31st May 2023

The Adaptive Asset Allocation Report

A Model driven Business Cycle Trend Following approach to investing

Issue No. 12

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.

Mind the Gap

Dear Readers,

The AAA model still holds equity positions and will do so for as long as they have strong uptrends with good momentum. It is quite clear, however, that we are not holding some of the early leaders like the US equity market. Our two best holdings are Gold and now the Japan equity market. The model also ranks the UK equity market at the top of the Strong Asset group. Also notice that UK Cash is the next strongest holding. Both these assets are ranked above the World and US equity market. Finally, notice that Inverse UK equities are exactly neutral. We are a long way from being outright bullish. As we move into the future, we expect more negative signals.

Most stock markets have a strong seasonal fluctuation. The best rallies are normally from late November through to the end of May. May itself is normally a strong month. The advice is to sell in May. Then, as summer sets in, we bring weakness down to an extreme in late October.

It is quite clear to us that the performance of the global stock markets and fundamental data have got big gaps which will influence the situation in the coming months. The US equity market is being held up by just a few giant stocks whilst the majority are struggling. Tight credit is punishing economic growth and US Households are bearish but are not selling yet.

The reason markets have ignored these gaps is because they are coming from a period in which bonds were seen as toxic waste. Once it is clear that rate hikes are over then bonds will become investable assets again. Rising inflation, which was the main catalyst for these hikes, is decreasing in the US and the UK, but it is not yet fully under control. Rates will stay higher for longer until the falling inflation is seen to be guaranteed. We may see this in the summer months.

Meanwhile, we continue to let the AAA model guide the way. We have Gold and the Japan equity market. We also have a clear indication that cash is not a bad holding either. Currently, we are protecting wealth and not trying to grow it by taking excessive risk. Not losing capital in the bear market will be a noteworthy achievement.

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,

A growing gap is evident between the performance of the US stock market and the underlying economic realities, raising concerns. We have observed diverging indicators that indicate a possible turning point in the stock market.

In the US, despite households feeling bearish, they continue to hold onto their equity holdings, creating a worrying disconnect. At the same time, the performance of the US stock market appears to be concentrated in a few sectors, with significant disparities among different sectors. Additionally, we have discovered a handful of tech giants are holding up the market, potentially masking a fragility that could impact the broader market.

In Europe, we observe a decline in credit demand for businesses and tightening lending standards, which is not reflected in the European stock market's trend. Additionally, Germany has fallen into recession due to various factors.

On a positive note, we see Japan's equity market stand out, driven by factors such as corporate governance reforms, discounted valuations and a weak Yen. This creates potential opportunities for outperformance compared to global peers.

I encourage you to delve deeper into our analysis this month and explore the full picture for yourself. We will continue to monitor the markets closely for further developments and update you if conditions change before our usual writing period.

As always, if you have any questions or concerns, please do not hesitate to reach out to us. 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.

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: **30th May 2023**

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

ADDENDUM

The model was first run on 25th May 2023 this month. At this time, the strongest ranked assets were Europe Equities, World Quality Equities, Japan Equities and Gold Bullion.
The model was rerun on 30th May 2023 and the strongest assets are 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	• **Japan Equities**
Hold	• **Europe Equities** • **Gold Bullion** • **World Quality Equities**
Sell	• **UK Equities**

- **Investors often make judgments based on their view of the "fundamentals."**
- **However, significant gaps can exist between the fundamental reality and the market's perception of it.**
- **Although stock markets have been rallying for six months, and the trends remain intact, there are several noticeable gaps that can be observed.**
- **The AAA Model identifies equities as the strongest trending assets. However, UK Cash is trending stronger than the World and US equity markets, while Inverse UK equities remain neutral.**
- **This combination does not reflect the characteristics of a robust equity bull market. Stock markets cannot defy economic gravity indefinitely.**

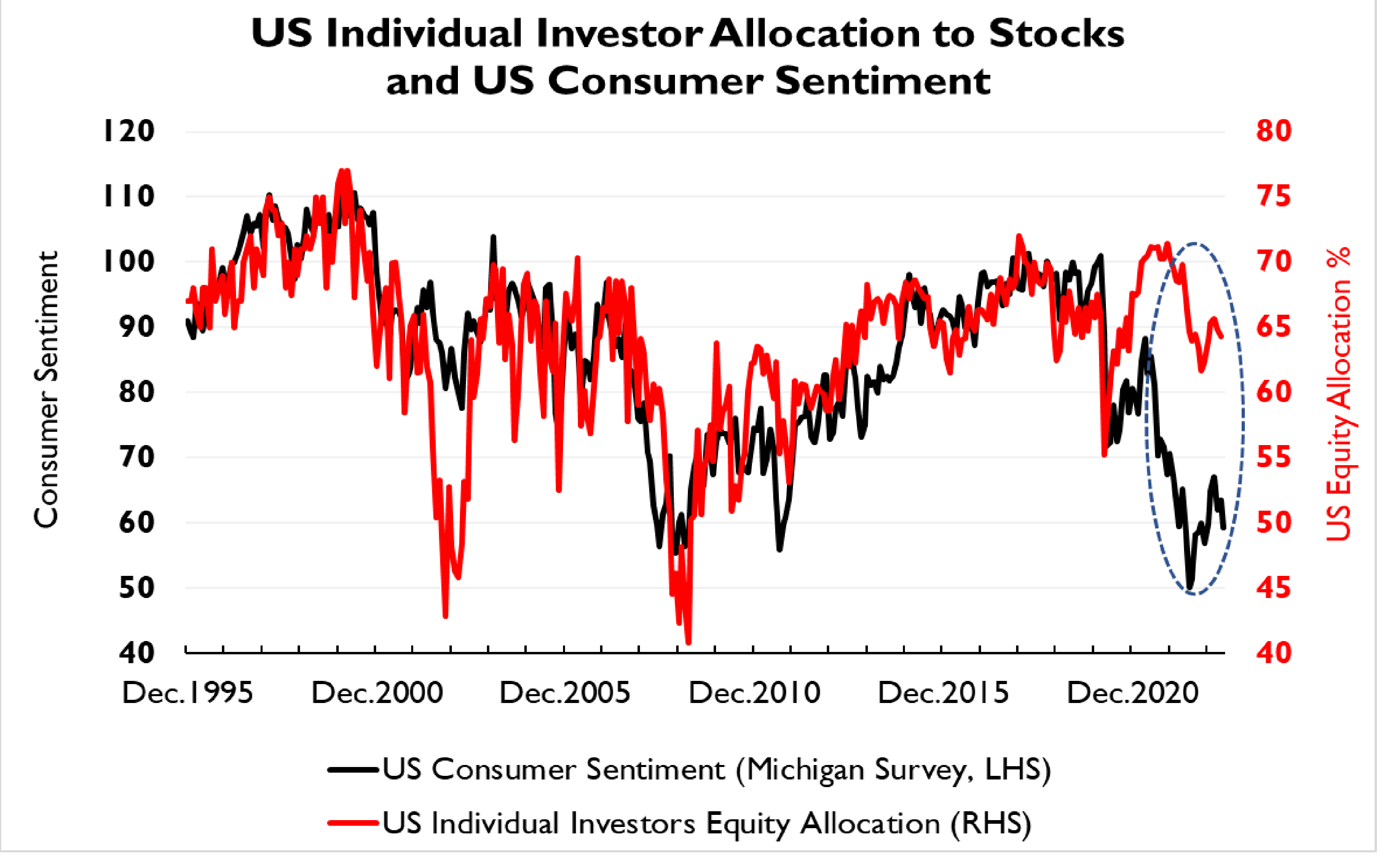
"As credit goes , so goes the economy.
Credit is the lifeblood of the economy and the credit system just had a heart murmur"

– Joseph V. Amato, President of Neuberger Berman Group LLC and Chief Investment Officer of Equities

As the year has progressed, **we have observed a curious phenomenon of gaps emerging everywhere**. The gaps we are referring to are not the ones that adorn a teenager's favourite pair of distressed jeans. It's the **gaps between the performance of the stock market and the cold hard economic realities on the ground** that are keeping us awake at night. We are seeing US households wearing a bearish countenance yet refusing to part ways with their prized US equity holdings. At the same time, real time gauges of the strength and direction of global economic momentum – such as the Copper Gold ratio – are confidently striding on a separate path to the relative performance of US Stocks versus bonds. In parallel, we find that the US equity market is being held up by only ten stocks whilst the rest languish in the depths of decline. There are many other similar gaps. History shows that **these gaps will eventually be reconciled in one way:** through **the dramatic decline of the stock market.**

The expanding chasm between prevailing investor and consumer sentiment is worrisome (Figure 1). In the past, when US consumers have found themselves engulfed in a cloud of pessimism, individual investors would significantly reduce their allocation to US stocks and seek refuge in other assets. Over the last two years, this once unyielding relationship has melted before our very eyes (Figure 1). Instead, what we find is that **despite US Households feeling very dour, individual investors continue to persist in allocating a substantial portion (nearly two-thirds) of their portfolio to US stocks.**

► **Figure 1: The long-standing relationship between US Individual Investors allocation to equities and US Consumer Sentiment has visibly broken over the last two years**



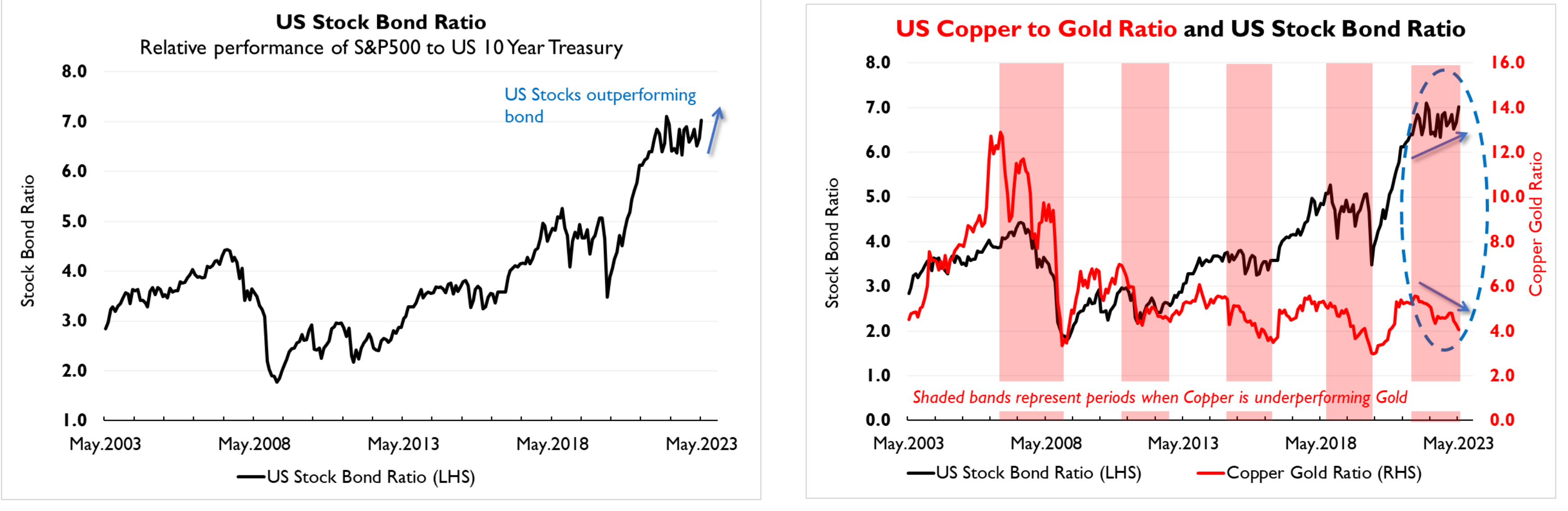
Source: ByteTree | Refinitiv Datastream

If US individual investors are confident in allocating nearly two-thirds of their portfolio to US stocks then it isn't unreasonable to assume that stocks are outperforming bonds and **the global economy is performing at least moderately well**. A cursory glance at the US Stock Bond Ratio (Figure 2a) confirms this to be true. **However, when we look at the copper-gold ratio a different narrative unfolds**. This ratio is important because it is normal to see copper outperforming gold when the global economy is expanding. The demand for copper significantly increases during economic expansions owing to its extensive industrial application. In contrast, the demand for gold mostly increases during times of economic uncertainty and market volatility.

Figure 2b depicts the copper-gold ratio overlaid with the US Stock bond ratio. As can be seen, **the two series have been diverging since last year**. Historically, such divergences have seldom endured for an extended period – given the long-standing relationship between the two series – and **suggests that the stock market may be approaching a turning point.**

► **Figure 2: Divergence between Copper-Gold Ratio and US Stock-Bond Ratio indicates potential turning point in US Stock Market**

(a) (b)

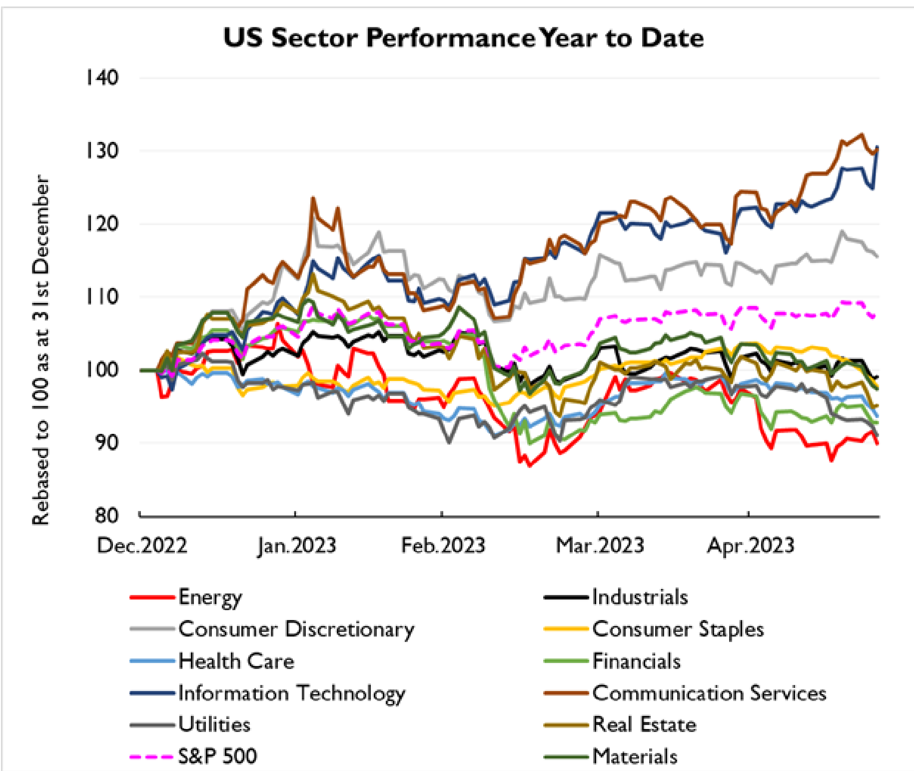


Source: ByteTree | Refinitiv Datastream

We are surprised by the extent to which the US stock market has defied expectations and continued to rally amidst the prevailing conditions. Upon closer examination, however, it becomes apparent that things are not as they seem. Breaking down the performance of the US equity market year-to-date, we find that this **seemingly robust performance is confined to just three sectors: technology, communication services and consumer discretionary** (Figure 3b). Surprisingly, all the others are in the red, with a large gap between the performance of the best and worst sector year to date (Figure 3a). In essence, the US stock market performance lacks broad-based strength and exhibits notable divergences across various sectors.

► **Figure 3: US stock market performance year-to-date is not broad based with significant divergences among the different sectors**

(a)



(b)

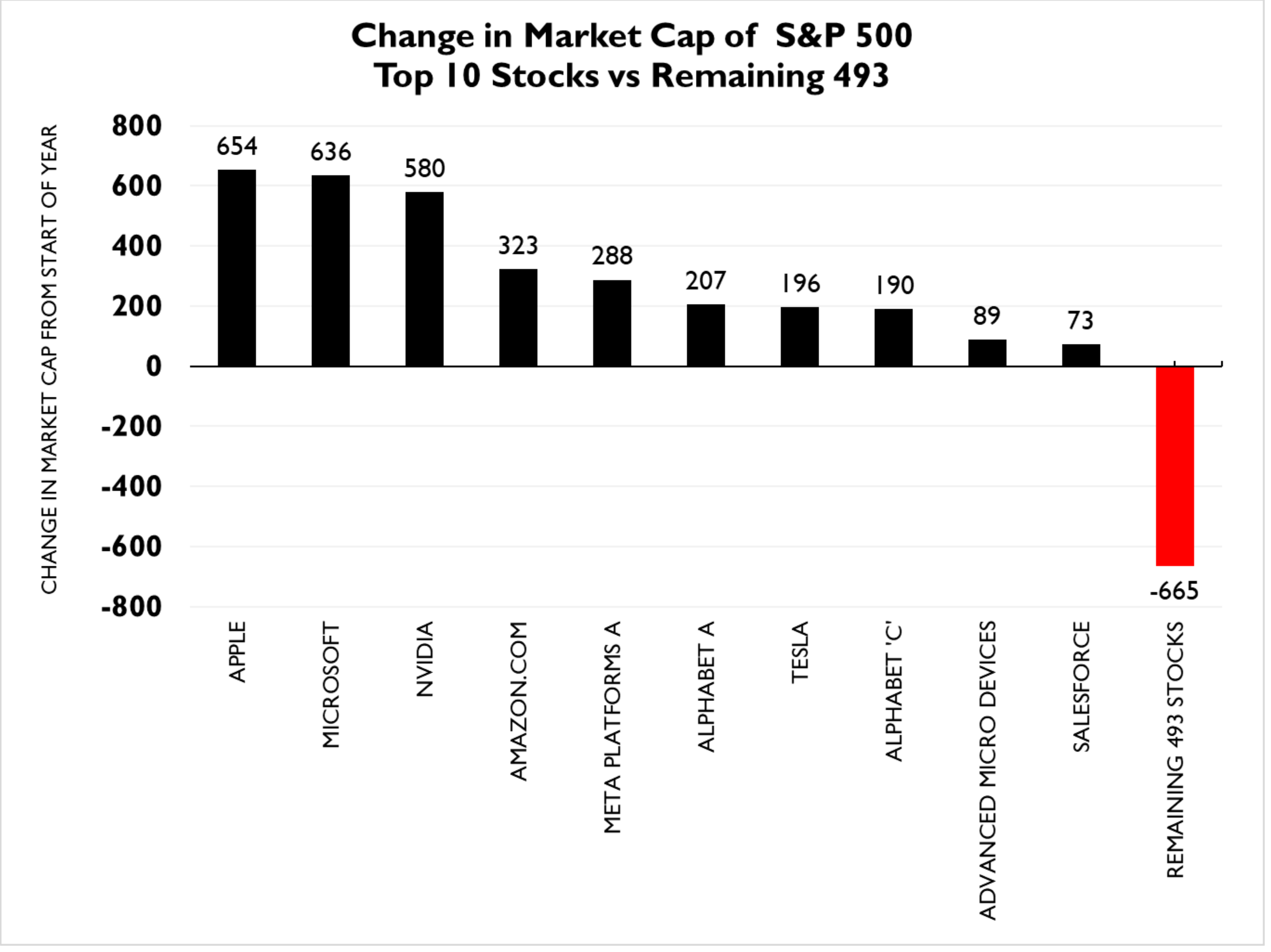
Sector	YTD
INFO TECHNOLOGY	30.5
COMM. SVS	30.1
CONSUMER DISCRETIONARY	15.6
S&P 500 COMPOSITE	8.1
INDUSTRIALS	-0.9
CONSUMER STAPLES	-2.2
MATERIALS	-2.5
REAL ESTATE	-4.9
HEALTH CARE	-6.3
FINANCIALS	-7.2
UTILITIES	-8.9
ENERGY	-10.1

Source: ByteTree | Refinitiv Datastream

If we continue to dig even deeper, we find that **not only is the performance of the S&P 500 confined to three sectors, it is dominated by a handful of giant tech companies**, effectively propping up an otherwise feeble stance. These ten giants have added a combined market cap of 3.2 trillion to the S&P 500 this year compared with the next 493 stocks which have lost 665 Billion (Figure 4) – equivalent to an entire Tesla!

With all the hype surrounding generative AI and its potential to disrupt entire industries, investors are in a frenzy to get a share of the pie. **The result has been a rush to the tech stocks that dominate in this space**, inflating their valuations and masking an underlying fragility that permeates the broader market. **Eventually the love affair with these few giants will fade and the index will decline**. The normal season for this to occur is from the end of May onwards.

► **Figure 4: The dominance of the giant tech companies in the S&P 500 masks the fragility that lurks beneath the surface**

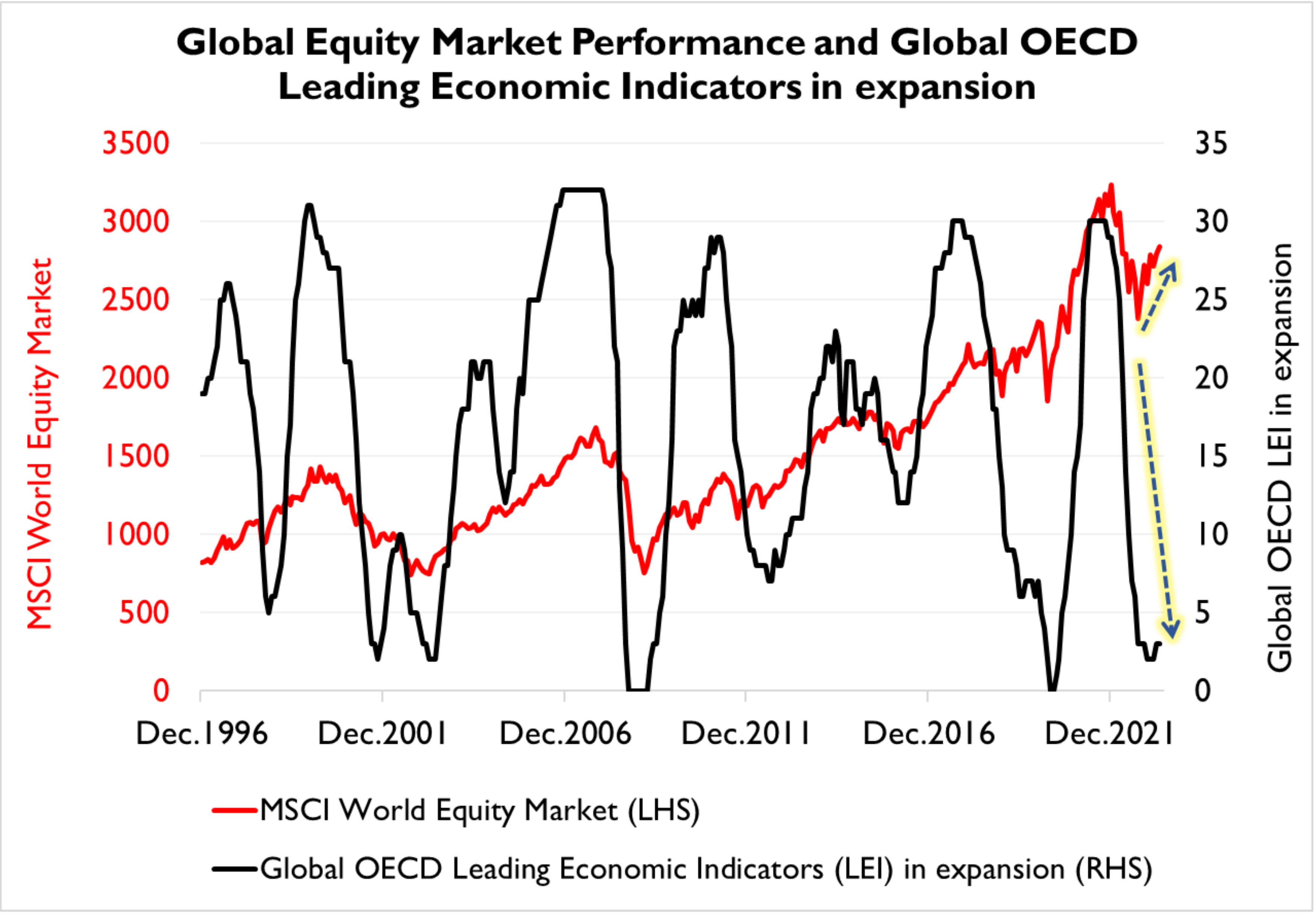


Source: ByteTree | Refinitiv Datastream

It's not only the US Equity market where these gaps exist. We see similar ones between the performance of the global equity market and economic fundamentals. Traditionally, a bullish phase in global equities has coincided with broad economic expansion, a phenomenon that can be observed using the reliable OECD Leading economic indicators (Figure 5). However, **an unsettling gap has emerged between the rallying World equity market and the bleak economic reality on the ground** (Figure 5). It seems as if these two series are moving to completely different beats.

This degree of incongruity forces us to question whether the exuberance witnessed in stock prices genuinely mirrors the underlying economic climate. We remain dubious – **such divergences seldom endure for long, as ultimately, it is the unyielding forces of the economy that hold sway and shape the markets collective fate**.

► **Figure 5: The unsettling gap between the rally in the World equity market and the OECD Leading economic indicators suggests equity markets are at risk of correcting**



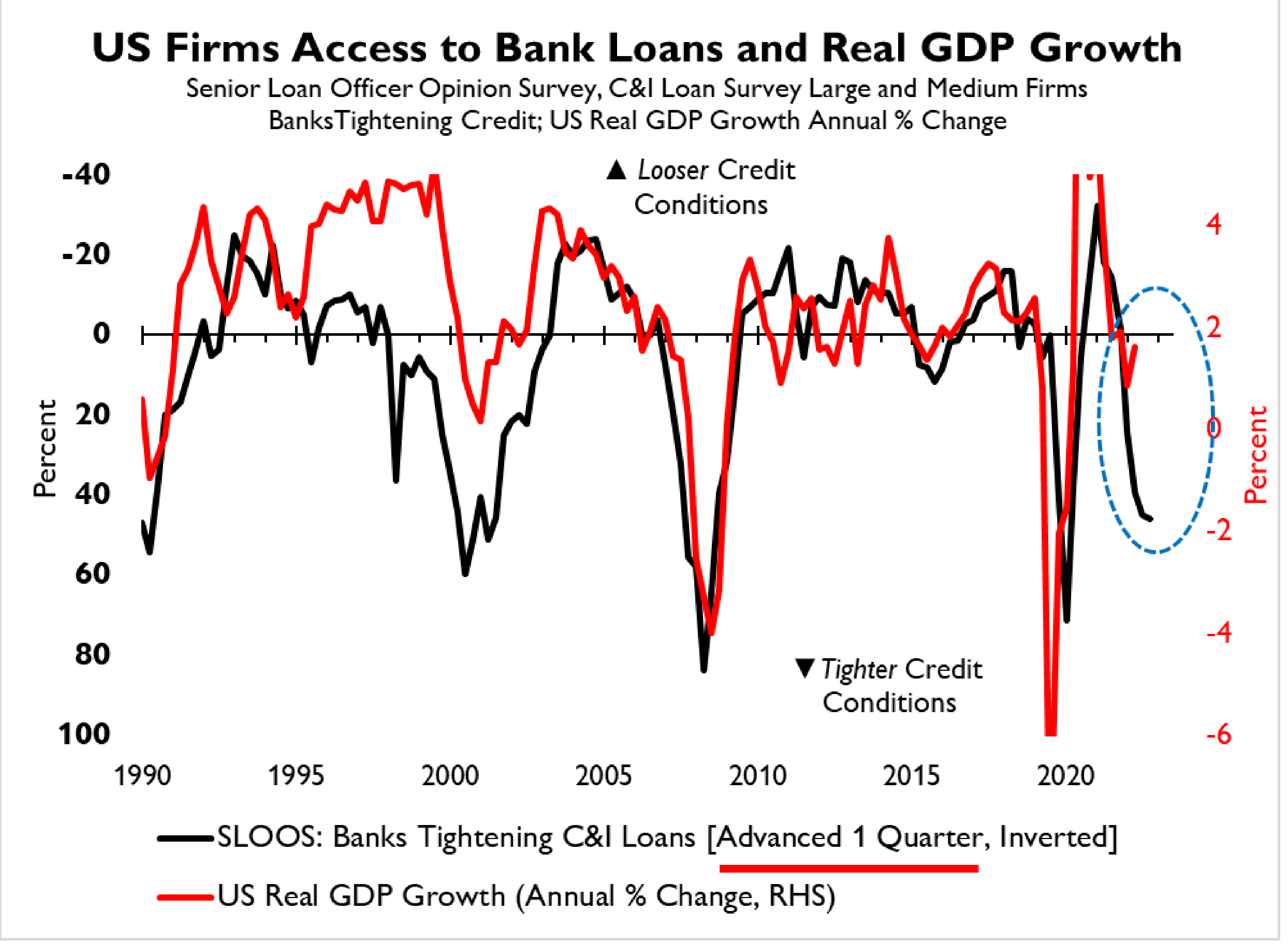
Source: ByteTree | Refinitiv Datastream

Leading economic indicators are proxies for the business cycle. They are a composite of different economic and financial indicators which taken together provide insights into the future direction of economic activity. **Many leading economic indicators contain various indicators on credit** – measuring the cost, the amount and ease with which it can be obtained ("lending standards") – **because credit is the lifeblood of the economy.** Households borrow to buy houses, cars and a vast array of purchases. Businesses borrow to buy inventory and invest. **Where credit flows the economy goes.**

One very important credit indicator is the Fed's SLOOS. The full name is quite a mouthful so we prefer to just call it the "SLOOS". The indicator is based on a quarterly survey conducted by the Federal Reserve who ask senior loan officers at commercial banks whether they are making it easier or harder for people and businesses to borrow money. Historically, **the SLOOS has shared an intimate relationship with US economic growth** (Figure 6) with easier credit conditions correlating with expanding economic growth and tighter credit conditions correlating with a contraction in economic growth.

Since the collapse of SVB earlier this year, US banks have significantly tightened lending standards, creating a gap between the degree of credit tightening and the rate of economic growth. **This situation poses a risk of the economy falling into recession in the coming months. Mind the gap.**

► Figure 6: **The long-standing relationship between US credit conditions and US Real GDP growth suggests that the US economy is likely to fall into recession in the coming months**

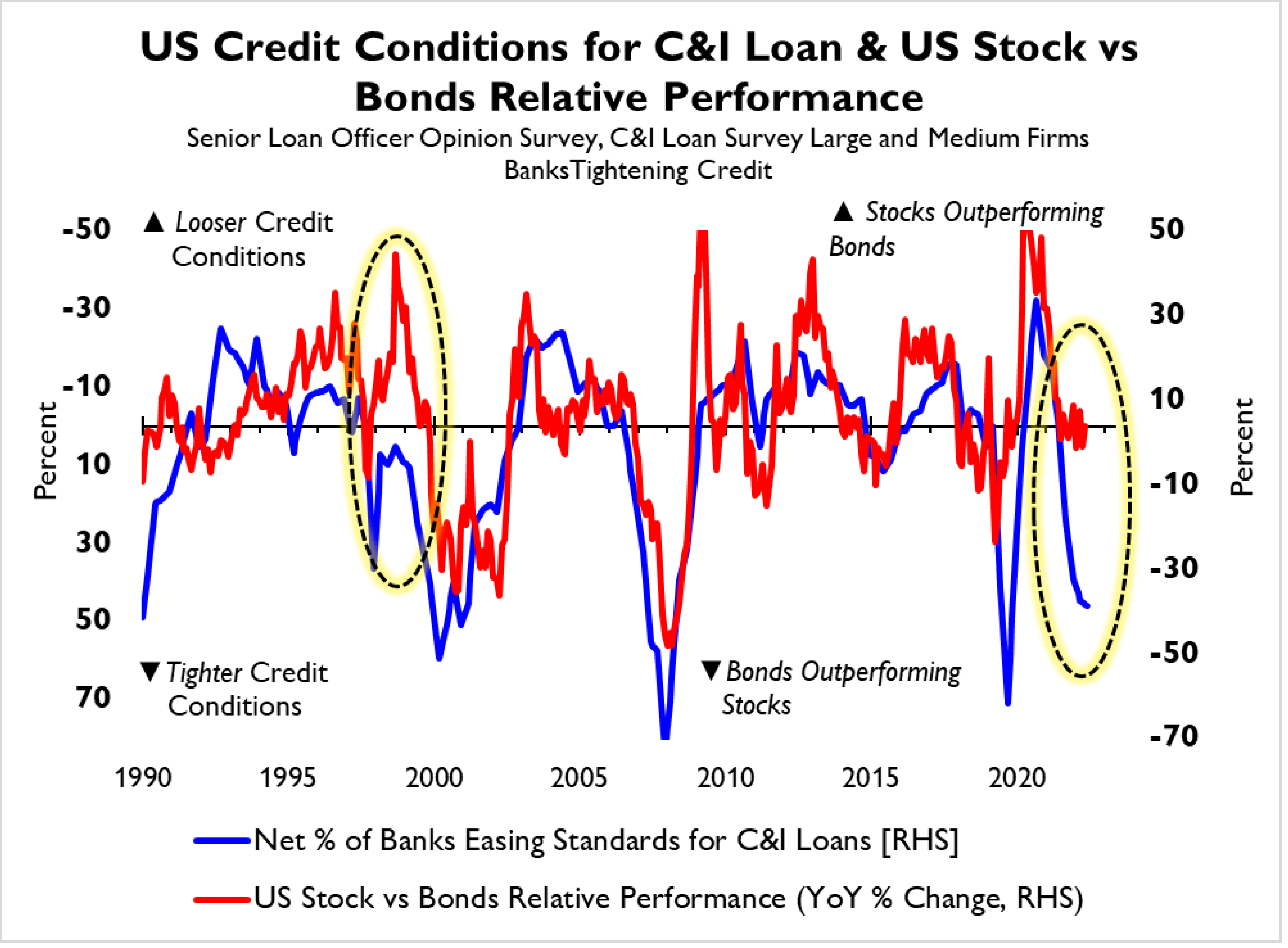


Source: ByteTree | Refinitiv Datastream

If the US economy falls into recession, it is highly likely that US and global equity markets will sell off significantly. As we have highlighted in the past, the global equity markets dance to the tune of the global business cycle. With global leading economic indicators on the floor (Figure 5) and US credit conditions tightening like a squirrel clutching onto its last acorn, it's hard to believe that the equity markets are priced for reality. In fact, if we **plot the US Stock bond ratio** shown earlier (Figure 7), **as a year-over-year percent change and overlay it with the SLOOS indicator we find that the two series tango together** for the most part, **making the current gap between them puzzling**. Eventually the gap will get filled – as it did back in 2000 – when the stock market falls.

► Figure 7: **Tightening of US credit conditions suggests that the US stock market is defying economic gravity**

(a) (b)

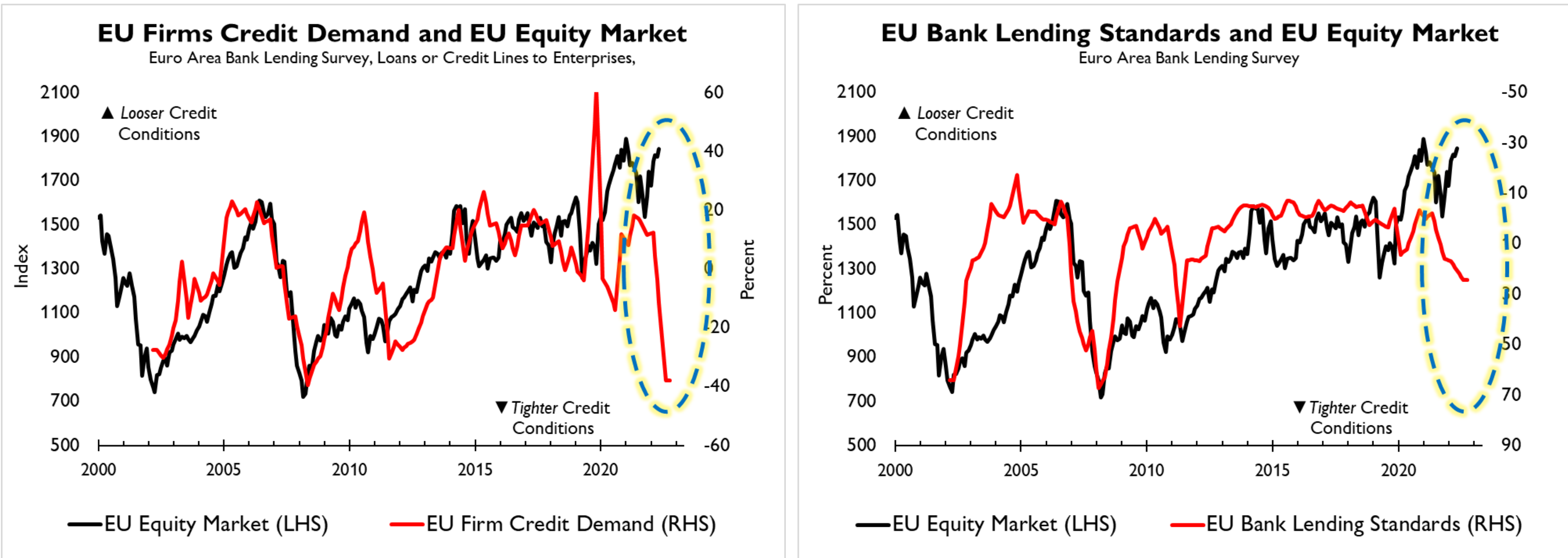


Source: ByteTree | Refinitiv Datastream

This position is not only dominant in the USA. **In Europe, Credit Demand for businesses has taken a nosedive**, plunging off a cliff like a daring bungee jumper (Figure 8a). At the same time, **Bank Lending has tightened to levels last visited during the euro area sovereign debt crisis in 2011** (Figure 8b) as banks have reduced their appetite for risk. For the most part, the EU stock market has trended in the same general direction as credit demand (Figure 8a) and bank lending standards (Figure 8b) making the gap between the European stock market and each of these series worrying. **Even though the European stock market reigns as the crown jewel in the AAA Model, we cannot discount the possibility of a sudden sell-off**, as investors digest the formidable economic challenges that lie ahead.

► Figure 8: The European stock market has detached from the economic reality of tightening credit conditions

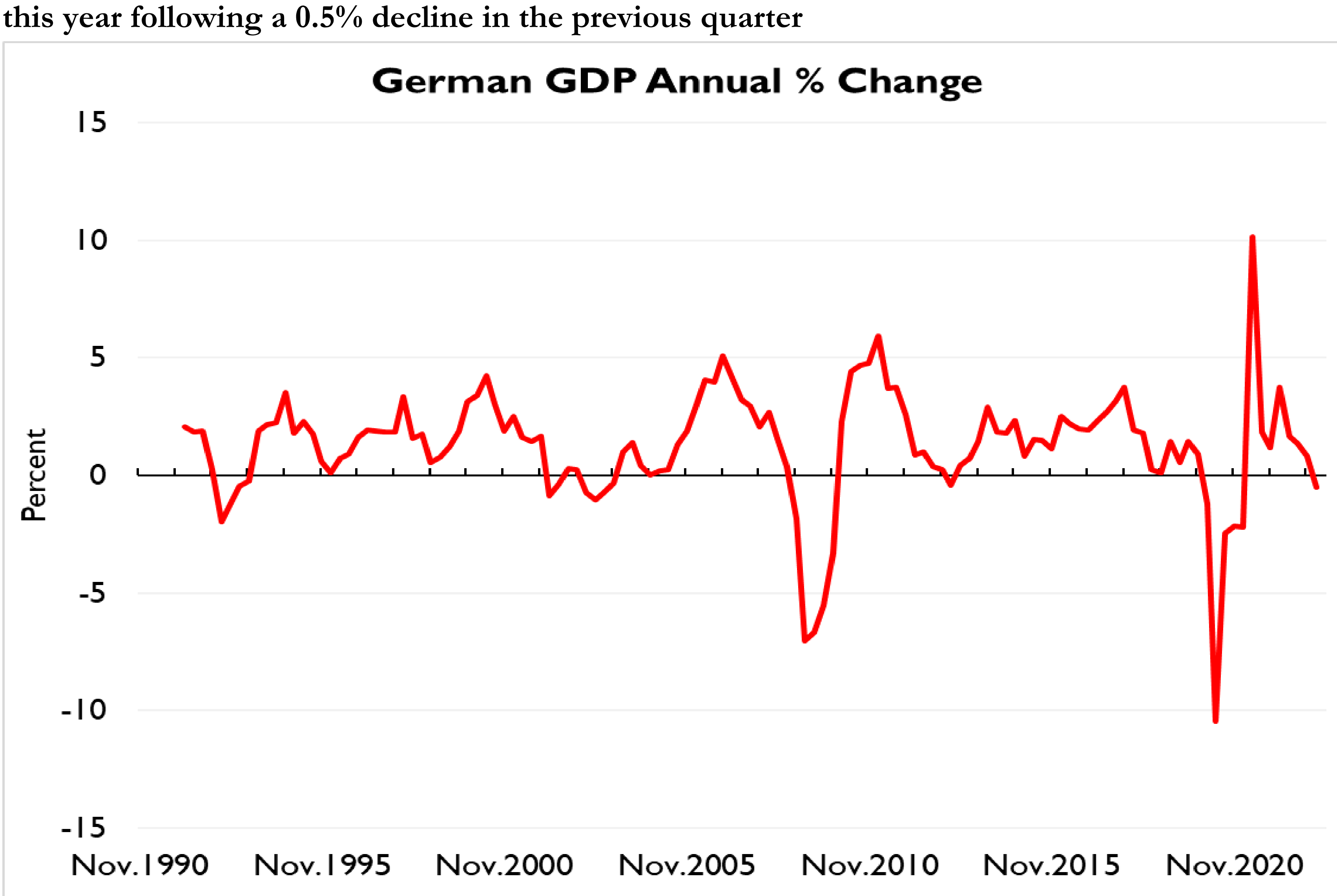
(a) (b)



Source: ByteTree | BCA Research | Refinitiv Datastream

As money tightens its grip across Europe, **Germany finds itself at the forefront of the squeeze**. The export-driven powerhouse has taken a tumble, **slipping into recession with a 0.3% contraction in the first quarter of this year**, following a 0.5% decline in the previous quarter (Figure 9). A fall in consumption – due to high inflation and rising interest rates – coupled with high energy costs owing to the war in Ukraine is to blame. **Many economists expect it will get worse**, and some fear a hard landing is possible this autumn. The German government expects a weak winter while the IMF predicts a slight contraction for 2023.

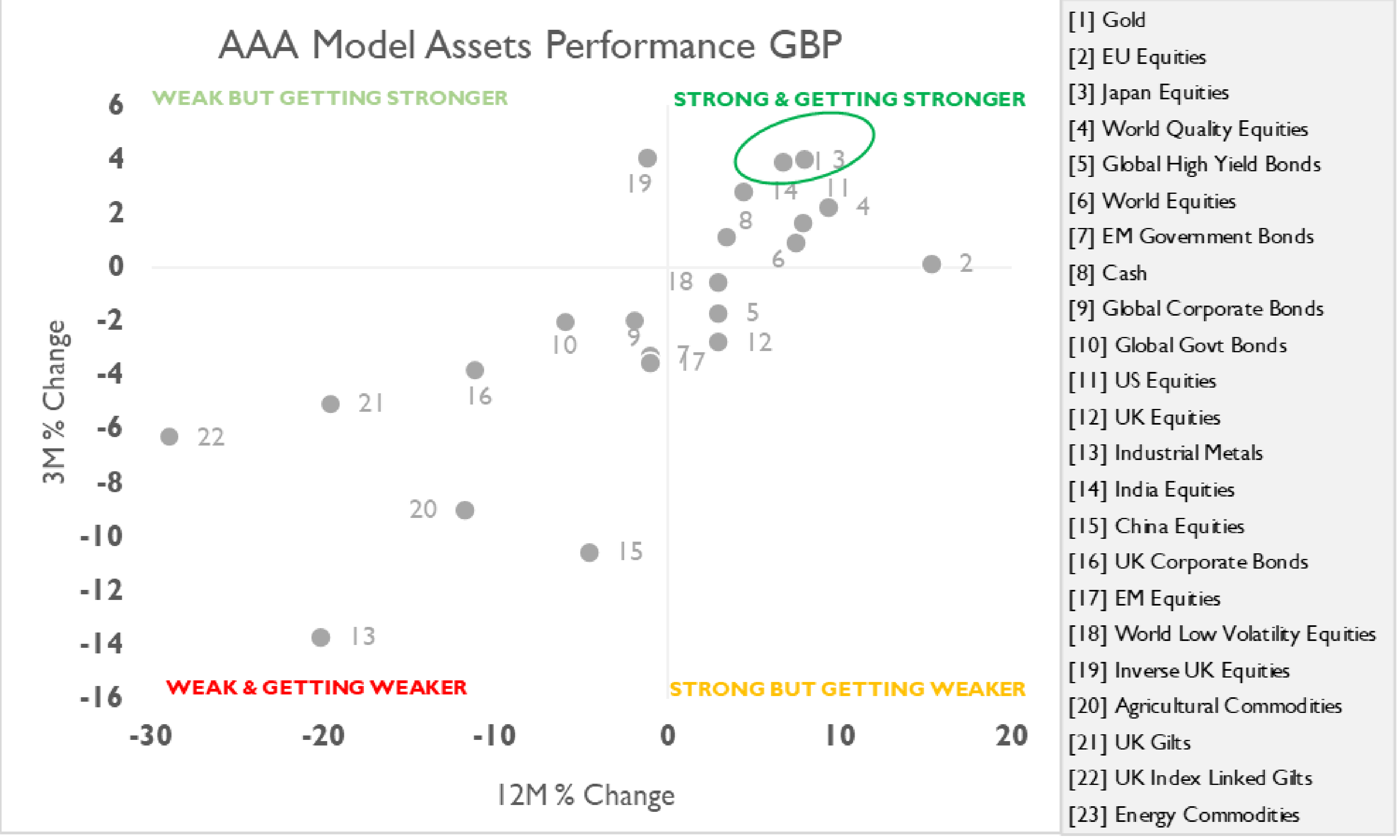
► Figure 9: Germany has slipped into recession with a 0.3% contraction in the first quarter of this year following a 0.5% decline in the previous quarter



Source: ByteTree | Refinitiv Datastream

The scatterplot below (Figure 10) **displays the performance of all the AAA Model Assets measured using the representative Exchange Traded Funds shown in Appendix 1**. The horizontal axis represents the performance of each asset over the last 12 months while the vertical axis represents the performance over the last 3 months. These durations have been selected to represent the long and short term. The Assets with the greatest short- and long-term momentum can be seen in the top right-hand corner of the chart. The two standout positions are Gold [1] and Japan equities [3]. We featured Gold last month, but the Japan equity market is a new position for us. We need to investigate further.

► **Figure 10: A scatter plot of the short- and long-term performance of the AAA Model Assets reveals that Gold and Japan equities have the greatest momentum**



Source: ByteTree | Refinitiv Datastream

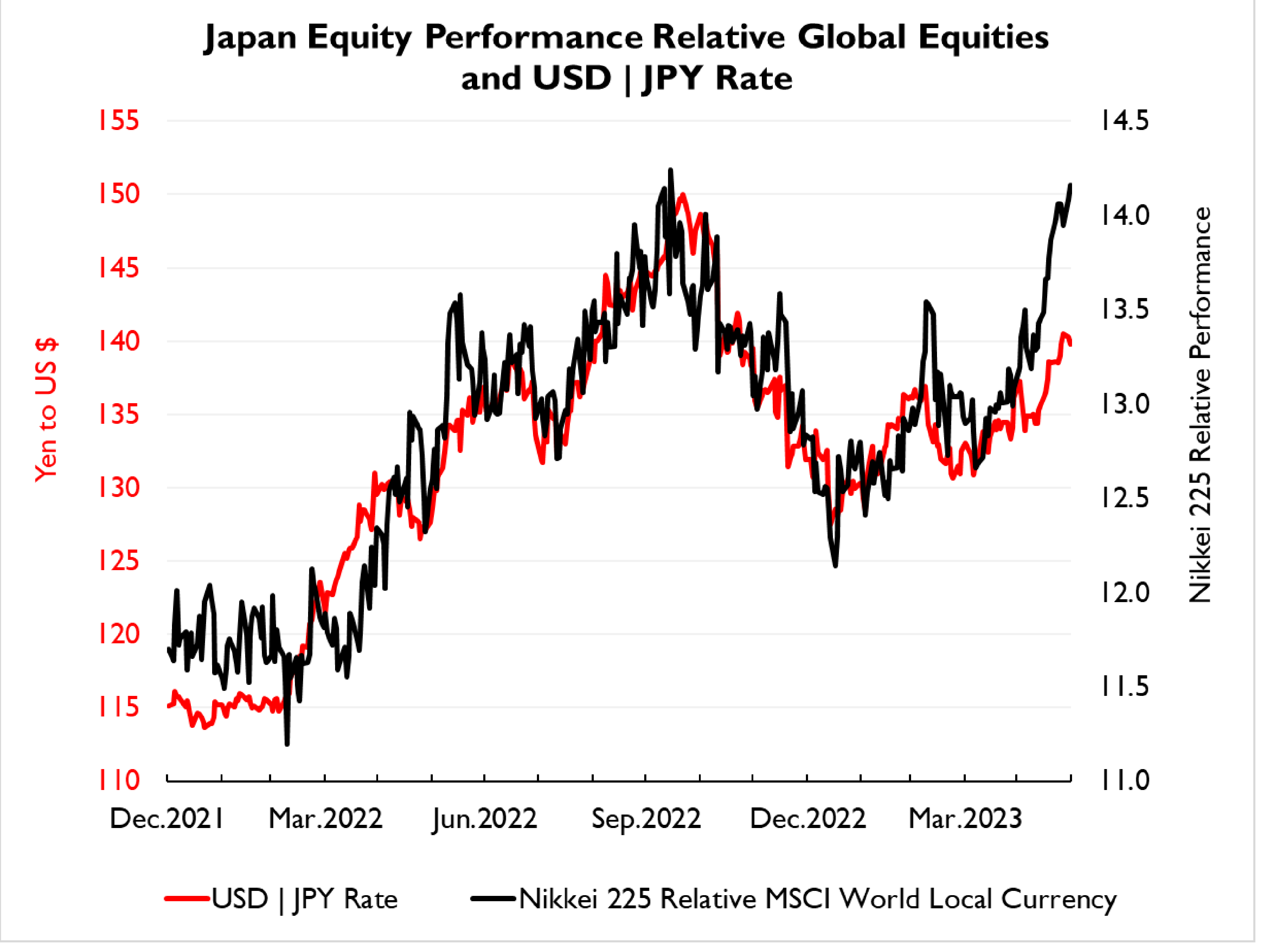
The Japanese equity market is now in strong bull trend (Figure 11). I lived in Japan on the way up to the old all-time high near 40,000. The bubble then burst from an excessive valuation peak. It was also discounting a negative demographic position. Now, all these years later, it is trending back to reach the old high again. The trend now looks well placed and is **being driven by increased hopes of higher governance standards, shareholder focus and upbeat earnings results**. **Warren Buffet has been buying in** and has more in this market than anywhere other than the USA. **Foreign investors have also ploughed into Japan's stock market** with net inflows reaching nearly $30 billion over the past five weeks**.** The sun is rising on Japanese stocks; we must back it to continue now.

► **Figure 11: Japan's stock market reaches for the all-time high set 33 years ago amid a confluence of positive factors**

Source: ByteTree, Refinitiv Datastream

Beyond the realm of corporate governance reforms and the allure of discounted valuations, another **factor that has propelled the Japanese equity market forward this year is the weak Yen.** The Nikkei's higher exposure towards export stocks has seen it reap significant gains from the drop in Yen. Over the past year, the performance of the Japanese stock market has correlated with the Dollar-Yen rate (Figure 12). If the Yen continues to weaken, Japanese stocks will likely continue to outperform their global peers. **Maintain an overweight position on Japanese equities, without hedging currency risks.**

► **Figure 12: The outperformance of the Japanese stock markets over its Global peers is tied to the weak yen**



Source: ByteTree, Refinitiv Datastream

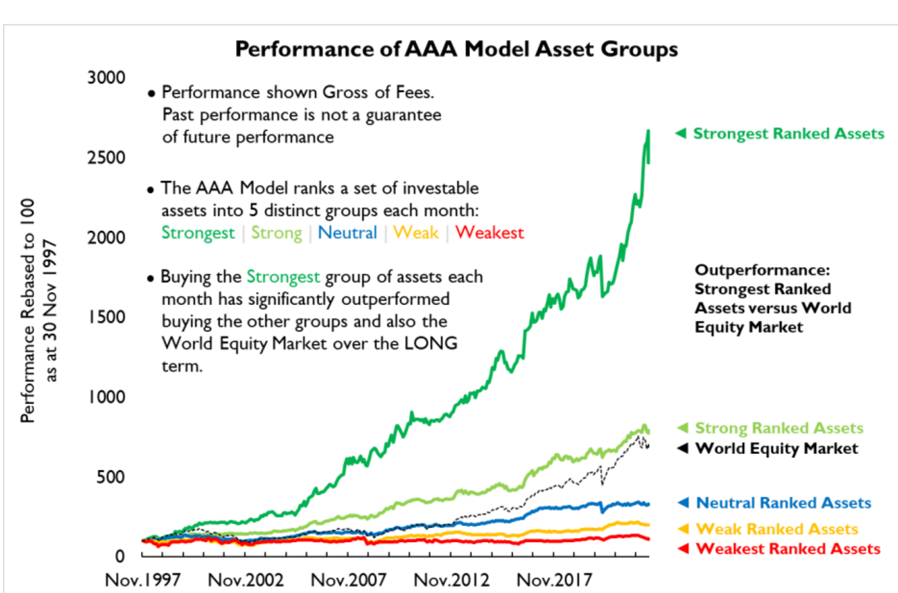
It is clear to us that we should be avoiding the US equity market as the most pumped up in valuation terms. **We continue to hold a few equity positions but expect that some of the gaps will start to be active in driving many trends lower again**. Now that May is over, the weak season starts. The main signal will be when the hikes in interest rates are over**. Inflation rates are moderating**. In the UK, the current rate is 8.9%. In the US, the rate is 4.5%. Although the trend is in the right direction, it is **too soon for the Fed or Bank of England to cave in. They will keep rates high until it is clear that inflation is close to 2%.** Once that happens, then **bonds will start to outperform and the gaps in the equity markets will close.**

►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.
- However, not all investors have the ability and / or willingness to invest in the riskiest assets in the AAA Model [see Appendix 3 for asset risk comparison]. In this case, investors have the option to exclude these assets and buy the next strongest ranked asset(s) in the AAA Model that is (are) not part of the Riskiest Assets group [the Riskiest Assets are highlighted in Appendix 3]. Investors should never take more risk than they are able or willing to.

* 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

	May 2023	Representative ETF Name Distributing ETF Name; Accumulating ETF Name	Representative ETF Ticker Distributing*	Representative ETF Ticker Accumulating*
Strongest	World Quality Equities	No Distributing ETF ; iShares Edge MSCI World Quality Factor UCITS ETF	-	IWFQ
	EU Equities	iShares MSCI Europe ex UK UCITS ETF EUR (DIST) ; iShares MSCI EMU UCITS ETF ACC	IEUX	CEU1
	Japan Equities	iShares MSCI Japan UCITS ETF DIST ; iShares Core MSCI Japan IMI UCITS ETF ACC	IJPN	SJPA
	Gold Bullion	No Distributing ETF ; ETFS Physical Gold	-	PHGP
Strong	UK Cash	No Distributing ETF ; No Accumulating ETF	-	-
	World Equities	iShares MSCI World UCITS ETF USD DIST ; iShares Core MSCI World UCITS ETF USD ACC	IWRD	SWDA
	UK Equities	iShares Core FTSE 100 UCITS ETF DIST ; SPDR FTSE UK All Share UCITS ETF	ISF	FTAL
	US Equities	iShares S&P 500 UCITS ETF USD DIST ; ISHRS Core S&P 500 UCITS USD (ACC) ETF	IUSA	CSP1
	India Equities	No Distributing ETF ; DB X-TRACKERS MSCI India Index UCITS ETF ACC	-	XCX5
Neutral	Global Corporate Bonds	iShares Global Corp Bond UCITS (USD) DIST ; iShares Global Corp Bond UCITS (USD) ACC	CRPS	CRPA
	Global High yield	iShares Global High Yield Corp. Bond UCITS ETF DIST ; iShares Global High Yield Corp. Bond UCITS ETF ACC	IGHY	HYLA
	World Low Volatility Equities	No Distributing ETF ; iShares Edge MSCI World Minimum Volatility UCITS ETF	-	MVOL
	Inverse UK Equities	No Distributing ETF ; DB X-TRACKERS FTSE 100 SHORT DAILY ETF	-	XUKS
	UK Corporate Bonds	iShares Core £ Corp Bond GBP UCITS ETF ; No Accumulating ETF	SLXX	-
Weak	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
	Global Govt Bond	iShares Global Govt. Bond (USD) DIST UCITS ETF ; iShares Global Govt Bond UCITS (ACC) ETF	SGLO	IGLA
	Agricultural Commodities	No Distributing ETF ; ETFS Commodity Securities Agriculture Dow Jones UBS CI	-	AGAP
	EM Equities	Vanguard FTSE Emerging Markets UCITS ETF USD ; No Accumulating ETF	VFEM	-
	UK Gilts	iShares Core UK Gilts UCITS ETF GBP ; No Accumulating ETF	IGLT	-
Weakest	Industrial Metals	No Distributing ETF ; ETFS Industrial Metals ETC	-	AIGI
	UK Index Linked Gilts	iShares Index Linked Gilts UCITS ETF ; No Accumulating ETF	INXG	-
	China Equities	HSBC MSCI CHINA ETF ; No Accumulating ETF	HMCH	-
	Energy Commodities	No Distributing ETF ; ETFS Commodity Securities Energy DJ-UBSCI	-	AIGE

* *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 [1]

AAA Model Rankings GBP Portfolio with representative ETF Tickers

	May 2023	Representative ETF Name Distributing ETF Name; Accumulating ETF Name	Representative ETF Ticker	
			Distributing*	Accumulating*
Strongest	World Quality Equities	No Distributing ETF ; iShares Edge MSCI World Quality Factor UCITS ETF	-	IWFQ
	EU Equities	iShares MSCI Europe ex UK UCITS ETF EUR (DIST) ; iShares MSCI EMU UCITS ETF ACC	IEUX	CEU1
	Japan Equities	iShares MSCI Japan UCITS ETF DIST ; iShares Core MSCI Japan IMI UCITS ETF ACC	IJPN	SJPA
	Gold Bullion	No Distributing ETF ; ETFS Physical Gold	-	PHGP
Strong	UK Cash	No Distributing ETF ; No Accumulating ETF	-	-
	World Equities	iShares MSCI World UCITS ETF USD DIST ; iShares Core MSCI World UCITS ETF USD ACC	IWRD	SWDA
	UK Equities	iShares Core FTSE 100 UCITS ETF DIST ; SPDR FTSE UK All Share UCITS ETF	ISF	FTAL
	US Equities	iShares S&P 500 UCITS ETF USD DIST ; ISHRS Core S&P 500 UCITS USD (ACC) ETF	IUSA	CSP1
	India Equities	No Distributing ETF ; DB X-TRACKERS MSCI India Index UCITS ETF ACC	-	XCX5
Neutral	Global Corporate Bonds	iShares Global Corp Bond UCITS (USD) DIST ; iShares Global Corp Bond UCITS (USD) ACC	CRPS	CRPA
	Global High yield	iShares Global High Yield Corp. Bond UCITS ETF DIST ; iShares Global High Yield Corp. Bond UCITS ETF ACC	IGHY	HYLA
	World Low Volatility Equities	No Distributing ETF ; iShares Edge MSCI World Minimum Volatility UCITS ETF	-	MVOL
	Inverse UK Equities	No Distributing ETF ; DB X-TRACKERS FTSE 100 SHORT DAILY ETF	-	XUKS
	UK Corporate Bonds	iShares Core £ Corp Bond GBP UCITS ETF ; No Accumulating ETF	SLXX	-
Weak	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
	Global Govt Bond	iShares Global Govt. Bond (USD) DIST UCITS ETF ; iShares Global Govt Bond UCITS (ACC) ETF	SGLO	IGLA
	Agricultural Commodities	No Distributing ETF ; ETFS Commodity Securities Agriculture Dow Jones UBS CI	-	AGAP
	EM Equities	Vanguard FTSE Emerging Markets UCITS ETF USD ; No Accumulating ETF	VFEM	-
	UK Gilts	iShares Core UK Gilts UCITS ETF GBP ; No Accumulating ETF	IGLT	-
Weakest	Industrial Metals	No Distributing ETF ; ETFS Industrial Metals ETC	-	AIGI
	UK Index Linked Gilts	iShares Index Linked Gilts UCITS ETF ; No Accumulating ETF	INXG	-
	China Equities	HSBC MSCI CHINA ETF ; No Accumulating ETF	HMCH	-
	Energy Commodities	No Distributing ETF ; ETFS Commodity Securities Energy DJ-UBSCI	-	AIGE

* *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.

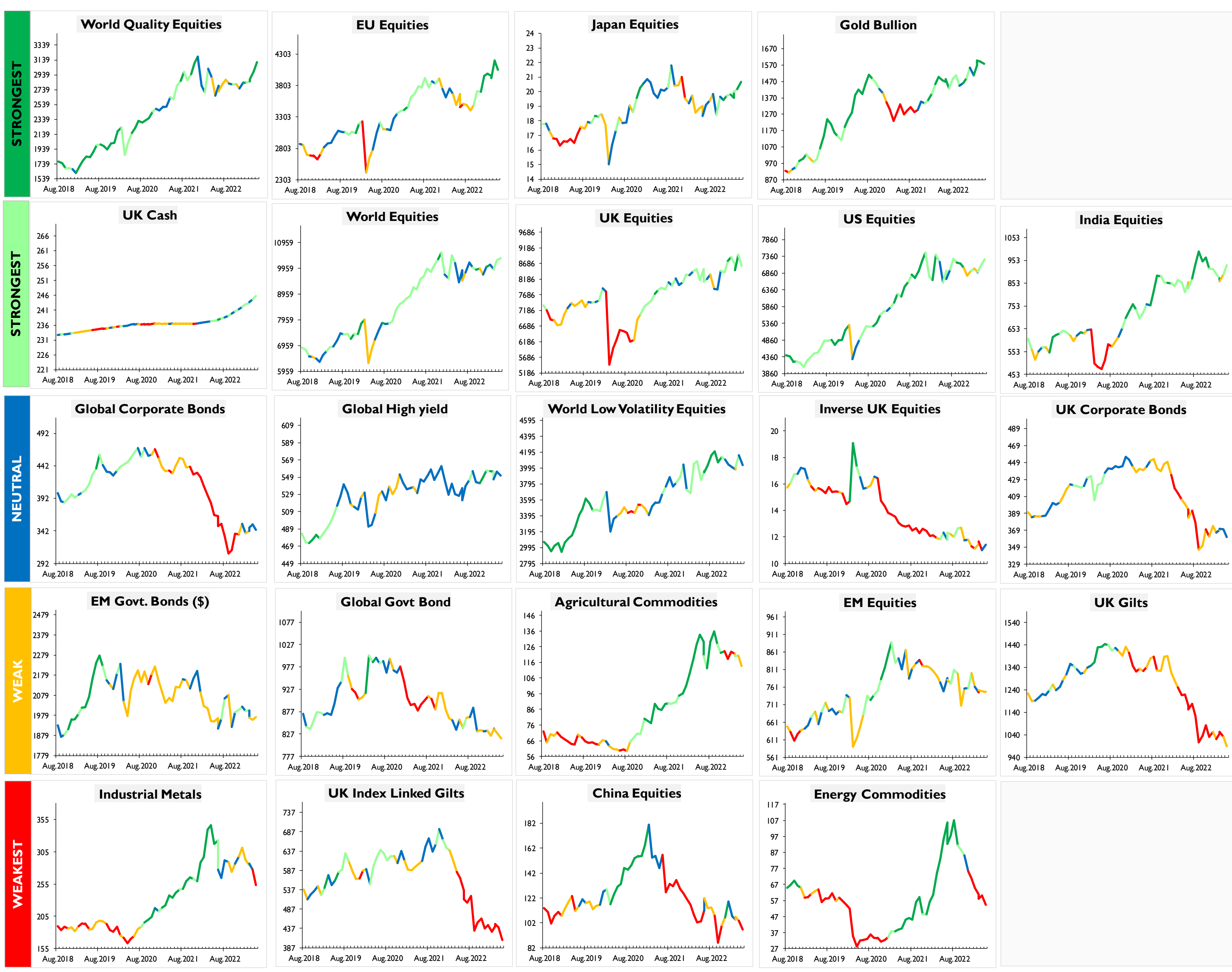
Source: ByteTree, Refinitiv Datastream

Appendix [2]

AAA Assets with Historical Model Rankings

The Charts below illustrate the Total Return performance in GBP of each of the AAA Model Assets arranged in order of the Latest Asset Rankings [see Appendix 1] from Strongest to Weakest, overlaid with historical Asset Rankings over the last 3 years, colour-coded as follows:

Strongest | Strong | Neutral | Weak | Weakest



Source: ByteTree, Refinitiv Datastream

Appendix [3]

AAA Assets Ranked by Risk

AAA Assets Ranked from Highest to Lowest Risk [Table 3.3] using historical monthly returns based on four risk metrics (standard deviation, maximum drawdown, average drawdown and Beta vs World Equity Market).

Table 3.1

Shows the absolute values of each risk metric and asset over the analysis period. The results are colour-coded so that Red means riskier and Green means less risky.

Table 3.2

Expresses the results, for each risk metric, in Table 3.1 as a % of the same value for the World Equity Market to make it easier to compare how much riskier (or less risky) each asset is relative to the World Equity Market. The last column [Average Risk Metric] is the simple average of the first columns in Table 3.2. An 'Average Risk Metric' value of over 100% means the asset is riskier than the World Equity Market, whilst a value less than 100% means the converse. The magnitude of the values serve to indicate how just much riskier (or less risky) each asset is compared to the World Equity Market, a widely used investment risk benchmark.

Table 3.3

Sorts the results in Table 3.2 based on the 'Average Risk Metric'. This makes it easier to see which are the Riskiest and Lowest Risk Assets. The "Highest Risk Assets" are marked below, using a cut-off threshold of 120%.

Analysis Period 31.12.1996 to 17.02.2023 based on Total Return Monthly data	Risk Metrics				As % of World Equity Market				
	Standard Deviation	Max Drawdown	Average Drawdown	Beta (vs World Equity Market)	Standard Deviation	Max Drawdown	Average Drawdown	Beta (vs World Equity Market)	Average Risk Metric
China Equities	30.9	83.7	34.9	0.97	208.6	171.8	368.2	97.0	211.4
Energy Commodities	30.3	94.5	56.1	0.33	204.5	193.8	590.8	33.3	255.6
India Equities	26.0	53.7	14.6	0.97	175.6	110.1	153.3	96.9	134.0
EM Equities	21.8	59.6	13.1	1.13	146.9	122.3	137.7	113.2	130.0
Industrial Metals	19.9	55.0	19.5	0.58	134.1	112.8	205.3	57.9	127.5
Agricultural Commodities	19.1	53.7	31.6	0.33	128.9	110.1	332.5	33.5	151.3
EU Equities	18.1	50.7	9.9	1.10	122.0	104.1	104.4	109.7	110.1
Japan Equities	16.9	59.2	20.8	0.73	113.9	121.4	219.4	73.0	131.9
Gold Bullion	16.0	37.5	10.9	0.09	108.1	76.9	114.7	9.4	77.3
US Equities	15.6	48.9	12.3	1.01	105.1	100.3	130.1	101.4	109.2
Commodity Basket	14.9	55.0	22.5	0.34	100.9	112.8	236.7	34.4	121.2
World Equities	14.8	48.7	9.5	1.00	100.0	100.0	100.0	100.0	100.0
UK Equities	14.5	42.9	8.4	0.84	97.8	88.1	88.5	84.4	89.7
Inverse UK Equities	14.5	89.0	60.7	-0.84	97.8	182.7	639.7	-84.4	208.9
World Quality Equities	14.4	43.8	9.2	0.92	97.0	89.9	97.2	92.4	94.1
EM Govt. Bonds ($)	13.3	34.0	4.2	0.53	89.6	69.8	44.6	53.1	64.3
World Low Volatility Equities	11.7	30.2	4.4	0.68	78.9	62.0	46.7	68.4	64.0
Global High yield	9.7	19.5	2.5	0.45	65.7	40.0	26.7	44.9	44.3
UK Index Linked Gilts	9.5	38.0	3.0	0.14	63.9	77.9	31.9	14.0	46.9
Global Govt Bond	8.8	16.9	4.2	0.06	59.2	34.7	44.0	6.1	36.0
Global Corporate Bonds	8.1	34.5	3.3	0.19	54.5	70.8	34.5	19.5	44.8
UK Gilts	6.6	30.4	2.7	0.01	44.8	62.3	28.8	1.4	34.3
UK Corporate Bonds	5.8	24.0	1.8	0.11	39.0	49.2	19.5	10.9	29.6
UK Cash	0.7	0.0	0.0	0.00	4.9	0.0	0.0	-0.3	1.2

	Assets Ranked by Average Risk Metric. *Risk shown as % relative to World Equity Market. A value larger than 100% means the Asset is riskier than the World Equity Market and vice versa*	Average All Metrics
Highest Risk Assets	Energy Commodities	255.6
	China Equities	211.4
	Inverse UK Equities	208.9
	Agricultural Commodities	151.3
	India Equities	134.0
	Japan Equities	131.9
	EM Equities	130.0
	Industrial Metals	127.5
	Commodity Basket	121.2
	EU Equities	110.1
	US Equities	109.2
	World Equities	100.0
	World Quality Equities	94.1
	UK Equities	89.7
	Gold Bullion	77.3
	EM Govt. Bonds ($)	64.3
	World Low Volatility Equities	64.0
	UK Index Linked Gilts	46.9
	Global Corporate Bonds	44.8
	Global High yield	44.3
	Global Govt Bond	36.0
	UK Gilts	34.3
	UK Corporate Bonds	29.6
	UK Cash	1.2

Source: ByteTree, Refinitiv Datastream

Appendix [4]

AAA Model Performance: Strongest Assets and Strongest Assets excluding Riskiest Assets

The performance table below shows the historical performance of the AAA Model Strongest Asset portfolio ["AAA Model"] and the AAA Model Strongest Asset portfolio excluding the Riskiest Assets ["AAA Model excluding Riskiest Assets"] along with key comparison benchmarks.

The AAA Model performance excluding Riskiest Assets has been computed to allow readers to monitor the performance of the AAA Model if they chose to buy the Strongest Ranked AAA Model assets excluding the highest risk assets identified in Appendix [3] above, especially taking into consideration how much more volatile these assets are compared to World Equities (see Appendix 3 for comparison).

Not all investors have the ability and willingness to own the highest risk assets in the AAA Model, hence investors should take into account their capacity and tolerance for risk before investing in any of these assets.

	Performance Measured to 30.May.2023		Return	Risk		Risk-Adjusted Return	
6	Model | Benchmark	Representative Benchmark	CAGR	Std. Dev.	Max DD.	Sharpe Ratio	Calmar Ratio
Year to Date	**AAA Model**		-0.9%	6.0%	-3.3%	-0.73	-0.3
	AAA Model excluding Riskiest Assets		2.4%	6.5%	-2.0%	-0.17	1.2
	Trend Funds	Barclay BTOP 50 Index GBP	-5.9%	10.7%	-7.6%	-0.88	-0.8
	UK Equities	FTSE 100 Total Return GBP	2.6%	14.3%	-4.4%	-0.07	0.6
	World Equities	MSCI World Total Return GBP	6.6%	7.0%	-1.9%	0.44	3.4
	Conservative Multi-Asset Portfolio	FTSE UK Private Investor Conservative Total Return GBP	1.3%	2.9%	-0.6%	-0.79	2.0
	Balanced Multi-Asset Portfolio	FTSE UK Private Investor Balance Total Return GBP	3.2%	4.7%	-1.2%	-0.06	2.7
	Global Growth Multi-Asset Portfolio	FTSE UK Private Investor Global Growth Total Return GBP	5.9%	7.1%	-2.0%	0.34	3.0
	UK Cash	3M Libor GBP	1.9%	0.4%	0.0%		
12							
12 Months	**AAA Model**		-5.6%	8.1%	-10.9%	-1.12	-0.5
	AAA Model excluding Riskiest Assets		1.7%	6.1%	-4.0%	-0.29	0.4
	Trend Funds	Barclay BTOP 50 Index GBP	-4.7%	14.2%	-15.4%	-0.58	-0.3
	UK Equities	FTSE 100 Total Return GBP	7.4%	13.7%	-5.4%	0.29	1.4
	World Equities	MSCI World Total Return GBP	9.1%	8.0%	-4.7%	0.70	1.9
	Conservative Multi-Asset Portfolio	FTSE UK Private Investor Conservative Total Return GBP	1.4%	4.5%	-3.3%	-0.47	0.4
	Balanced Multi-Asset Portfolio	FTSE UK Private Investor Balance Total Return GBP	4.5%	5.6%	-3.5%	0.17	1.3
	Global Growth Multi-Asset Portfolio	FTSE UK Private Investor Global Growth Total Return GBP	7.4%	8.2%	-4.9%	0.47	1.5
	UK Cash	3M Libor GBP	3.3%	0.4%	0.0%		
36							
3 Years	**AAA Model**		10.3%	14.0%	-15.1%	0.49	0.7
	AAA Model excluding Riskiest Assets		2.9%	9.1%	-14.0%	-0.06	0.2
	Trend Funds	Barclay BTOP 50 Index GBP	10.5%	12.6%	-15.4%	0.55	0.7
	UK Equities	FTSE 100 Total Return GBP	10.4%	12.0%	-6.6%	0.58	1.6
	World Equities	MSCI World Total Return GBP	9.7%	11.8%	-10.8%	0.53	0.9
	Conservative Multi-Asset Portfolio	FTSE UK Private Investor Conservative Total Return GBP	0.5%	4.4%	-8.3%	-0.67	0.1
	Balanced Multi-Asset Portfolio	FTSE UK Private Investor Balance Total Return GBP	4.5%	6.6%	-7.1%	0.15	0.6
	Global Growth Multi-Asset Portfolio	FTSE UK Private Investor Global Growth Total Return GBP	8.2%	10.7%	-10.4%	0.44	0.8
	UK Cash	3M Libor GBP	1.3%	0.5%	0.0%		
60							
5 Years	**AAA Model**		7.5%	13.5%	-15.1%	0.30	0.5
	AAA Model excluding Riskiest Assets		3.7%	10.8%	-14.0%	0.02	0.3
	Trend Funds	Barclay BTOP 50 Index GBP	7.5%	11.9%	-15.4%	0.33	0.5
	UK Equities	FTSE 100 Total Return GBP	3.5%	17.4%	-29.7%	0.00	0.1
	World Equities	MSCI World Total Return GBP	9.3%	15.1%	-21.2%	0.38	0.4
	Conservative Multi-Asset Portfolio	FTSE UK Private Investor Conservative Total Return GBP	2.3%	5.6%	-8.3%	-0.22	0.3
	Balanced Multi-Asset Portfolio	FTSE UK Private Investor Balance Total Return GBP	4.7%	9.5%	-14.6%	0.12	0.3
	Global Growth Multi-Asset Portfolio	FTSE UK Private Investor Global Growth Total Return GBP	8.2%	14.4%	-20.8%	0.32	0.4
	UK Cash	3M Libor GBP	1.1%	0.4%	0.0%		
308							
30 Nov 1997 - 30 May 2023	**AAA Model**		13.4%	14.0%	-15.1%	0.71	0.9
	AAA Model excluding Riskiest Assets		9.8%	10.0%	-14.0%	0.63	0.7
	Trend Funds	Barclay BTOP 50 Index GBP	5.6%	11.8%	-20.0%	0.18	0.3
	UK Equities	FTSE 100 Total Return GBP	5.3%	14.5%	-44.4%	0.13	0.1
	World Equities	MSCI World Total Return GBP	8.1%	14.6%	-48.7%	0.32	0.2
	Conservative Multi-Asset Portfolio	FTSE UK Private Investor Conservative Total Return GBP					-
	Balanced Multi-Asset Portfolio	FTSE UK Private Investor Balance Total Return GBP	6.1%	9.6%	-32.8%	0.27	0.2
	Global Growth Multi-Asset Portfolio	FTSE UK Private Investor Global Growth Total Return GBP					-
	UK Cash	3M Libor GBP	2.8%	0.7%	0.0%		

Source: ByteTree, Refinitiv Datastream

Disclaimer