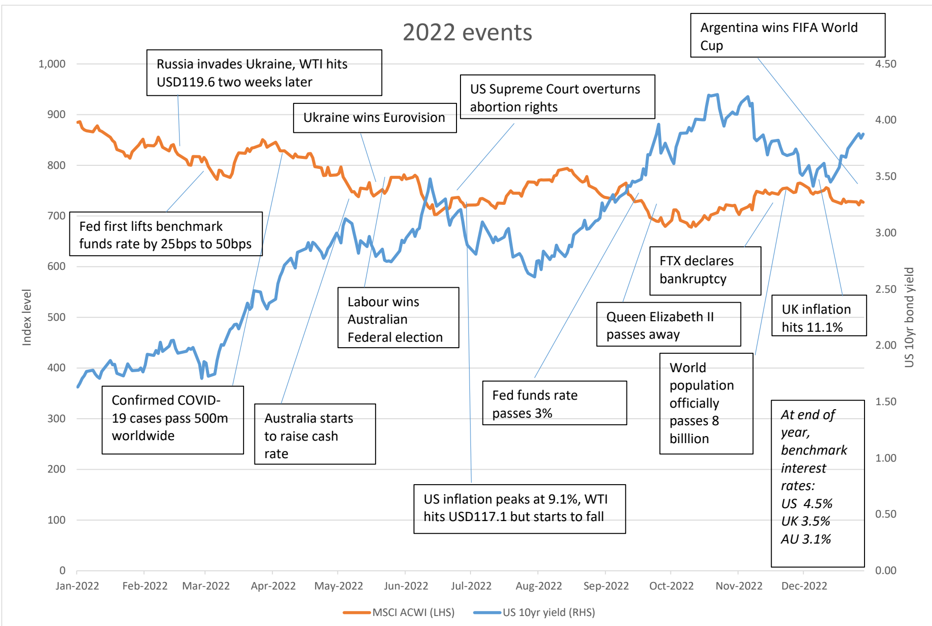
Coupling this with an economic slowdown post COVID and a more fragmented and volatile geo-political situation, 2022 has seen rising inflation and the risk of economic slowdown at the same time. The "scourge" of inflation has been attacked through tighter Central Bank monetary policy globally, but the shadow of overcorrection – destroying fragile economic growth in the pursuit of inflation – is ever present.

In the background to this conflict, China – usually a significant contributor to global growth – has been unable to re-open its borders and stimulate its economy due to ongoing COVID lockdowns. This situation was only starting to resolve itself in late 2022, and contributed to supply chain disruptions and slow growth.

Specifically, we discuss a few of these issues below:

- Oil and energy sectors
- The China situation as it reflects in markets, value and return on equity
- Currency impacts with the rotation to USD "safe haven"
- Inflation around the world
- Some specific stock examples in sectors which have been impacted

Chart 1: "Wall chart" of 2022 markets and events [1]



[1] Source: FactSet and Realindex

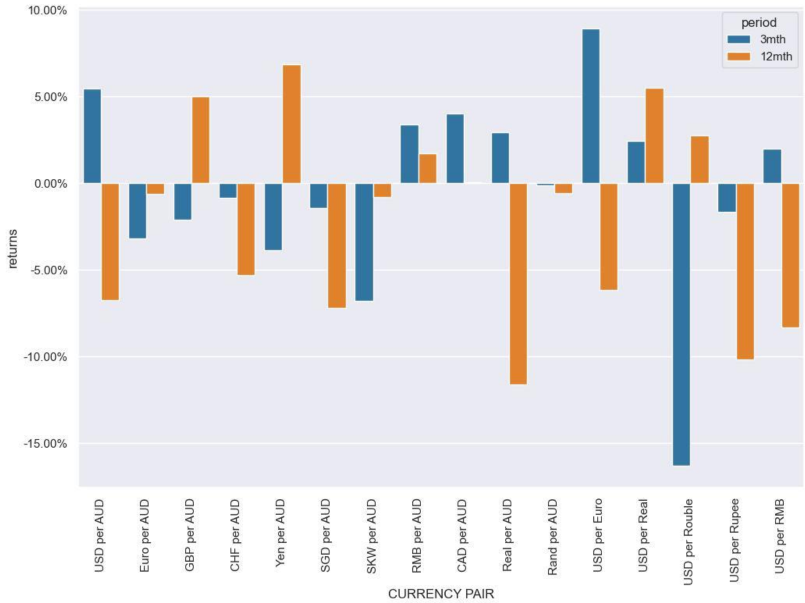
In currency terms, it was no less a volatile year. Up against the Australian dollar over the full year were the US dollar, Swiss franc and Singapore dollar, but the British pound and Japanese yen were down against the Australian dollar over the same period. The rising recession fears towards year end triggered a rotation to quality – in the form of the US dollar – for many major currencies. Chart 2 shows these and other currency pairs. The US dollar was strong for the first part of year, giving back much of its gains in the last quarter as recession and inflation fears abated somewhat. After a large selloff in the Russian rouble at the start of the conflict, the US dollar has gradually sold off again to be roughly flat for the full year but up in the last quarter.

Chart 3 shows returns to commodities, which were similarly volatile, especially natural gas, which was up for the year but down sharply (more than 30%) in the last quarter. Brent crude oil did not show the same movements. Among metals, nickel and silver had stronger years than gold and copper. Agricultural commodities were mixed, with coffee (surprisingly) down heavily.

Large style and sector returns were in evidence, again differing substantially between 3 and 12 months. Chart 4 shows MSCI ACWI returns. Any technology related – including Consumer Discretionary, Communications Services – sold off heavily early in the year but stayed relatively flat for the last quarter. Energy, as we know, has moved up strongly. This mix between 12 and 3 month returns was especially evident in Emerging Markets (Chart 5), with 12 month returns down and 3 month returns up more or less across the board, although India and Brazil bucked the trend. China showed a very strong rebound, as we will see later.

In Australia, from Chart 6, we see that the rebound during the last quarter was evident across all sectors, and in small caps. Energy was the standout, but even less volatile sectors like Consumer Staples rebounded strongly. Utilities were up considerably for the year, as were Materials.

Chart 2: Selected Currency Pair Returns [2]



[2] Source: FactSet and Realindex

Chart 3: Selected Commodity Returns[3]

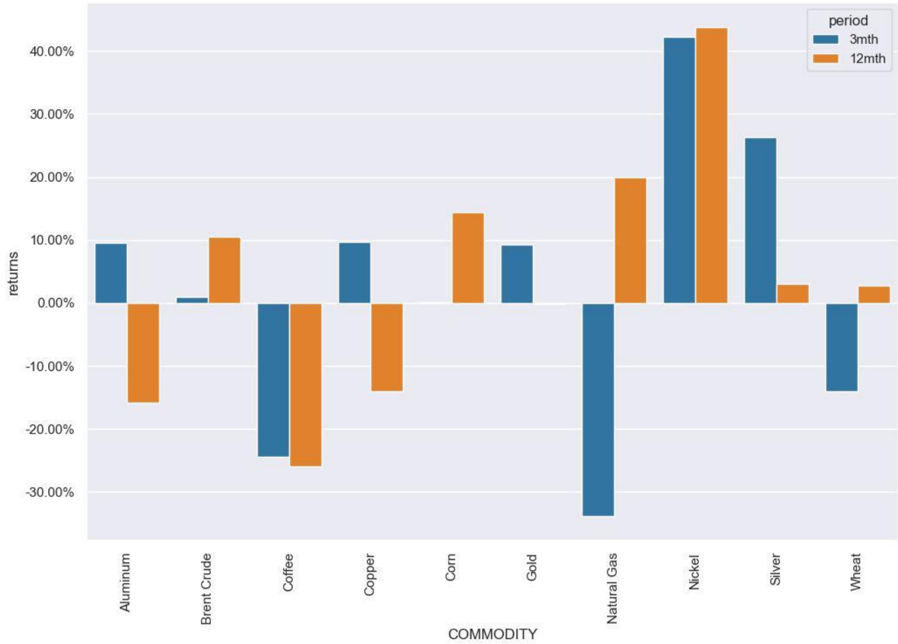
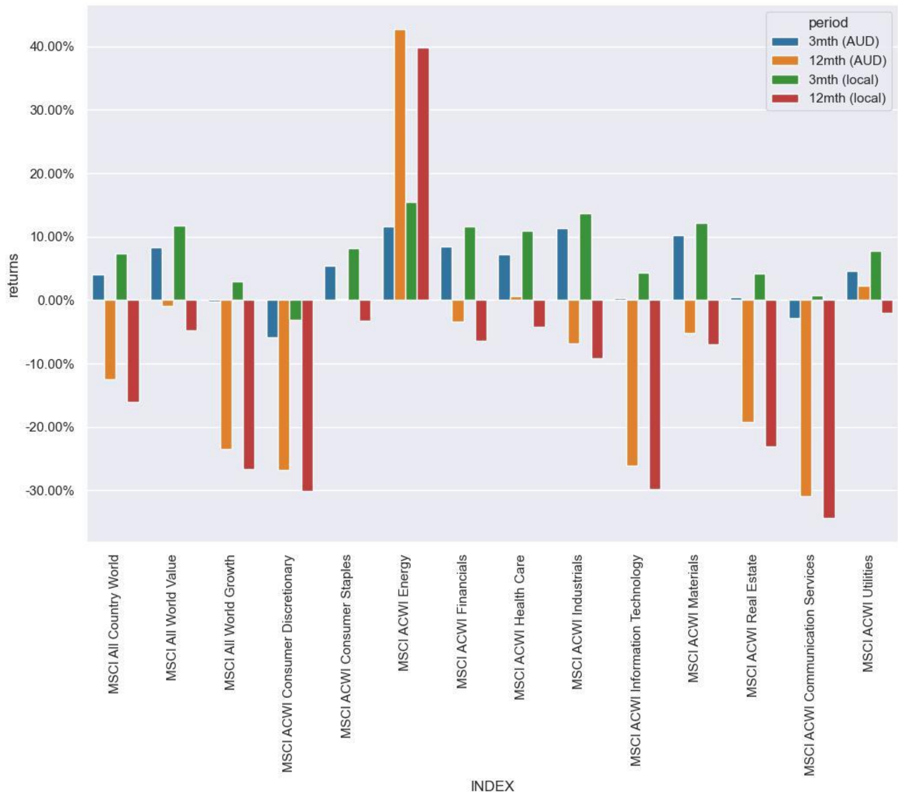


Chart 4: MSCI ACWI index, style and sector returns[4]



[3] Source: FactSet and Realindex

[4] Source: FactSet and Realindex

Chart 5: MSCI ACWI index, style and sector returns[5]

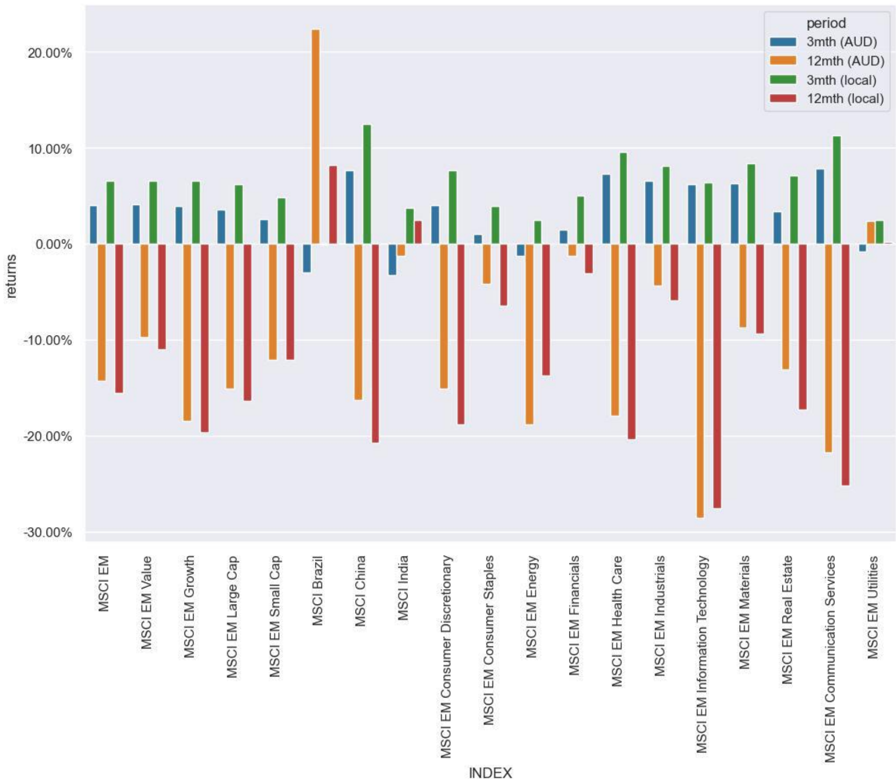
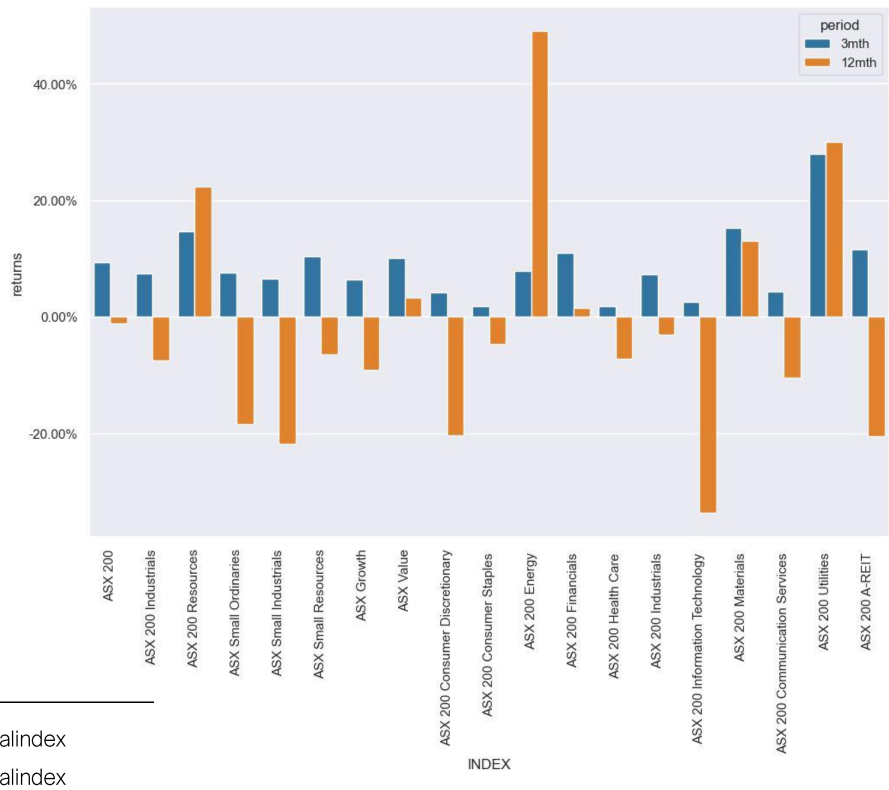


Chart 6: MSCI ACWI index, style and sector returns[6]



[5] Source: FactSet and Realindex

[6] Source: FactSet and Realindex

Macro, stocks and sectors:

The price moves of a sample of stocks and sectors for 2022 can be viewed in Chart 7:

Panel A: Oil and energy sectors

In the wake of the Russia-Ukraine conflict from February 2022, the crude oil price spiked until about June following sanctions imposed on Russia. The oil price then sold off heavily as the supply side restrictions did not take hold as much as expected. Large Russian oil and gas clients (e.g., in Germany) started to plan for solutions and the European summer led to the usual fall in demand. The winter period from early December saw a slight rebound, but indications are that the more moderate than expected winter prevented another spike.

The MSCI Emerging Market Energy index fell sharply at the start of the conflict and has not rebounded. This fall is somewhat misleading as it reflects the write down of the value of Russian oil stocks (e.g., Gazprom, Lukoil) to zero by MSCI and most other industry bodies and asset managers, including Realindex. On the other hand, the MSCI Developed Market Energy index rebounded in July following an oil related selloff in June, bucking the trend of the oil price itself. As we can see, the forecast for EPS over the next 12 months (EPS_NTM) has trended upwards strongly during the year, from around 18 in January to over 30 by year-end. Market forecasts of *earnings* for these firms, not just the oil price, have driven the market upwards. It has not become more expensive however; the PE ratio based on the next 12 months has actually fallen (the stocks have become cheaper), from around 10 at the start of the year to around 8 by year end. Trailing PE (based on last 12 months EPS) has fallen as well.

Panel B: China

Ongoing COVID-related border closures and in-country restrictions dogged China for most of the year. Unlike other parts of the world, China was unable to break free of the trade and economic restrictions, and repeated bouts or flare-ups of COVID pushed economic sentiment and the market downwards. It was only towards the end of 2022 that they regained control, and the market stepped back in to buy Chinese equities.

Sales growth (year-on-year) fell sharply mid-year, and then, after a spectacular rebound in Q3 fell sharply again. The market looked through these gyrations and continued to fall. The rebound at the end of the year helped to drive the market upwards. In terms of fundamentals, quality fell away slowly (measured as trailing ROE over the next twelve months, ROE_LTM) and its value (measured as PE using last twelve months earnings) was fairly static except for the sharp fall in November with the market.

Panel C: Currency: USD vs others

The four major currency pairs charted against the US dollar have shown similar patterns during the year. There was a gradual trend upwards in the US dollar against the Australian dollar, British pound, Yen and Euro until October, when the trend reversed for all four currency pairs to retrace as much as half of the year's gains. The largest rise and then fall was against the yen, with Japanese inflation finally starting to move upwards, but resilience in its economy is still evident.

Panel D: Inflation

The buzzword for 2022 and into 2023 has been inflation. Initially driven by stimulus following COVID, it has been exacerbated by the energy cost spikes of early 2022 and the knock on effects on transport and food costs. Inflation can be quite sticky, in the sense that once higher it tends to stay high, due to leads and lags in the economy.

We can see that inflation has generally continued to trend upwards during the year, across Developed and Emerging Markets. The outlier is inflation in Brazil, which has fallen from a high level over the year. Japan inflation has grown significantly off a very low base, as has inflation in the UK and in Germany.

Australian inflation rose from 3.5% at the end of 2021 to 8.4% at the end of 2022. In other words, unlike some other Developed Markets, our inflation did not peak during the year - it has since fallen back slightly.

Panel E: Stock specific: Tesla, BHP and TotalEnergies

Next we look at three examples of stocks that stood out during 2022 – newsworthy (Tesla), exposed to significant events (TotalEnergies) and familiar (BHP).

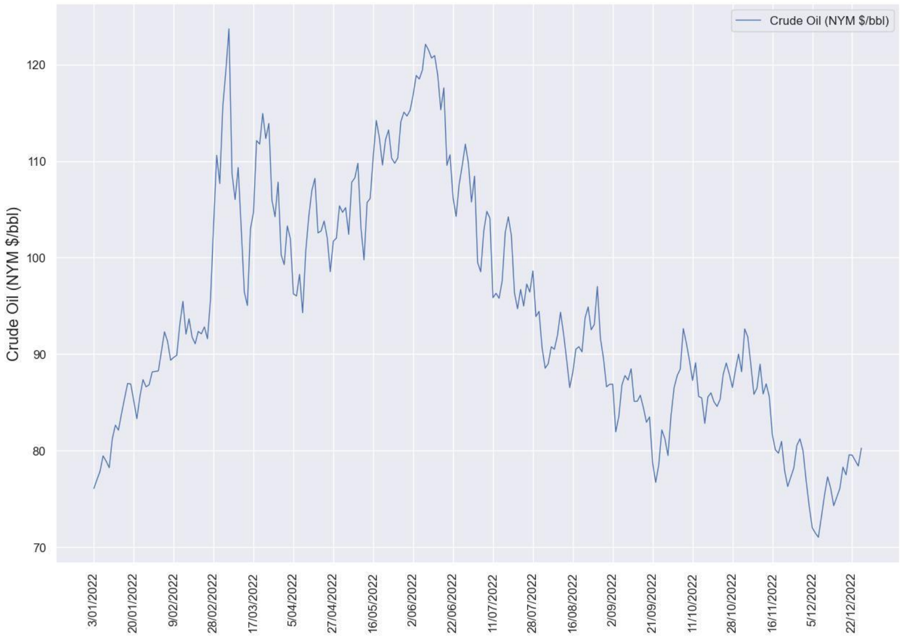
Tesla had a wild slide downwards from its high of around USD400 at the beginning of 2022. At that time, it was trading on an improbable trailing PE multiple of 300x. It has fallen over the year by approximately 70%, finishing 2022 at around USD120 and a trailing PE of 30x. During the same period, reported EPS increased significantly, from around USD1.00 per share to more than USD3.00 per share, showing that the business was growing well. The return on investment was also stable, in fact increasing slightly.

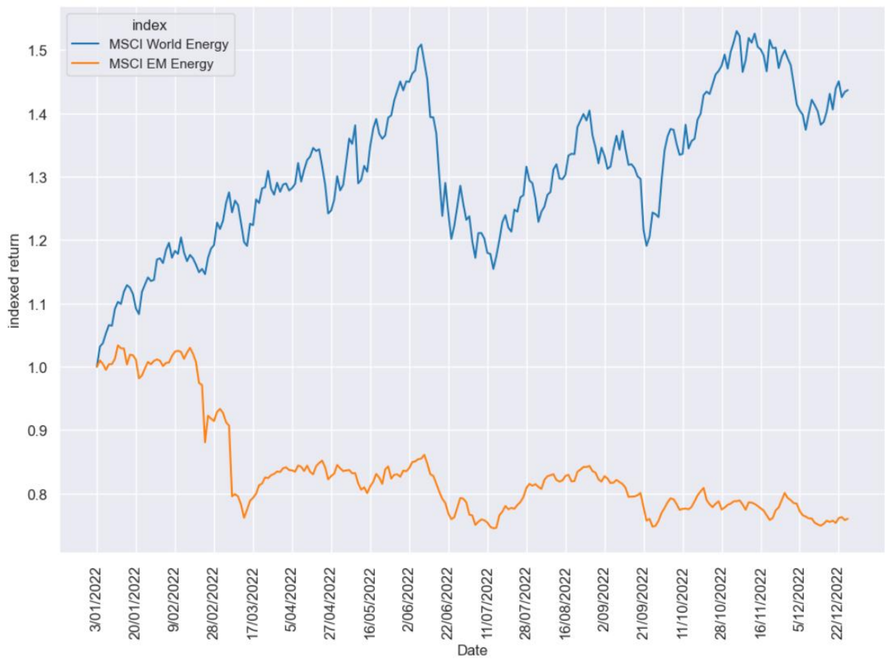
TotalEnergies (a French energy company) benefited from the surging oil price, after an initial period of uncertainty. A spike in price in April was followed by a sell-off, and then a rebound in Q4 of around 25%. Ongoing global economic uncertainty has not yet dented this run. With this run up, its 12 month forward PE has risen, after an initial fall due to price. Trailing PE and cash flow show that the business is continuing to grow and remains cheap on a 12 month retrospective basis.

BHP collapsed its dual listed structure in January 2022, following the announcement in August 2021 and formal shareholder approval in January 2022. It then demonstrated some volatility before selling off in mid-year and rebounding strongly in Q4 to finish near its 12 month high. It has progressively become cheaper on a trailing 12 month PE basis, with strong reported earnings in March and September, while it’s forward-looking 12 month PE has trended upwards but is still under 12 times.

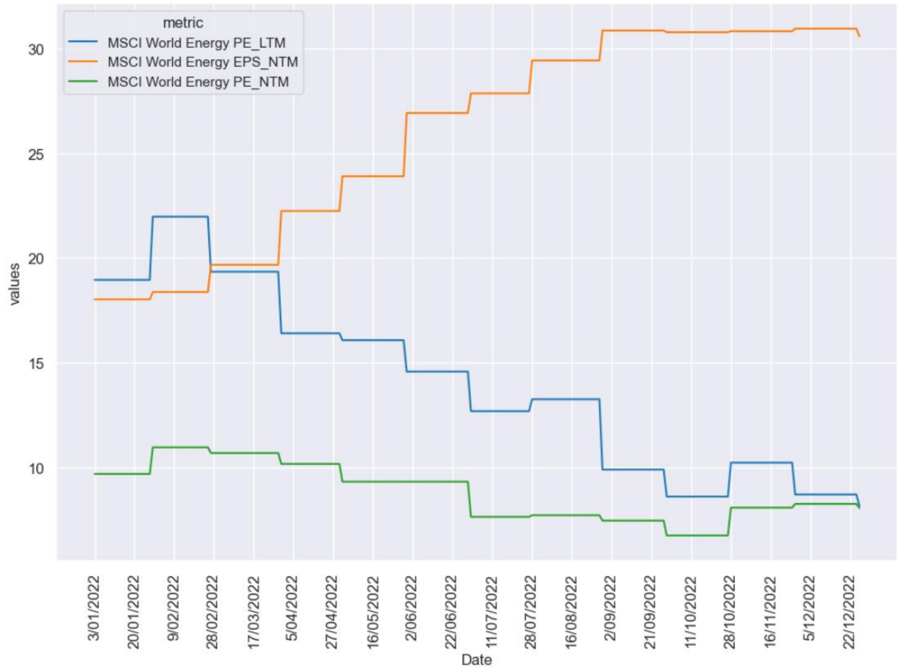
Chart 7: 2021 prices for a sample of sectors and stocks[7]

Panel A: Oil and energy sectors

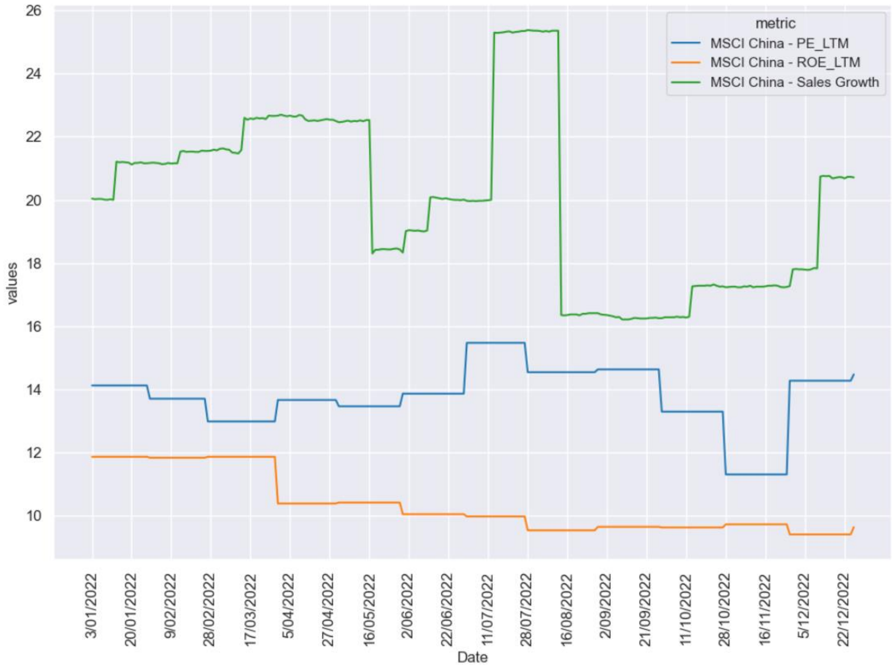




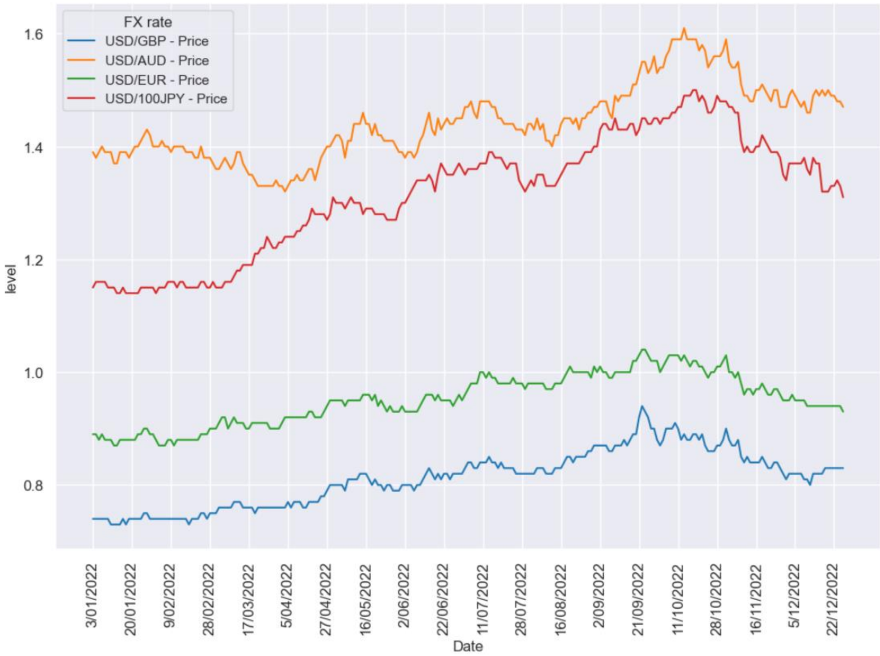
[7] Source: FactSet, Realindex, https://www.rateinflation.com/inflation-rate/, https://tradingeconomics.com/



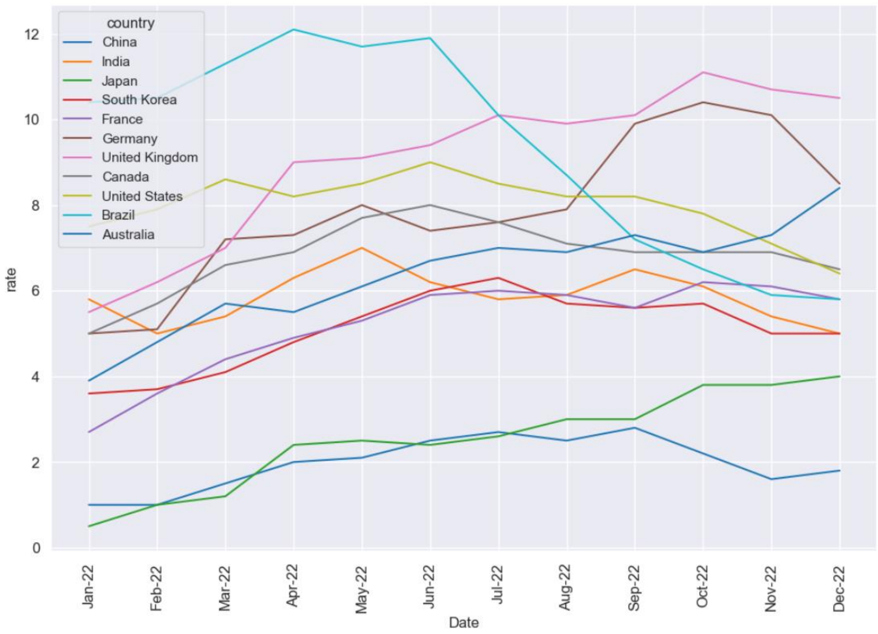
Panel B: China



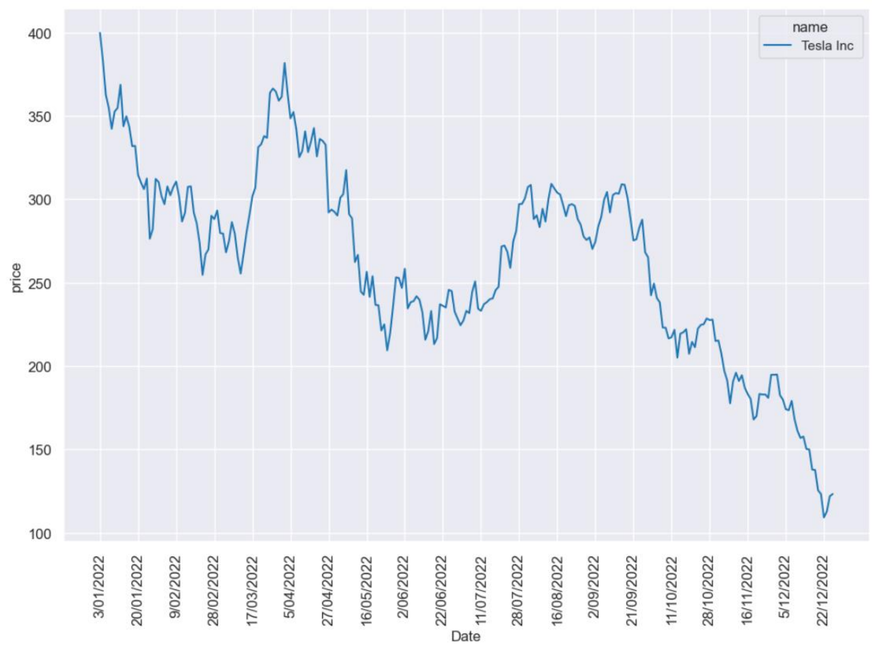
Panel C: Currency – USD vs others



Panel D: Inflation



Panel E: Stock specific examples: Telsa, BHP and Total




Tesla Inc - PE_LTM (LHS)
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Tesla Inc - EPS_LTM (RHS)
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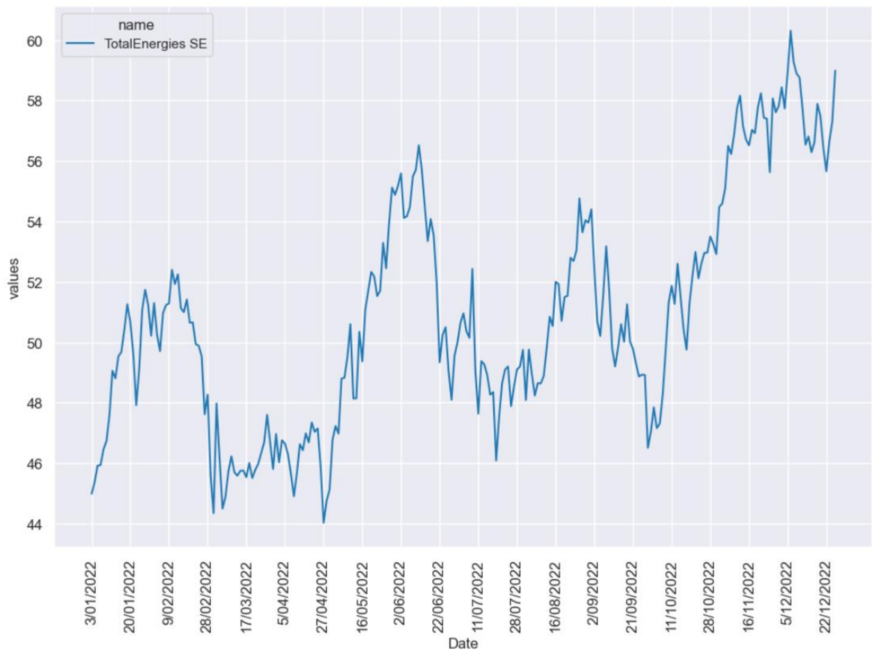
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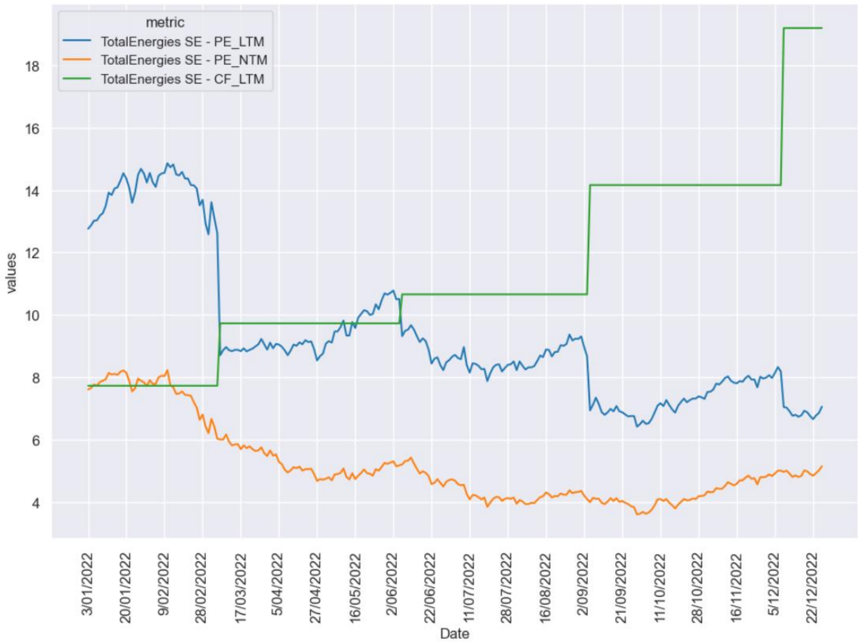
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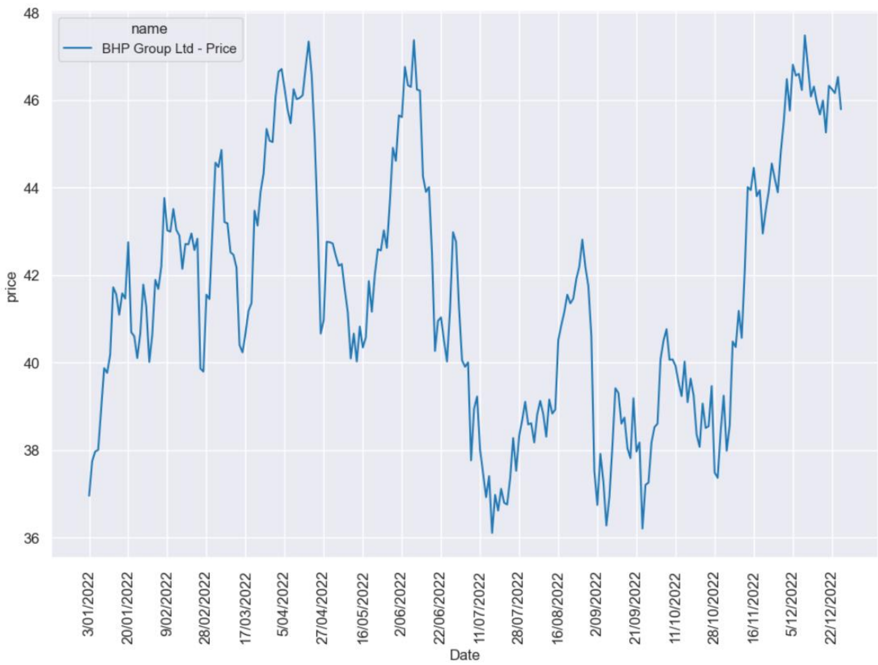
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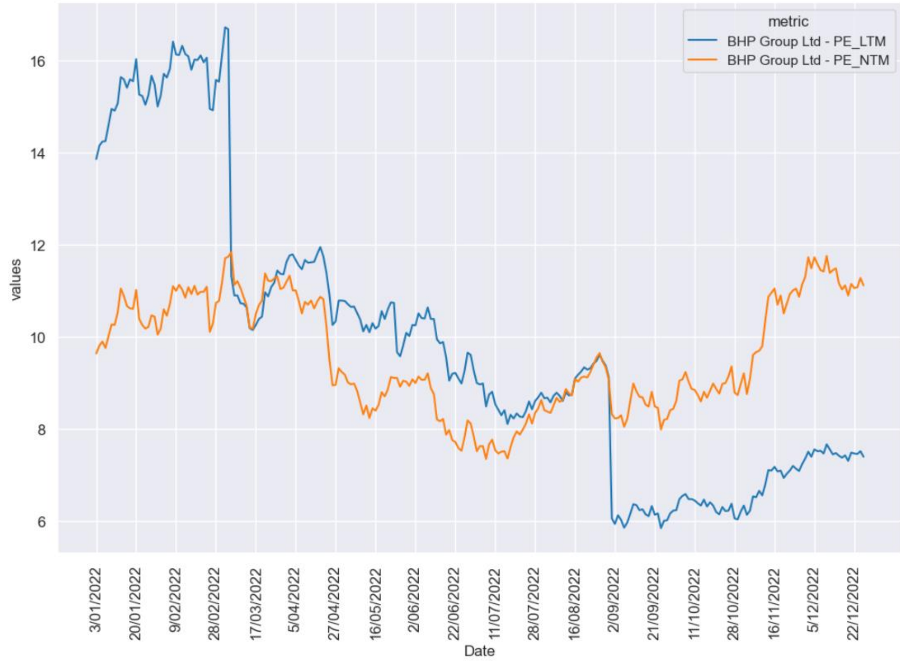


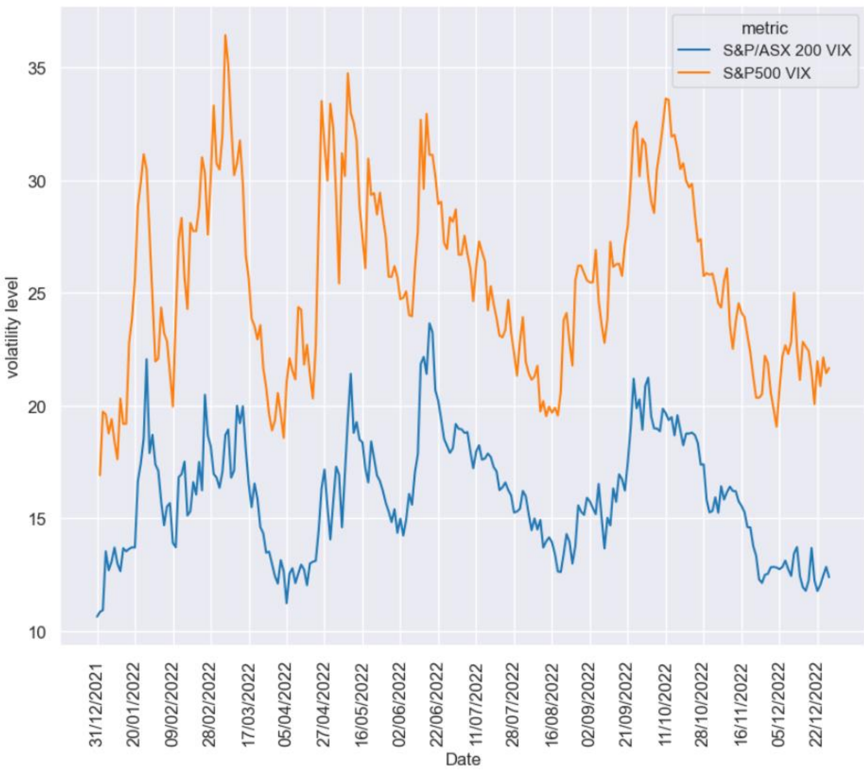
Volatility

Chart 8 below shows the volatility index (VIX) for the S&P500 and the ASX 200 over 2022. The VIX is a composite measure of volatility "implied" or "backed out" of index option prices and averaged across times to maturity and strike prices. Originally proposed by Brenner and Galai in the *Financial Analysts Journal* in 1989, it was formalised by Professor Robert Whaley on behalf of the CBOE in 1992 and 1993. The VIX index is intended to measure the market's risk expectations, and represents a "best guess" of the expected annualised volatility of the market.

The US VIX index was again significantly higher than the ASX VIX index during the year. This diversion or spread starts around the end of 2017 and continues to this day. The main drivers seem to be macroeconomic and geopolitical risk, and increased volatility in expensive mega-cap stocks like Tesla. The absolute level of both the US VIX Index and ASX VIX Index is not especially high (VIX above 30% is considered to be extreme)

In fact, after spikes in volatility in March (Russian invasion of Ukraine), June (recession fears) and October ("risk on" market following abatement of recession fears), volatility has trended downward to close to its lowest levels for the year. It seems a little strange after such a volatile year to see the market forecasting somewhat benign conditions for the next 12 months – global recession fears still abound. Note, however, that the VIX still remains above its pre COVID levels (e.g., 12.5% in Dec 2019). The ASX VIX Index has reverted back to its levels pre COVID.

Chart 8: Volatility: S&P500 VIX and ASX VIX[8]



Factor performance and drivers – value, growth in particular

Chart 9 gives the 3 month and 12 month returns of four different style indices for MSCI ACWI, MSCI DM and MSCI EM universes. The style indices given here are Value, Growth, Minimum Volatility and Momentum.[9] The returns are given in AUD and in local currency. Chart 10 gives the time series of the local currency version of Value and Growth for the year, for ACWI, EM and Australian universes.

On the first chart (Chart 9) the colours say it all. The returns to style indices in 2022 are all negative for the full 12 months but have finished the year strongly with almost all 3 months returns positive. Growth in Developed Markets and ACWI were the largest negatives for the year, down over 25% in local currency terms. The Emerging Markets growth index was also down but not by as much – both rebounded in the last quarter. Growth underperformed Value significantly over the year and even during the last quarter. Minimum Volatility (holding greater lower volatility names) did better than Growth, again showing the rotation away from risky growth to less risky names. Momentum did badly for twelve months but rebounded strongly as well.

Chart 10 drills down further into performance of Value and Growth over the year. Charts for Value and Growth for Australia, ACWI and Emerging Markets are shown. As noted above, ACWI Growth was the worst performer for the year, followed by Emerging Markets Growth. The trend downwards was only interrupted by a mid-year rebound in Developed Markets and the bounce back in markets in Q4. Australian Growth also sold off, but by no means as far.

[8]Source: FactSet and Realindex

[9] For details on these index constructions, see https://www.msci.com/index-methodology

Value outperformed Growth over the year mainly by avoiding large selloffs in the first half. The Q4 rebound was similar for all indices. Australia fared the best. The spread between ACWI Growth and Value was the largest of all pairs of indices.

Chart 9: Selected Style Indices[10]

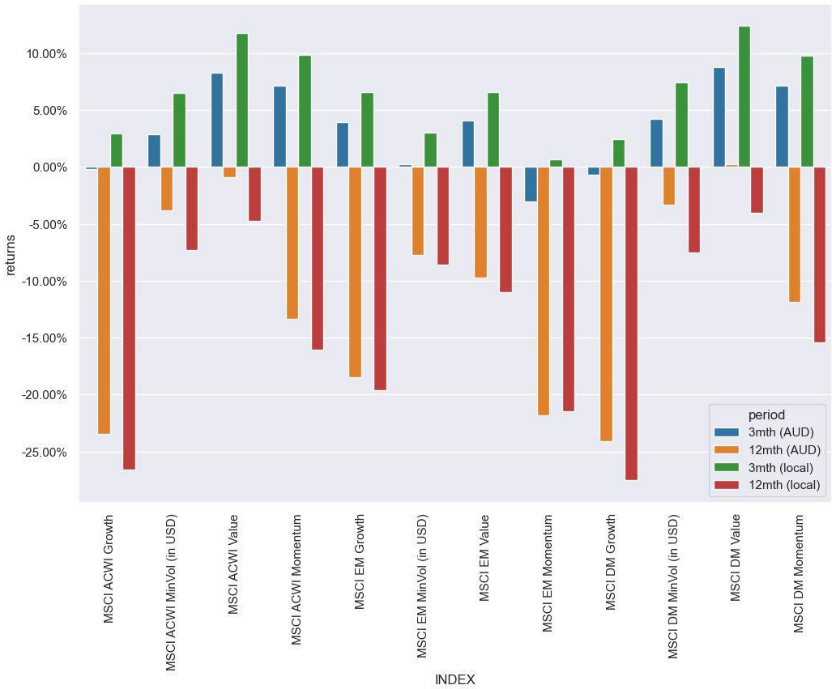
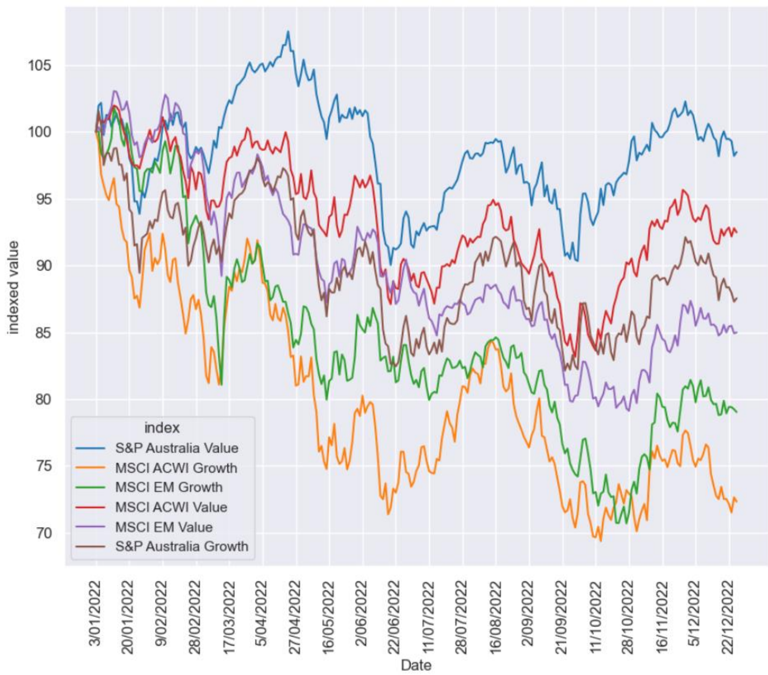


Chart 10: Evolution of Value and Growth for the year[11]



[10]Source: FactSet and Realindex
[11]Source: FactSet and Realindex

2. Major themes for 2022

A ESG and Net Zero

During 2022, a number of ESG issues grew and became more topical. Several summaries that also provide future directions have been published – the best of which, we believe, came from the Australian office of PWC end-of-year report[12]:

- Global alignment of capital markets with sustainability goals
- Science based net zero targets starting to dominate
- Scope 3 carbon measurement and reporting becoming more mature
- Increased regulatory oversight of ESG credentials, including in Australia
- The growing importance of biodiversity and natural capital

The bulk of ESG discussion continues to be around decarbonisation, net zero targets and measurement and the reporting of these. However, other critical issues continue to be explored, perhaps without the same coverage. At Realindex, we focus on carbon-related ESG issues, but gender diversity and modern slavery remain at the forefront of our corporate engagement process.

Although a tumultuous year in geopolitical and economic terms, the focus on ESG continued unabated. Chart 11 shows the Google trends ratings for the phrases "biodiversity", "ESG", "decarbonisation" and "net zero" for all geographies for the five years to the end of 2022.

Despite a lack of an absolute measure of search interest, this relative measure allows us to assess the direction of searches for the nominated terms. Here we see a strong increase in searches for the terms ESG, net zero and decarbonisation over this five-year period, flattening off in the last twelve months or so. This would indicate a levelling off of interest, albeit at a high level.

Biodiversity, which we include as an emerging ESG issue, starts higher than the other search terms, exhibits much more volatility and does not trend upwards at the same rate. As more data becomes available, we believe this will become an issue of greater discussion over the next 12 months.

[12] https://www.pwc.com.au/assurance/esg-reporting/esg-trends-in-2022.html

Chart 11: Five Year Google Trends of ESG phrases[13]

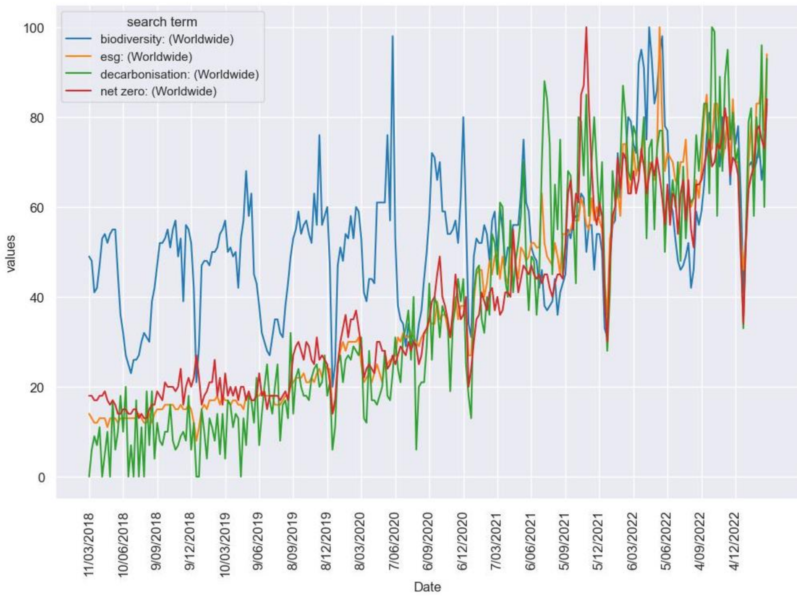


Chart 12 shows the index levels of MSCI ACWI and its ESG counterpart during 2022. The surprise here is how little the ESG benchmark has underperformed the broader based benchmark during a period when less ESG friendly stocks (e.g. oil and gas) have performed relatively so much better. This perhaps speaks to the nature of the benchmark construction rather than the ESG impact per se. For example, Chart 4 above shows the dramatic difference between energy and other sectors during the year.

Chart 12: MSCI ACWI and ACWI ESG indices in 2022[14]

[13] Source: https://trends.google.com/trends/?geo=AU. Google trends are calculated from Google searches of these terms, and indicate a normalised (between 0 and 100) rating of relative interest of a topic. Search results are not case sensitive. Some of the variation in the trend values are due to changes in Google's data collection process.
[14] Source: FactSet and Realindex

B Flows into and out of ETFs and mutual funds

In our 2021 review, we noted that ETF flows had been very strong. This has again been a major feature of 2022. Chart 13 shows the aggregate flows into equity and bond ETFs and mutual funds during the year, compared to the last five years.

The growth in ETFs – equity or bonds – is still huge, with as much as USD400bn moving into equity ETFs during the year according to the iShares 2022 review report. Bond ETFs have also seen inflows, while outflows from equity and bond mutual funds has also been evident

Compared to 2021, the inflows to equity ETFs has slowed somewhat, but is still well ahead of 2018-2020. At an individual ETF security level, the inflows into US equity and bond ETFs have been well spread, as Chart 14 shows. A number of Vanguard ETFs have seen significant inflows.

Chart 13: ETF and Mutual Funds Flows in 2022[15]

[15]Source: https://www.ishares.com/us/insights/flow-and-tell-2022-in-review

Chart 14: Equity ETF Flows by name in 2022[16]

Top 10 Creations (All ETFs)

Ticker	Fund Name	Net Flows*	Details
VOO	Vanguard S&P 500 ETF	39,961.97	
VTI	Vanguard Total Stock Market ETF	25,916.47	
IVV	iShares Core S&P 500 ETF	21,549.64	
SCHD	Schwab U.S. Dividend Equity ETF	15,400.79	
TLT	iShares 20+ Year Treasury Bond ETF	15,272.40	
BND	Vanguard Total Bond Market ETF	14,195.39	
BIL	SPDR Bloomberg 1-3 Month T-Bill ETF	12,815.42	
JEPI	JPMorgan Equity Premium Income ETF	12,762.74	
TQQQ	ProShares UltraPro QQQ	12,075.95	
VTV	Vanguard Value ETF	11,083.70	

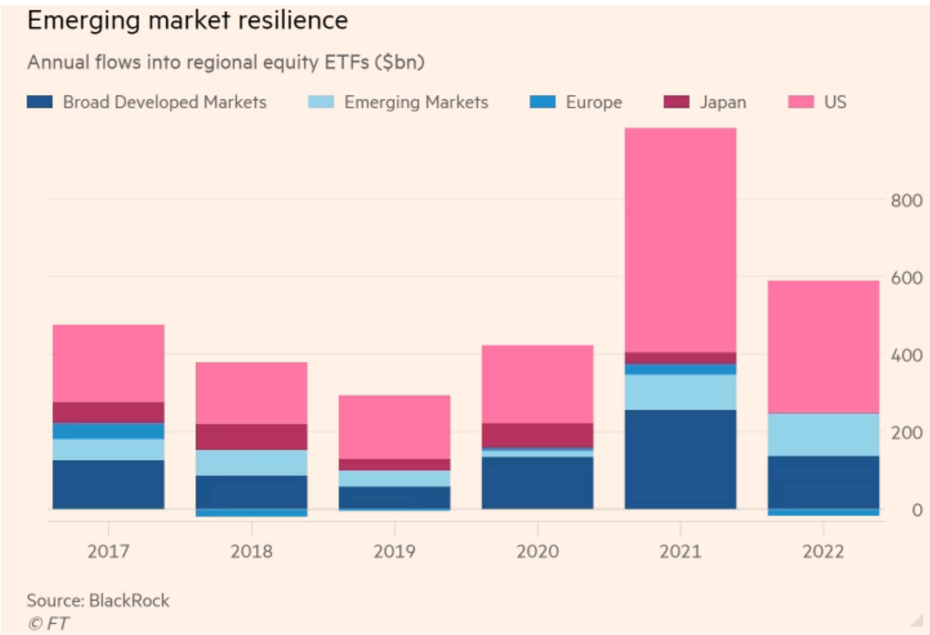
Top 10 Redemptions (All ETFs)

Ticker	Fund Name	Net Flows*	Details
SPY	SPDR S&P 500 ETF Trust	-12,445.29	
TIP	iShares TIPS Bond ETF	-9,606.04	
XLF	Financial Select Sector SPDR Fund	-7,293.94	
VLUE	iShares MSCI USA Value Factor ETF	-6,367.50	
BBEU	JPMorgan BetaBuilders Europe ETF	-4,960.50	
MINT	PIMCO Enhanced Short Maturity Active ETF	-4,523.41	
SCHP	Schwab U.S. TIPS ETF	-4,200.96	
PFF	iShares Preferred and Income Securities ETF	-3,337.02	
VGK	Vanguard FTSE Europe ETF	-3,029.80	
FALN	iShares Fallen Angels USD Bond ETF	-2,696.07	

Exploring by region, we can see that the bulk of net inflows has been in US ETFs again, while broader developed market ETFs have grown more slowly: Chart 15 shows this. The growth of Emerging Market equity ETFs continues, while inflows into Japan specific ETFs has been reduced to near zero (at least by the scale of this chart).

This chart again shows what we already know – ETF growth continues unabated despite market geopolitical turbulence, COVID and economic uncertainty

Chart 15: Net equity ETF Flows by region in 2022[17]



[16]Source: https://www.etf.com/etfanalytics/etf-fund-flows-tool

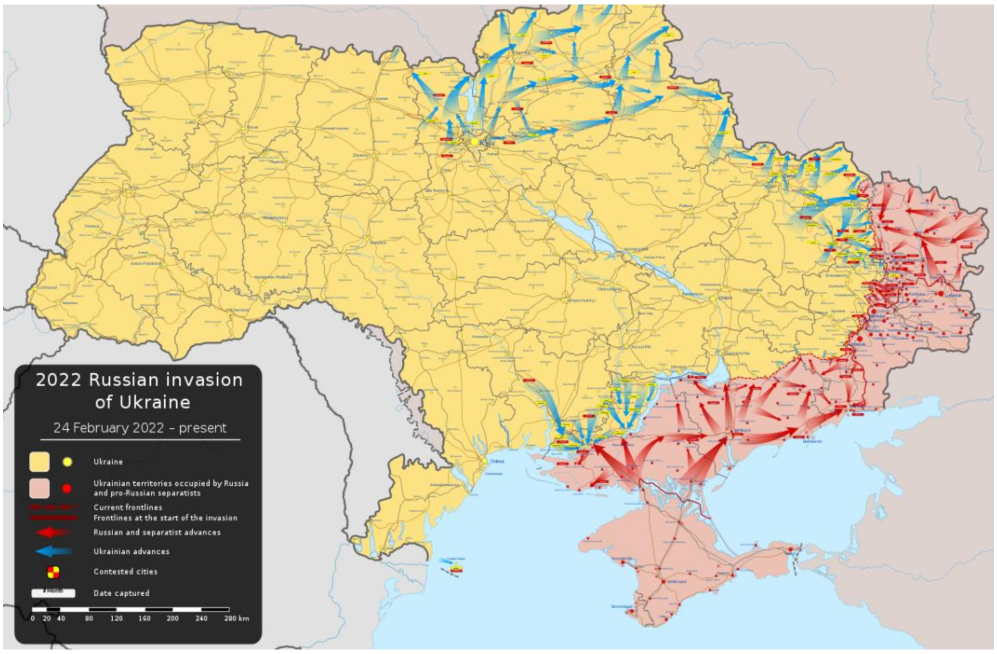
[17]Source: www.FT.com and www.blackrock.com

C Russia-Ukraine Conflict

The highly regrettable invasion of Ukraine by Russia on February 24th 2022 has had major impacts on global economic conditions, geopolitical alliances and risk. Most pundits would claim that Russia's intentions were a quick and clean annexing of Ukraine, but they were met with unexpected defiance and resistance. Like many wars in Europe – including those involving Russia – this has dragged on all year, at great human and financial cost, and sadly there is no indication that it will evolve beyond a long-term war of attrition.

Chart 16 is a map taken from Wikipedia of the evolution of war and its locations within Ukraine. The bulk of activity has been in the contested south-east region, aligning with the illegal annexation of Crimea by Russia in 2014.

Chart 16: Map of Ukraine and regions of Russian invasion[18]

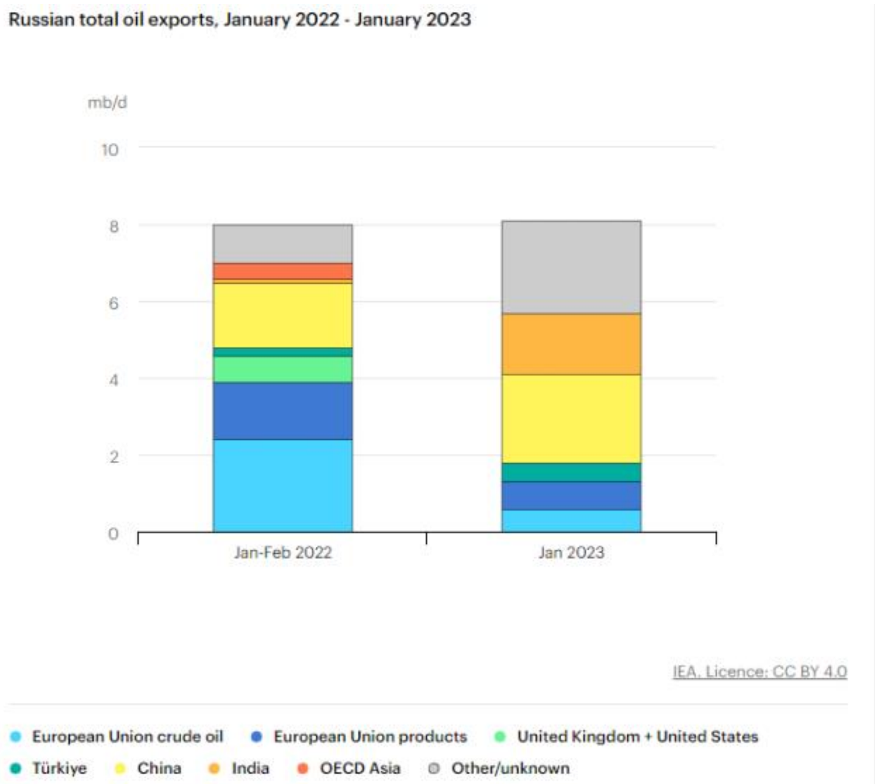


At an economic level, the main issue has been oil and gas. Russia was – and still is – a major producer and distributor of oil and gas in Europe and elsewhere. Producing approximately 8m barrels of oil per day, with willing buyers around the world, has supported the Russian economy for many years.

Chart 17 shows the mix of buyers for Russian oil at the beginning and the end of 2022, split by country. Financial and business sanctions imposed following the invasion were aimed at applying financial pressure to speed up the end of the conflict. As Chart 17 shows, the overall oil production is largely unchanged, although the mix is wildly different. EU imports of Russian oil have fallen sharply, as have imports into the UK. These have been replaced by increased reported sales to India and China, and a marked increase in the "unknown" category. This latter category has been rumoured to be anything from clandestine sales to European corporates to undisclosed sales into China. However, we do not want to engage in any further speculation here – our point is that oil production has not been slowed

[18] Source: https://en.wikipedia.org/wiki/2022_Russian_invasion_of_Ukraine#/media/File:2022_Russian_invasion_of_Ukraine.svg

Chart 17: Russian oil exports[19]



Increased energy costs in Europe and elsewhere will propagate through to higher cost of living and lower economic growth. In particular, European competitiveness is being eroded in energy intensive industries, and production is necessarily lower. Chart 18 shows the production of four energy intensive sectors in Europe, rebased to February 2022 to show the rapid fall off in these sectors.

[19]Source: https://en.wikipedia.org/wiki/2022_Russian_invasion_of_Ukraine#/media/File:2022_Russian_invasion_of_Ukraine.svg

Chart 18: EU industrial production[20]

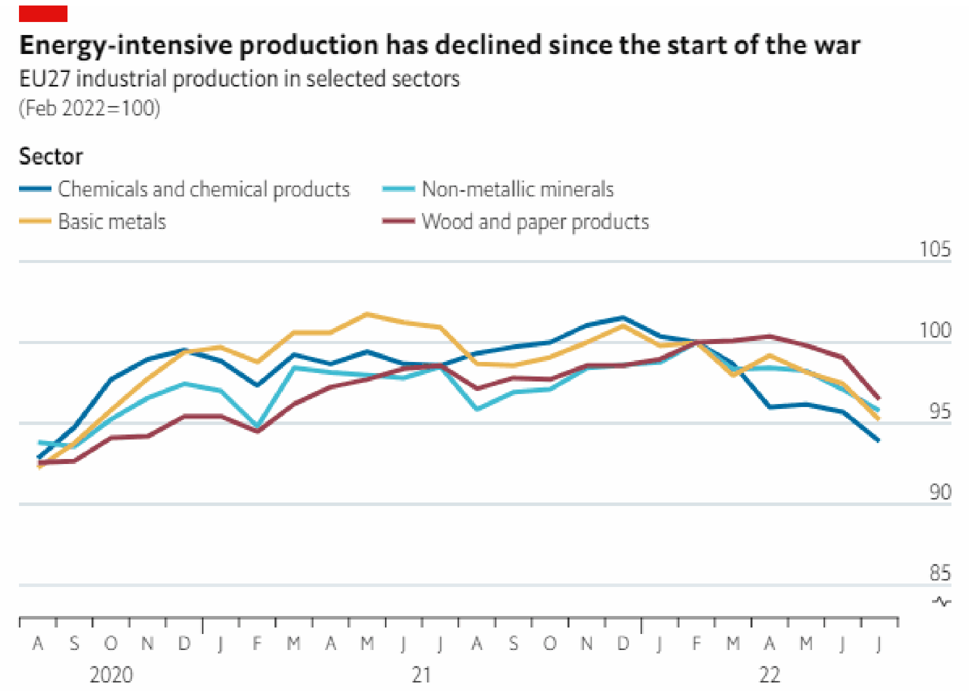
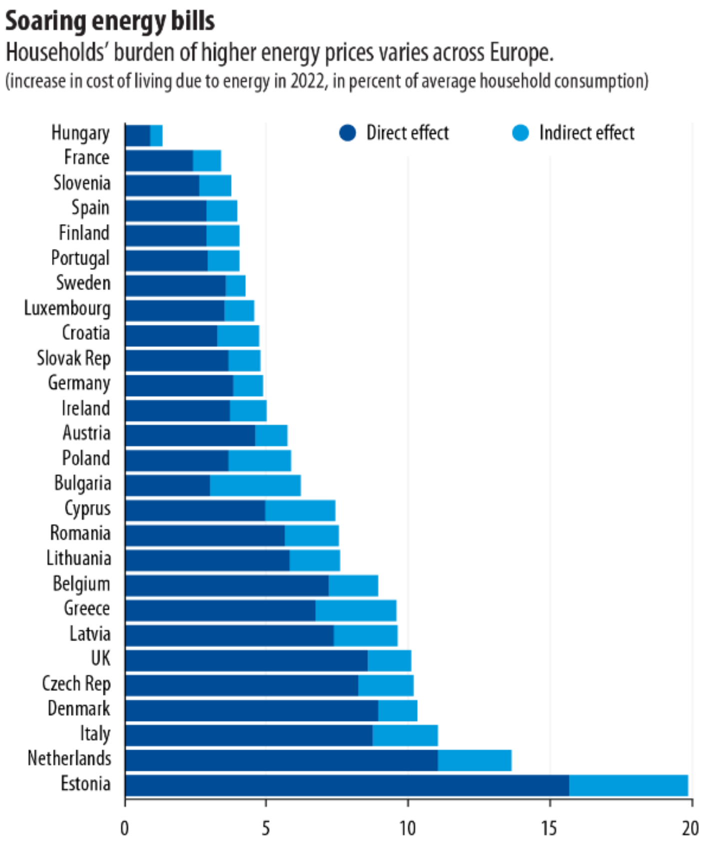


Chart 19 shows IMF research on the direct and indirect effects of higher energy costs on households in Europe in 2022. No country is immune, and large economies like the UK and Italy have seen increases of over 10% of the household budget spent on energy consumption due to skyrocketing prices. Other large economies, like France and Germany, have suffered less, but have still seen a large impact.

[20]Source: https://www.eiu.com/n/energy-crisis-will-erode-europe-competitiveness-in-2023/

Chart 19: Increases in EU household budget consumption due to energy[21]



With the advent of sanctions following the outbreak of the conflict, trading in Russian securities was restricted and then prevented altogether. This also extends to cash flows in and out of Russia – for example, dividend payments. The final step was writing the value of these stocks to zero as their traded prices (in Moscow only) did not represent the actual available price.

Our portfolios still have notional holdings in many Russian stocks, but when they were valued at zero the funds' performance suffered, and we are still unable to trade them. We were overweight Russia at a country level, and overweight a number of stocks at the time. If, in the future, sanctions are lifted and Russian stocks are again available to trade, we expect that our funds will return to pricing them at market levels.

[21]Source: https://www.imf.org/en/Publications/fandd/issues/2022/12/helping-europe-households-Celasun-Iakova

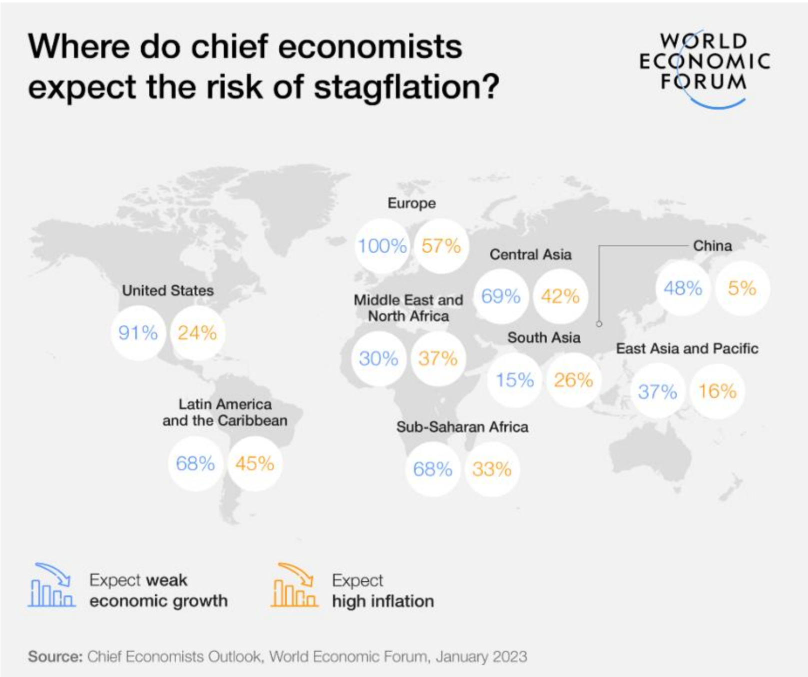
D Ongoing economic uncertainty – recession fears, inflation …

Finally, we come to outlooks for 2023 and beyond. The twin fears of inflation increases and economic slowdowns (taken together, they are known as "stagflation") are still circulating, even with the apparent peaking of inflation in late 2022 as discussed earlier.

The World Economic Forum of January 2023 in Davos in Switzerland spent a great deal of time and energy discussing these issues. While no strong policy conclusions were forthcoming, other than the current tools which are in place, one useful summary chart appeared. Chart 20 shows the proportion of chief economists for federal governments globally who expected slowing economic growth and higher inflation for each region around the world.

Most economies are anticipating slowing economies, with Developed Markets like US and Western Europe very likely. Even China is expected to see a slowdown. However, the proportion of economists who believe that high inflation will continue is low outside of Western Europe.

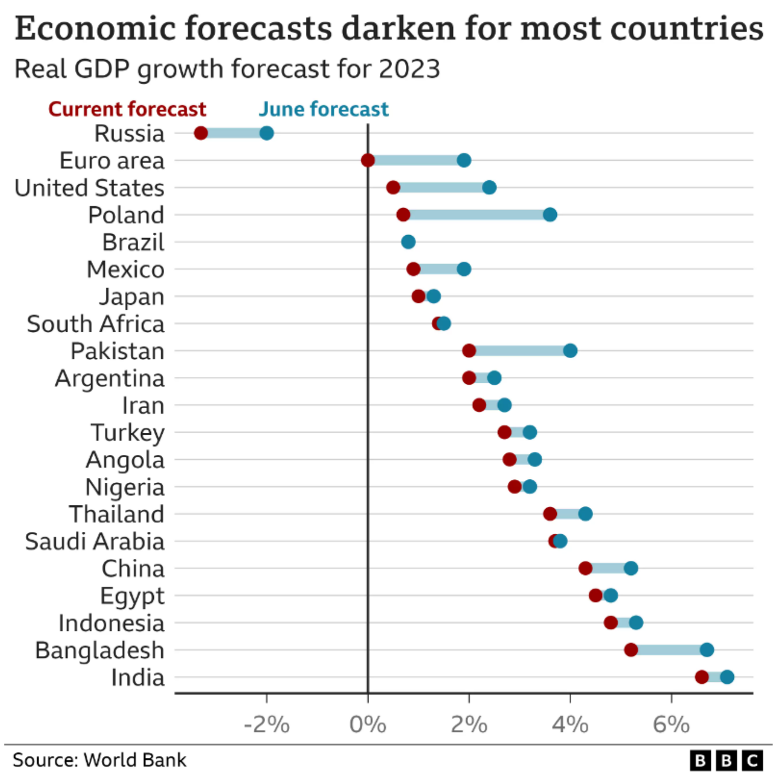
Chart 20: Increases in EU household budget consumption due to energy[22]



As a final observation in this section, Chart 22 illustrates the change in the World Bank's economic growth forecasts for 2023, taken from June 2022 (in blue) and at the end of 2022 (in red). The change is particularly noticeable (and disturbing) for European area and the United States, where expected growth has fallen to nearly zero. Other large economies – for example, Japan and China – are less affected.

[22]Source: https://www.imf.org/en/Publications/fandd/issues/2022/12/helping-europe-households-Celasun-lakova

Chart 21: Change in World Bank growth forecasts[23]



3 Portfolios and Realindex

Despite the market selloffs and the volatility, the Realindex team and fund performance has never been stronger. Research agenda development, critical thought pieces and systems development have all been very strong again, and we are continuing to look into expanding our asset base within Australia and offshore.

Fund Performance and Attribution

Here, we summarise the performance of our Global, Australian and Emerging Market strategies in 2022.

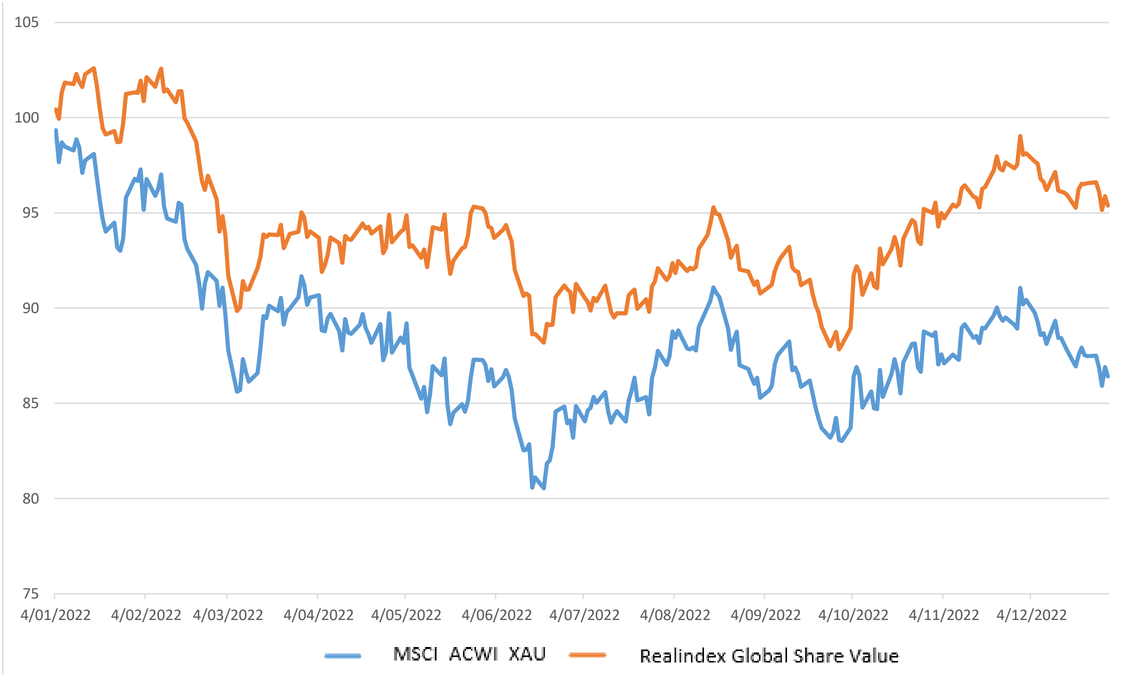
Realindex Global Shares Value Strategy[24]

	Return	Risk
Portfolio	-4.62%	13.35%
Benchmark	-13.59%	15.93%
Active	8.97%	6.88%

[23]Source: https://www.worldbank.org/en/publication/global-economic-prospects

[24] High level performance appears here. Detailed breakdown by factors, style, sector, country and stock appears in the Appendix

Comparing broad index and Realindex Global Share Value



Source: Realindex, Factset, MSCI

The Realindex Global Share Value – Class A delivered a very significant 8.97% of outperformance relative to the MSCI ACWI ex AU benchmark in 2022, with performance delivered throughout the year. Our strategy did not fall as far as the benchmark during Q2, but did not participate as strongly in the rebound in Q3. Value then outperformed a flat benchmark for the remainder of the year. At the same time, the fund slightly underperformed the MSCI ACWI ex AU Value index. Longer term, we have significantly outperformed this second benchmark.

Both underweights and overweights contributed, roughly equally. This is a good result. It is clear it is not just the large underweight to expensive Technology stocks that has paid off. In more detail, the strongest positive contributors to performance were (see Appendix for tables):

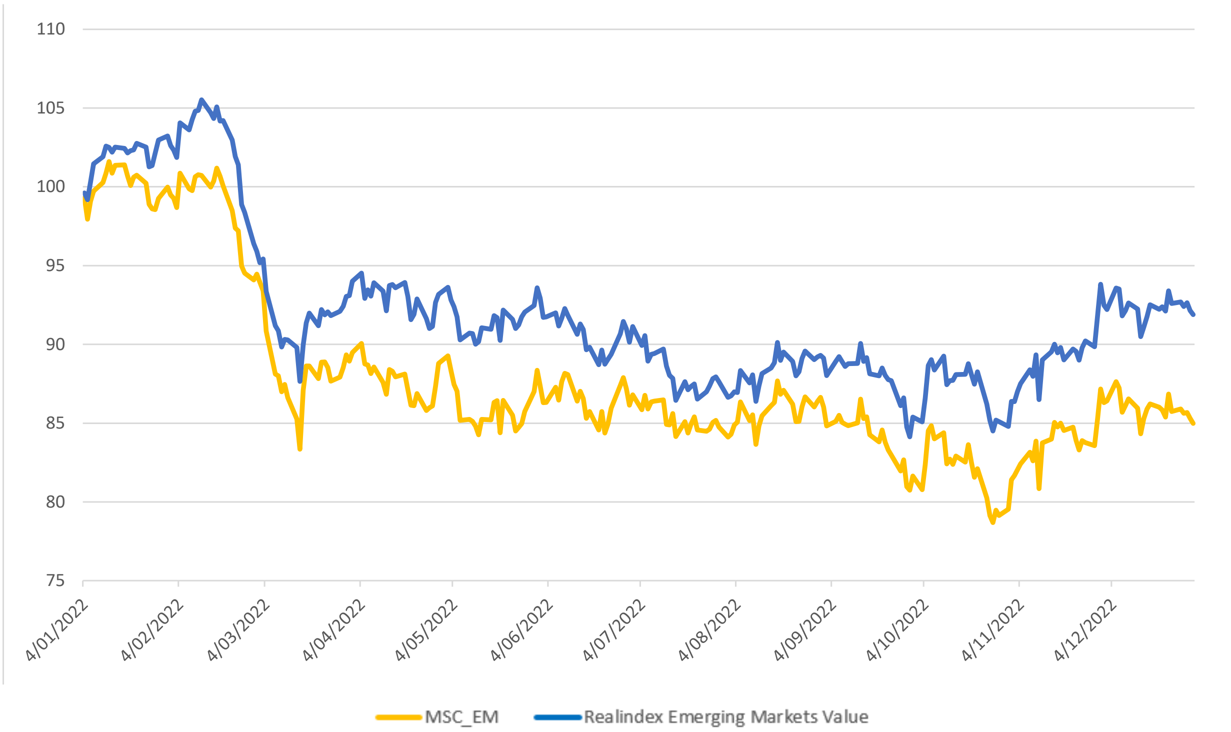
Style:	Value (book yield) overweight, Volatility underweight, Value (earnings yield) overweight and Growth (underweight). Momentum (overweight) and Liquidity (underweight) detracted.
Sector:	Energy and Financials (overweights) and Information Technology (underweight). Consumer Staples and Materials (overweights) detracted.
Region/Country:	All regions contributed positively, led by North America and Japan. Emerging Markets were also a positive contributor, with Turkey and China among the best countries.
Stock:	Tesla, Amazon and Apple. Volkswagen and Russian stocks like Lukoil and Severstal were detractors.

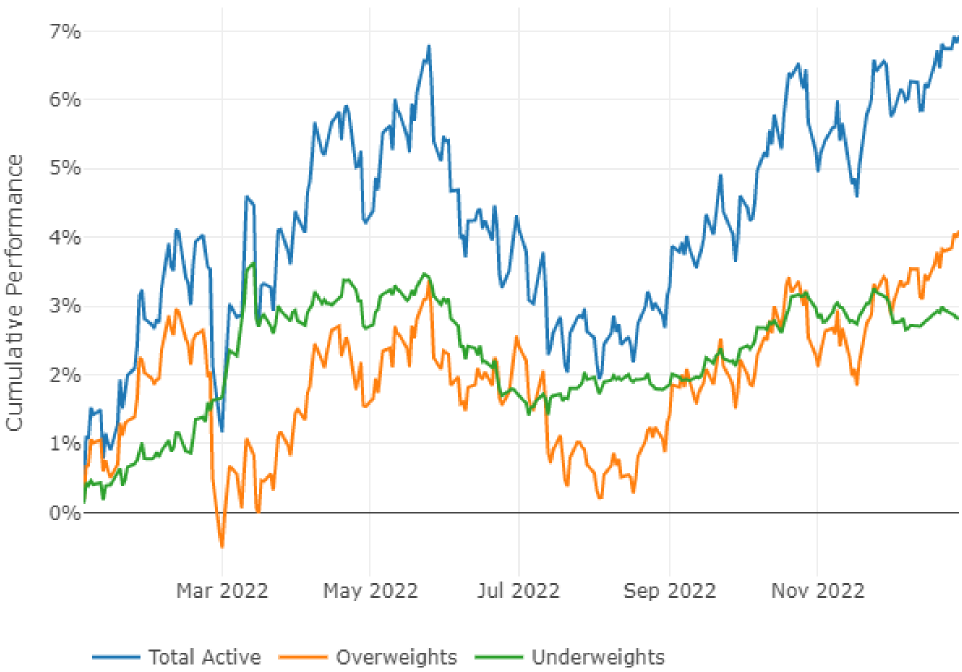
Realindex Emerging Market Value Strategy[25]

	Return	Risk
Portfolio	-8.11%	14.04%
Benchmark	-15.02%	16.31%
Active	6.91%	7.62%

[25] High level performance appears here. Detailed breakdown by factors, style, sector, country and stock appears in the Appendix

Comparing broad index and Realindex Emerging Markets Value





Source: Realindex, Factset, MSCI

The Realindex Emerging Markets Value – Class A delivered strong out-performance in 2022 consistent with the continued rise of Value as a factor within EM markets since the end of 2020. In 2022, the fund outperformed the MSCI EM benchmark, generating over 6.9% outperformance, falling only 8.1% when the market was down about 15%. The fund also outperformed equivalent MSCI EM Value benchmark over the year.

Both overweight and underweight positions added value, in nearly equal measure. The initial outperformance in the first half of the year retraced somewhat mid-year, and then rebounded hard for the remainder. The overweight contribution paralleled this, while the underweight contribution was more stable.

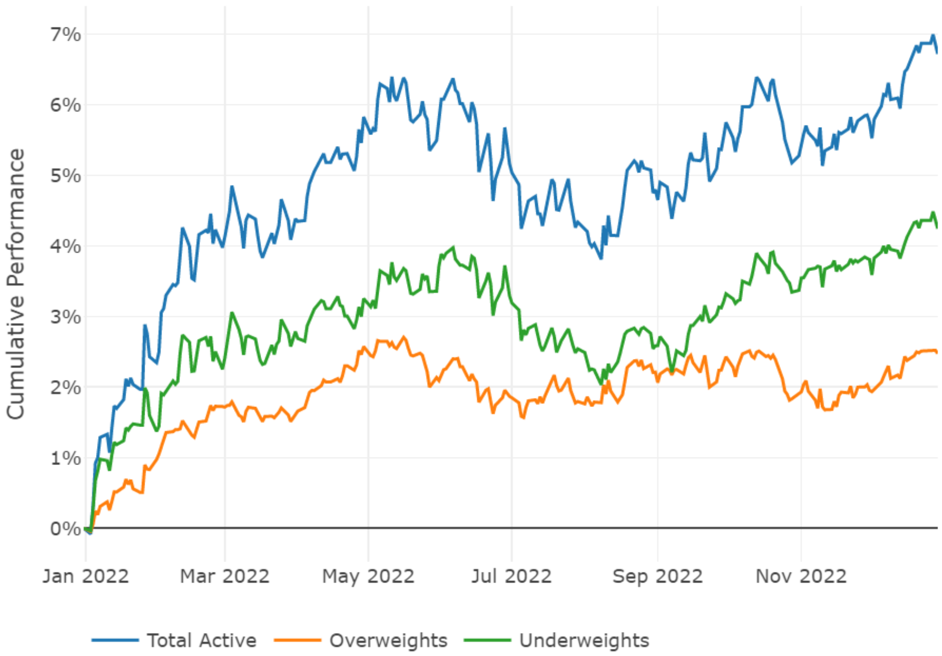
Given the inherent value tilts of the fund, the main driver of performance from a factor perspective is the strategy's core exposure to value-oriented insights. Strongest positive contributors to performance were:

Style:	Value (book yield) overweight, Volatility underweight and Growth underweight. Liquidity and sensitivity to exchange rates detracted slightly.
Sector:	Financials (overweight), Information Technology and Communications Services (underweights). Materials and Utilities detracted.
Country:	Turkey (overweight) and Taiwan (underweight). Russia (overweight, as discussed) and Korea (overweight) detracted.
Stock:	Taiwan Semiconductor and Tencent (both underweights). Russian stocks Gazprom, Lukoil and MMC Norilsk (all overweights) detracted.

Realindex Australian Share Value Strategy

	Return	Risk
Portfolio	6.09%	15.24%
Benchmark	-0.63%	15.60%
Active	6.72%	3.61%

Comparing broad index and Realindex Australian Share Value



Source: Realindex, Factset, MSCI

The Realindex Australian Share Value – Class A delivered substantial outperformance against the ASX 200 benchmark with the fund consistently outperforming the index throughout 2022. The fund outperformed the ASX 200 by 6.72% during 2022 with the fund outperforming the benchmark for most months throughout the year. The fund has also outperformed the ASX 200 Value benchmark over the year.

The fund's underweight positions contributed significantly more than the overweight positions to the outperformance by the fund. The initial outperformance retraced slightly by Q3 2022, but rebounded strongly to finish 2022. This was driven largely by the underweight positions, while the contribution by overweights largely remained flat after Q1 2022.

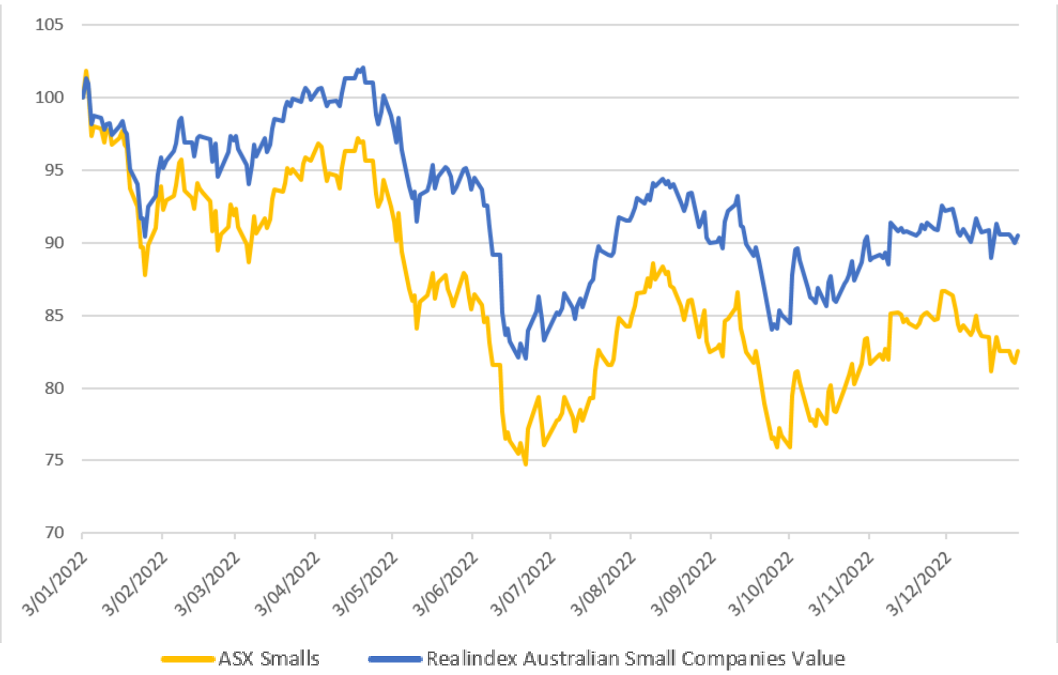
The strongest contributors to performance were:

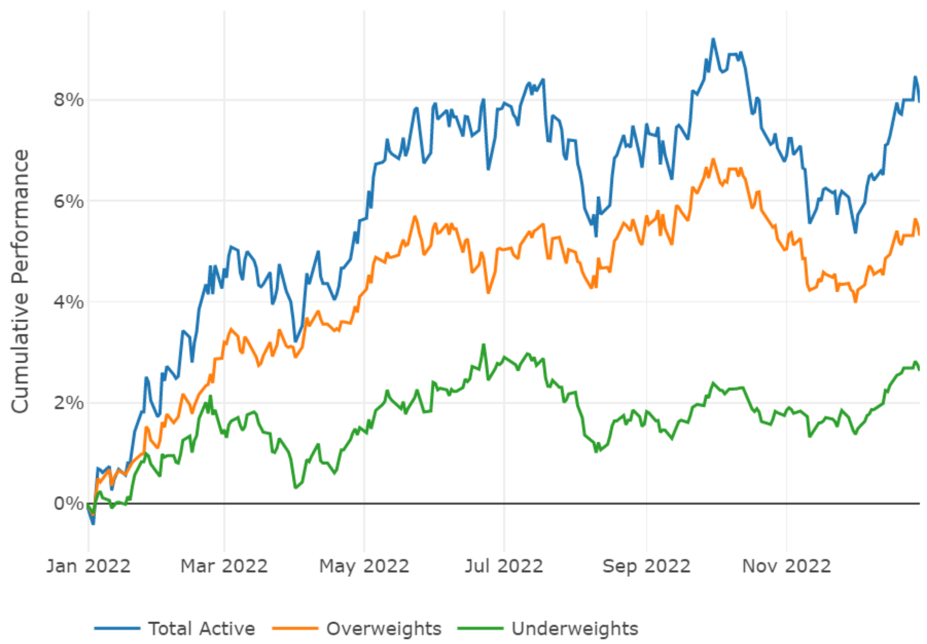
Style:	Value (book yield) overweight, Value (Dividend yield) overweight and Market Sensitivity underweight. Overweights to Volatility and Profitability as well as an underweight to size slightly detracted during the year.
Sector:	Information Technology (Underweight), Energy, Materials and Financials (Overweights). Consumer staples (overweight) slightly detracted during the year.
Stock:	Whitehaven Coal (Overweight), Goodman Group and Xero (Underweight). ANZ, Ampol (Overweights) and Tabcorp (Underweight) slightly detracted during the year.

Realindex Australian Small Companies Value Strategy

	Return	Risk
Portfolio	-9.47%	19.16%
Benchmark	-17.43%	23.12%
Active	7.96%	6.04%

Comparing broad index and Realindex Australian Small Companies Value





Source: Realindex, Factset, MSCI

The Realindex Australian Small Companies Value – Class A delivered significant outperformance against the ASX Smalls index throughout 2022 with the fund consistently outperforming during the year. Despite ASX Smalls having a significant down year, the fund managed to perform strongly by generating 7.96% of alpha against the benchmark to largely limit the drawdown. The fund also managed to outperform the ASX Small Cap Value index throughout the year.

The fund's outperformance was broadly driven by the overweight positions during the first half of the year. The second half of the year was quite volatile but the fund managed to maintain its outperformance to close out the year. Underweight positions contributed meaningfully to the outperformance of the fund as well.

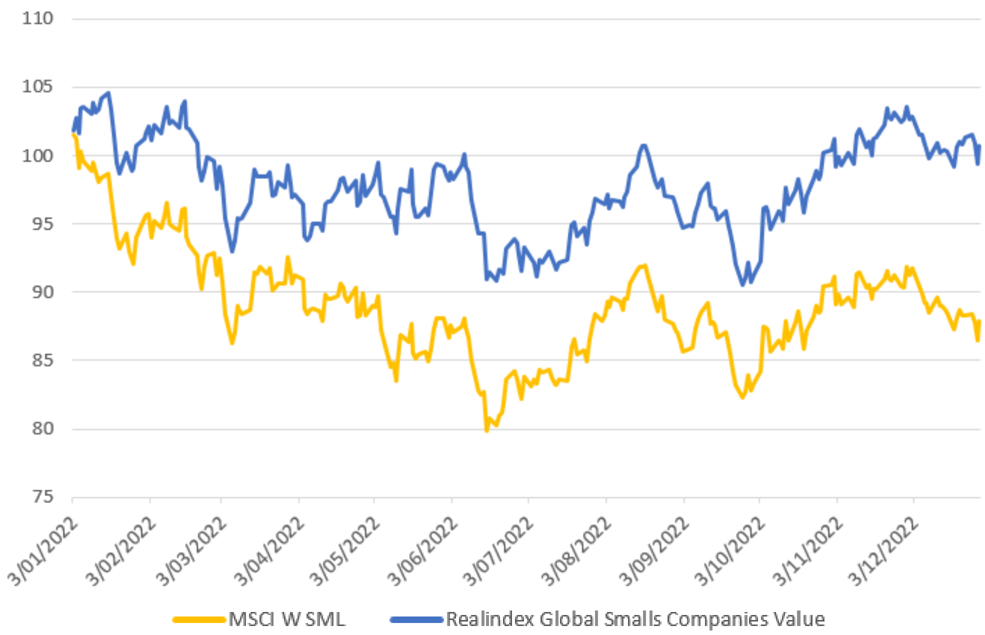
The strongest contributors to outperformance were:

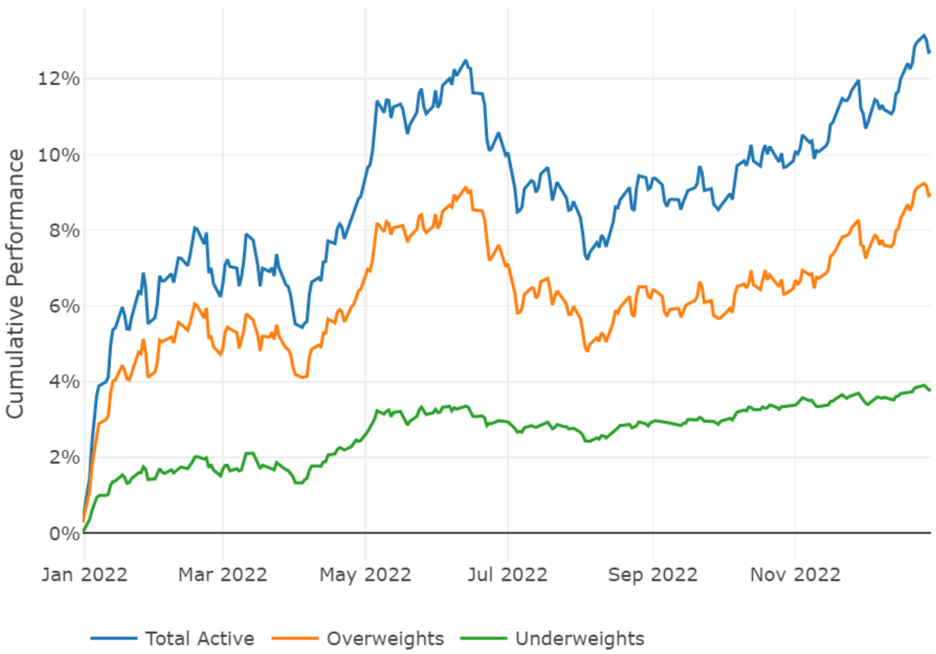
Style:	Value (book yield) overweight, Value (Dividend yield) overweight, Leverage overweight and Market Sensitivity underweight. Overweights to Volatility and Profitability as well as an underweight to Size slightly detracted during the year.
Sector:	Information Technology, Consumer Discretionary, Materials (Underweights), and Financials (Overweight). Communication Services (overweight) slightly detracted during the year.
Stock:	New Hope Corporation, Myer (Overweights), Novonix and Zip (Underweights). Seven West Media, Pact Group Holdings (Overweights) and Whitehaven Coal (Underweight) slightly detracted during the year.

Realindex Global Smalls Companies Value Strategy

	Return	Risk
Portfolio	0.29%	18.16%
Benchmark	-12.44%	17.47%
Active	12.73%	7.20%

Comparing broad index and Realindex Global Smalls Companies Value





Source: Realindex, Factset, MSCI

The Realindex Global Smalls Companies Value strategy performed strongly throughout 2022 outperforming the MSCI World Smalls index by a significant margin. Despite the MSCI World Smalls index having a significant drawdown throughout the year, the strategy managed to deliver 12.73% of alpha against the benchmark to close the year largely flat. The strategy also managed to outperform the MSCI World Smalls value index during the year.

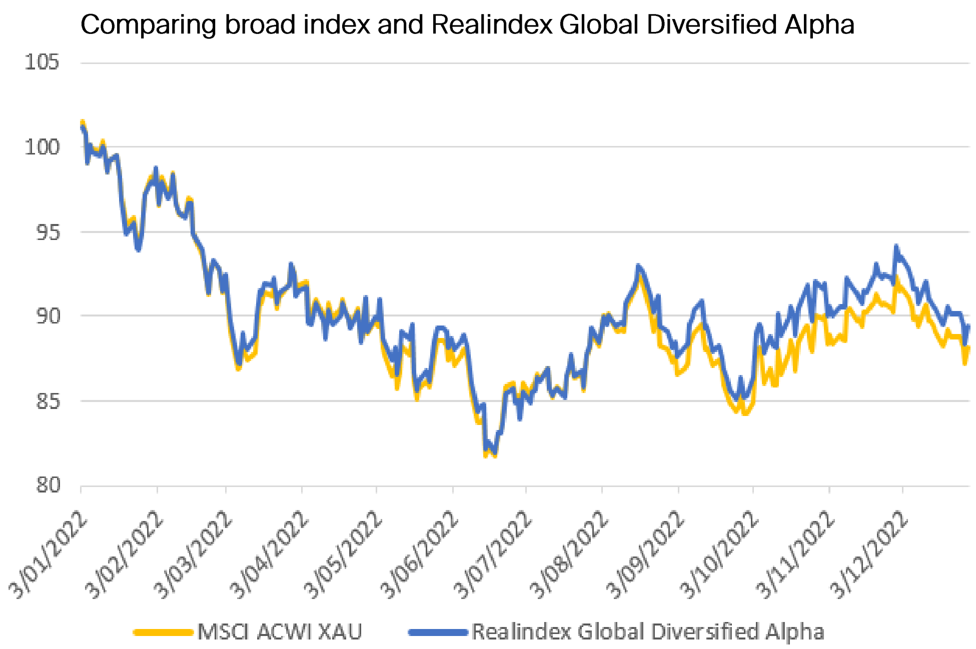
The strategy's outperformance was broadly driven by the overweight positions in the strategy with the underweight positions contributing meaningfully as well. The strategy performed strongly in the first half of the year before the outperformance retraced a bit during the middle of the year. However, the outperformance rebounded strongly to close out the year.

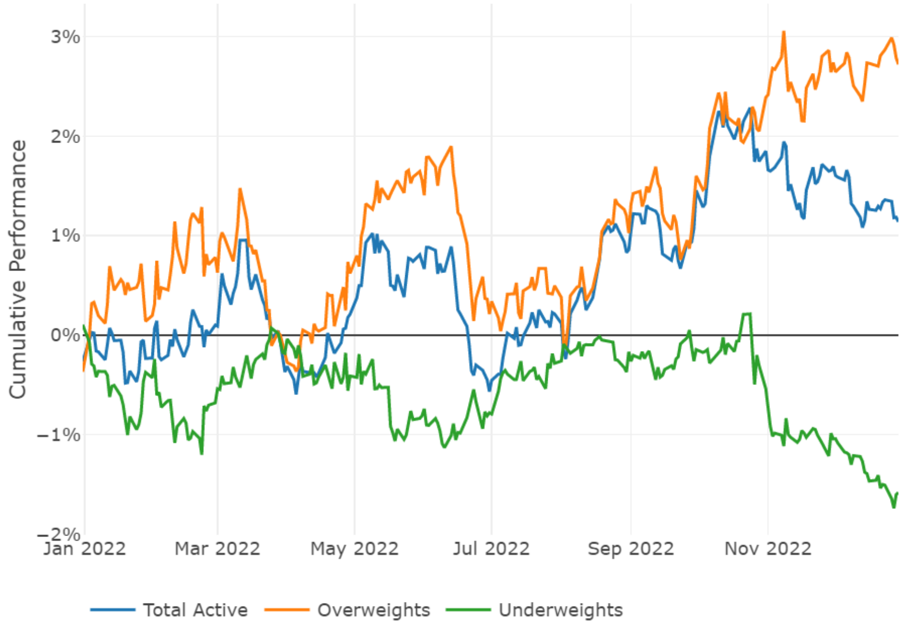
The strongest contributors to outperformance were:

Style:	Value (book yield) overweight, Value (Earnings Yield) overweight, Volatility underweight and Growth underweight. Size Overweight and Market sensitivity underweight detracted slightly.
Sector:	Energy, Financials (Overweight), Industrials and Information Technology (Underweight). An overweight to Consumer Staples detracted slightly throughout the year.
Country:	Underweight to the US and an overweight to Japan, and the UK. An underweight to New Zealand and overweight to Austria detracted slightly.
Stock:	Overweights to Marathon Oil Corporation, Unum Group and APA Corporation. The largest detractors were overweights to Qurate Retail, Herbalife Nutrition and Anywhere Real Estate.

Realindex Global Diversified Alpha Strategy

	Return	Risk
Portfolio	-11.17%	15.95%
Benchmark	-12.32%	15.92%
Active	1.16%	2.91%





The Realindex Global Alpha Strategy beat the MSCI ACWI ex AU benchmark with the outperformance occurring late in the year. The strategy remained broadly in line with MSCI ACWI ex AU throughout the year before picking up in Q4 2022 to finish the year outperforming the benchmark.

The overweight positions performed strongly while the underweight positions detracted from the strategy causing no net outperformance during the first half of the year. However, in the second half of the year, overweights started performing better than underweight positions to close out the year by delivering 1.16% of alpha.

The strongest contributors to outperformance were:

Style:	Profitability overweight, Value (Earnings Yield) overweight, and medium-term momentum overweight. Overweights to Volatility and Growth combined with an underweight to value detracted from the fund.
Sector:	Consumer Discretionary, Information Technology and Energy (Overweight). Overweight to Industrials and Materials with an underweight to utilities detracted throughout the year.
Country:	Underweight to the Unites States and overweight to Turkey, Mexico and Denmark. Underweights to India, Japan and Hong Kong detracted during the year.
Stock:	Tesla, Amazon (Underweight), ConocoPhillips and EOG Resources (Overweight). The largest detractors were Exxon Mobil Corp (Underweight), Meta Platforms and Novatek Microelectronics Corp (Overweight).

Conclusion

There is no doubt that 2022 was a year of significant disruption, from both economic and geopolitical viewpoints. Increased and ongoing inflation, coupled with slowing economic growth, has led to a dangerous mix, and central banks are treading a fine line in controlling inflation and running the risk of triggering a recession. The Russia-Ukraine conflict loomed large over 2022, and both it and its implications will continue to be felt in 2023.

Value continued its strong run during 2022, with the market down for the year but up over the last quarter. This has been partly driven by sustained high inflation. While inflation may have peaked, we believe Value should continue to perform well.

Other major trends like strong ETF in flows and ongoing ESG concerns are also evident. The US dollar, as usual in times of uncertainty, saw appreciation against other major currencies as a risk haven. This reverted later in the year as some of the uncertainty regarding inflation and growth subsided. Volatility also reduced sharply in Q4 of 2022.

The strong performance of the Energy sector, and the heavy selloffs in Information Technology and Communication Services, especially in Developed Markets, were key drivers in the equity market in 2022. While oil prices retracted, enduring higher energy prices seem likely, suggesting that Energy will continue to do well.

Notable stocks like Tesla (down very heavily) and TotalEnergies (up strongly) demonstrate these further.

Looking into 2023 does not produce a clear picture. If recession is to be avoided, or at least skirted, then sentiment may turn more positive. However, this optimistic picture is not really supported – continued uncertainty followed by a medium term rebound seems more likely. The largest unknown is the chance of escalation of the Russia-Ukraine conflict, which would put further pressure on inflation (positive) and economic growth (negative), and of course worsen the human costs.

APPENDIX: Detailed Fund Performance Breakdown

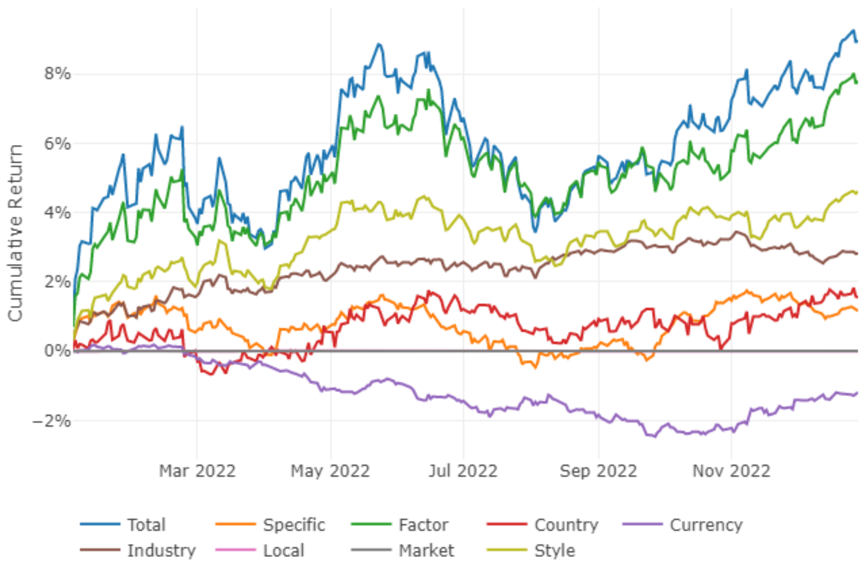
A Realindex Global Share Value Strategy

Factors

From a style decomposition perspective, systematic factors were the main driver of the fund's outperformance with smaller attributed performance coming from idiosyncratic effects beyond style, country and sector bets. Industry and country allocations added value, while currency allocations were the only detractor. Style allocations were the primary driver of the outperformance of the fund.

	Return	Risk
Portfolio	-4.62%	13.35%
Benchmark	-13.59%	15.93%
Active	8.97%	6.88%

	Contribution	Risk
Portfolio	-4.62%	13.68%
Benchmark	-13.59%	17.42%
Active	8.97%	6.96%
Active breakdown		
Specific	1.17%	2.20%
Factor	7.81%	5.79%
Factor breakdown		
Country	1.55%	3.42%
Currency	-1.19%	1.33%
Industry	2.83%	1.66%
Local	-0.01%	0.05%
Market	0.01%	0.01%
Style	4.61%	2.63%

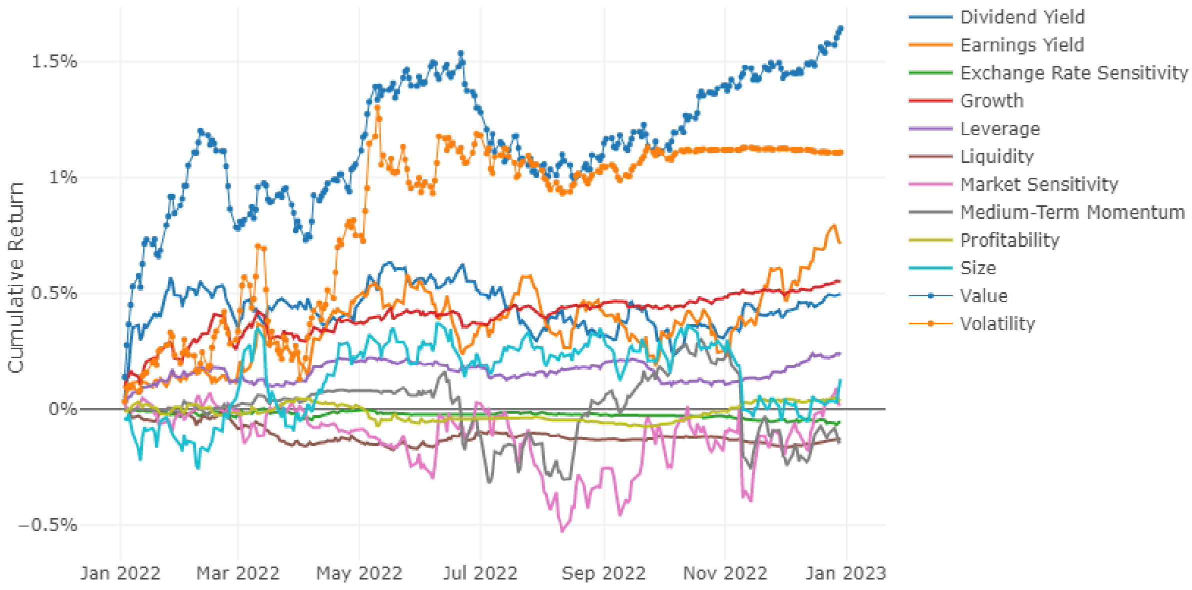


Source: Realindex, Factset, MSCI, Axioma

Style Contribution (4.61%)

Styles contributed strongly during 2022, benefit arising from the positive exposure to generic value (Book Yield) and Earnings Yield, negative exposures to Volatility and Growth. Quality – in the past a strong contributor in the form of Profitability – was muted. The funds small cap tilt (as exhibited by negative size exposure) was also roughly flat. The fund has moved to a small overweight to momentum, which detracted slightly over the year. Both Value and Earnings Yield ran up strongly in Q4, while Size sold off.

Style	Contribution	Avg wtd Exp
Value	1.64%	0.42
Volatility	1.11%	-0.08
Earnings Yield	0.71%	0.35
Growth	0.55%	-0.18
Dividend Yield	0.50%	0.42
Leverage	0.24%	0.17
Size	0.13%	-0.15
Profitability	0.04%	-0.02
Market Sensitivity	0.02%	-0.06
Exchange Rate Sensitivity	-0.06%	-0.06
Liquidity	-0.13%	-0.06
Medium-Term Momentum	-0.14%	0.12



Source: Realindex, Factset, MSCI, Axioma

Industry Contribution (2.83%)

Industry	Contribution	Avg wtd Exp
Oil, Gas & Consumable Fuels	1.30%	2.49%
Software	0.37%	-4.02%
Internet Software & Services	0.30%	-2.18%
Semiconductors & Semiconductor Equipment	0.26%	-2.73%
Insurance	0.24%	3.12%
Hotels, Restaurants & Leisure	-0.09%	-0.95%
Household Durables	-0.10%	0.44%
Real Estate Management & Development	-0.13%	0.87%
Automobiles	-0.27%	1.47%
Aerospace & Defense	-0.28%	-1.17%

Source: Realindex, Factset, MSCI, Axioma

Country Contribution (1.55%)

Country	Contribution	Avg wtd Exp
Japan	0.63%	4.34%
Turkey	0.61%	0.48%
United States	0.44%	-15.83%
China	0.31%	1.92%
Hong Kong	0.06%	0.97%
Taiwan	0.05%	-0.78%
Spain	0.04%	0.89%
Mexico	0.02%	0.38%
Chile	0.02%	0.17%
Canada	0.02%	-0.38%
Czech Republic	0.00%	0.02%
Poland	-0.01%	0.07%
Austria	-0.01%	0.19%
Israel	-0.03%	0.13%
Italy	-0.03%	0.51%
United Kingdom	-0.04%	1.74%
India	-0.05%	-0.62%
Brazil	-0.06%	0.98%
Korea, Republic of	-0.11%	1.01%
Germany	-0.12%	1.62%
Russian Federation	-0.27%	0.15%

Source: Realindex, Factset, MSCI, Axioma

Top and bottom industry contributions from the risk based attributions are also shown, as are country contributions. The largest positive industry contributors include Oil and Gas (overweight) and Software (underweight), and negatives include Aerospace (underweight) and Autos (overweight).

At a country level, Japan, Turkey and the United States were the strongest sources of positive performance, and Russia detracted.

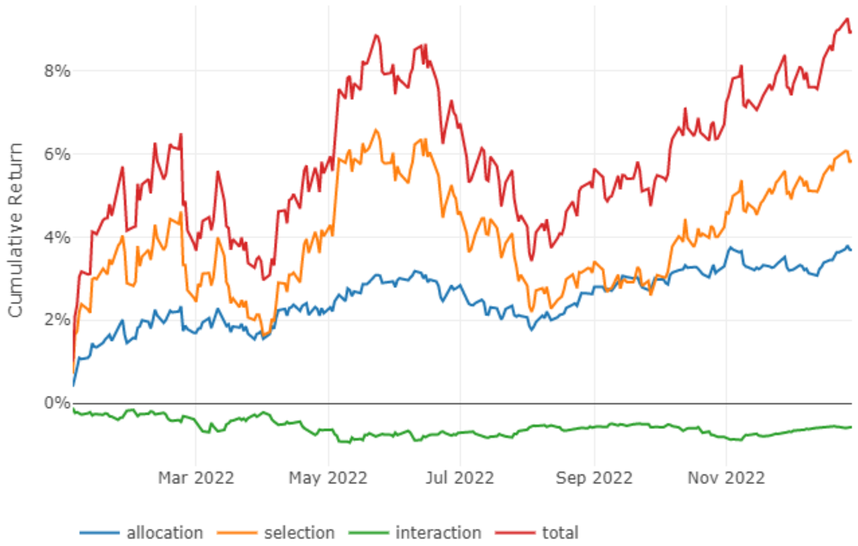
Brinson at Sector Level

A different approach to attribution is known as Brinson style, where contributions are split into those from allocation to a specific factor, the component due to stock selection within these factors, and any interaction. Here, global sector allocations are used.

The fund's overall sector allocation contributed positively to performance in 2022, driven mostly by the fund's overweight to Energy and Financials and the fund's underweight to Information Technology. Overweights to Materials and Consumer Staples hurt performance slightly. Stock selection within these sectors varied. However, as the chart below shows, in aggregate the stock selection component was a strong positive contributor.

Sector	Contribution	Avg wtd Exp
Information Technology	2.34%	-9.91%
Financials	2.13%	8.79%
Energy	1.35%	2.39%
Consumer Discretionary	1.32%	-0.18%
Communication Services	0.83%	-0.24%
Health Care	0.52%	-2.15%
Industrials	0.26%	-0.19%
Real Estate	0.26%	-0.23%
Utilities	0.08%	0.44%
Materials	-0.04%	0.50%
Consumer Staples	-0.09%	0.77%

Source: Realindex, Factset, MSCI, Axioma

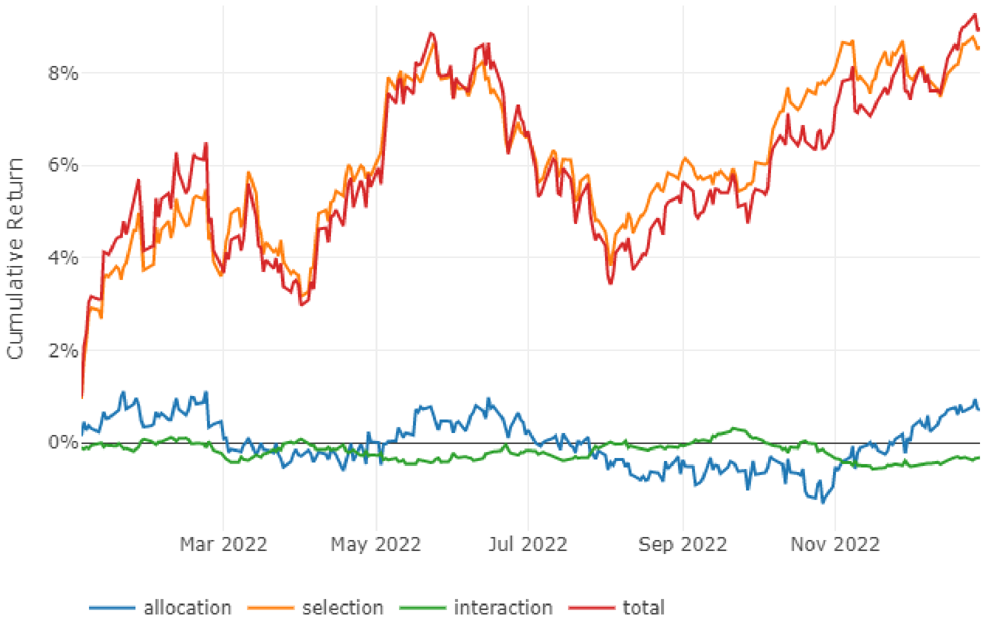


Source: Realindex, Factset, MSCI, Axioma

Brinson at Region Level

Performing a Brinson attribution at region level, we see that while allocation to each region was positive, almost all performance is attributable to stock selection within these regions, rather than allocation to these regions per se.

Region	Contribution	Avg wtd Exp
North America	4.72%	-16.39%
Japan	1.24%	4.34%
Europe	1.14%	5.74%
Emerging Markets	1.08%	3.49%
UK	0.48%	1.76%
Developed Asia	0.31%	1.06%



Region Brinson

Source: Realindex, Factset, MSCI, Axioma

Stock Selection

Finally, at the stock level, the biggest contributors came from Information Technology and Consumer Discretionary stocks like Tesla, Amazon, Microsoft and Apple. The biggest detractors were largely from the overweights to Russian names, as we know, as well as automobile companies Volkswagen and General Motors.

Top and Bottom Stock Contributors to the Fund: 2022

Stock	Contribution	Avg wtd Exp
Tesla Inc	1.05%	-1.16%
Amazon.com, Inc.	0.85%	-1.66%
Apple Inc.	0.56%	-2.34%
Microsoft Corporation	0.55%	-2.23%
NVIDIA Corporation	0.52%	-0.76%
Alphabet Inc. Class A	0.29%	-0.72%
Haci Omer Sabanci Holding A.S.	0.28%	0.21%
Alphabet Inc. Class C	0.26%	-0.66%
Shell Plc	0.19%	0.77%
Meta Platforms Inc. Class A	0.19%	0.04%
Exxon Mobil Corporation	0.18%	0.32%
PayPal Holdings, Inc.	0.18%	-0.18%
Taiwan Semiconductor Manufacturing Co., Ltd.	0.17%	-0.47%
Salesforce, Inc.	0.16%	-0.30%
Shopify, Inc. Class A	0.16%	-0.09%
Advanced Micro Devices, Inc.	0.16%	-0.19%
Walt Disney Company	0.14%	-0.31%
Petroleo Brasileiro SA Pfd	0.13%	0.43%
ASML Holding NV	0.13%	-0.14%
Novo Nordisk A/S Class B	0.13%	0.24%
Netflix, Inc.	0.13%	-0.18%
Stock	**Contribution**	**Avg wtd Exp**
Volkswagen AG	-0.21%	0.48%
Oil company LUKOIL PJSC Sponsored ADR	-0.18%	0.03%
Steinhoff International Holdings NV	-0.17%	0.13%
Severstal PAO Sponsored GDR RegS	-0.12%	0.02%
VEON Ltd. Sponsored ADR	-0.11%	0.05%
MMC Norilsk Nickel PJSC ADR	-0.11%	0.02%
General Motors Company	-0.10%	0.14%
Novolipetsk Steel Sponsored GDR RegS	-0.10%	0.02%
Eli Lilly and Company	-0.10%	-0.27%
Samsung Electronics Co., Ltd.	-0.10%	0.19%
TATNEFT PJSC Sponsored ADR	-0.10%	0.02%
Mobile TeleSystems PJSC Sponsored ADR	-0.10%	0.02%
Ford Motor Company	-0.10%	0.17%
Herbalife Nutrition Ltd.	-0.09%	0.11%
HP Inc.	-0.09%	0.32%
Intel Corporation	-0.09%	0.14%
Qurate Retail, Inc. Class A	-0.08%	0.06%
MMC Norilsk Nickel PJSC ADR	-0.08%	0.01%
Citigroup Inc.	-0.08%	0.35%
FedEx Corporation	-0.08%	0.12%

Source: Realindex, Factset, MSCI, Axioma

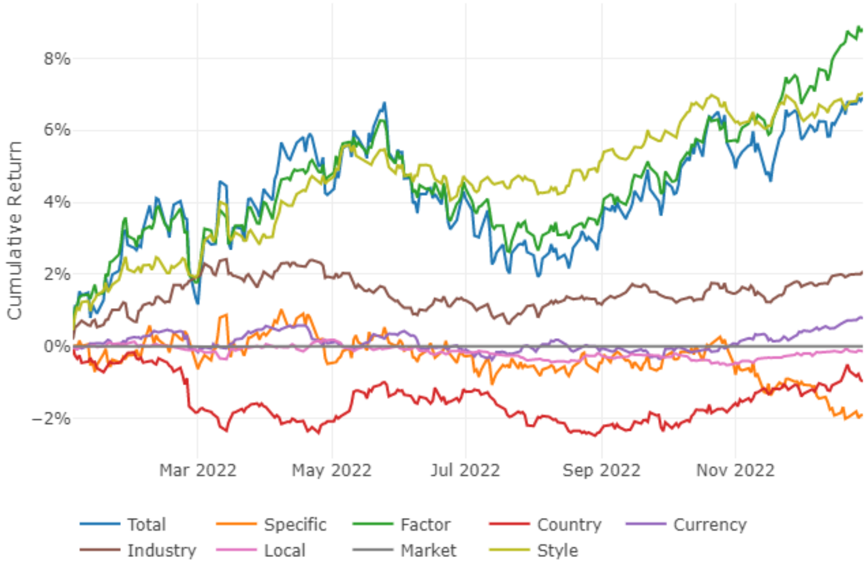
B Realindex Emerging Market ValueStrategy

Factors

Systematic factors were the main driver of the fund's outperformance during 2022, unusually with idiosyncratic effects creating a performance drag. The first half of 2022 saw a run up and then selloff of style based performance, but during the second half of the year it was strongly positive and growing. Industry and currency effects were also positive, and country effects were negative.

	Return	Risk
Portfolio	-8.11%	14.04%
Benchmark	-15.02%	16.31%
Active	6.91%	7.62%

	Contribution	Risk
Portfolio	-8.11%	15.93%
Benchmark	-15.02%	17.93%
Active	6.91%	6.94%
Active breakdown		
Specific	-1.90%	3.83%
Factor	8.81%	4.83%
Factor breakdown		
Country	-0.97%	2.25%
Currency	0.78%	1.21%
Industry	2.08%	1.95%
Local	-0.13%	0.71%
Market	-0.00%	0.01%
Style	7.06%	3.14%

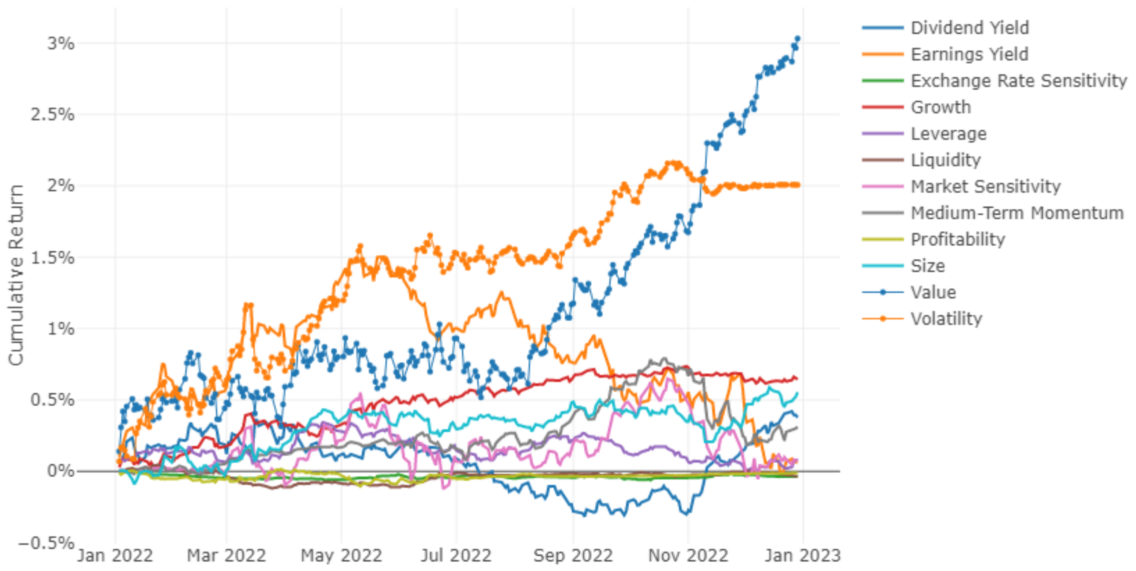


Source: Realindex, Factset, MSCI, Axioma

Style Contribution (7.06%)

Style was a very strong contributing factor in 2022. The largest contributor to style performance was an overweight to generic Value (Book Yield), with underweights to Growth and Volatility also adding value. A small tilt away from small caps was also a positive contributor. A large overweight to Earnings Yield was only a small contributor, and other factors like Liquidity and Profitability were close to neutral.

Style	Contribution	Avg wtd Exp
Value	3.03%	0.68
Volatility	2.01%	-0.15
Growth	0.64%	-0.23
Size	0.55%	-0.08
Dividend Yield	0.38%	0.44
Medium-Term Momentum	0.31%	0.14
Leverage	0.08%	0.26
Market Sensitivity	0.07%	-0.17
Earnings Yield	0.06%	0.56
Profitability	-0.01%	-0.07
Exchange Rate Sensitivity	-0.04%	0.04
Liquidity	-0.04%	-0.02



Source: Realindex, Factset, MSCI, Axioma

Industry Contribution (2.08%)

Industry	Contribution	Avg wtd Exp
Semiconductors & Semiconductor Equipment	1.16%	0.63%
Interactive Media & Services	0.77%	0.72%
Oil, Gas & Consumable Fuels	0.58%	0.20%
Banks, Thrifts & Mortgage Finance	0.34%	0.39%
Metals & Mining	0.26%	0.17%
Real Estate Management & Development	-0.15%	0.19%
Household Durables	-0.15%	0.05%
Capital Markets	-0.17%	0.07%
Automobiles	-0.18%	0.08%
Hotels, Restaurants & Leisure	-0.20%	0.08%

Source: Realindex, Factset, MSCI, Axioma

Country Contribution (-0.97%)

Country	Contribution	Avg wtd Exp
Turkey	1.54%	1.38%
Taiwan	0.48%	-6.40%
Qatar	0.13%	-0.55%
Chile	0.12%	0.98%
Mexico	0.06%	2.43%
Czech Republic	-0.04%	0.09%
Brazil	-0.34%	3.07%
India	-0.40%	-5.87%
Korea, Republic of	-0.90%	5.00%
Russian Federation	-1.62%	0.41%

Source: Realindex, Factset, MSCI, Axioma

Top and bottom industry contributions from the risk based attributions are also shown, as are country contributions. The largest positive industry contributors include overweights to Semiconductors and Interactive Media, and negatives include overweights to Hotels and Automobiles.

At a country level, Turkey (overweight) and Taiwan (underweight) were the strongest sources of positive performance, and Russia (overweight) detracted.

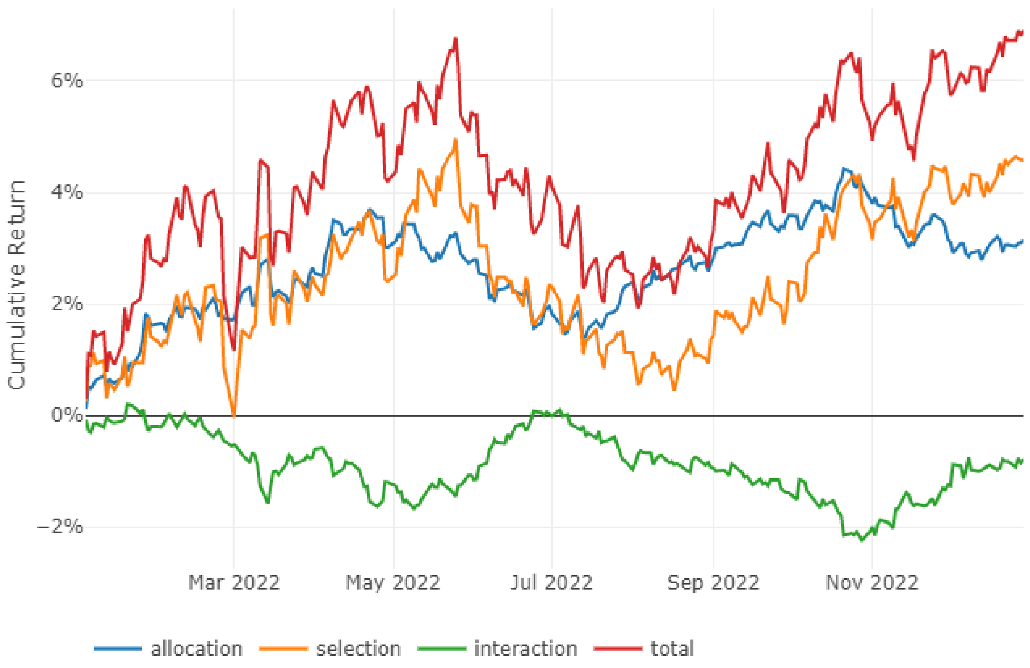
Brinson at Sector Level

In this Brinson style attribution, contributions are split into those from allocation to Emerging Market sector allocations and the component due to stock selection within these factors, plus any interaction.

Overweights to Financials and Energy were strong drivers, as were underweights to Information Technology and Communications Services. Overweights to Materials and Utilities detracted.

Both allocation (to the sectors themselves) and selection (choosing stocks within these sectors) were positive contributors for the year, but the usual pattern of a strong start, a selloff in Q2, and then a rebound in the second half of the year, was again seen here. The selection component parallels the aggregate performance closely.

Sector	Contribution	Avg wtd Exp
Financials	4.10%	12.96%
Information Technology	1.79%	-5.77%
Communication Services	1.08%	-1.72%
Energy	0.95%	1.61%
Industrials	0.82%	0.07%
Health Care	0.26%	-3.27%
Real Estate	0.00%	1.50%
Consumer Staples	-0.01%	-0.92%
Consumer Discretionary	-0.22%	-4.79%
Utilities	-0.41%	0.18%
Materials	-1.44%	0.18%



Source: Realindex, Factset, MSCI, Axioma

Stock Selection

Finally, we see that the main stock level drivers of performance came from underweights to Taiwan Semiconductor Manufacturing and to Chinese tech stocks Tencent and Alibaba, which sold off heavily in 2022.

Russian stocks again feature heavily. At the time the sanctions were imposed, the benchmark included both head stock and ADR/GDR for each company. In many cases we owned one but not the other, so writing these values to zero has led to both positive contributions from the lines we did not own (e.g., Lukoil, MMC Norilsk and Sberbank head stocks and Novatek GDR), and negative contributions from the lines we did (e.g., Gazprom, Tatneft, Lukoil and MMC Norilsk ADRs). Being underweight Samsung and Steinhoff International also detracted.

Stock	Contribution	Avg wtd Exp
Taiwan Semiconductor Manufacturing Co., Ltd.	1.57%	-4.39%
Tencent Holdings Ltd.	0.74%	-3.16%
Gazprom PJSC	0.69%	-0.11%
Alibaba Group Holding Ltd.	0.66%	-2.74%
Haci Omer Sabanci Holding A.S.	0.52%	0.45%
Sberbank Russia PJSC	0.52%	-0.07%
Oil company LUKOIL PJSC	0.47%	-0.08%
NIO Inc. Sponsored ADR Class A	0.39%	-0.36%
Koc Holding A.S.	0.38%	0.34%
Petroleo Brasileiro SA Pfd	0.35%	0.61%
NAVER Corp.	0.27%	-0.38%
NOVATEK JSC Sponsored GDR RegS	0.25%	-0.04%
Meituan Class B	0.25%	-1.40%
MMC Norilsk Nickel PJSC	0.24%	-0.04%
Yandex NV Class A	0.22%	-0.03%
Quinenco S.A.	0.22%	0.34%
Turk Hava Yollari A.O.	0.20%	0.15%
Kakao Corp.	0.20%	-0.28%
XPeng, Inc. ADR Sponsored Class A	0.20%	-0.13%
Yapi ve Kredi Bankasi A.S.	0.19%	0.18%

Stock	Contribution	Avg wtd Exp
Gazprom PJSC Sponsored ADR	-0.63%	0.10%
Oil company LUKOIL PJSC Sponsored ADR	-0.63%	0.10%
MMC Norilsk Nickel PJSC ADR	-0.59%	0.10%
TATNEFT PJSC Sponsored ADR	-0.48%	0.08%
Samsung Electronics Co., Ltd.	-0.43%	1.57%
Steinhoff International Holdings NV	-0.43%	0.30%
Severstal PAO Sponsored GDR RegS	-0.40%	0.06%
Novolipetsk Steel Sponsored GDR RegS	-0.36%	0.06%
Alibaba Group Holding Ltd. Sponsored ADR	-0.31%	1.18%
PhosAgro PJSC	-0.30%	0.05%
Mobile TeleSystems PJSC Sponsored ADR	-0.25%	0.04%
China Merchants Bank Co., Ltd. Class H	-0.25%	1.01%
Inter RAO UES PJSC	-0.24%	0.03%
Magnitogorsk Iron & Steel Works PJSC	-0.24%	0.04%
Sberbank Russia PJSC Sponsored ADR	-0.24%	0.03%
VEON Ltd. Sponsored ADR	-0.23%	0.09%
Country Garden Holdings Co. Ltd.	-0.22%	0.21%
Surgutneftegas PJSC Sponsored ADR	-0.19%	0.03%
JBS S.A.	-0.18%	0.56%
Sistema PJSFC	-0.18%	0.03%

Source: Realindex, Factset, MSCI, Axioma

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