28th December 2022

The Adaptive Asset Allocation Report

Issue No. 7

A Model driven Business Cycle Trend Following approach to investing

Robin Griffiths
Editor

► Robin Griffiths is Editor of The Adaptive Asset Allocation Report. Prior to this he was the Editor of the Dynamic Investment Trends Alert, a market newsletter for private investors published by Southbank Investment Research. Robin has served as Head of Multi-Asset Research & Advisory at the ECU Group. He was previously Chief Technical Strategist at HSBC Investment Bank for 20 years, before becoming Head of Global Asset Allocation at Rathbones, and then a director and technical strategist for Cazenove Capital Management. Robin was a Partner of WI Carr and Head of Technical Analysis at Grieveson Grant. Robin is a committee member and former chairman of the International Federation of Technical Analysts, and former chairman, now fellow, of the British Society of Technical Analysts. Robin has been a member of ECU's Global Macro Team for over 20 years. Robin has won several Technical Analyst awards for his research.

Bear Necessities

Dear Readers,

A Happy Christmas to all our readers and best wishes for the New Year. However, we say this when most of our indicators reveal that the present bear market has got further to last and lower to go. The peak performance of the AAA model this year was in June, when it was up 20%. Since then, some of that has evaporated but we still have a winning hand – especially compared to most Equity Markets.

Global Inflation pressures may have peaked and receded recently, but Inflation is still way too high. More rate rises will follow, but at a slower rate than before. The Federal Reserve has made it abundantly clear that more work needs to be done.

Most of the economic indicators that we monitor point to high odds of a global recession next year. This will take most stock markets lower. The strongest performing assets in the AAA Model this year have been Energy and Agriculture commodities. Whilst we no longer hold the former, the latter still looks well placed even though it's volatile. We just have to learn to live with that. The model is still doing well.

In future, do not expect huge gains from equities. Stock markets got most investors accustomed to ten-percent-a-year-or-more returns, however from time-to-time it gets tougher than that. We are in one of those periods now. We must accept more modest gains until it is clear that the economy can perform well again. When the markets rallied from the November lows, we said do not own this rally, just rent it. We have done that and now are ready for the next drop. To enjoy the New Year, we need to ensure we do not lose money in that period.

Best Wishes,

Robin Griffiths

Rashpal Sohan
Managing Editor

► Rashpal Sohan is Managing Editor of The Adaptive Asset Allocation Report. Prior to this he was the Managing Editor of the Dynamic Investment Trends Alert, a model driven investment publication for private investors published by Southbank Investment Research. Rashpal is a consultant data scientist who has developed the model for The AAA report. Rashpal holds a keen interest in data driven insights using Visualisation and Machine Learning and holds a Masters in Data Science from City, University of London, with distinction. His dissertation was on the topic of a Risk-Based Dynamic Asset Allocation Strategy using Ensemble Machine Learning and was awarded the City University Computer Science Outstanding Project Prize. The underlying trend algorithm from his dissertation forms the basis of the AAA Model. Rashpal has served as Senior Macro & Quantitative Strategist to the ECU Group, and built several fundamental and quantitative models for use in Dynamic Asset Allocation. Rashpal has over 15 years of experience in Asset Allocation, having previously served as Senior Asset Allocation Analyst for one of the UK's largest discretionary investment management firms, Rathbone Brothers. He holds a first class honors degree in Actuarial Science from the London School of Economics, is a qualified Financial Risk Management (FRM) professional and has passed all three levels of the Chartered Financial Analyst (CFA) Program. As a consultant Data Scientist, Rashpal has done projects for ByteTree, where he helped extract key insights from their Network Demand set of indicators using Machine Learning and Data Visualisation and has also done Data Science projects in Facial Recognition, Reinforcement Learning, Recommender Systems and the influence of regional personality differences on the UK's vote to leave the European Union amongst others. Rashpal has won several Technical Analyst awards for his research, together with his business partner.

Dear Readers,

This year has not been an easy one by any stretch of the imagination. If I had told you at the beginning of this year that Russia and Ukraine would go to war, the Nord Stream pipelines would be blown up, global median inflation would reach 9% and a cost-of-living crisis would ensue, US-Saudi relations would break down and Iran would be teetering on the brink of a revolution – how would you have invested ? Well that pretty much sums up the backdrop the AAA Model has had to navigate.

The Model has had a tough year, performing moderately well by primarily holding onto commodity assets, but it has experienced a correction in recent months which has wiped out a large part of our earlier gains. Despite this, the model has managed to grow our capital 5.5% this year and outperform the S&P 500 by 23%.

When we analyse the performance of the model in the context of historical returns, we find that it's in line with what the model has delivered in past bear markets. In that sense, the model has done no better and no worse than usual.

However, next year is not going to be any easier. Taking into account the degree of monetary tightening we have seen this year and the lag with which monetary policy works, global economic growth momentum is likely to continue trending lower next year and drag equity markets lower in the process. The bear market is not over and at a very minimum, a reversal in the fortunes for global economic growth is necessary to believe a new bull market is starting.

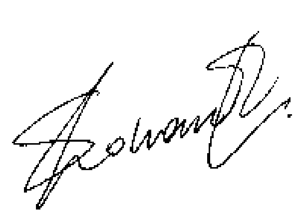
The one piece of good news is that with global inflation pressures showing signs of receding, central banks may not be compelled to hike interest rates as much as earlier. We've already seen early signs of this with the Federal Reserve having opted to hike interest rates by only 50 basis points at their latest meeting, down from the 75 basis points per meeting they've stuck to since June.

Whatever happens next year, we will continue to rely on the AAA Model to help us both preserve and grow our capital in these very challenging times. Keep backing the model.

If you have any questions or comments, please write in to aaa@bytetree.com. You can find our research online at https://bytetree.com/research/aaa. If you have friends or family who you believe can benefit from our service, please spread the word.

Wishing you all a very happy new year, thank you again for your support over the years and good luck with your investments.

Best Wishes,



Rashpal Sohan

AAA Model Ranking
GBP Portfolio

Model Ranking Date: **27th December 2022**

IMPORTANT: Please Read the Addendum below before buying or selling any Assets.

ADDENDUM

The model was first run-on 22nd December 2022 this month. At this time, the strongest ranked assets were Agricultural Commodities, India Equities, Gold Bullion and Global High yield bonds. The model was rerun on the 27th of December 2022 and the strongest assets remain the same. Buy or Hold these.

▼ For an explanation of what this portfolio is and how to use it, please see the "Model Guide" we've compiled at the end of this issue.

Buy	• **Agriculture Commodities** • **Gold Bullion** • **Global High yield**
Hold	• **India Equities**
Sell	• **US Equities** • **World Equities** • **World Low Volatility Equities**

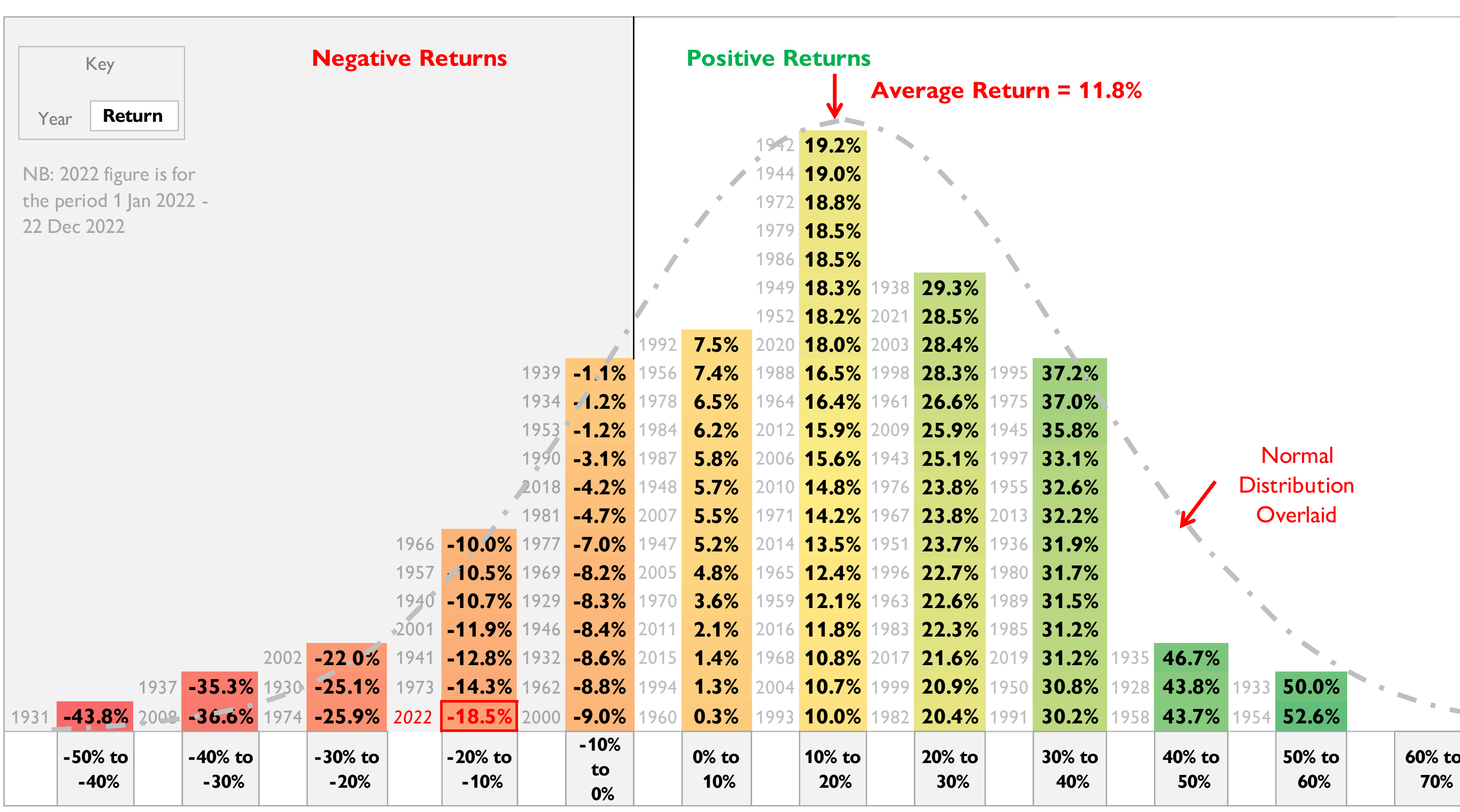
- **Global stock markets are currently in a bear phase, and at a minimum a reversal in global economic growth momentum is needed for this to change.**
- **There is currently no indication this is going to happen anytime soon.**
- **With signs of global inflation pressures easing, central banks have continued to raise rates albeit at a more gradual pace. However, they still have more work to do in this regard.**
- **The full impact of past rate hikes will not be seen until next year, and a recession may be inevitable.**
- **Equity returns in the coming year will be more modest compared to previous years, and many equity markets may experience declines in the early part of the new year.**

“We have more work to do” – Jerome Powell, Fed Chairman, December 2022

Most global stock markets are now in a bear phase. Only a few, like India, are at new all-time highs. Using the past to judge how long and how far these bear phases last leads us to expect **this bear market will continue further**. The average bear lasts around a year and falls by 33%. This global bear market has been driven by inflation and central bank tightening. Central banks have been actively raising interest rates this year to try and bring inflation back under control. They have had some small success in that respect, but there is still more to be done as Jerome Powell, chair of the US Federal Reserve, indicated at the latest Fed Meeting.

Modern portfolio theory assumes that the **returns for most stock markets follow a normal distribution**. When plotted, they should make a bell-shaped curve. **Figure 1 shows the results for the S&P 500 based on annual returns since 1928**. On the x-axis are plotted the range of returns ranging from -50% to 70% in increments of 10%. On the y-axis we have plotted the individual years that fall into each range. Each coloured cell represents the annual return of a specific year; the corresponding year is shown to the left. The ideal normal curve distribution is overlaid as a dotted line for comparison. As can be seen, the two curves are similar, even if not identical. **The ‘hump’ in the centre of the distribution tells us that most years yield a return between 0-30%, averaging 12%.** Years that deliver either a very large or very small return are very rare. This is shown by the curve tapering off rapidly the further it moves away from the centre (“hump”). **The -18.5% return produced by the S&P 500 this year is towards the lower end of the range** (Figure 1) with only six other years having done worse over the measurement period.

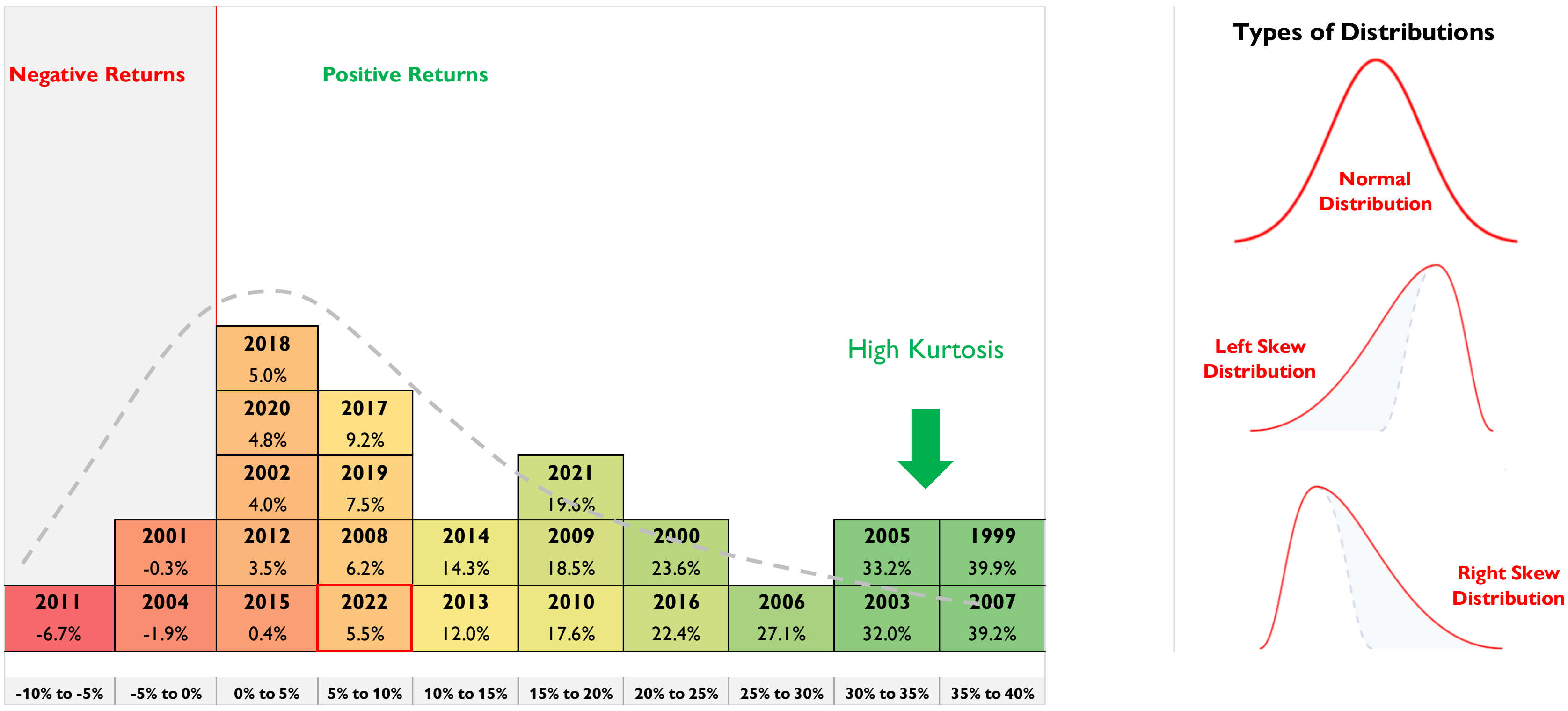
► Figure 1: **S&P 500 annual returns approximately follow a normal distribution with the return produced this year towards the lower end of the historical range.**



Source: ByteTree, Refinitiv Datastream, Stern School of Business at New York University

When we plot the annual returns of the AAA model as a distribution, in a similar manner, we find that it is not Normally distributed like the S&P 500. Instead, it has a clear right (positive) skew (Figure 2). What this unique feature tells us, in plain English, is that the Model has a demonstrable track record of delivering significantly more positive returns compared to negative ones. Additionally, we notice that the lowest return has been -6.7% in 2011 and the distribution has quite a heavy right tail. The latter is referred to as "Kurtosis" in statistics and tells us that some years the model delivers very large returns – much larger than suggested by the theory. Putting the performance of the model this year in the context of the historical returns, **we can see that the Model has delivered a return profile similar to that during the 2008 bear market period** (Figure 2) **and marginally ahead of other bear markets**. Unsurprisingly, the best returns delivered by the model have been during bull market periods.

► Figure 2: The distribution of the AAA Model is not bell-shaped but instead has a right skew as the Model produces many more years with positive returns than negative ones.



Source: ByteTree, Refinitiv Datastream

The table below (Figure 3) shows the AAA Model strongest asset holdings this year, month-by-month, with the year-to-date performance of the model highlighted at the bottom of the table. **The AAA model has done moderately well by primarily holding onto Commodity assets this year** – around 62% of the time. At its peak, the Model was up 20%, when almost all stock markets were down. Now, however, **it stands at around 5.5% having given up a large part of the gains to the correction in commodities after June**. Commodities are very volatile and when they have a consolidation period they can drop back significantly. This occurred and cost us a large part of our performance. We did caution that this might happen, writing in the August issue: "The AAA Model continues to hold Commodities as an inflation hedge even after the recent corrections. However, we need to remain cognizant that these assets are volatile and thus prone to large corrections". Nonetheless, **the model has managed to preserve capital in a very difficult year and outperformed the S&P 500 by 23%.**

► **Figure 3: The AAA Model has held Commodities for most of this year as inflation has been the defining theme. The model was up 20% in June but has since lost most of these gains as Commodities have corrected significantly.**

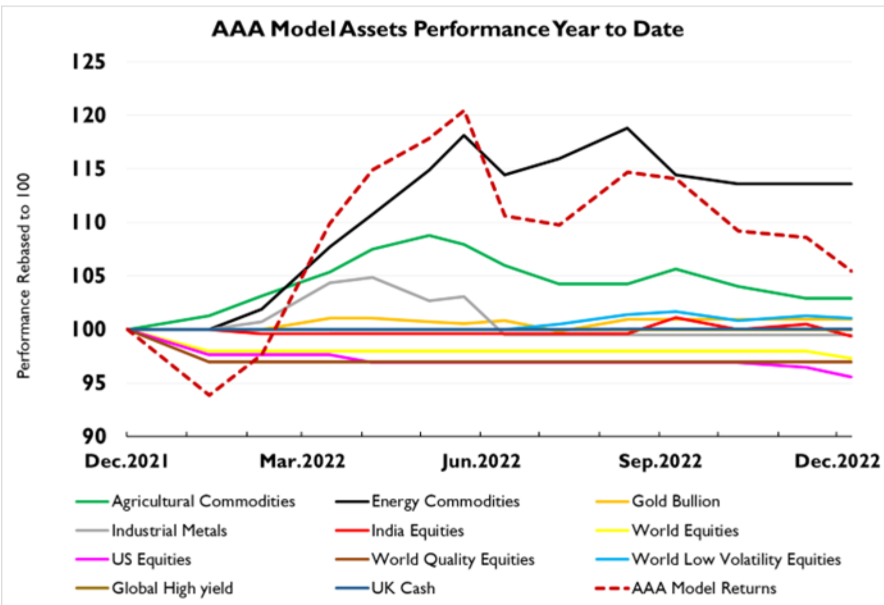
21.12.22	29.11.22	25.10.22	23.09.22	29.08.22	25.07.22	27.06.22	06.06.22	19.05.22	20.04.22	29.03.22	22.02.22	26.01.22	15.12.21
Agricultural Commodities	India Equities	India Equities	India Equities	Energy Commodities	Energy Commodities	Energy Commodities	Energy Commodities	Energy Commodities	Energy Commodities	Energy Commodities	Energy Commodities	Energy Commodities	US Equities
India Equities	World Low Volatility Equities	World Low Volatility Equities	World Low Volatility Equities	India Equities	Gold Bullion	Agricultural Commodities	Agricultural Commodities	Agricultural Commodities	Agricultural Commodities	Industrial Metals	Industrial Metals	Agricultural Commodities	World Quality Equities
Gold Bullion	US Equities	Agricultural Commodities	Agricultural Commodities	Agricultural Commodities	UK Cash	Gold Bullion	Industrial Metals	Industrial Metals	Industrial Metals	Agricultural Commodities	Agricultural Commodities	Industrial Metals	Agricultural Commodities
Global High yield	World Equities	US Equities	Energy Commodities	World Low Volatility Equities	World Low Volatility Equities	World Low Volatility Equities	Gold Bullion	Gold Bullion	Gold Bullion	US Equities	Gold Bullion	India Equities	World Equities
5.6	8.6	9.2	14.1	14.7	9.8	10.6	20.4	17.9	14.9	9.9	-2.4	-6.2	0.0

Source: ByteTree, Refinitiv Datastream

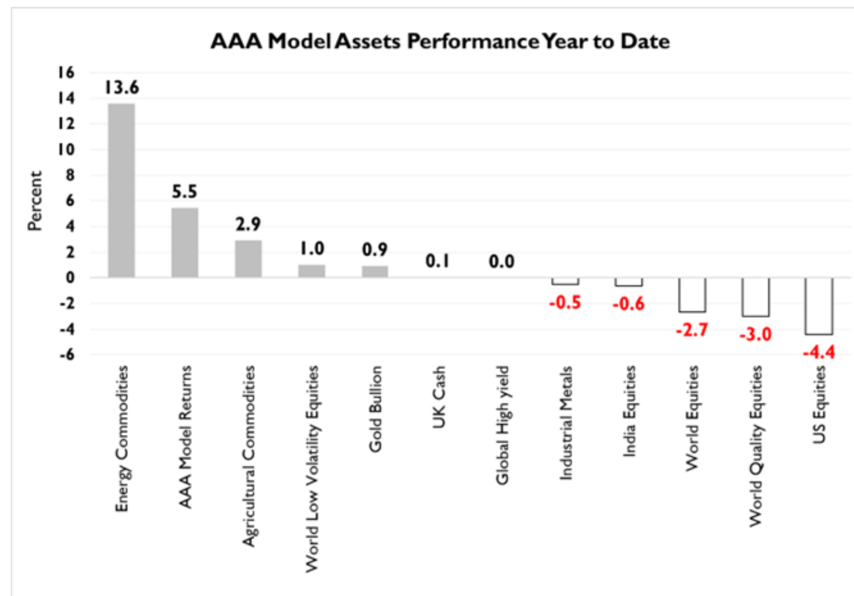
To better understand the performance of the AAA model this year, we have carried out a performance contribution analysis. This has been done by multiplying the performance of the Strongest AAA Assets we have held this year, month-by-month, with the portfolio asset weights assuming an equal holding. The results are shown in Figure 4. The line chart (Figure 4a) shows the contribution of each asset, month-by-month, whereas the bar chart (Figure 4b) summarizes the results for the entire period. In total, we have held eleven distinct assets this year. Of these, **the best performing have been Energy and Agricultural commodities**. **Gold and low volatility equities have also added some value but most of the other positions performed poorly**. It just goes to show how difficult it is to make money from equities in an equity bear market. Unfortunately, this trend is not over. We believe next year will see equity markets fall even further.

► **Figure 4: A performance contribution analysis of the AAA Model Strongest asset holdings reveals that Energy and Agricultural Commodities have added the most value this year.**

(a)



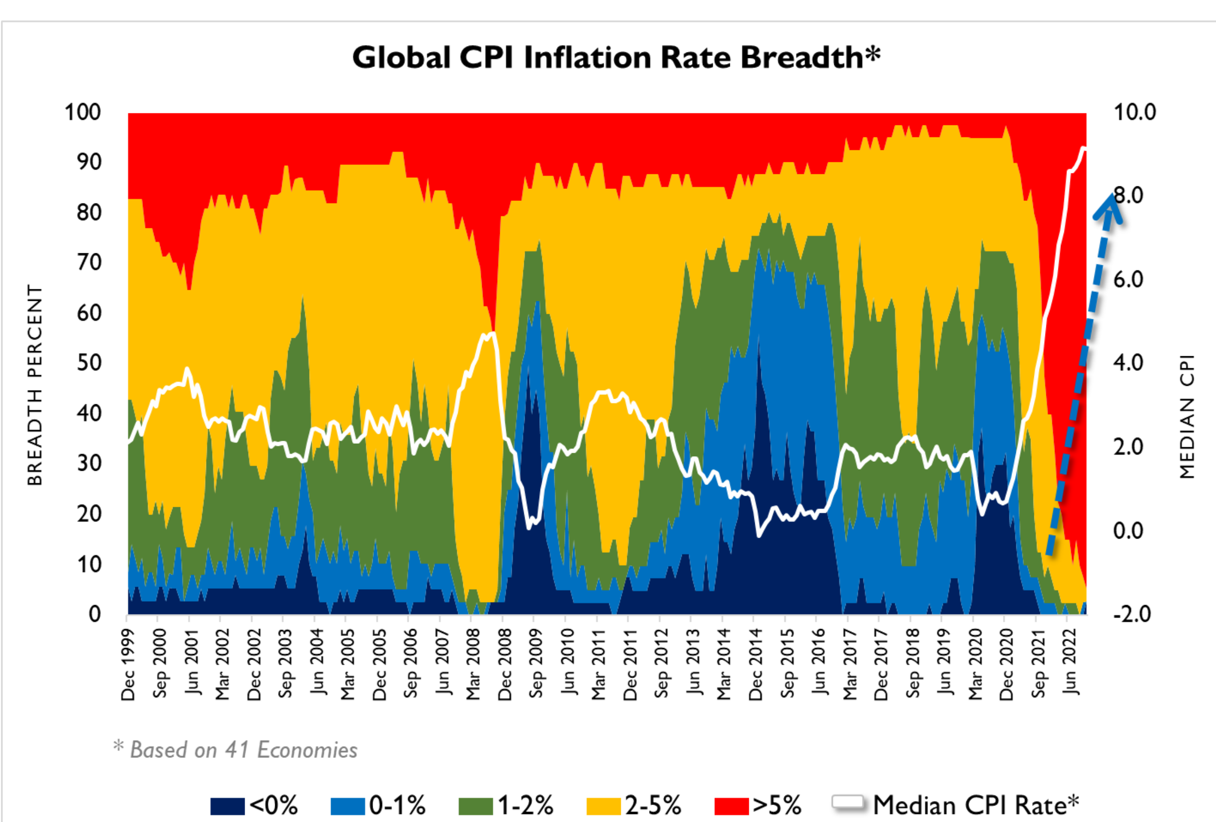
(b)

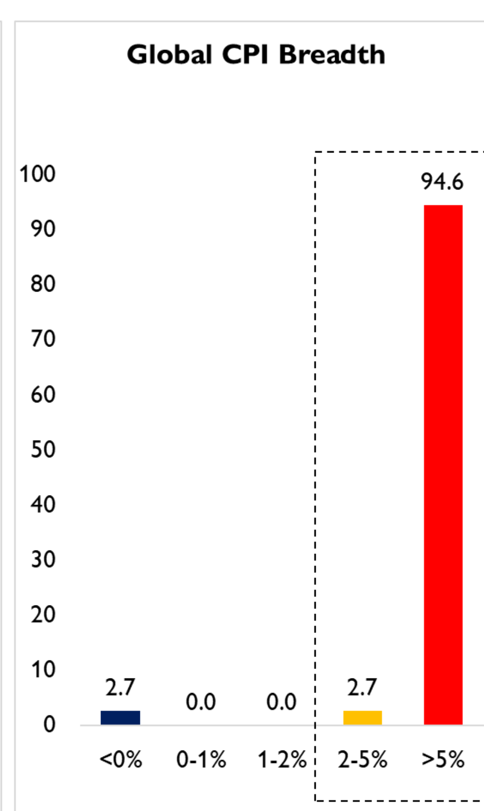


Source: ByteTree, Refinitiv Datastream

The burgeoning of global inflation pressures this year has been the defining theme, causing Commodity prices to trend strongly and the main reason why the AAA Model has held these assets for the most part. At the start of this year, Global inflation stood at 5.7% – calculated as the median headline inflation of 41 major Economies. Global Supply chain bottlenecks, surging commodity prices (triggered in large part by the Russia-Ukraine war) and tight labour markets have coalesced to keep inflation rocketing to eye-watering levels. As of last month, Global Headline inflation stood at 9.1% with 95% of these economies registering an inflation reading of over 5% (Figure 5). What this tells us is that **the vast majority of global economies still have fiery hot inflation readings. But there is some good news.**

► **Figure 5: Global headline inflation is running at 9.1% with the vast majority of economies registering an inflation reading of over 5%.**





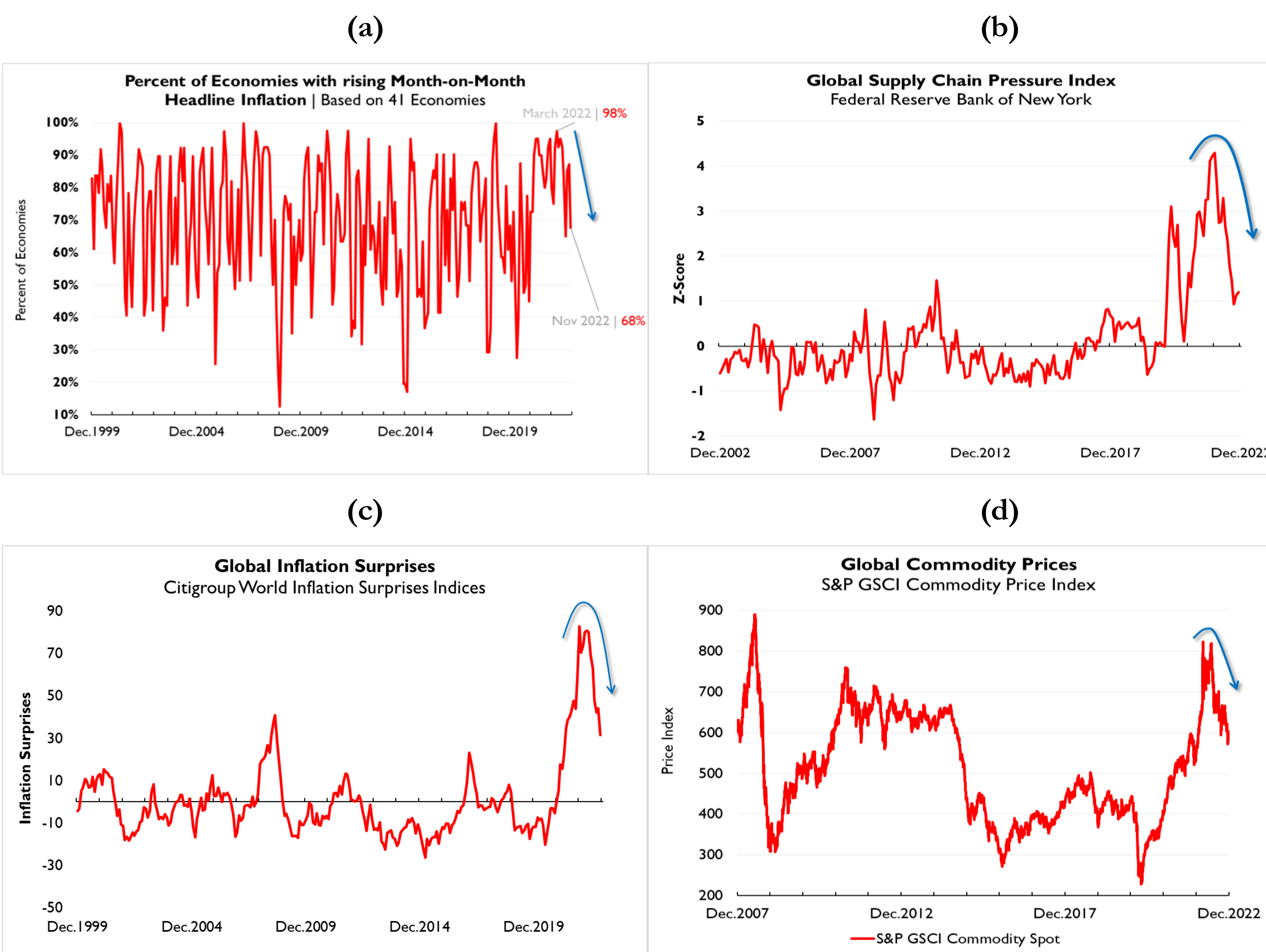
Source: ByteTree, Refinitiv Datastream

While global inflation is still high, **there are some encouraging signs that global price pressures may be starting to recede.** Some of these signs are shown in Figure 6. To begin with, **only 68% of economies have reported rising inflation over the past month**, down from 98% in March this year (Figure 6a). Additionally, according to calculations by the Federal Reserve Bank of New York, **Global supply chain pressures** – which increased during the pandemic and led to higher production costs – **have decreased significantly** (Figure 6b).

At the same time, **Global inflation surprises**, which measure the difference between the actual rate of inflation and the inflation expectations of economic forecasters, **are also trending lower** (Figure 6c). Last but not least, **commodity prices have been declining** as global demand has decreased due to monetary tightening and slowing economic growth.

What this suggests is that **inflation pressures will also begin to subside next year especially as global economic growth continues to slowdown.** Of course, this does not mean that we expect inflation to reach the major central bank's long-term targets anytime soon, but it will at least be trending in the right direction. The bottom line is that we can expect inflation to be lower than it was this year, but still higher than normal.

► **Figure 6: There are some signs that global inflation pressures are starting to recede.**



Source: ByteTree, Refinitiv Datastream

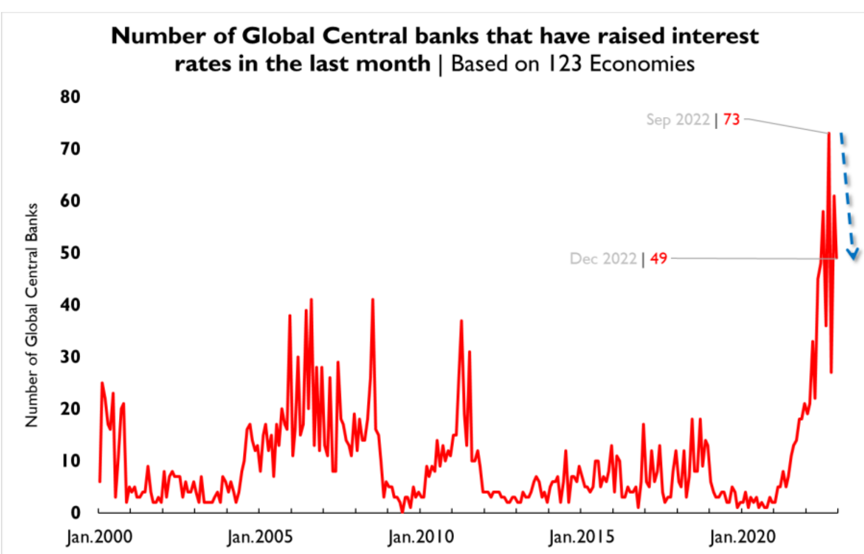
It is important not to confuse this with the idea we wrote about last month – the inflation of wages in western economies. This is a long-term story based on the aging of the post WW2 Baby boomers. Their growth phase lasted from 1960 to 2020. Now that they are old and dependent, the reversed demographic story will run at least ten to twenty years into the future and is only at the start of that trend now. It will have hardly any bearing on the level of inflation next year.

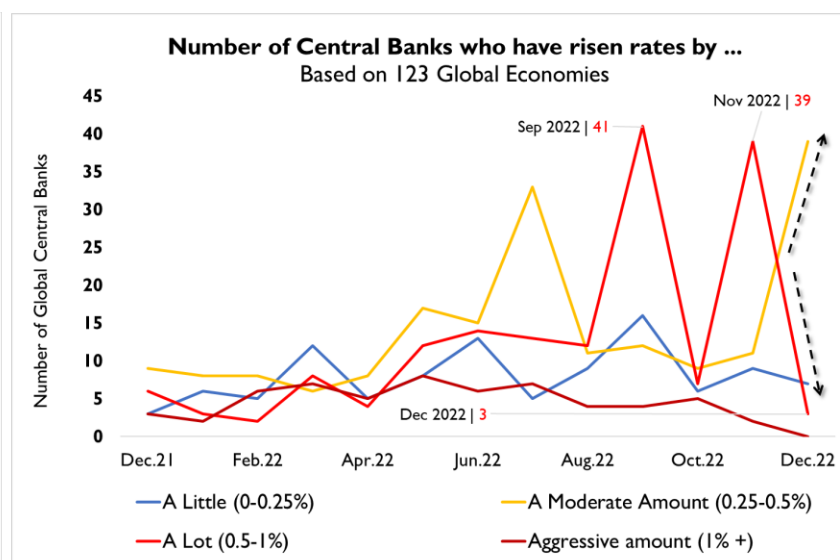
This year, we've witnessed one of the most synchronized global rate hiking cycles as central banks have been raising interest rates in a coordinated fashion to wage war on surging inflation pressures**.** Whilst some have been aggressive in their approach, the majority have raised rates at a more measured pace of between 0.5 - 1.0 % each month. This includes the Federal Reserve, the Bank of England, and the European Central Bank. **Over the past month, however**, **fewer than half of the global central banks have raised interest rates** (Figure 7a) − and even that only by a moderate amount of between 0.25 - 0.5% (Figure 7b).

Contrast this to the picture we saw in September, when more than half of the world's central banks were raising interest rates significantly (Figure 7b). This shift appears to suggest that **the urgency to continue raising interest rates at the same pace is diminishing** as global inflation pressures start to ease and economic growth slows further. It is possible that we are approaching the end of the rate-hiking cycle. **Next year we can look forward to more rate hikes, but at a slower pace, before central banks hit the pause button** − possibly during the second half of the year.

► Figure 7: **Whilst the majority of central banks have been raising interest rates this year, the pace of rate hikes has been diminishing as global inflation pressures ease and economic growth slows further.**

(a) **(b)**





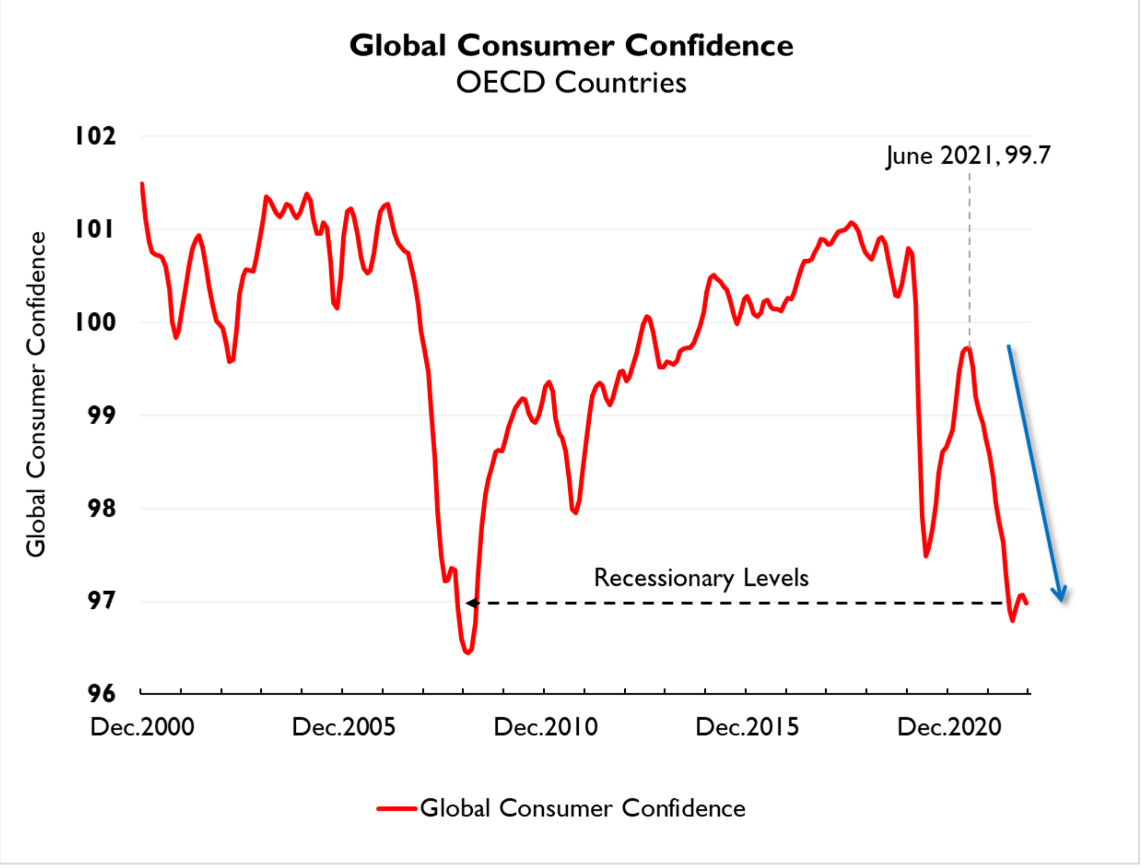
Source: ByteTree, Refinitiv Datastream

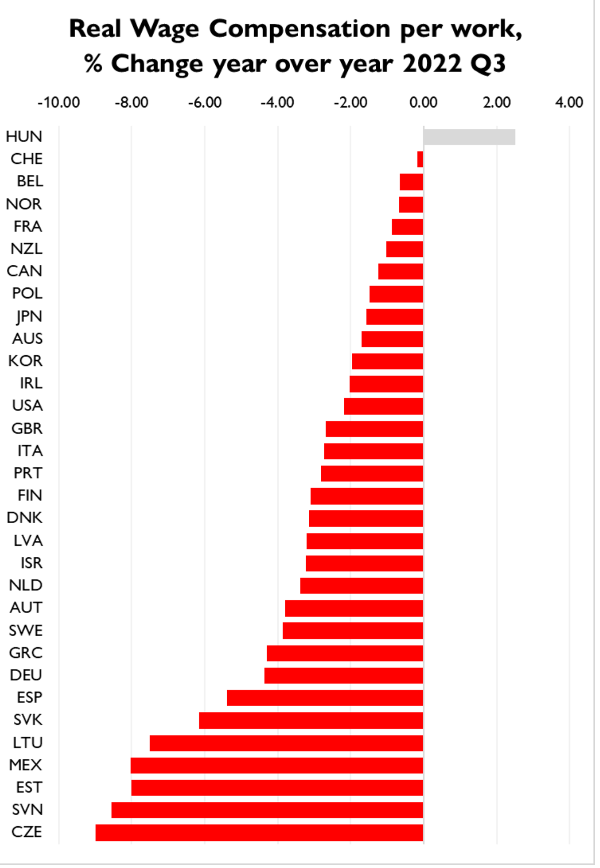
Owing to the lags with which monetary policy works, **many of the rate hikes implemented this year have not yet had time to take full effect**. They will next year, and the negative economic pressures in the first half of the year will be extreme. **They will come at a time when Global Consumer Confidence is already at rock bottom levels** (Figure 8a) **as households around the world face considerable hardships** owing to the double whammy of sky-high inflation and soaring interest rates. Real wages have fallen in nearly every single OECD country (Figure 8b) and in some countries, the fall is approaching double-digits causing massive financial strains and impoverishing millions.

In the UK, many are behind on their bill payments, cutting back on meals and turning down the heating. Millions others will face higher mortgage payments next year. Strike actions over pay have become so commonplace that we've simply lost count of who is on strike each month. Few, however, will get rises and hardly any will get ones that beat inflation. The system is broken, things have to change. **This uncertainty is bearish for investors.**

► Figure 8: Global Consumer confidence is at rock bottom levels as households face considerable hardships due to sky-high inflation and soaring interest rates.

(a) **(b)**



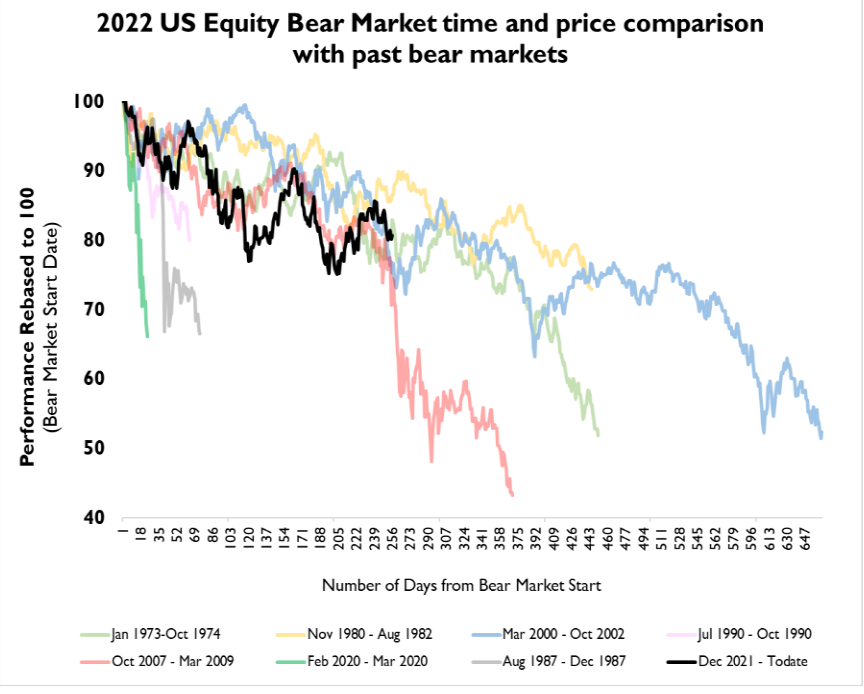


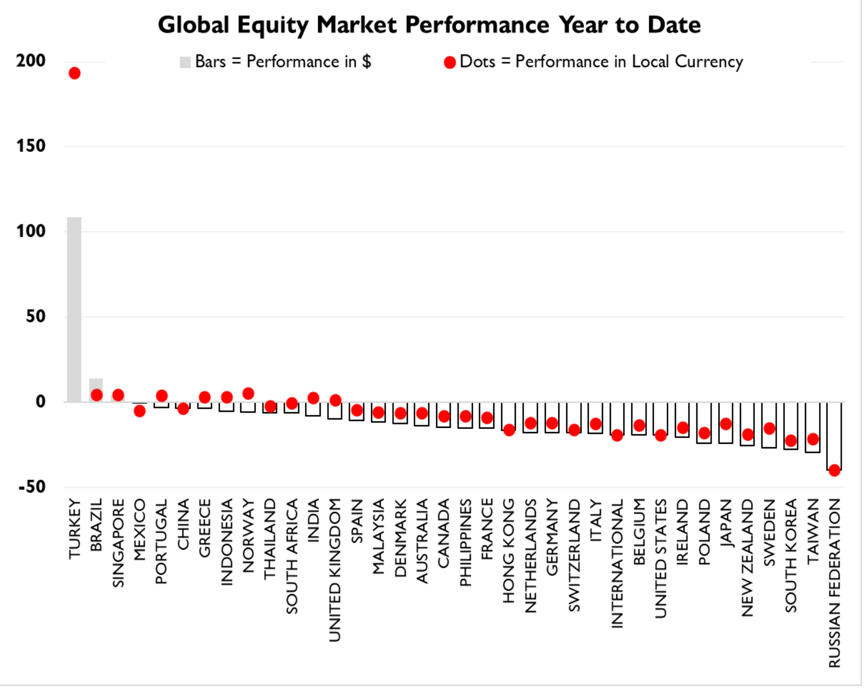
Source: ByteTree, Refinitiv Datastream, OECD

The global equity bear market is not over. The US Equity market is down 18% this year in dollar terms (Figure 9a) and most global equity markets are also down on the year (Figure 9b). A price and time comparison of the US Equity market with past bear markets reveals there is still scope to fall further (Figure 9a). US equity valuations remain overextended, interest rates have not peaked, the level of outstanding margin debt is elevated and investors have not yet thrown in the towel. In other words, **the signs of a bear market bottom are not yet in place**.

► Figure 9: The global equity bear market rages on with the US Equity market having fallen 18% this year and most global equity markets also down on the year.

(a) **(b)**





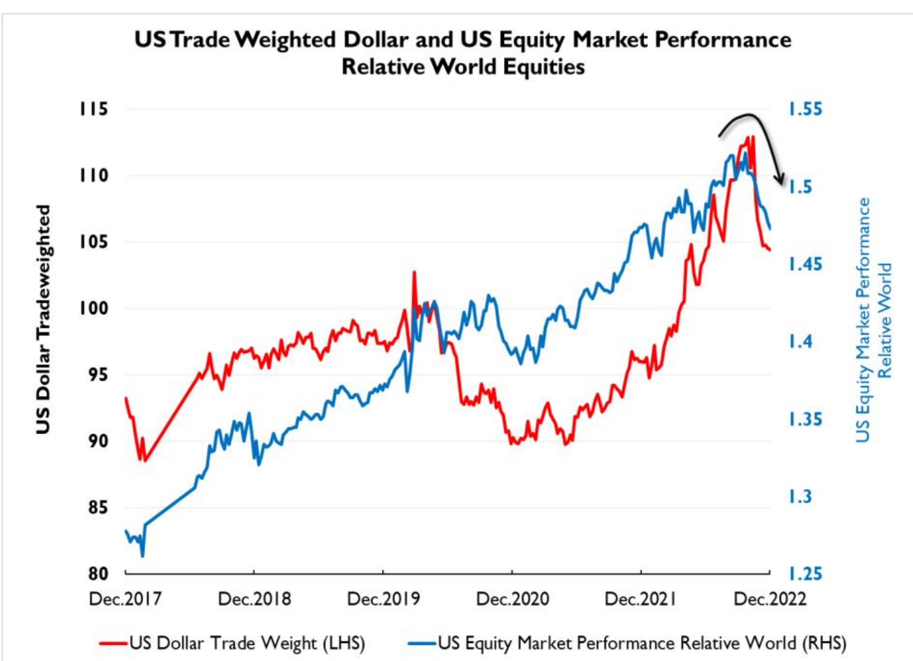
Source: ByteTree, Refinitiv Datastream

The US Equity market has slipped to the Weak Asset category in the AAA Model along with World Equities. The correction in the US Dollar explains why this has happened (Figure 10a). The US dollar has been selling off as risk appetite has improved and a sharp slowdown in U.S. inflation has raised hopes that the Fed may soon end its tightening cycle. The trade-weighted dollar has dropped more than 8% since hitting a two decade high in September.

The correction in the US Dollar has also caused a relief rally in Gold and other assets which share a negative correlation to the greenback (Figure 10b). **Gold has broken out upward into the strongest asset group**; we like this and will follow it. Whilst a selloff in the US dollar is a welcome relief, **it is too soon to call time on the dollar uptrend in place since last year**. With a global recession looming, the dollar could see increased demand owing to its safe-haven appeal. Gold is likely to suffer if the dollar rallies again, however **for now, the technical outlook for gold remains positive** with 71% of gold assets – priced in 17 different currencies − trading above their respective 200-day moving averages.

► Figure 10: The correction in the US Dollar explains why US Equities have fallen to the weak quintile and Gold and other US-dollar sensitive assets have rallied

(a)



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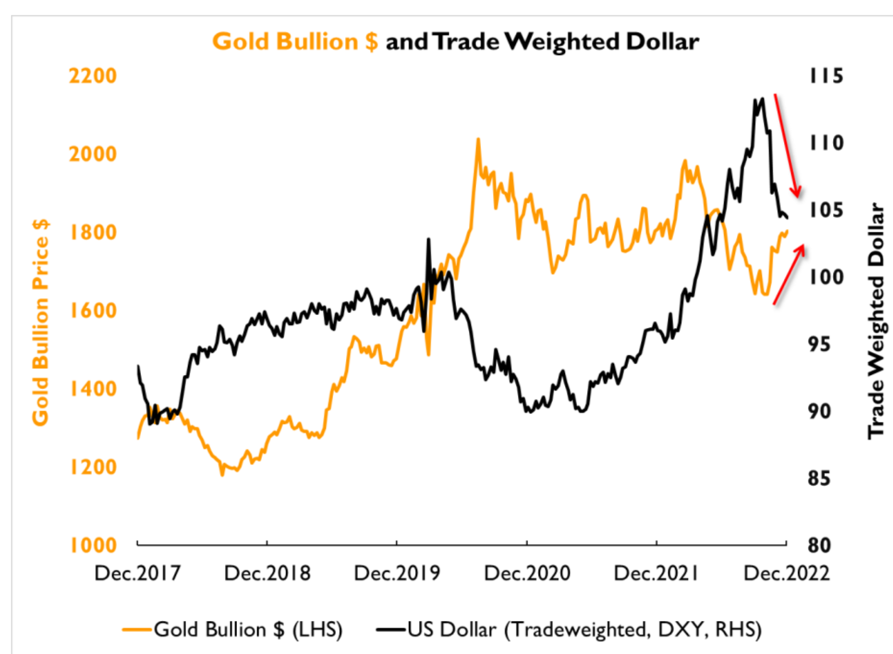
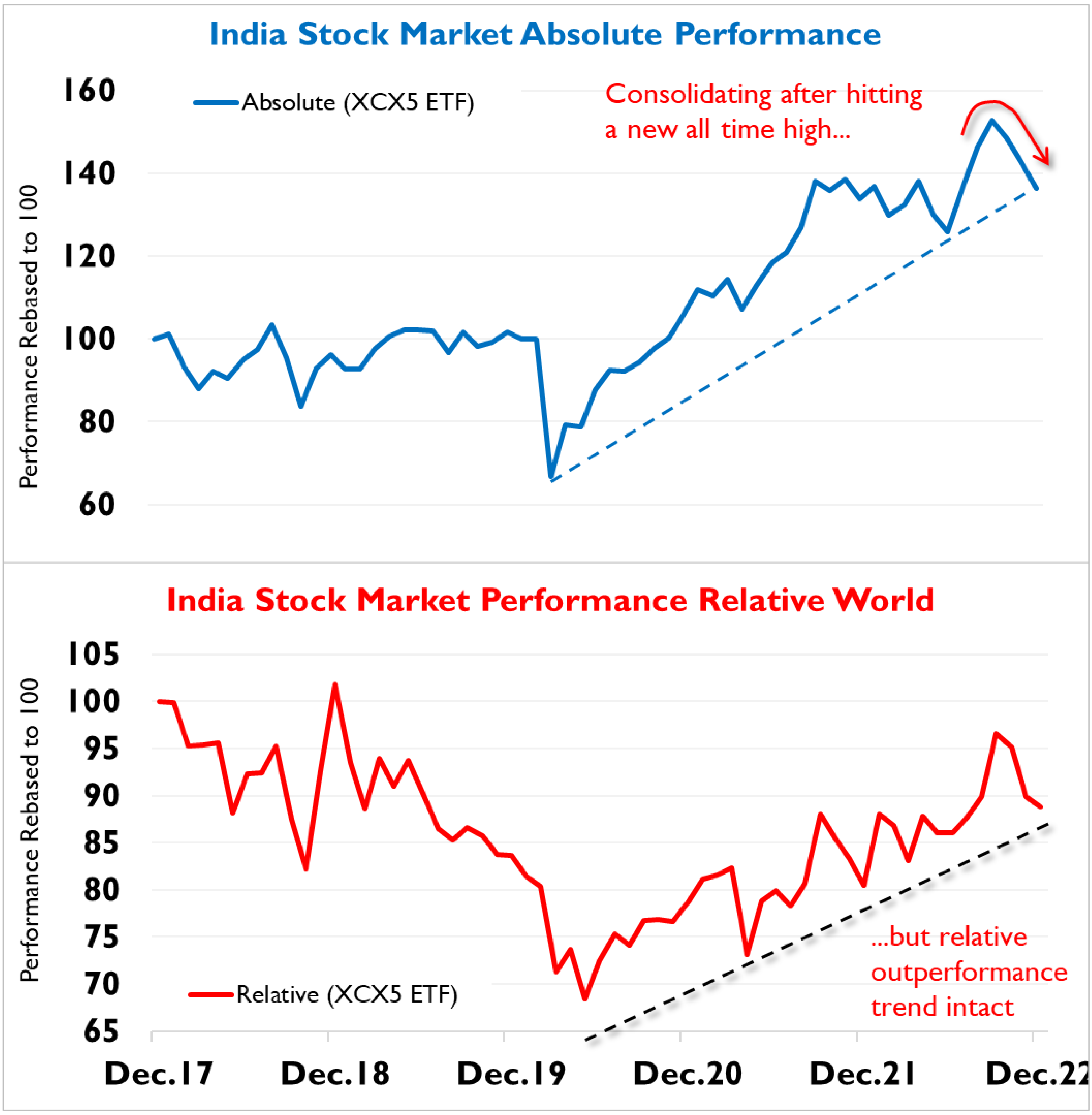


Source: ByteTree, Refinitiv Datastream

The Indian stock market is currently a star. It is having a pull back, to consolidate hitting a new all-time high (Figure 11), but even so, it is the best and only stock market to own at present in the AAA Model. We like India from a long-term perspective. It stands tall with the best demographic position and by far the best growing economy of any major economic power. **However, as a recession works through the global economy next year, it may drop back in concert with other global equity markets**, especially since valuations remain at a significant premium owing to optimism surrounding the long-term growth picture. Once the Federal Reserve pauses on rate hikes and investors start to reallocate capital to Emerging Markets, the Indian stock market is likely to be a big beneficiary of capital inflows propelling it to new highs.

► **Figure 11: The Indian Stock market is consolidating after hitting a new all-time high but the long-term relative outperformance trend versus global equities remains intact.**



Source: ByteTree, Refinitiv Datastream

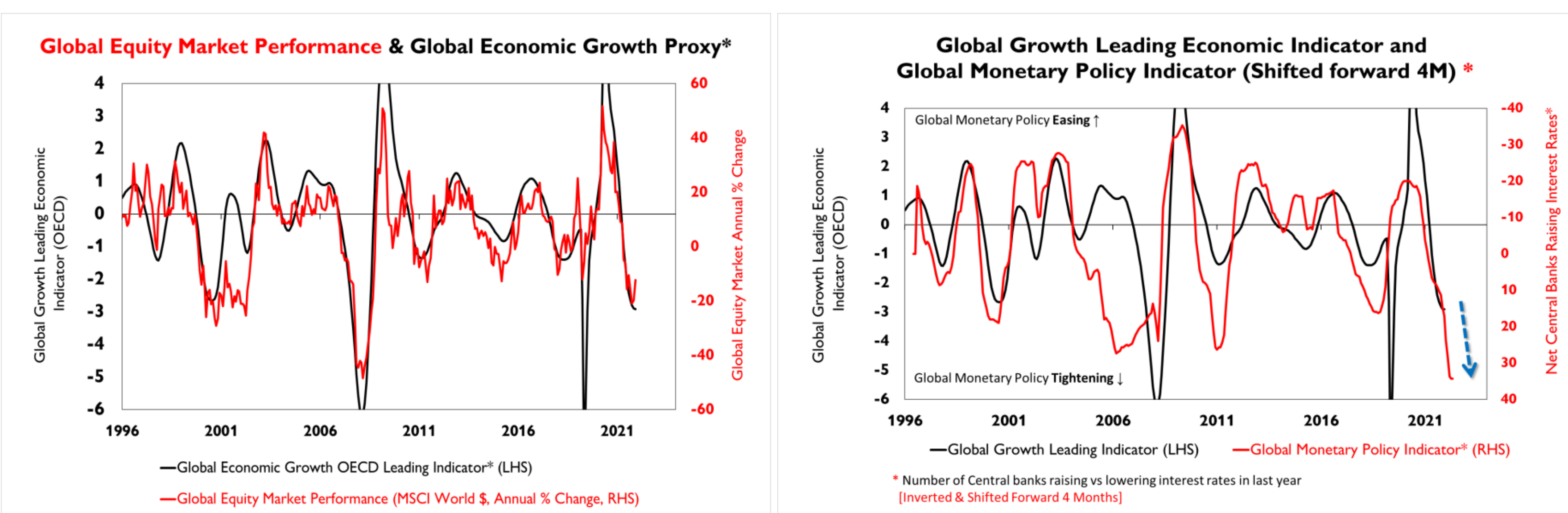
Agricultural commodities are the strongest trending asset class in the AAA Model, but they are inherently volatile. This asset class remains sensitive to developments in the Russia-Ukraine war and high cost of fertilizer. Even small consolidation phases can move the dial a long way. **Price risks are skewed to the upside** as it will take several planting seasons to recover from the loss in production due to the war and high cost of fertilizer (there is even talk of a global rice shortage next year if enough fertilizer cannot be obtained). We are still backing the steeply rising trend but **know that there is resistance just over head and the volatility has hit our performance recently.**

We remain bearish on the outlook for global equities next year and believe that what is needed at a minimum, to turn the bear market around, is improving economic growth momentum. But we do not see that happening anytime soon. Due to decades of easy monetary policy, we live in a world where equity prices and economic growth are inherently intertwined (Figure 12a). With the extent of the monetary tightening and wealth destruction that has taken place this year, we should be prepared to see global economic growth momentum trending lower in the coming months (Figure 12b), heading into recession territory, and dragging equity markets even lower in the process.

In November, we pointed out that an equity market rally would take place. We have now had most of what we expected. Soon, **in the New Year, the bear market forces will resume.** Prices will fall further and for longer. Equity market valuations must become more reasonable, and **above all else we need to see global economic growth momentum pick up again to become more bullish.** Then, and only then, will an equity bull period begin in our view. Making money in these difficult times is hard to do but the AAA model is preserving our capital and growing it modestly. We should keep backing the model.

► Figure 12: The extent of monetary tightening we have seen this year portends to a recession next year which will drag equity markets even lower

(a) **(b)**



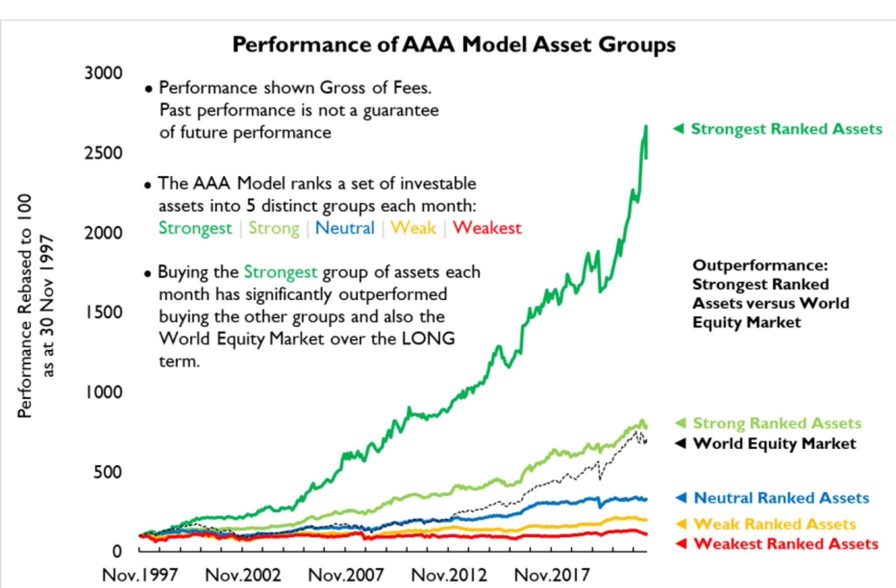
Source: ByteTree, Refinitiv Datastream

►Model Guide: What is the AAA model and how to use it?

- The AAA model is a technical model which ranks a list of important assets using our proprietary *Business Cycle Adaptive Trend* ranking algorithm.
- As different assets outperform at different stages of the business cycle*, the AAA model aims to identify which are the strongest and weakest trending assets at each phase of the business cycle.
- The model is run monthly and outputs the complete list of ranked assets divided into 5 distinct groups based on their trend-strength: Strongest, Strong, Neutral, Weak and Weakest.
- Whilst we will show the complete list of ranked assets as a table in the Appendix (Figure B), the assets to buy each month are the ones labelled as "STRONGEST".
- The chart below (Figure A) shows the difference in performance between buying the assets labelled as Strongest each month compared to buying the others [Strong, Neutral, Weak and Weakest]. The main point to take away from this chart is that the Strongest trending assets significantly outperform the other groups over the long term hence are the ones to buy. Of course, investors also need to bear in mind that **past performance is never a guarantee of future results.**
- The rankings are done in GBP, updated monthly and any changes to the rankings need to be mirrored in your portfolio [buy any assets that are promoted to the Strongest asset group each month and sell any that have left the group]. These trends do not change as rapidly as those for individual shares and typically means holding four assets each month.
- The strongest assets can be purchased using Exchange Traded Funds (ETFs) or Managed Funds. A representative sample of the former is shown in the Appendix for illustration purposes however this list should not be considered recommendations.

* Greed assets [risk assets] generally do better in times of economic expansion and investor risk-adoration. Conversely, Fear assets [defensive assets] generally do better in times of economic contraction and investor risk-aversion.

► Figure A: Buying the Strongest ranked assets has significantly outperformed the other groups over the long term



► Figure B: The AAA Model ranks a list of key assets each month but only the Strongest assets should be bought

	December 2022	Representative ETF Name Distributing ETF Name; Accumulating ETF Name	Representative ETF Ticker	
			Distributing*	Accumulating*
Strongest	Agricultural Commodities	No Distributing ETF ; ETFS Commodity Securities Agriculture Dow Jones UBS CI	-	AGAP
	India Equities	No Distributing ETF ; DB X-TRACKERS MSCI India Index UCITS ETF ACC	-	XCX5
	Gold Bullion	No Distributing ETF ; ETFS Physical Gold	-	PHGP
	Global High yield	iShares Global High Yield Corp. Bond UCITS ETF DIST ; iShares Global High Yield Corp. Bond UCITS ETF ACC	IGHY	HYLA
Strong	UK Cash	No Distributing ETF ; No Accumulating ETF	-	-
	UK Equities	iShares Core FTSE 100 UCITS ETF DIST ; SPDR FTSE UK All Share UCITS ETF	ISF	FTAL
	World Low Volatility Equities	No Distributing ETF ; iShares Edge MSCI World Minimum Volatility UCITS ETF	-	MVOL
	EM Govt. Bonds ($)	iShares J.P. Morgan USD EM Bond UCITS ETF DIST ; iShares J.P. Morgan USD EM Bond UCITS ETF ACC	SEMB	JPEA
	EU Equities	iShares MSCI Europe ex UK UCITS ETF EUR (DIST) ; iShares MSCI EMU UCITS ETF ACC	IEUX	CEU1
Neutral	Japan Equities	iShares MSCI Japan UCITS ETF DIST ; iShares Core MSCI Japan IMI UCITS ETF ACC	IJPN	SJPA
	Inverse UK Equities	No Distributing ETF ; DB X-TRACKERS FTSE 100 SHORT DAILY ETF	-	XUKS
	Energy Commodities	No Distributing ETF ; ETFS Commodity Securities Energy DJ-UBSCI	-	AIGE
	Industrial Metals	No Distributing ETF ; ETFS Industrial Metals ETC	-	AIGI
	EM Equities	Vanguard FTSE Emerging Markets UCITS ETF USD ; No Accumulating ETF	VFEM	-
Weak	World Equities	iShares MSCI World UCITS ETF USD DIST ; iShares Core MSCI World UCITS ETF USD ACC	IWRD	SWDA
	Global Govt Bond	iShares Global Govt. Bond (USD) DIST UCITS ETF ; iShares Global Govt Bond UCITS (ACC) ETF	SGLO	IGLA
	China Equities	HSBC MSCI CHINA ETF ; No Accumulating ETF	HMCH	-
	US Equities	iShares S&P 500 UCITS ETF USD DIST ; ISHRS Core S&P 500 UCITS USD (ACC) ETF	IUSA	CSP1
	World Quality Equities	No Distributing ETF ; iShares Edge MSCI World Quality Factor UCITS ETF	-	IWFQ
Weakest	UK Corporate Bonds	iShares Core £ Corp Bond GBP UCITS ETF ; No Accumulating ETF	SLXX	-
	Global Corporate Bonds	iShares Global Corp Bond UCITS (USD) DIST ; iShares Global Corp Bond UCITS (USD) ACC	CRPS	CRPA
	UK Gilts	iShares Core UK Gilts UCITS ETF GBP ; No Accumulating ETF	IGLT	-
	UK Index Linked Gilts	iShares Index Linked Gilts UCITS ETF ; No Accumulating ETF	INXG	-

* *Distributing* units pay out dividends and income whilst *Accumulating* units reinvest it. Please select the ones that suit you. In some cases only one option is available.

Appendix

AAA Model Rankings GBP Portfolio with representative ETF Tickers

	December 2022	Representative ETF Name Distributing ETF Name; Accumulating ETF Name	Representative ETF Ticker Distributing*	Representative ETF Ticker Accumulating*
Strongest	Agricultural Commodities	No Distributing ETF ; ETFS Commodity Securities Agriculture Dow Jones UBS CI	-	AGAP
Strongest	India Equities	No Distributing ETF ; DB X-TRACKERS MSCI India Index UCITS ETF ACC	-	XCX5
Strongest	Gold Bullion	No Distributing ETF ; ETFS Physical Gold	-	PHGP
Strongest	Global High yield	iShares Global High Yield Corp. Bond UCITS ETF DIST ; iShares Global High Yield Corp. Bond UCITS ETF ACC	IGHY	HYLA
Strong	UK Cash	No Distributing ETF ; No Accumulating ETF	-	-
Strong	UK Equities	iShares Core FTSE 100 UCITS ETF DIST ; SPDR FTSE UK All Share UCITS ETF	ISF	FTAL
Strong	World Low Volatility Equities	No Distributing ETF ; iShares Edge MSCI World Minimum Volatility UCITS ETF	-	MVOL
Strong	EM Govt. Bonds ($)	iShares J.P. Morgan USD EM Bond UCITS ETF DIST ; iShares J.P. Morgan USD EM Bond UCITS ETF ACC	SEMB	JPEA
Strong	EU Equities	iShares MSCI Europe ex UK UCITS ETF EUR (DIST) ; iShares MSCI EMU UCITS ETF ACC	IEUX	CEU1
Neutral	Japan Equities	iShares MSCI Japan UCITS ETF DIST ; iShares Core MSCI Japan IMI UCITS ETF ACC	IJPN	SJPA
Neutral	Inverse UK Equities	No Distributing ETF ; DB X-TRACKERS FTSE 100 SHORT DAILY ETF	-	XUKS
Neutral	Energy Commodities	No Distributing ETF ; ETFS Commodity Securities Energy DJ-UBSCI	-	AIGE
Neutral	Industrial Metals	No Distributing ETF ; ETFS Industrial Metals ETC	-	AIGI
Neutral	EM Equities	Vanguard FTSE Emerging Markets UCITS ETF USD ; No Accumulating ETF	VFEM	-
Weak	World Equities	iShares MSCI World UCITS ETF USD DIST ; iShares Core MSCI World UCITS ETF USD ACC	IWRD	SWDA
Weak	Global Govt Bond	iShares Global Govt. Bond (USD) DIST UCITS ETF ; iShares Global Govt Bond UCITS (ACC) ETF	SGLO	IGLA
Weak	China Equities	HSBC MSCI CHINA ETF ; No Accumulating ETF	HMCH	-
Weak	US Equities	iShares S&P 500 UCITS ETF USD DIST ; ISHRS Core S&P 500 UCITS USD (ACC) ETF	IUSA	CSP1
Weak	World Quality Equities	No Distributing ETF ; iShares Edge MSCI World Quality Factor UCITS ETF	-	IWFQ
Weakest	UK Corporate Bonds	iShares Core £ Corp Bond GBP UCITS ETF ; No Accumulating ETF	SLXX	-
Weakest	Global Corporate Bonds	iShares Global Corp Bond UCITS (USD) DIST ; iShares Global Corp Bond UCITS (USD) ACC	CRPS	CRPA
Weakest	UK Gilts	iShares Core UK Gilts UCITS ETF GBP ; No Accumulating ETF	IGLT	-
Weakest	UK Index Linked Gilts	iShares Index Linked Gilts UCITS ETF ; No Accumulating ETF	INXG	-

* *Distributing* units pay out dividends and income whilst *Accumulating* units reinvest it. Please select the ones that suit you. In some cases only one option is available.

Source: ByteTree, Refinitiv Datastream

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