Long-Term "Signal" versus Short-Term "Noise"

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Mark Arnold, Chief Investment Officer, Hyperion Asset Management

Jason Orthman, Deputy Chief Investment Officer, Hyperion Asset Management

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Executive Summary

Long-term economic fundamentals matter. These economic fundamentals determine share prices and returns that ultimately accrue to shareholders. Fears about a temporary economic downturn, cyclical earnings downgrades, temporarily higher bond yields or other short-term factors are mere "noise" rather than fundamental long-term "signals". We believe that looking through these temporary and mean reverting factors is the best way to add value to Hyperion's portfolios over the long term. The downturn we are currently entering is likely to be mean reverting in nature and a natural and necessary part of the economic cycle. We expect to see weak and overleveraged companies suffer the most during the downturn as more robust businesses gain market share. As a result, fragile and unsustainable businesses will restructure or cease to exist. This process will allow capital and resources to be reallocated to more robust and sustainable businesses, improving the overall economy's productivity. Long-term investors in high-quality structural growth businesses with solid balance sheets should benefit from an economic downturn. The recovery following the recession should keep the global economy in line with longer-term demographic-determined trend growth.

Our analysis of long-term "signals", such as demographics and technological trends, suggests an economic setting of sustained low global growth, low inflation, and structurally low-interest rates. Declining population growth rates will significantly influence economic growth, inflation, and interest rates over the next decade and beyond. Structural trends in technology are likely to be disinflationary as businesses create better products more efficiently at lower prices. Modern, innovative companies with strong value propositions in large addressable markets will benefit economically in the long run. Hyperion's portfolios comprise businesses which we believe have higher quality attributes and superior structural growth characteristics compared with the broader market. These companies grow predominantly by taking market share. As a result, our companies are less sensitive to and less reliant on general economic conditions.

We construct our portfolios using an investment framework focusing on sustainable business economics, valuation, and time arbitrage mispricing. The execution of our investment framework is disciplined and consistent, which is the key to successful long-term investing outcomes. Although short-term traders may outperform at distinct points in time, they can generally not capture superior returns over the long term. This inability to capture long-term alpha is because their focus is on short-term "noise" in the market rather than long-term "signals" which impact underlying business fundamentals.

Our portfolios tend to be more sensitive to short-term changes in bond yields than the market, but less sensitive to general changes in economic conditions. For these reasons, an economic downturn is likely to have less of an impact on our portfolios than the overall market. Moreover, the long-duration nature of our portfolios (that makes them highly sensitive to short-term changes in long-term government bond yields) should enable them to benefit from the lower bond yields associated with a future economic slowdown.

Over the past 12 months, an abundance of growth (including high inflation) and associated increases in long-term government bond yields, has been a hostile environment for Hyperion's investment style. Over the longer term, our portfolios' higher quality and structural growth characteristics and superior earnings per share (**EPS**) growth, which compounds over time, should overwhelm any short-term negative duration impact from increases in bond yields. The pursuit of long-term compounding returns through the ownership of long-duration stocks is an overwhelmingly positive and consistent factor in generating excess returns over time. Historically, markets have been driven higher by the superior

earnings growth of a narrow group of winners. The recent unprecedented move in 10-year U.S. Treasury yields creates an unusual short-term dislocation in equity market pricing.

The Federal Reserve is doing the right thing to ensure inflation returns to low levels. It is actively increasing the real cost of capital to weaken the demand for labour and weaken aggregate demand generally to reduce inflation and inflationary expectations. Moreover, there is growing evidence that the Federal Reserve is likely to successfully bring inflation back to acceptable levels, allowing the long-term cost of capital to decline from recent unsustainable heights.

Long-Term "Signal" versus Short-Term "Noise"

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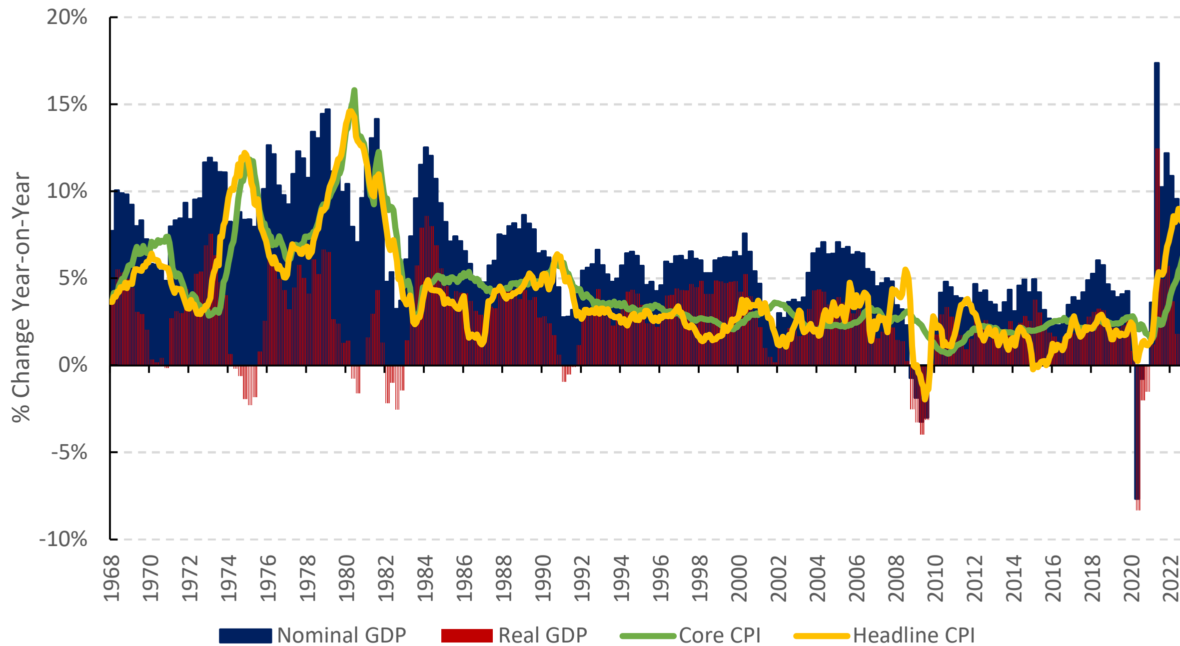
High inflation is unlikely to be sustained

High inflation is unlikely to be a long-term problem. In the long run, demographics in the form of declining population growth and high debt levels, combined with technological advancements, should ensure sustained low inflation levels. We expect significant and accelerating improvements in artificial intelligence (**AI**), machine learning (**ML**) and robotics will displace and reduce labour demand and increase productivity over the next decade. This structural trend should reduce workers' bargaining power and reduce the inflationary element of wage growth. In addition, new renewable energy technologies will act as a disinflationary force in the long run. The cost of energy as a percentage of GDP is close to record levels currently. This elevated energy cost will likely decline significantly, and permanently as low-cost renewables replace higher-cost fossil fuels over the coming decades. This transition to lower-cost renewables, combined with electric vehicles, will reduce the world's reliance on the Organization of the Petroleum Exporting Countries (**OPEC**) cartel that has successfully extorted the world economy for many decades and will give many countries significant energy independence and energy price stability for the first time.

In the short term, a combination of slowing economic demand growth, improving supply chains, stabilising energy costs, and the Federal Reserve increasing the cost of capital, should help ensure inflation in the developed world returns to low levels.

The probability of a cyclical economic downturn has increased because of the Federal Reserve's rapid tightening of monetary policy to fight inflation. The yellow line in Figure 1 shows the current high level of inflation in the U.S. economy. This chart also shows the cyclical spike in real economic growth as the world recovered from the COVID-19 crisis and the more recent cyclical decline in real economic activity that has occurred this year.

Figure 1: U.S. Annual GDP Growth vs. CPI Inflation



Source: Federal Reserve Economic Data. Data published September 2022.

It appears unlikely we are entering a period of structurally higher commodity prices or sustained high inflation. High inflation has not been part of most large, developed economies for decades. Sustained high inflation is traditionally associated with poorly managed third-world countries with high levels of corruption.

The last time major developed economies experienced a sustained period of high inflation was during the 1970s and early 1980s. However, it is unlikely that the sustained high inflation experienced during the 1970s will be repeated because of the material structural differences between then and now. The key reasons why inflation is likely to return to low levels soon include low long-term inflationary expectations, Federal Reserve credibility, low population growth, high debt levels, low union membership, low underlying demand growth, low and declining oil intensity, and advanced and rapidly improving software and robotics capabilities.

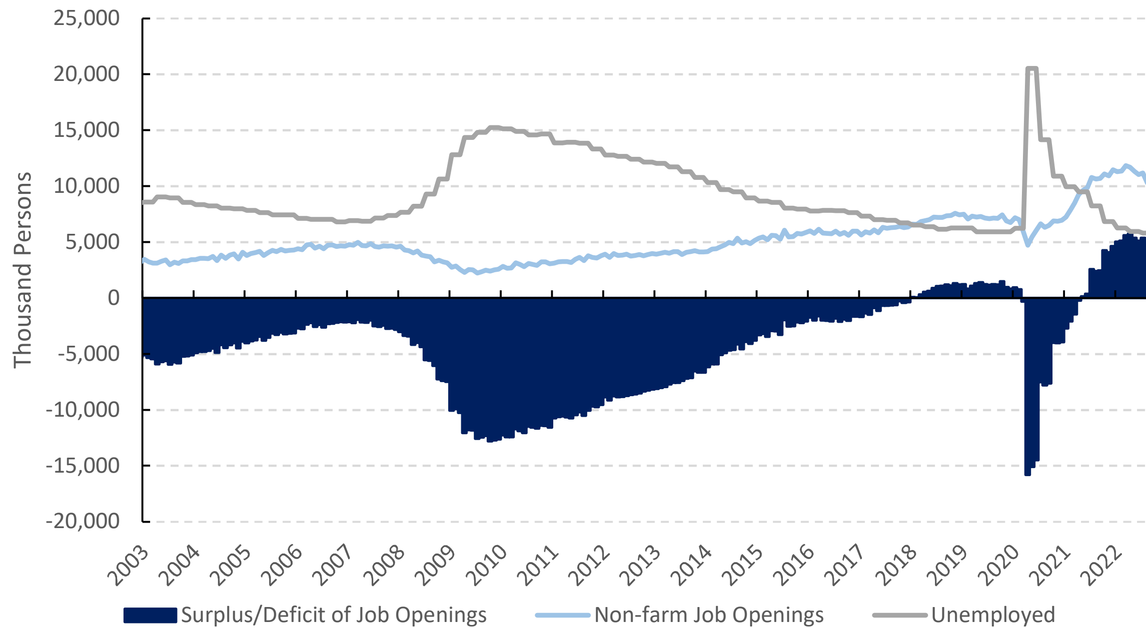
The Federal Reserve is focused on cooling a tight labour market

Most economic indicators have been weakening in recent months. However, a key exception is the labour market, where the number of job openings remains elevated while the unemployment rate remains extremely low. As a result, the Federal Reserve is temporarily increasing the cost of capital to slow aggregate demand growth, particularly demand for labour, to ensure inflation returns to its 2% annual target level as quickly as possible.

It is worth noting that employment statistics are lagging economic indicators, so it is difficult to know whether the labour market is as strong as the statistics indicate. We believe there is a possibility that the labour market may be weaker than the statistics suggest.

The following chart shows the imbalance between job openings and the number of unemployed. This difference between job openings and the number of unemployed is a key economic metric to watch regarding the Federal Reserve's future interest rate settings.

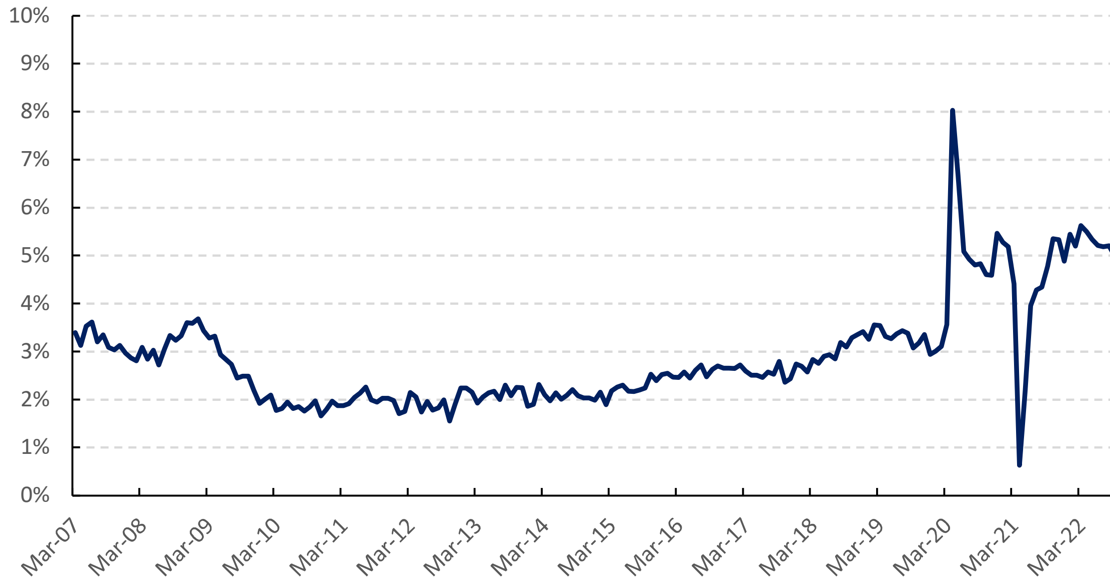
Figure 2: U.S. Job Openings and Unemployment



Source: FactSet. Data shown to 30th September 2022.

This labour demand and supply imbalance has resulted in an elevated level of growth in hourly wages in the U.S., as shown in Figure 3. The Federal Reserve aims to weaken the employment market to force annual wage growth down from current levels of around 5% towards a more sustainable level closer to 3%.

Figure 3: Annual Change in U.S. Hourly Earnings

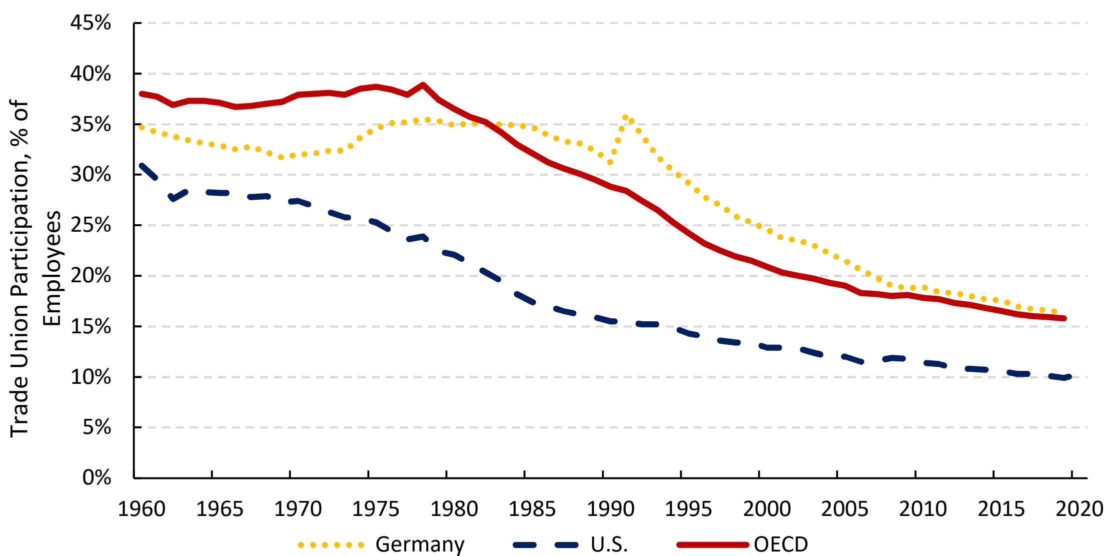


Source: Federal Reserve Economic Data, Average Hourly Earnings of All Employees, Total private, Dollars per Hour, Monthly, Seasonally Adjusted. Data published September 2022.

The Federal Reserve views high wage growth as a critical threat to long-term price stability, as wage inflation significantly influences consumer prices. Within the consumer price index (**CPI**), wage growth has more influence on the services component than the goods component. The services component represents most of the CPI.

The level of union penetration in the U.S. and other major economies has declined significantly over the past five decades. The low level of union membership today reduces the probability of a 1970s wage and price spiral developing and thus should make the Federal Reserve's efforts to regain price stability easier.

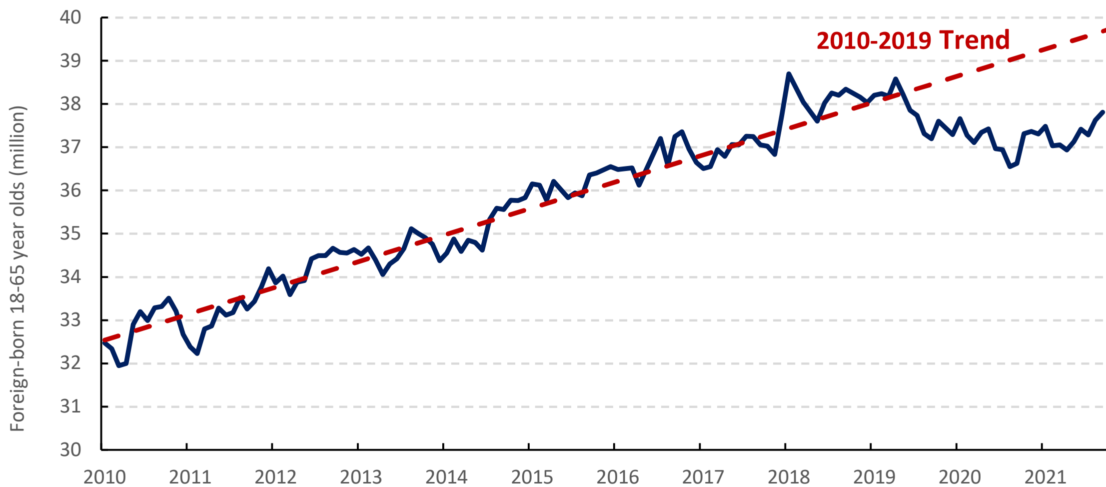
Figure 4: OECD Trade Union Participation Rate



Source: OECD.Stat, Trade Union Dataset.

The COVID-19 crisis has temporarily reduced the number of foreign workers in developed countries. International mobility should increase as the impact of COVID-19 subsides. In particular, the shortage of unskilled labour in developed countries should reduce as borders open and we return to pre-COVID-19 conditions. Many people in emerging markets want to live in developed, democratic economies where the standard of living is higher, corruption levels are lower, and opportunities to work hard and build wealth are greater. Most modern western countries have a critical demographic advantage as they fight lower population growth and ageing over the next decade. Emerging markets and non-democratic countries like China cannot attract foreign-born workers.

Figure 5: U.S. Working Age Foreign-Born Population



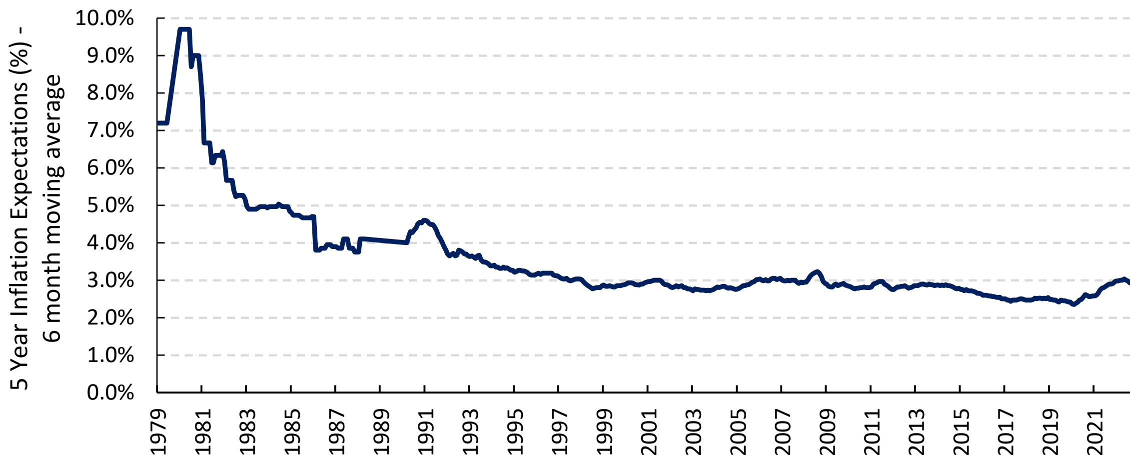
Source: Econofact.org, US. Bureau of Labor Statistics, U.S. Census Bureau

The Federal Reserve's tightening in monetary policy is driving the U.S. dollar to very elevated levels. In the long run, the high U.S. dollar combined with recent strong wage inflation will force businesses to source labour from cheaper locations outside the U.S. and increase their investment in technologies that improve productivity.

The Federal Reserve's inflation fight is being helped by low and stable inflationary expectations

Both short-term and long-term inflationary expectations have been declining recently. For example, the University of Michigan survey indicates that 12-month inflationary expectations in the U.S. appear to have peaked in April 2022 at 5.4% and are down to 5.1% in November 2022 (see Figure 6). Most importantly, 5-year to 10-year inflationary expectations appear to have peaked at 3.1% in June 2022 and have fallen to 3.0% currently. Furthermore, long-term inflationary expectations remain dramatically below the high single-digit range experienced in the 1970s and early 1980s.

Figure 6: University of Michigan Household Long-term Inflation Expectations



Source: University of Michigan, Survey of Consumers. Data shown to November 2022.

In addition, the implied 10-year breakeven inflation rate on U.S. Treasuries has declined from just under 3.0% in March 2022 to 2.5% in November 2022. Thus, the inflation component of long-term bond yields has been reducing recently. This breakeven inflation rate compares with the average over the past couple of decades of 2.0%. The recent trend to lower inflationary expectations is a positive development. It should make the Federal Reserve's efforts to prevent high inflation from becoming entrenched significantly easier in the coming months.

Figure 7: U.S. Treasury 10-Year Breakeven Inflation Rate

Source: FactSet. Data shown to 11th November 2022.

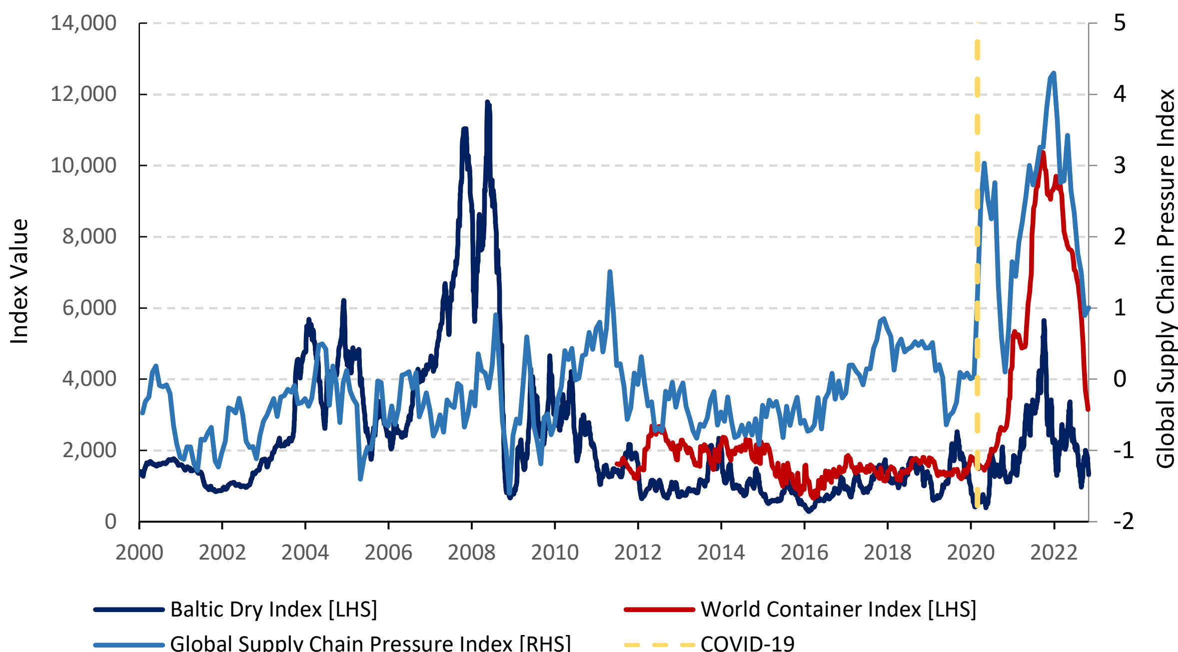
However, as discussed later in this paper, the "real" or inflation-adjusted component of government bond yields has increased significantly in recent months. This increase in real yields has more than offset the declining inflation component of nominal bond yields. This increase in real bond yields is temporary. Real yields will likely trend lower over the next 12 to 18 months as the economy slows further and the Federal Reserve ends its program of aggressive rate increases.

The Federal Reserve's fight against inflation is being reinforced by other factors

There is increasing evidence that the Federal Reserve's aggressive monetary policy tightening over recent months is slowing aggregate demand growth. As a result, lower commodity prices, particularly declines in energy and food prices, are acting to bring current and future inflation levels down. Wage and shelter price growth should also slow as corporate hiring moderates, and recent declines in residential real estate prices and rents flow through to the inflation figures over the next six months.

Supply chain disruption from COVID-19 has been diminishing recently, as shown in the following chart. This improvement in supply chains should enhance availability and lower the cost of goods that pass through global supply chains. Further improvements in the functioning and efficiency of supply chains are likely over the next year. In the longer term, technology-based innovation will improve productivity in existing global supply chains and increase the level of production in the geographic regions where those goods are consumed.

Figure 8: Measures of Global Supply Chain Pressure



Source: Federal Reserve Bank of New York, Trading Economics, Bloomberg. Data to October 2022.

Short-term "noise" continues as bond yields increase and financial conditions become tighter

Markets are changing focus from a predominant fear of high inflation becoming entrenched to worrying about the short-term earnings risk associated with a recession and a higher cost of capital from increases in official interest rates and tighter financial conditions.

Long-term economic fundamentals matter. Fears about a temporary economic downturn, cyclical earnings downgrades, temporarily higher bond yields or other short-term factors are mere "noise" rather than fundamental long-term "signals". We believe that looking through these temporary and mean reverting factors, such as cyclical recessions, is the best way to add value over the long term.

Fears about the Federal Reserve causing a cyclical recession should primarily concern those market participants with significant exposures to companies with weak business models, negative free cash flow profiles and highly leveraged balance sheets. These fragile companies that do not have the business fundamentals to survive a cyclical downturn will be the main casualties of any recession. Strong business franchises with solid balance sheets will be net beneficiaries of the problems that weaker businesses will likely experience during a future economic downturn through significant market share gains.

The downturn we face is likely to be mean reverting in nature and a natural and necessary part of the economic cycle. It will force weaker and unsustainable businesses to be restructured or bankrupted and allow the reallocation of capital and resources to more robust and sustainable firms. This restructuring and reallocation process improves the productivity of the overall economy in the long term.

Tighter monetary policy is temporarily lifting long-term government bond yields

The Federal Reserve has a monopoly on setting short-term interest rates. Thus, it can dictate short-term interest rates irrespective of regular market forces. It also has a significant influence over long-term government bond yields because of the structured nature of the relationship between short-term rates and long-term bond yields. Higher (or lower) short-term rates tend to feed through into higher (or lower) long-term bond yields.

The Federal Reserve uses open market operations to control short-term interest rates. These open market operations set the Federal Funds Rate. Open market operations comprise setting interest rates on the reserve deposits that commercial banks have with the Federal Reserve (central bank money) and reverse repurchase agreement facilities. The Federal Reserve uses its Open Market Committee to set the short-term interest rate on government securities. This official short-term interest rate feeds through to the economy's capital cost. A higher cost of capital reduces aggregate demand both for consumption and investment.

The Federal Reserve's recent aggressive interest rate increases and hawkish statements have increased the real cost of capital both at the short end of the interest rate curve and indirectly at the long end. As a result, it has made financial conditions tight by making capital more expensive.

In early March 2022, the effective Federal Funds Rate was eight basis points. Today that rate is 3.83%. Over the same period, the yield on 10-year Treasuries has increased from approximately 1.7% to 3.9%. Thus, a 375-basis point increase in the effective Federal Funds Rate has been associated with an approximate 220-basis point increase in the 10-year Treasury yield. In the previous two tightening periods, the effective Federal Funds Rate increased by 230 basis points (2015 to 2019) and over 400 basis points in the years before the GFC (2004 to 2006). The chart below shows that the average increase in the 10-year Treasury yield was significantly less than the corresponding increase in the Federal Funds Rate during the previous tightening periods. Therefore, we expect a similar relationship this time.

Furthermore, the 10-year Treasury yield will likely disconnect from the Federal Funds Rate and decline as more evidence comes through over the coming months that economic activity is weak. There is usually a lag between influencing the cost of capital and economic activity. Accordingly, the recent rapid tightening of interest rates has yet to impact borrowers' investment and consumption decisions.

Figure 9: Effective Federal Funds Rate vs. 10-year US Treasury Yield

Source: Federal Reserve Economic Data. Data as at 9th November 2022.

Thus, we have an unusual situation where the real cost of capital is increasing rapidly at a time when most leading economic indicators suggest economic growth is already weak and likely to slow further.

Real government bond yields are expected to return to very low levels in the long run

There are two broad components of long-term government bond yields: the inflationary expectations component; and the real yield component.

The critical determinants of long-term government bond yields include the following:

1) Long-term inflationary expectations and associated forecast risk; and
2) Real yield component:
    a. Sustainable real economic growth expectations and associated risk;
    b. Central bank monetary policy settings;
    c. The level of financialisaton in the economy; and
    d. Sovereign-related risk.

As previously discussed, the inflation expectations component of long-term bond yields has remained relatively stable despite the recent high inflation prints. Thus, some of the other determinants (items a to d listed above) within the real or inflation-adjusted component of bond yields have been pushing nominal bond yields higher recently.

These fundamental determinants, both the inflation and non-inflationary components, will likely force long-term government bond yields to return to much lower levels in the long run.

Higher short-term interest rates and tighter financial conditions will ultimately result in lower long-term bond yields because they will slow aggregate demand growth and reduce inflation in the long

term. However, during the period that the Federal Reserve is lifting rates, there is likely to be temporary upward pressure on the real component of long-term bond yields.

Figure 10: U.S. 10-year Treasury Securities

Source: Federal Reserve Economic Data (2022) 10-year Treasury Constant Maturity Rate in Percent (Not Seasonally Adjusted). Data as at 11th November 2022.

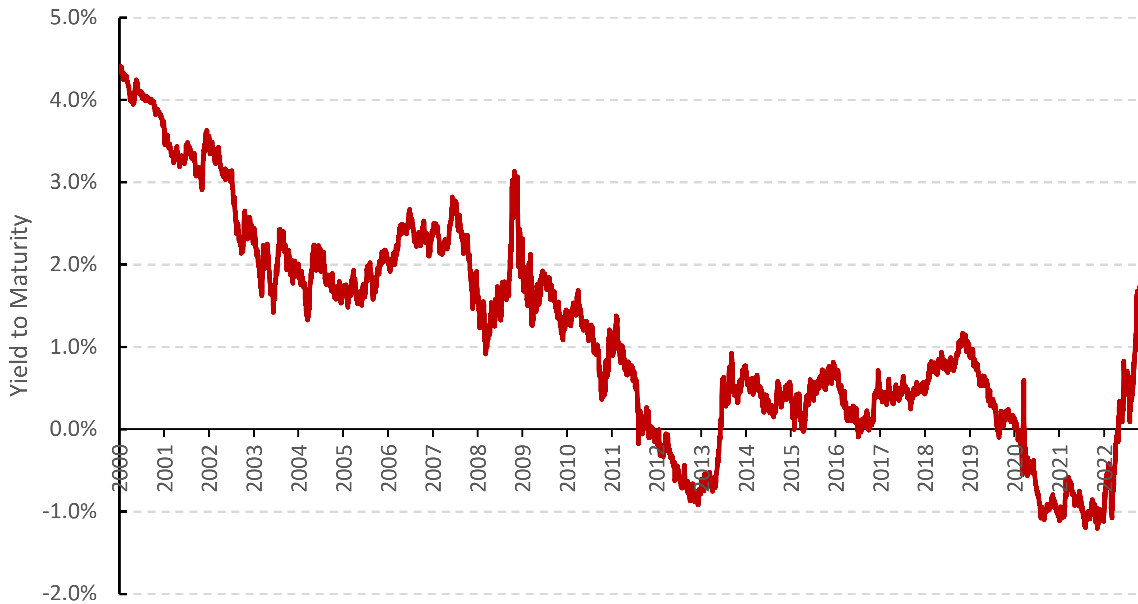
As noted previously, the 10-year breakeven inflation rate has already experienced declines in recent months, but this has been more than offset by higher real Treasury yields, as shown in Figure 11.

Long-term real bond yields are currently very elevated compared with the average over the past decade. The average real yield over the past decade has been 10 basis points, compared with 143 basis points today. However, the current high real yield results from the temporary influence of tighter monetary policy. This higher real bond yield does not reflect long-term demographic fundamentals and the realities of a financialised world.

Real 10-year bond yields were significantly higher before the GFC. The reason for the elevated real cost of capital in the pre-GFC environment relates primarily to that period having much higher levels of economic growth. This strong economic growth environment resulted in high levels of demand for capital. More favourable demographic factors enabled robust economic growth during this period. The pre-GFC period benefited from healthy aggregate demand growth due to significant increases in financial gearing and better population and age demographics than today. Stronger aggregate demand growth increased the real cost of capital and resulted in higher real 10-year bond yields. Thus, higher levels of economic growth during the pre-GFC decades resulted in much higher real bond yields than are sustainable today.

As shown in the following chart, there was a noticeable downward trend in real yields on 10-year Treasuries in the years leading up to the GFC as the underlying sustainable aggregate demand growth levels started to trend lower.

Figure 11: U.S. Inflation Indexed 10-Year Treasury Yield



Source: Bloomberg. Data as at 11th November 2022.

Declining population growth rates, ageing populations and high debt levels are likely to place downward pressure on economic growth expectations and, thus, real government bond yields over the next decade.

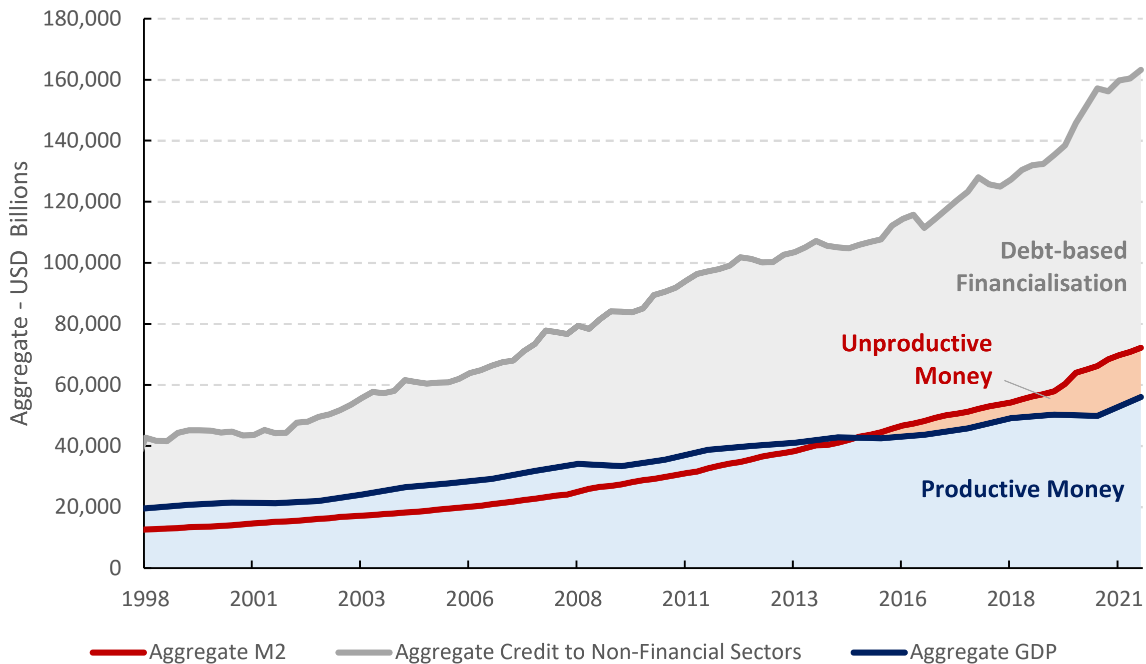
Governments and central banks want to encourage economic demand and employment growth, leading to monetary policies targeting low interest rates and low yields on government bonds when faced with a low growth environment with low inflation. This loose monetary policy bias has generally been supported by weak aggregate demand growth conditions since the GFC.

Sovereign-related risk is ordinarily low for developed countries with stable, well-functioning economies, low corruption levels, sustainable debt to GDP (primarily non-foreign currency-denominated debt) and functioning democratic processes. In these economies where the government issues its currency and can borrow in that currency, the default risk is close to zero on government debt. The default risk is close to zero because these economies have governments and central banks that can create money to fund future debt obligations. However, these governments still need sensible and sustainable fiscal and monetary policies to retain investors' confidence, particularly regarding the long-term price stability of the relevant currency. Moreover, the U.S. has close to zero-default risk because of its status as the world's reserve currency issuer. This low default risk would indicate that U.S. real government bond yields should be relatively low over the long run.

The secular trend to lower interest rates, combined with the incentive for commercial banks to provide credit and consumers' desire to build income and assets, has resulted in net wealth and debt levels growing at rates significantly higher than underlying GDP over the past few decades. In highly financialised economies, with large and growing levels of net wealth and large banking sectors, there tends to be strong underlying demand for essentially risk-free assets. This process of society's financialisation, which supports the demand for liquid and risk-free assets, tends to place downward pressure on government bond yields.

Figure 12 shows that an increasing proportion of new money created primarily by commercial banks and, to a lesser extent, central banks in the major global economies, has not been used for consumption or investment in the real economy. This growth in unproductive money, increased debt levels, and lower bond yields have boosted asset price growth in recent decades.

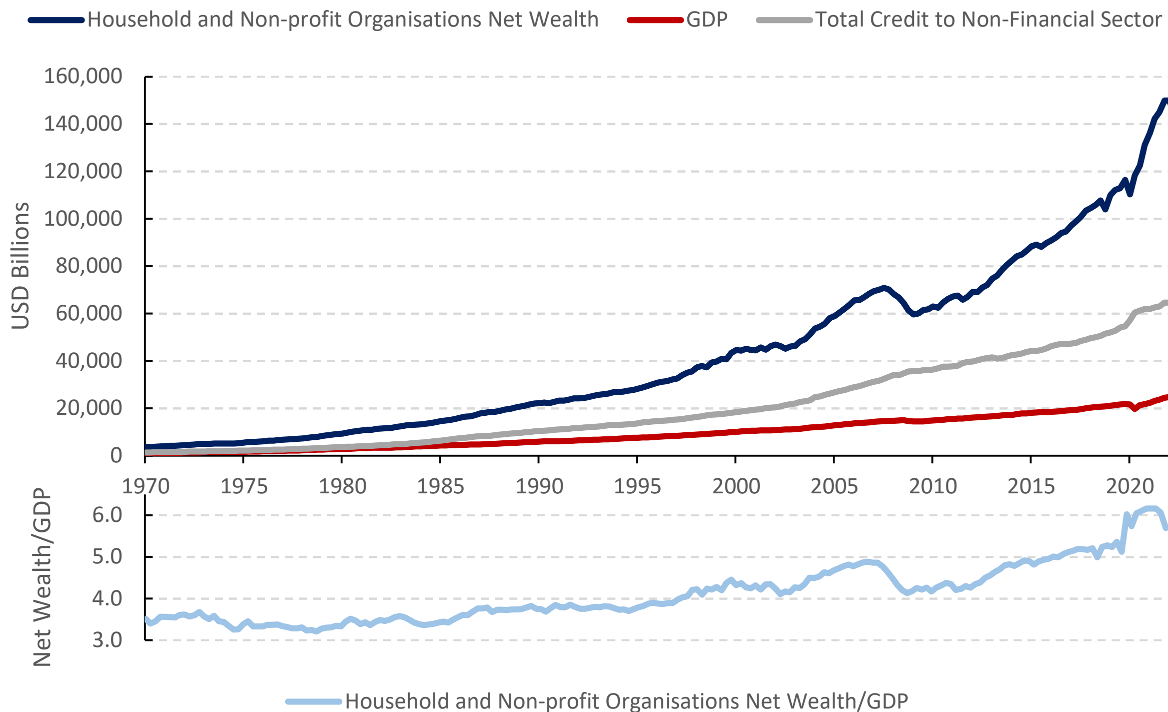
Figure 12: Aggregate GDP, M2 Money Supply and Credit to Non-Financial Sectors for Major World Economies



Source: Trading Economics, World Bank, Bank for International Settlements. Major world economies include the United States, China, Japan, U.K., Germany, and France.

Figure 13 illustrates that increases in asset prices in real estate and share markets are associated with robust growth in bank lending. This increase in asset prices has boosted growth in net wealth. The increase in net wealth has been significantly higher than the growth in the overall economy. As noted previously, the secular trend to lower rates of economic growth has driven government bond yields and discount rates lower. Lower bond yields and discount rates have provided a one-off boost to asset prices and net wealth. This one-off decline in bond yields and discount rates accelerated the gap between underlying economic growth, asset prices, and wealth levels. This boost to wealth has increased wealth inequality; however, this gap between GDP growth and net wealth should stabilise in the long run.

Figure 13: U.S. Household Wealth, Total Credit and GDP



Source: FactSet, Federal Reserve Economic Data, Bank for International Settlements.

A cyclical recession looks increasingly likely, and a growth "scarcity" environment is approaching

There is an increasing probability of lower real economic growth and inflation over the next 12 months. Furthermore, the likelihood of the U.S. and other major economies experiencing a cyclical recession has also increased recently.

The message from the Federal Reserve is clear.

"*We have got to get inflation behind us. I wish there were a painless way to do that; there isn't. Higher interest rates, slower growth, and a softening labor market, are all painful for the public that we serve, but they're not as painful as failing to restore price stability and having to come back and do it down the road again*"

Chair Jerome H. Powell, 21 September 2022

The Federal Reserve will continue to engineer tighter financial conditions until there are clear signs that inflation is returning to the 2% annual target level and is likely to remain low.

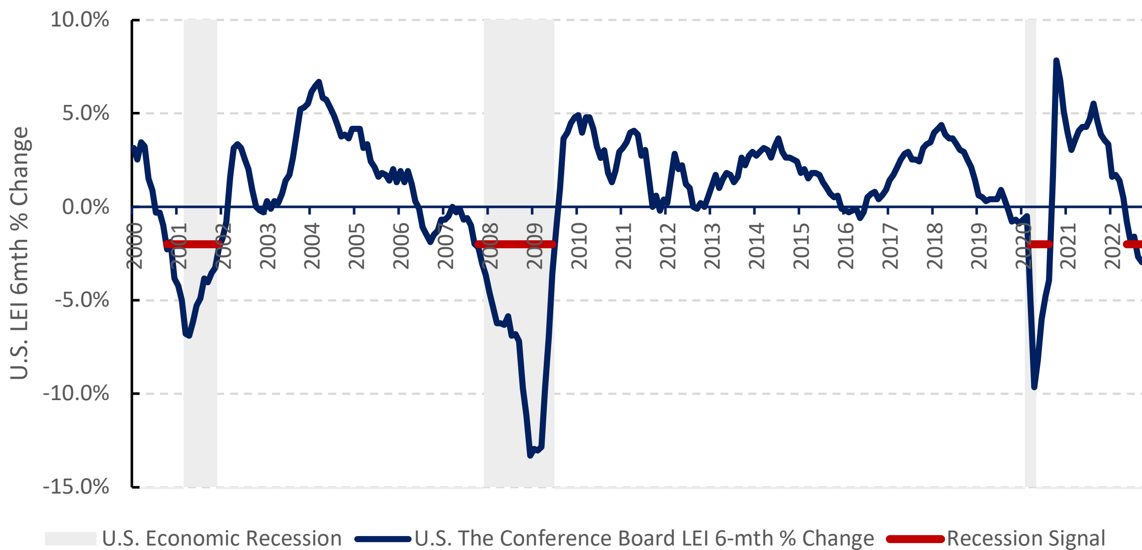
Recessions are associated with poor employment conditions where many people who want to work cannot find suitable employment. A recession is also generally associated with a situation where many businesses and consumers find it challenging to meet their financial obligations.

A growth abundance environment is typically hostile to Hyperion's investment style, while a growth scarcity environment is much more favourable. This is because our portfolios' quality, structural growth and long-duration characteristics are adversely impacted in a rising bond yield environment associated with periods of strong nominal economic growth.

Profit downgrades will occur during a recession, particularly for mature, cyclical, lower quality business franchises and highly leveraged companies like banks. The broader stock market has significant exposure to lower-quality companies. Quality, structural growth, and long-duration stocks should have fewer earnings downgrades in a slowing economic environment.

Several economic indicators suggest the global economy is heading towards a period of low economic growth. The chart below shows The Conference Board's Leading Economic Index. This Index has declined for over six months and is currently in deep negative territory, indicating a future recession.

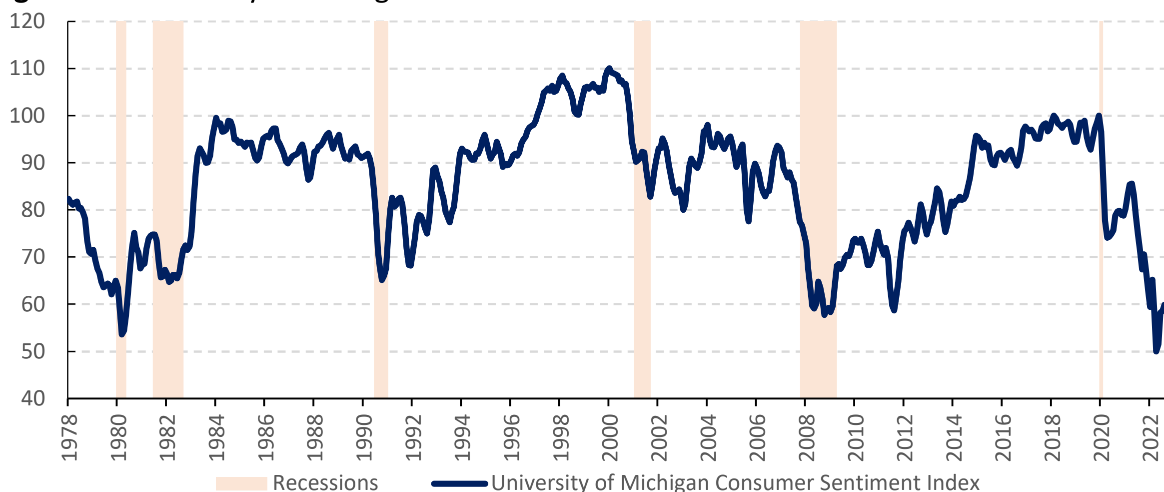
Figure 14: U.S. The Conference Board Leading Economic Index



Source: Bloomberg. The Conference Board. Nasdaq Data Link. Economic recession dating from U.S. National Bureau of Economic Research. Data shown to 31st September 2022.

The University of Michigan Consumer Sentiment Index shows U.S. consumer confidence is near record lows. This survey is a leading indicator that suggests future consumer spending levels may be weak.

Figure 15: University of Michigan Consumer Sentiment



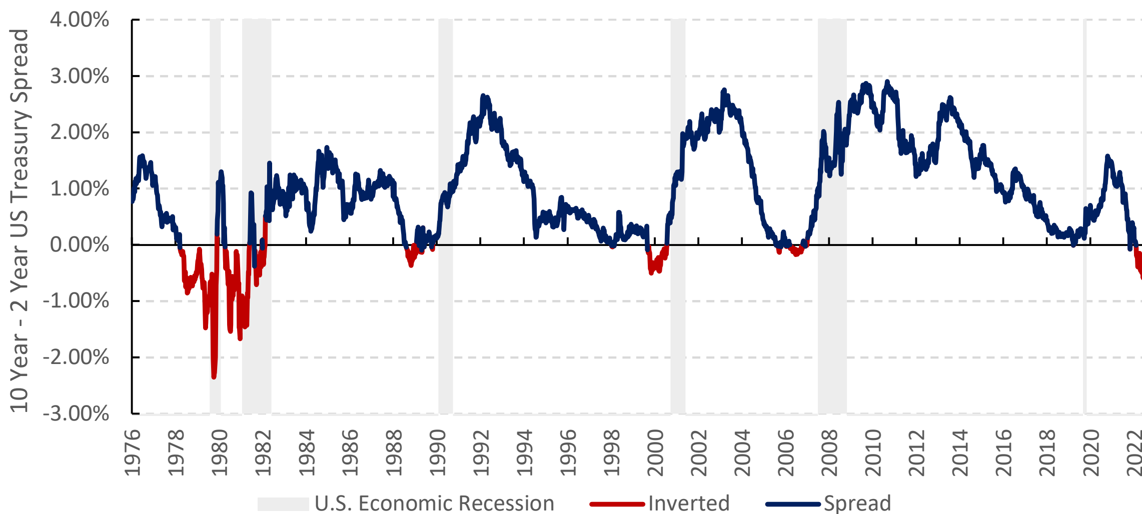
Source: University of Michigan, Survey of Consumers. Economic recession dating from U.S. National Bureau of Economic Research. Data to October 2022.

The Federal Reserve's aggressive lifting of rates will slow economic activity by increasing the cost of debt in a highly leveraged global economy. This tightening of monetary policy is inverting the yield curve and reducing the banking sector's profitability.

The Treasury yield curve has inverted between the 10-year and the 2-year yield, as shown in the following chart. The yield curve using the Federal Funds Rate has flattened but remains slightly positive. This version of the yield curve will likely turn negative over the next few months as short-term interest rates increase by more than long-term rates.

An inverted yield curve will impede credit growth, investment, and aggregate demand. Moreover, a negative yield curve has been a reliable predictor of recessions in the past.

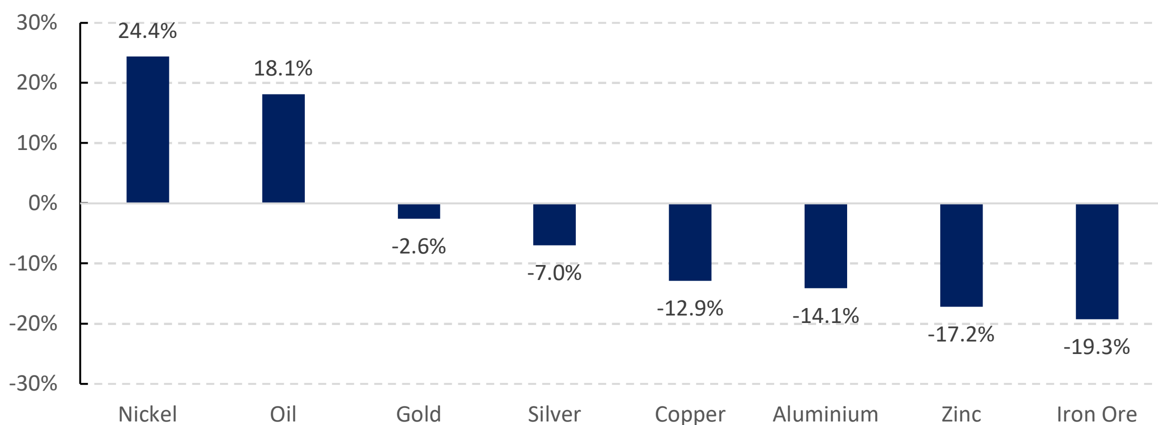
Figure 16: U.S. 10-Year Treasury Minus 2-Year Treasury Yield Constant Maturity



Source: Bloomberg, FactSet. U.S. economic recession dating from U.S. National Bureau of Economic Research. Data shown to 11th November 2022.

Commodity markets are also indicating a recession is approaching. Most commodity prices are down calendar year to date.

Figure 17: Year-to-Date % Change in Spot Commodity Prices



Source: FactSet. Data to 11th November 2022. Oil price quoted is for WTI in $/bbl. Gold and Silver price quoted is from LBMA in $/ozt. Iron Ore price is for Iron Ore 62% Fe CFR China Cash (TSI) CRB in $/mt. All other quotes from LME in $/mt.

The price of oil has declined in recent months despite the ongoing war in Ukraine and the limited oil supply from Russia. As a result, demand destruction from high prices earlier in the year and increasing weakness in the global economy have placed downward pressure on oil prices and forced OPEC to announce production cuts recently.

Figure 18: WTI Oil Price % Change Year-on-Year

Source: FactSet. Data to 11th November 2022.

The price of copper has declined this year. Copper is a key leading economic indicator for the global economy. This price weakness suggests global economic growth is slowing.

Figure 19: Copper Futures Price, New York Mercantile Exchange

Source: FactSet. Data to 11th November 2022.

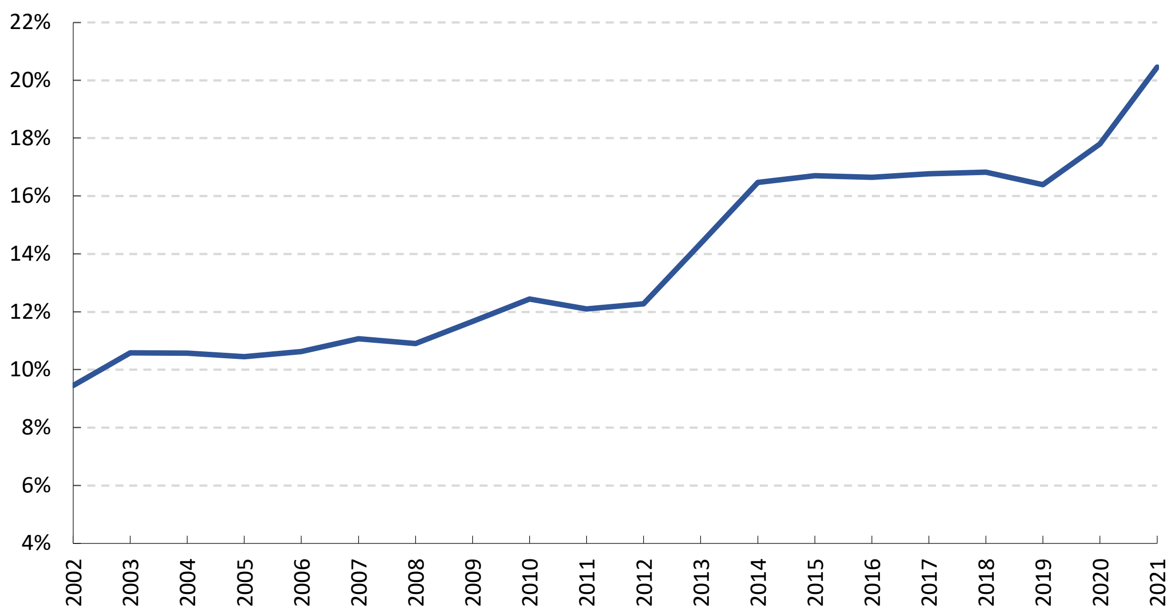
A cyclical recession although painful in the short term is economically beneficial in the long term

Over the past few decades, central banks and governments have been progressively employing more extreme policies to avoid recessions at all costs. It is only because of the recent high inflation that central banks have acted to tighten monetary policy and, as a by-product, likely cause a recession.

An economic downturn or a recession is a healthy and necessary process. It clears out businesses with relatively poor value propositions and dilutes or bankrupts those companies with unsustainable financing structures. It allows the redeployment of capital and resources into businesses with better economic fundamentals. It improves the productivity of the overall economy. For example, cyclical recessions act to remove "zombie" and concept companies and businesses with poor and marginal long-term economics. Zombie companies are those companies that cannot cover their debt funding costs over extended periods of time. This market segment has expanded meaningfully over the past 20 years, with some estimates indicating up to 20% of listed U.S. companies can be defined as zombie companies.

The potential bankruptcy or restructuring of lower-quality companies is essential for the long-term health of the economy and equity markets.

Figure 20: Zombie Companies as % of Non-Financial Corporations



Source: Macquarie, Factset, Hyperion. Note: zombie companies are defined as the number of non-financial corporates which failed to cover interest costs for at least three years.

A cyclical recession should not impact long-term valuations for Hyperion's portfolios

Hyperion has a 10-year investment horizon. Our long-term macroeconomic forecasts that form part of our stock valuations assume low average economic growth rates during the next decade and beyond.

Our overall weighted average 10-year organic sales growth forecast for the global portfolio is currently 20% per annum. Our modelling assumes GDP growth of 3.5% per annum, comprising 1.5% real growth

and 2.0% inflation. The nominal GDP growth component of the global portfolio's 20% organic revenue per share growth is only a minor contributor of our total assumed sales growth. Thus, excluding any economic growth from our forecasts still results in approximately 16.5% (20% less 3.5% = 16.5%) per share sales growth over the next 10 years. This high level of portfolio sales growth not derived from economic growth compares with the overall benchmark, which relies heavily on economic growth for its revenue growth. Most benchmarks are unlikely to produce material revenue growth over the long run if nominal GDP growth is zero or close to zero. In contrast, the revenue growth of our portfolios should still be double-digit in these economic circumstances.

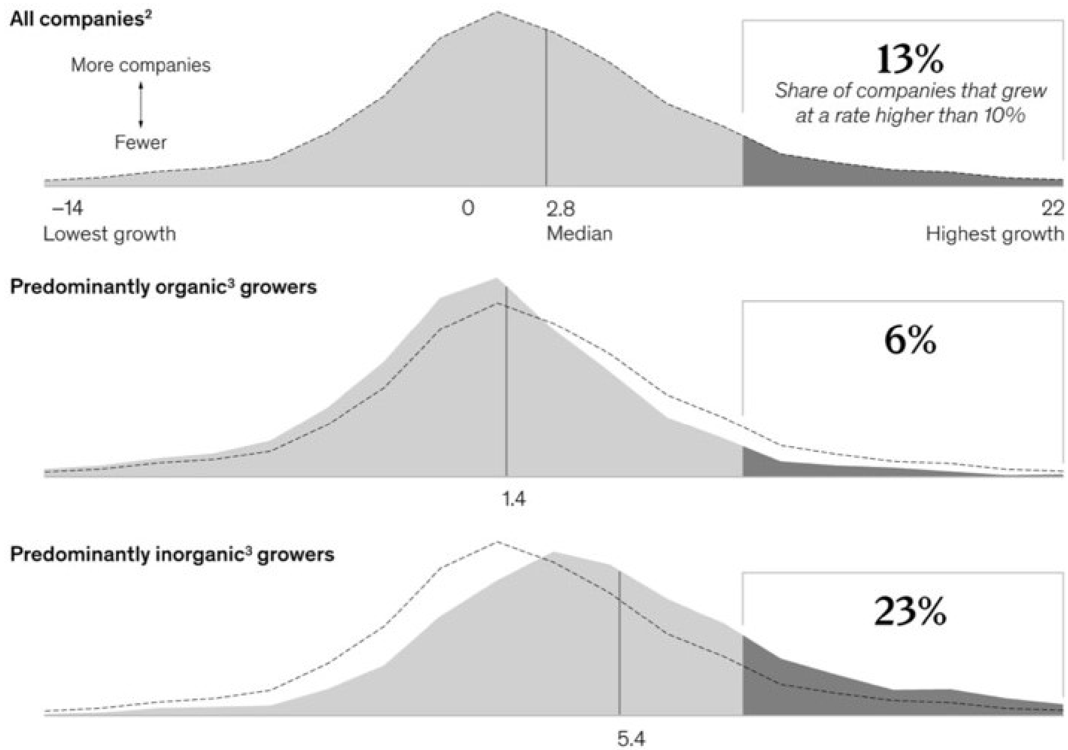
The ability for our portfolio companies to grow organically at higher rates than the overall economy, by taking market share, makes our portfolios more resilient during economic downturns and boosts returns over the long run. Recent research by McKinsey & Company found the following return benefits from investing in structural growth businesses.

"*The research reaffirmed that revenue growth is a critical driver of corporate performance. An extra five percentage points of revenue per year correlates with an additional three to four percentage points of total shareholder returns (TSR)—the equivalent of increasing market capitalisation by 33 to 45 per cent over a decade. Firms that managed to grow faster and more profitably than their peers during our study period did even better, generating shareholder returns six percentage points above their industry averages*."

McKinsey & Company, August 2022

Only 13% of companies grew at a CAGR of above 10% p.a. from 2009 to 2019 in McKinsey's data set. However, this included acquisitive companies, which accounted for 41% of the companies analysed and grew at a CAGR of 23% p.a. In fact, of the companies classified as organic growers, only 6% managed to increase revenues above 10% p.a. from 2009 to 2019. McKinsey shows how hard it is to grow at double digits rates over long periods, but the ability to identify these companies is extremely valuable.

Figure 21: McKinsey & Company Growth is Hard for Companies to Achieve – Companies by Revenue Growth and Growth Approach, 2009 – 2019, CAGR[1] %



[1]Nominal growth in dollars. [2]Largest 5,000 publicly listed companies by revenue in 2009 with revenue and goodwill data from 2009 to 2019; 3,931 companies charted. [3]Companies were classified as inorganic or organic growers, based on their M&A deal data, with organic defined as <1% of market capitalisation acquired from 2010 to 2019. Companies with missing deal data were classified based on their net positive change in goodwill relative to starting invested capital (<15% = organic). Of the companies in the analysis, 59% were classified as organic growers, 41% as inorganic growers. Source: The Ten Rules of Growth, McKinsey & Company, 12 August, 2022.

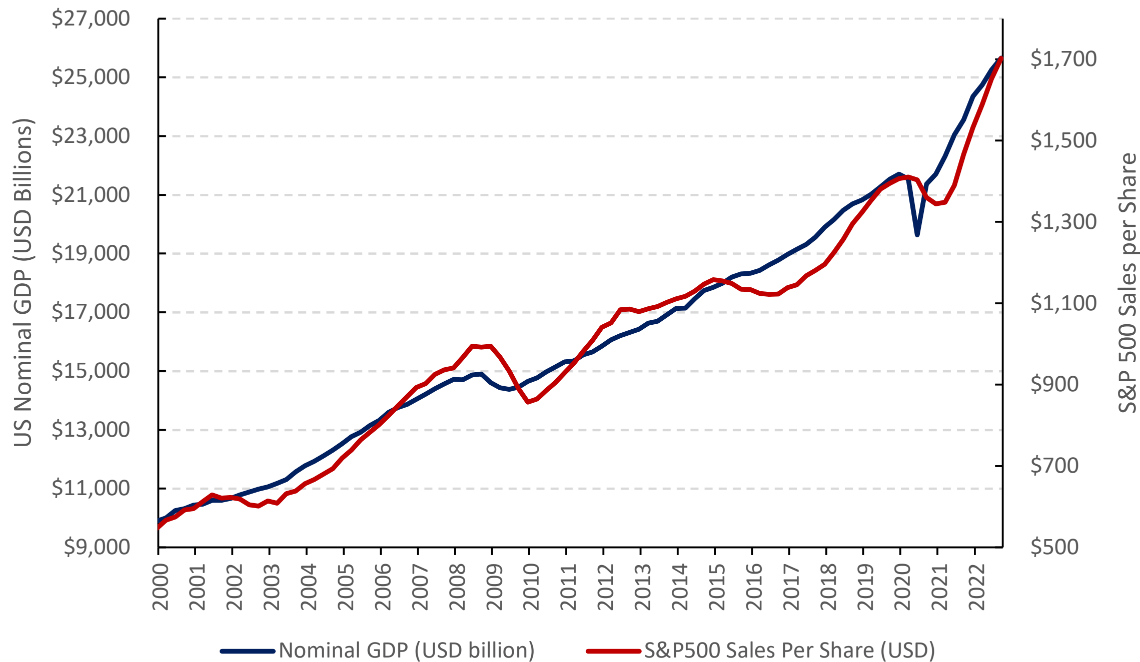
In addition, this long time horizon allows us to look through cyclical economic downturns because we know that the revenue and profits lost during the recession are likely to be recovered as the economy's growth accelerates coming out of the recessionary period. Thus, our trend expectation of an average of 1.5% real economic growth allows for periods of negative economic growth that are well below trend and cyclical recoveries that are well above trend.

A recession is only a structural event for a company if it forces management to raise significant equity capital at distressed prices or results in a permanent deterioration in the quality of the business and its long-term valuation. The companies in our portfolios are unlikely to undertake emergency capital raisings during a recession because of their substantial competitive advantages, large addressable markets, positive cash flow profiles and strong balance sheets. Thus, the long-term value of our portfolios is unlikely to be permanently affected by a cyclical recession.

The following chart shows the tight relationship between the sales per share of the S&P 500 and U.S. nominal GDP over the past couple of decades.

Both sales per share and nominal GDP declined during the GFC period and the COVID-19 crisis, with sales per share typically being more volatile. High sales and nominal GDP growth rates are normally part of the recovery from these economic downturns. As a result, sales and GDP figures have historically always recovered to higher levels after an economic downturn.

Figure 22: U.S. Nominal GDP vs. S&P 500 Sales per Share



Source: Bloomberg, FactSet.

Earnings are more volatile than sales because of operating and financial leverage and the fact that sales cannot be negative, but profits can be negative in the form of losses.

Commodity prices are likely to decline materially during a recession because of lower aggregate demand. Lower commodity prices benefit our portfolios through lower costs. However, lower commodity prices have a more mixed impact on most broad-based indices because many of the companies in those indices are commodity-based businesses whose revenues and profits suffer from lower commodity prices. Thus, the companies in our portfolios should benefit from lower commodity prices more than the benchmark.

It is the expected growth in future free cash flows for the businesses in Hyperion's portfolios and the long-term risks associated with those free cash flows that we focus on when managing the portfolios. Cyclical downturns and subsequent cyclical upturns that have an initial negative and then a similar positive influence on the growth of our companies do not usually have a material impact on our long-term valuations. This non-material impact on valuations is because the cyclical nature of these events tends to net out over the long term. That is, a portfolio comprising high quality, structural growth stocks should have a similar long-term terminal value after a recession as it did before the recession occurred. In contrast, businesses that need to raise capital (issue additional shares) and that lose market share in an economic downturn will experience a permanent decline in their per share terminal value.

We set a terminal value for each stock in 10 years. The market moves discount rates up and down based on changes in short-to-medium-term expectations of likely growth rates in free cash flows and the perceived risks associated with those forecasts. The equity risk premium component of these discount rates can move materially based on the immediate outlook for economic growth and corporate profits. We see this volatility in equity risk premiums and the duration impact of changes in

long-term government bond yields moving the market price of Hyperion's portfolios, particularly over short time periods.

The 10-year internal rate of return (**IRR**) that we calculate for Hyperion's portfolios is effectively the implied discount rate an investor would expect, where the net present value of the portfolio equates to the current market value.

Market participants move share prices around from day to day. This short-term volatility indicates that changes in equity risk premiums and overall discount rates are quite volatile over short periods. These changes in discount rates are range bound, mean-reverting, and their impact on valuations amortise over time. This price volatility is the leading cause of changes in our IRR estimates over short periods. However, over more extended periods, the compounding impact of growth in our terminal EPS estimates also contributes to changes in our forecast IRRs.

Recessions are damaging to corporate earnings during the period of the recession. Most listed companies are mature and highly reliant on overall economic growth for their own profit growth. Thus, nominal GDP growth largely determines the revenue and earnings growth for the stock market.

In an economic downturn, nominal and real GDP growth rates may only decline a few percentage points from the trend, but corporate earnings fall substantially more. During most cyclical recessions, the stock market's EPS typically drops by low double-digit rates.

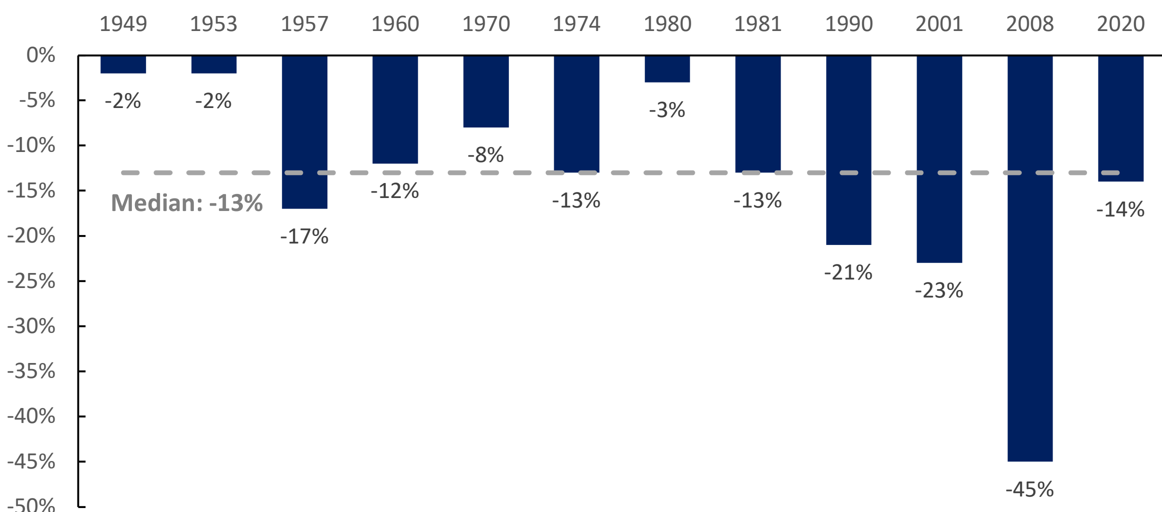
Our portfolios comprise high-quality businesses that are less sensitive and less reliant on economic conditions compared with most listed stocks.

Fear of profit downgrades from a recession ignores their cyclical and mean reverting nature

The probability of a recession has increased recently. This has occurred primarily because of the Federal Reserve and other central banks raising short-term interest rates aggressively in recent months to fight high inflation levels.

Figure 23 shows the historical median decline in EPS for the S&P 500 during a recession has been around 13%.

Figure 23: Peak to Trough Decline in LTM S&P 500 EPS during Recessions

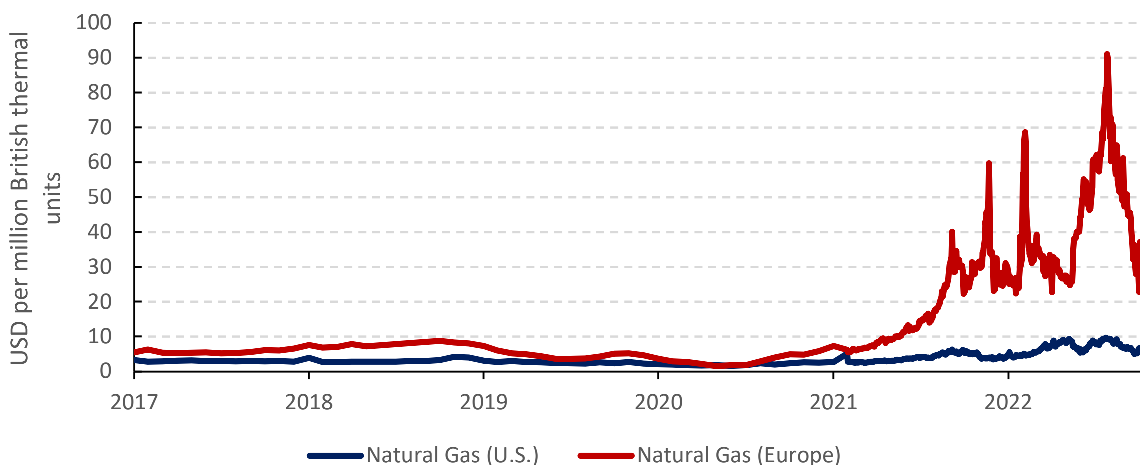


Source: Nasdaq Data Link, Goldman Sachs

The 2008 EPS decline of 45% is an outlier and is unusually large because of the imbalances built up in the U.S. housing market and the near collapse of the global banking system during the GFC. However, the upcoming recession is unlikely to be as severe as the GFC because the global economy does not appear to have the same imbalances that were apparent during that period.

Although, it is worth noting that Europe has been suffering from large increases in gas prices recently as shown in Figure 24. This gas-related energy crisis is likely to cause a more severe recession in this region compared with other major economies. In addition, China has an overvalued property market suffering from a price and activity downturn. However, the problems in the Chinese property market are unlikely to spread to the rest of the world. The Chinese financial sector is a closed system where property and fixed capital investment is primarily funded through state-backed entities.

Figure 24: Natural Gas Prices in the United States and Europe

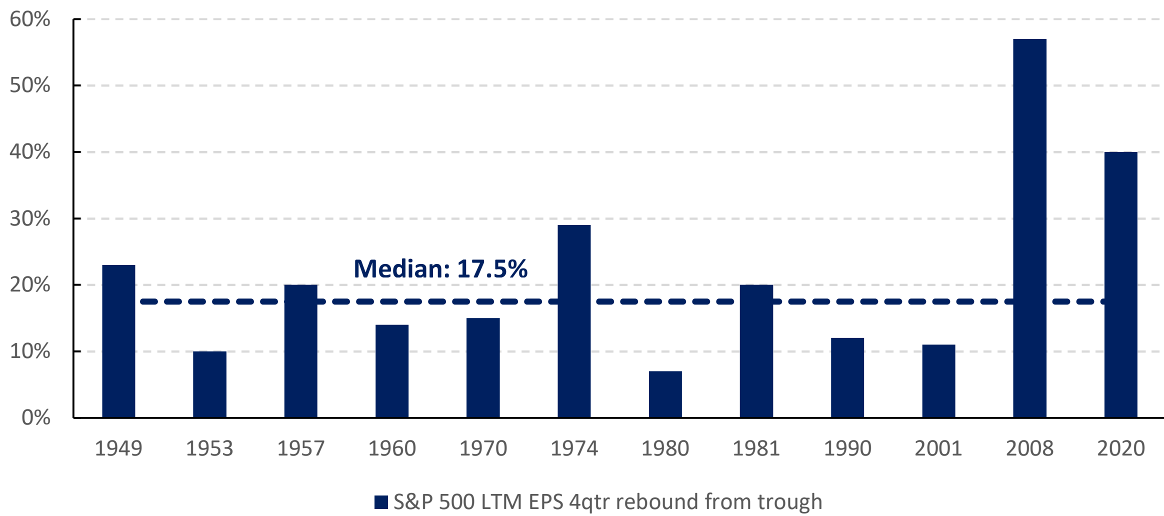


Source: Statista, World Bank. Bloomberg. Natural Gas (Europe) and Natural Gas (U.S.) prices refer to Netherlands Title Transfer Facility and spot price at Henry Hub, Louisiana, respectively. Data is shown of monthly frequency to 1 March 2021 and of daily frequency from 1 March 2021. Data to 8th November 2022.

Figure 23 also shows the EPS decline of 13% in 1981. This EPS decline resulted from the Volker-induced recession. The Federal Reserve drove short-term interest rates to 19% in July 1981 to reduce inflationary expectations that had become entrenched. High inflationary expectations had become entrenched following more than a decade of elevated inflation levels during the 1970s.

Importantly, profit recoveries have always followed cyclical recessions. This recession is likely to be relatively mild, given that the banking sector is currently in decent shape. Therefore, an average cyclical recovery will likely follow the recession once the Federal Reserve is confident that inflation is under control. Figure 25 shows the historical EPS recoveries for the 12 months following the earnings low point during a recession. The median EPS recovery has been 17.5%.

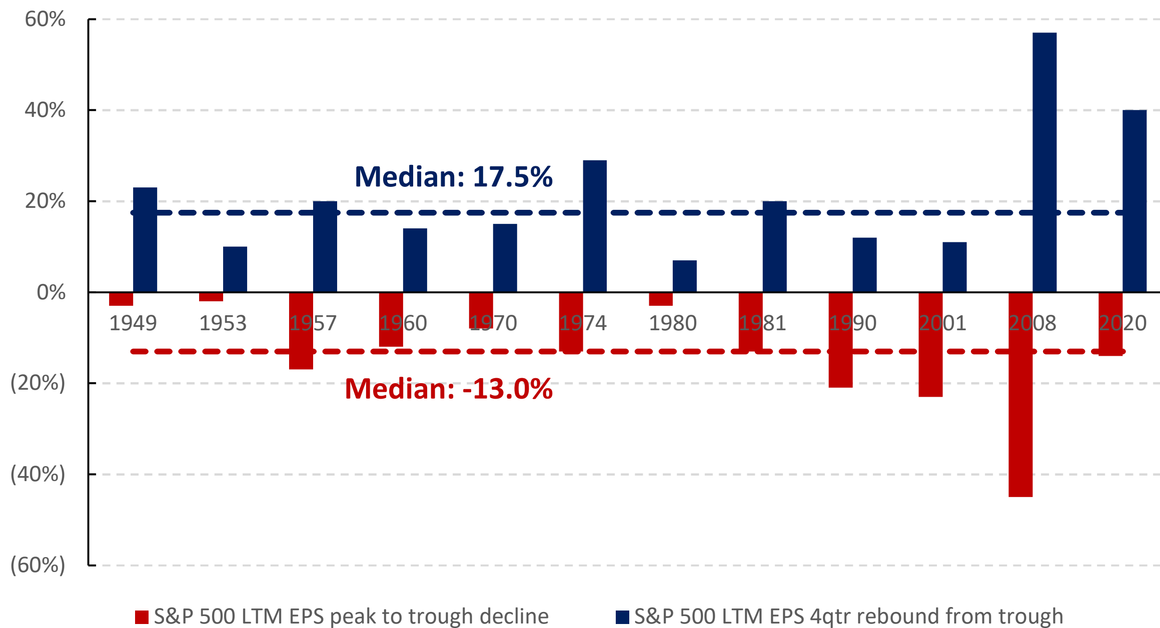
Figure 25: S&P 500 LTM EPS Change Post-Recessionary Periods Since WWII



Source: Shiller, Robert. *Irrational Exuberance*, Princeton University Press. Nasdaq Data Link.

The following chart combines the two previous charts to show the cyclical nature of EPS growth through historical recessionary periods.

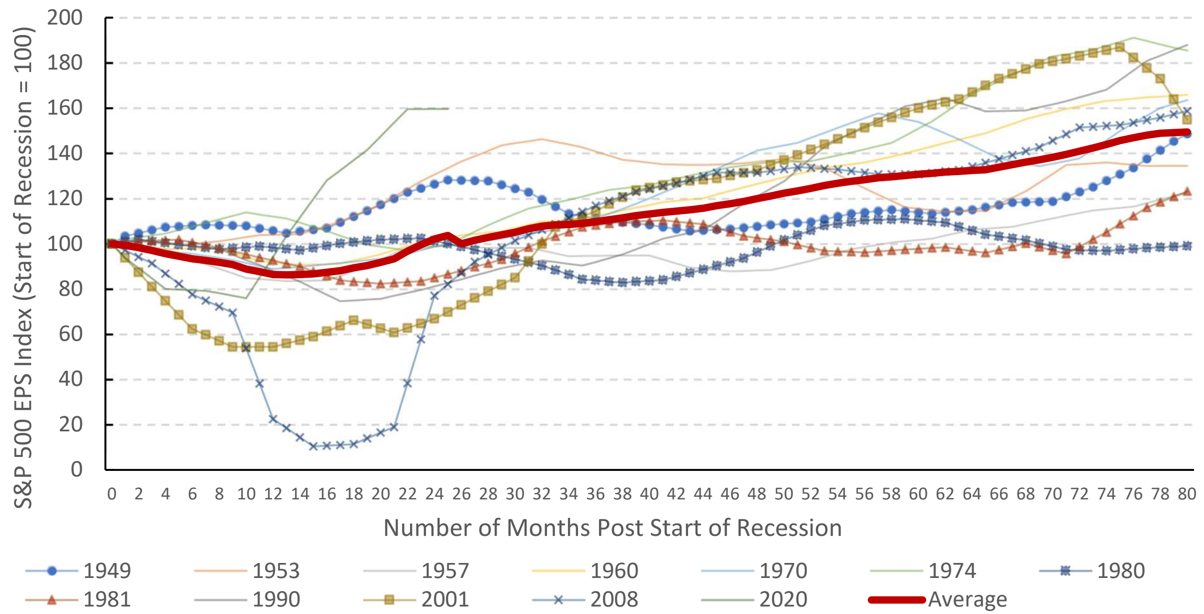
Figure 26: S&P 500 LTM EPS Change During and Post Recessionary Periods Since WWII



Source: Shiller, Robert. *Irrational Exuberance*, Princeton University Press. Nasdaq Data Link, Goldman Sachs.

Figure 27 illustrates the shape of EPS movements in a line chart format for the S&P500 during historical recessionary periods and the subsequent EPS recoveries. The dark red line in the chart shows the shape of the average EPS decline and subsequent recovery during these historical periods.

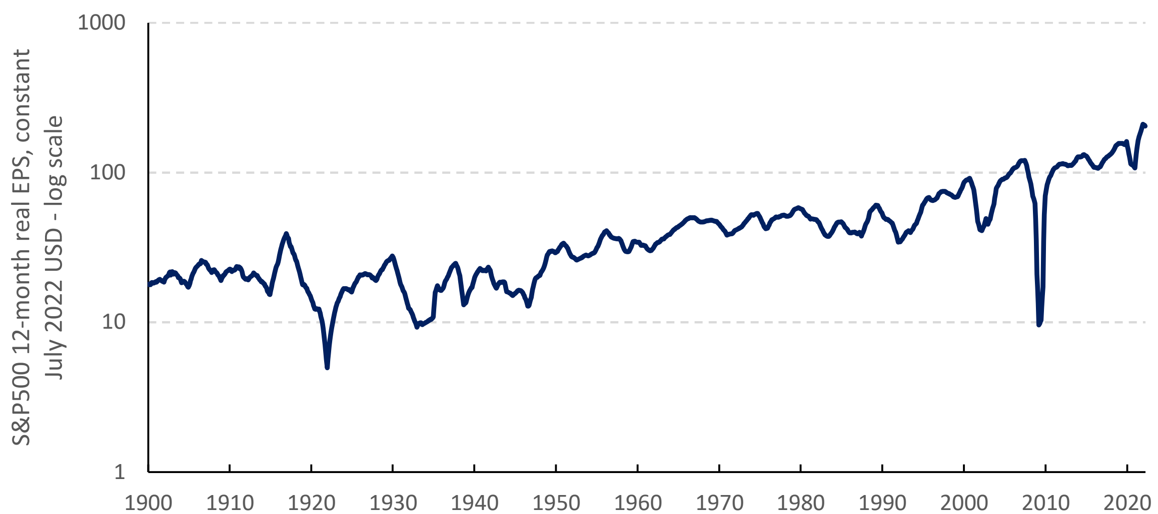
Figure 27: S&P 500 LTM EPS Index through Post-WWII Recessionary Periods



Source: Shiller, Robert. *Irrational Exuberance*, Princeton University Press. Nasdaq Data Link.

As shown in the following chart, the real EPS of the market has always recovered from recessions with strong earnings rebounds offsetting the initial earnings declines. These earnings recoveries typically occur relatively quickly, except for the Great Depression period and the high inflation period of the 1970s and 1980s. During the Great Depression, aggregate money supply declined by almost 30% between 1930 and 1933. Such a massive policy mistake is very unlikely to be repeated. The Federal Reserve is aware of the dangers of holding financial conditions tight for too long. In addition, the Federal Reserve is also conscious of the risks of not keeping long-term inflationary expectations low and repeating the mistakes of the 1970s.

Figure 28: S&P 500 EPS, Inflation Adjusted 1900-2022



Source: Nasdaq Data Link. Data as at September 2022.

Hyperion's portfolios are likely to handle a recession better than the overall market

The key reasons we believe why our portfolios should outperform their relevant benchmarks during an economic downturn are as follows:

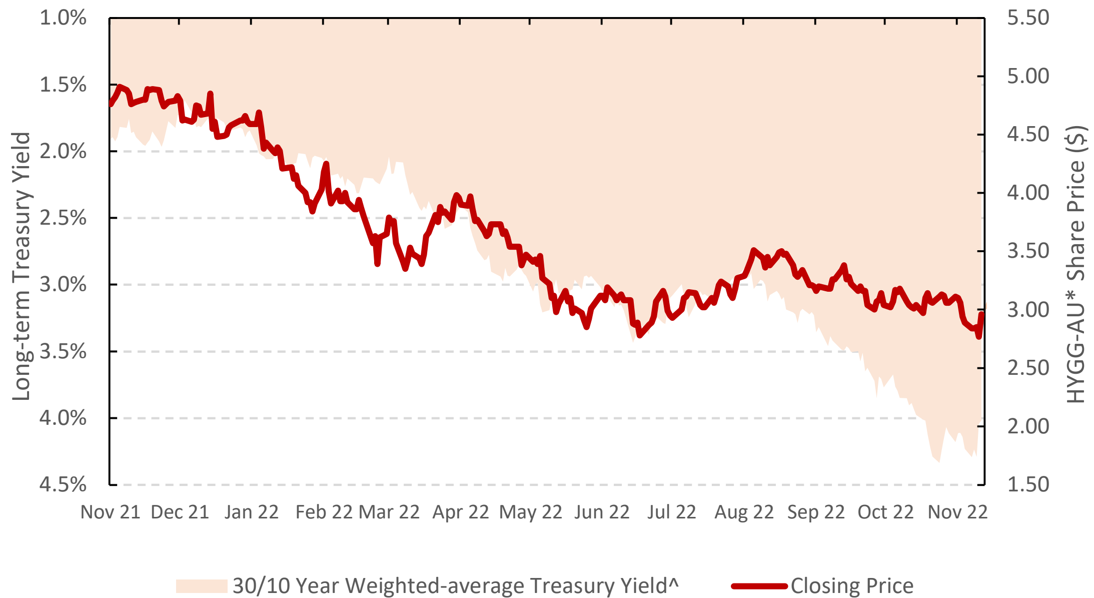
1) Lower bond yields are associated with weaker economic environments. Thus, long-term government bond yields tend to decline materially during economic downturns. The combination of declines in expectations for both real economic growth and long-term inflation during a recession typically results in lower government bond yields. Short-term economic activity levels tend to have a significant influence on longer-term economic growth expectations.

   Hyperion's portfolios have significantly higher duration compared with the broader market indices. Our portfolios are long duration because of the increased confidence the market has that the businesses will be able to grow their revenues and profits at relatively high rates for many years. Our portfolio stocks have higher levels of embedded structural growth, strong value propositions, sustainable competitive advantages, robust cash flow profiles and strong balance sheets. These attractive attributes result in our portfolio companies selling at higher traditional short-term valuation metrics compared with the overall market. The characteristics offered by Hyperion's companies make them attractive investments in the long term, despite having higher traditional short-term valuation metrics.

   Over short periods there is a strong negative correlation between long-term government bond yields and the market value of our portfolios. A recession should result in lower bond yields and act to support the market value of our portfolios. This potential positive duration impact would be the opposite of what we have experienced over the past 12 months. The following chart shows the inverse relationship between Treasury yields and the market movements of the Hyperion Global Growth Companies Fund (Managed Fund)[1] (**Global fund**). The shaded area represents long-term Treasury yields and is inverted on the left axis. The red line is the price of the Global fund since November last year. This chart shows a close relationship between yields and the short-term market value of the portfolio.

[1] The Hyperion Global Growth Companies Fund – Class B changed its name to the Hyperion Global Growth Companies Fund (Managed Fund) on 5 February 2021 in order to facilitate quotation of the fund on the ASX.

Figure 29: HYGG-AU* Listed Share Price vs Long-Term Bond Yields



*Hyperion Global Growth Companies Fund (Managed Fund). ^85%/15% weighted average of 30-year/10-year Treasury yield. Source: FactSet, Hyperion estimates. Data to 11th November 2022.

This relationship between bond yield changes and the price of the portfolios only holds over short periods because of the strong earnings growth inherent in our portfolios. Earnings growth dominates the total return profile of Hyperion's portfolios over the long term. The negative impact from duration has been noticeable over the past 12 months because the change in bond yields has been substantial and occurred over a short period. As previously discussed, this is highly unusual.

The robust underlying earnings growth of Hyperion's portfolios has not offset the negative duration impact because earnings growth is time-based, whereas the change in bond yields is not. Although, in recent months there has been some outperformance of the portfolio compared with bond yields, indicating some positive market value impact from the strong underlying growth in the portfolio's revenue and earnings. The duration impact has also been mitigated recently because long-term bond yields are now moving off a much higher base.

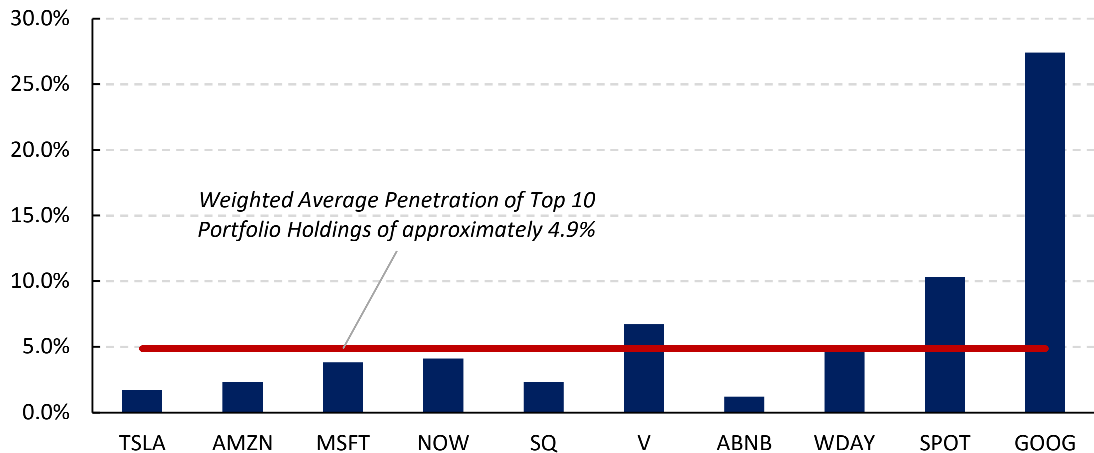
Any decline in long-term bond yields resulting from a future recession should benefit Hyperion's portfolios much more than the overall stock market. Lower long-term government bond yields tend to reduce discount rates and boost the market value of long-duration assets, including Hyperion's portfolios. This duration factor is absolute because, all other things being equal, a lower discount rate will increase the portfolio's value.

2) Our companies grow by taking market share rather than by relying on the size of the economic pie increasing. This non-reliance on economic growth is in stark contrast to most stocks in major benchmarks that only grow when the overall economy grows. As a result, these mature and typically highly cyclical businesses suffer badly in an economic downturn because their revenues and profits decline as the economy declines.

The businesses in Hyperion's portfolios can take market share because of the relative strength of their value propositions. These companies are leaders in their respective industries and are well-positioned to take advantage of weaker competitors that suffer during an economic downturn. Moreover, these companies tend to have strong pricing power that gives them economic flexibility during economic downturns or periods of high inflation.

Our top holdings' market penetration percentage rates are typically in the single digits. We have highlighted this below in the following chart. We note that the top 10 holdings in the Global fund represent 73% of the portfolio as at the end of September 2022. We believe all our companies have significant growth opportunities with the potential to capture meaningful market share.

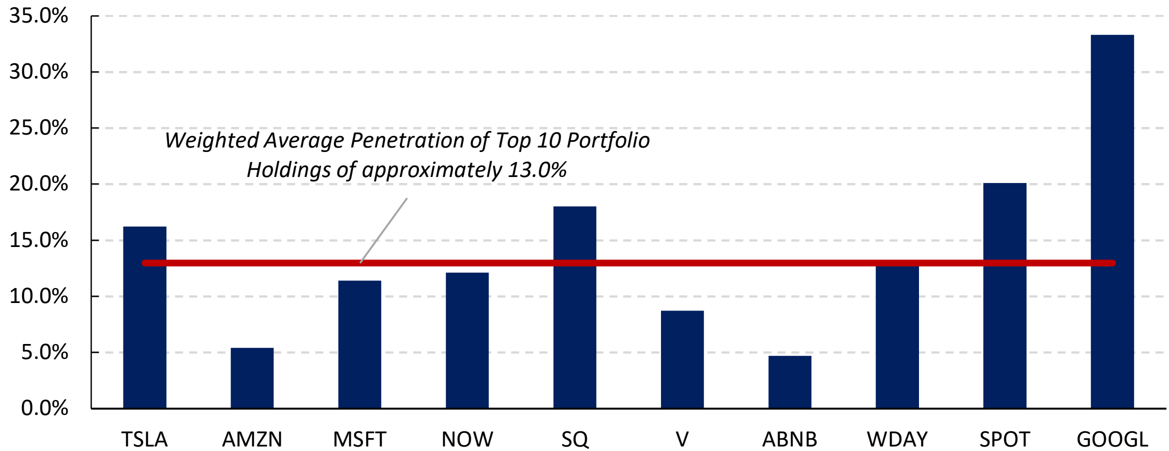
Figure 30: Penetration of Key Total Addressable Market for Top 10 Hyperion Global Growth Companies Fund (Managed Fund) Holdings



Source: Hyperion estimates, see Appendix A for further details.

During economic downturns, consumers and businesses focus more on the relative strength of the value proposition of the goods and services they buy. As a result, hard times tend to accelerate market share shifts, favouring the stocks Hyperion has in its portfolios. We expect our key portfolio holdings to accrue significant market share gains over the next 10 years.

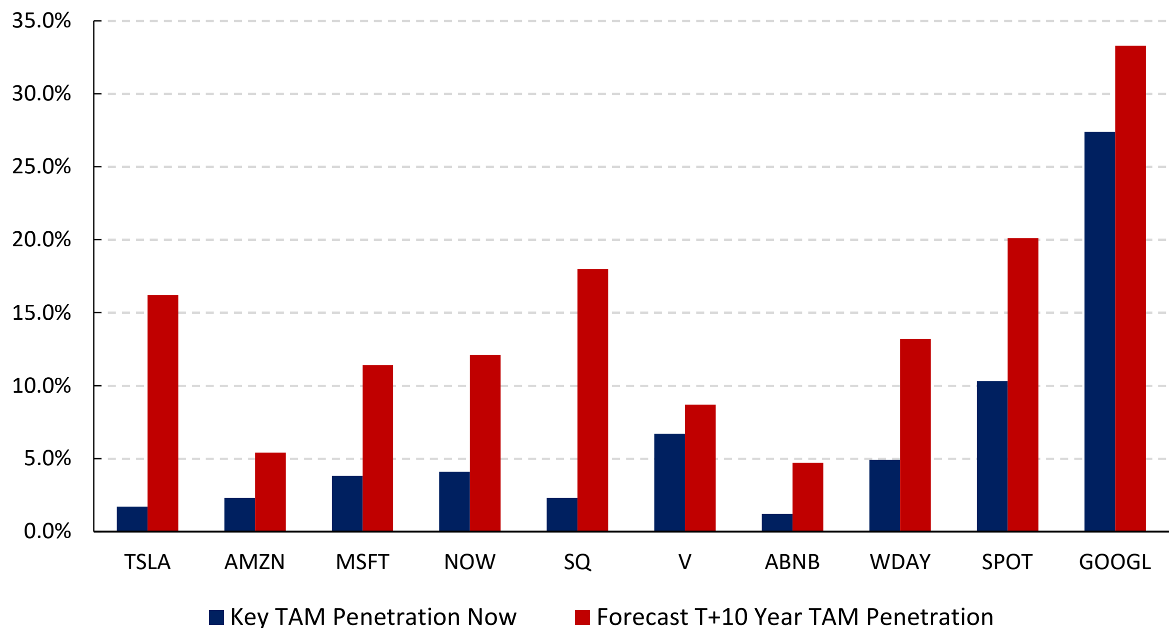
Figure 31: Forecast Terminal Penetration of Key Total Addressable Market for Top 10 Hyperion Global Growth Companies Fund (Managed Fund) Holdings



Source: Hyperion estimates, see Appendix A for further details.

Our key portfolio holdings are dominating niches, in some cases creating new categories, to transform old industries into something more modern. We refer to this concept as "dominate and transform."

Figure 32: Penetration of Key Total Addressable Market for Top 10 Hyperion Global Growth Companies Fund (Managed Fund) Holdings over Time

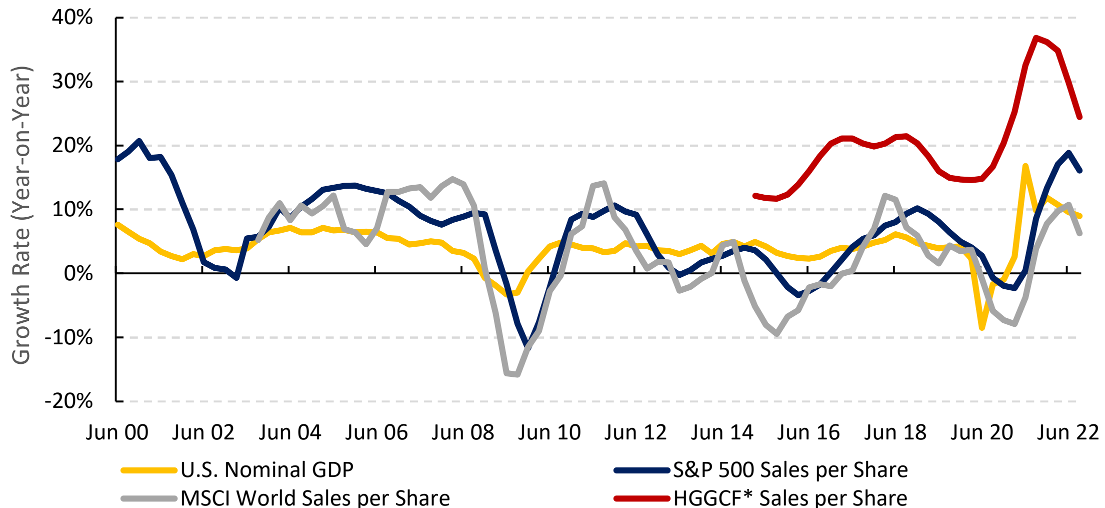


Source: Hyperion estimates, see Appendix A for further details.

The red line on the following chart shows the 12-month rolling sales per share growth of the Global fund since inception relative to equivalent metrics for U.S. nominal GDP, the S&P 500 Index, and the MSCI World Index.

The Global fund's sales per share growth has been significantly above that of the broader market and the U.S. economy since its inception, including during the COVID-19 crisis.

Figure 33: U.S. Nominal GDP vs. Sales Per Share Growth



*Hyperion Global Growth Companies Fund (Managed Fund). HGGCF Sales per Share growth calculated as the weighted average sales per share growth of the companies in the portfolio. Source: FactSet, Bloomberg, Hyperion estimates.

Our forecasts assume very little economic growth over the coming decade. Moreover, a cyclical recession over the next year is unlikely to materially impact our portfolios' long-term forecast EPS and valuations, given that any short-term, cyclical EPS downgrades are likely to be recouped in the economic recovery following a downturn.

A growth scarcity economic environment with low inflation still appears to be the most likely scenario in the long run, and this is the best environment for our investment style. In a world where growth will again become scarce, businesses that grow by taking market share will be in a solid position to produce attractive returns over the long term. The current selloff is providing an opportunity for long-term investors to get exposure to some of the best businesses in the world at attractive prices.

3) We believe our companies have substantial competitive advantages and high-quality business franchises. They tend to be founder-led with organisational cultures that emphasise strategic decision-making, low levels of bureaucracy, the value of hard work and high levels of innovation.

In addition, they have no net debt or low levels of debt and robust business models that are generally less sensitive to economic conditions than most listed businesses. For example, over 80% of the Global portfolio comprises companies with no net debt and substantial cash reserves. The weighted average interest cover for the Global portfolio is 49 times. Furthermore, this year's weighted average return on equity for the Global fund is estimated to be approximately 33%, indicating a high profitability level for this portfolio. Our domestic portfolios also have superior financial metrics relative to their benchmarks.

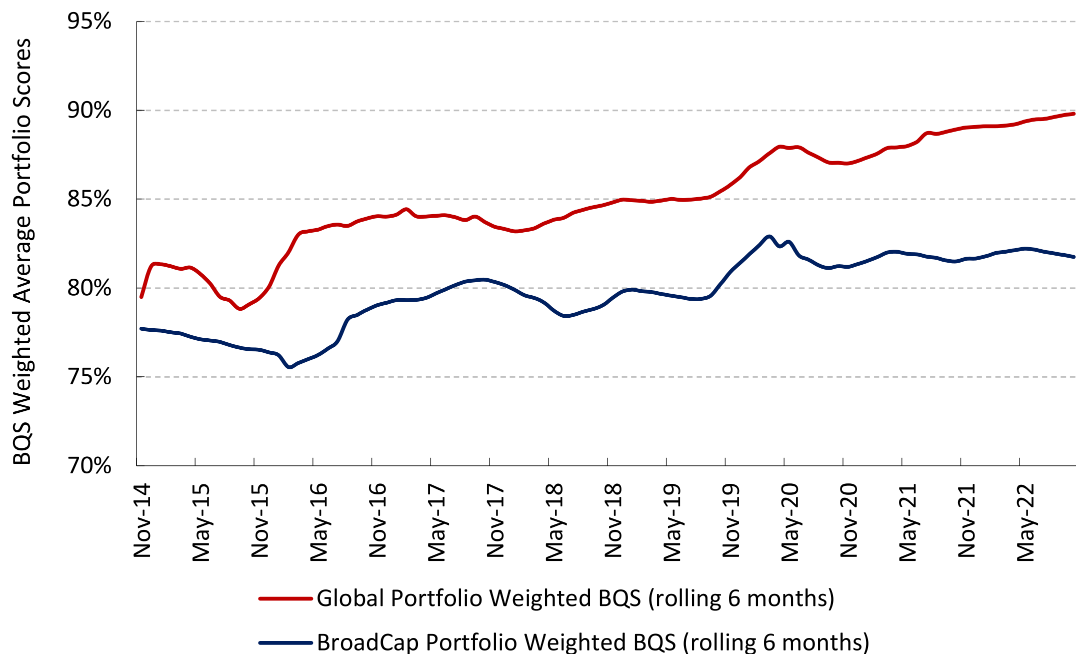
Table 1: Key Financial Hyperion Portfolio Metrics

Portfolio	Current ROE	Net Interest Coverage	% Net Cash	% Insider Led
Global	33%	49x	81%	65%
Australian Broad Cap	21%	37x	59%	57%

Source: Hyperion estimates

The quality of the Hyperion portfolios has never been higher. We can see this in the trend towards a higher Business Quality Score (**BQS**) across the portfolios over time. This score is our internal qualitative assessment of the quality of a business and is the output of our detailed proprietary research templates. The portfolio BQS is calculated as a weighted average of the individual stocks' BQS scores.

Figure 34: Business Quality Score of Hyperion Portfolios Over Time



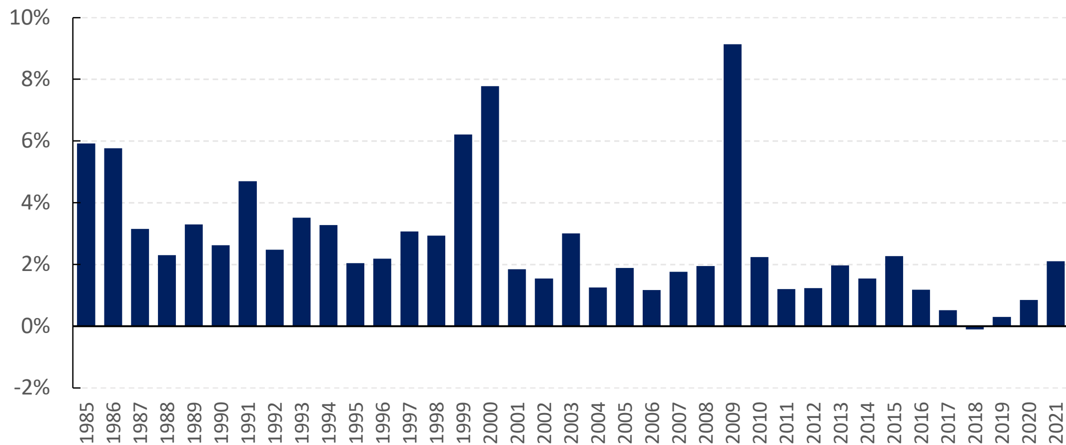
Source: Hyperion

During recessions, many businesses with high debt levels and weak business franchises that cannot support their business operations internally, are forced to undertake emergency capital raisings that are highly dilutionary.

The companies in our portfolios are unlikely to undertake such emergency capital raisings during the likely economic downturn over the next 12 months. This low probability of being forced to undertake highly dilutive emergency capital raisings is due to the strong value propositions and robust balance sheets of the stocks in our portfolios.

Figure 35 illustrates that the aggregate number of issued shares of the companies comprising the MSCI World Index increased meaningfully during the GFC due to numerous emergency capital raisings.

Figure 35: Annual Percentage Change in the Number of Issued Shares for the MSCI World Index



Source: Macquarie; Hyperion

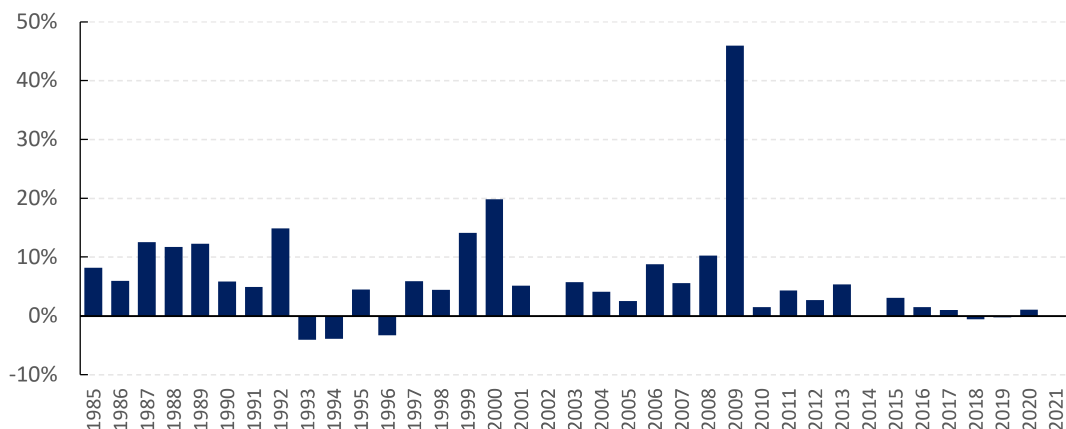
4) Our portfolios have no or minimal exposures to the banking sector and other companies with high levels of financial leverage.

   A negative yield curve adversely affects the banking sector's profitability because banks tend to borrow at short-term interest rates and lend at long-term rates. If the yield curve is inverted, borrowing short-term and lending longer-term is not profitable.

   Banks gearing ratios are very high, and their earnings are highly sensitive to bad debts. The high levels of financial gearing in the banking sector mean you only need a small percentage of the loan book to default to cause massive losses and force highly dilutive emergency capital raisings. Bad debts tend to increase significantly during recessions.

   Figure 36 illustrates the significant increase in the number of shares on issue for the global banking sector during the GFC.

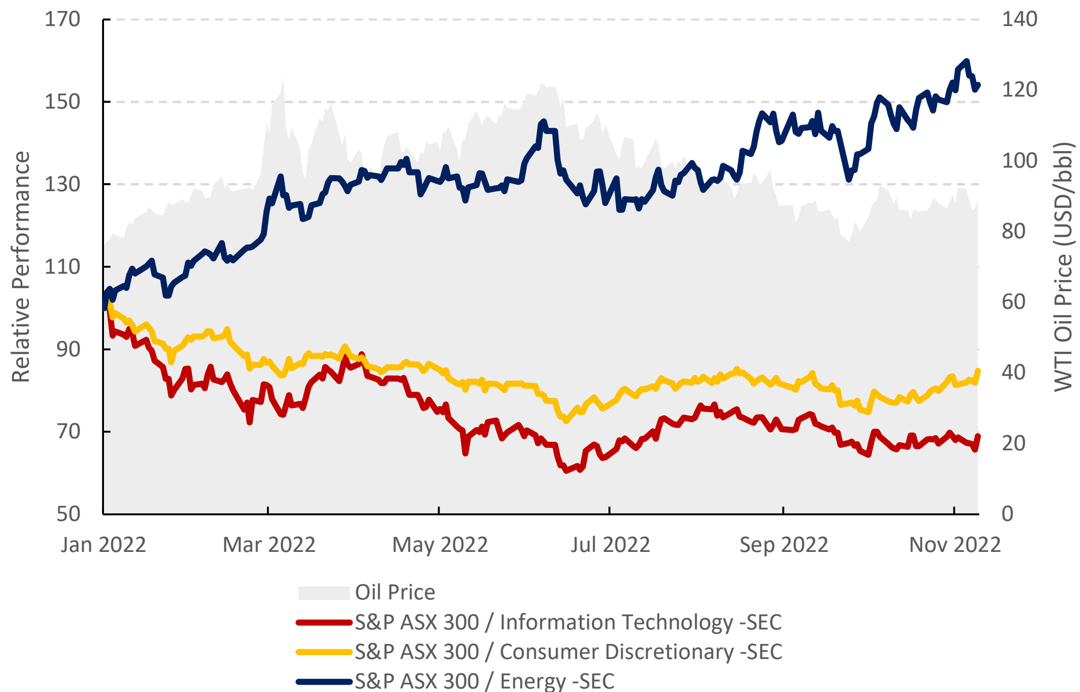
Figure 36: Annual Percentage Change in the Number of Issued Shares for Banks in the MSCI World Index



Sources: Macquarie; Hyperion.

5) Our portfolios have zero exposure to fossil fuel-based energy businesses. These businesses have significantly outperformed over the past 12 months because higher oil, gas and coal prices have boosted short-term revenues and earnings growth. However, the tailwind of going from low oil, gas and coal prices to much higher prices has now passed. This one-off benefit from this significant move to higher prices for fossil fuel-based energy was caused by the cyclical demand recovery from the COVID-19 crisis and the war in Ukraine restricting supply.

Figure 37: Relative Sector Indexed Performance



Source: FactSet. Data to 11th November 2022.

Hyperion earnings decline less than the market in economic and commodity downturns

Hyperion's portfolios' EPS declines have generally been less than the broader market during cyclical and commodity-related downturns. For example, the EPS and sales performance of the Hyperion Australian Growth Companies Fund (labelled 'HYP' below) during economic and commodity price downturns since the GFC is shown in Table 2.

The weighted average EPS of the portfolio was significantly more resilient to the GFC and European Debt Crisis than the benchmark. Earnings growth was positive for the portfolio through weak commodity prices and the COVID-19 crisis due to the portfolio's underlying quality and structural growth characteristics.

Table 2: Domestic Earnings and Sales Drawdowns across Economic Contractions

Event	EPS	ASX300	HYP*	Comments
GFC	Mar-08 to Sep-10	-25%	-2%	Lower Portfolio EPS decline due to quality and market share gains
Euro Crisis	Dec-11 to Sep-13	-15%	-8%	Lower Portfolio EPS decline due to quality and market share gains
Commodity Crisis	Sep-14 to Dec-16	-26%	1%	EPS positive with low exposure to commodity prices
COVID-19	Dec-19 to Mar-22	23%	34%	EPS positive with high exposure to digitisation trend

Event	Sales	ASX300	HYP*	Comments
GFC	Mar-08 to Sep-10	-6%	8%	Market share and pricing gains through cycle
Euro Crisis	Dec-11 to Sep-13	2%	21%	Good growth with market share gains
Commodity Crisis	Sep-14 to Dec-16	-9%	35%	Strong growth with low exposure to commodity prices
COVID-19	Dec-19 to Mar-22	-11%	40%	Strong growth with high exposure to digitisation trend

*Hyperion Australian Growth Companies Fund. Source: Hyperion estimates, FactSet.

Hyperion's portfolios are well-positioned to produce relatively solid EPS and sales growth compared with the broader market during the next economic downturn.

Demographics and technology determine economic growth and bond yields in the long run

High levels of real economic growth and high inflation are not sustainable in the major developed economies. Demographic and technology-based forces will dictate nominal levels of economic growth, including inflation, in the long term. Both long-term demographic trends and technology-based innovation are structural by nature and are disinflationary.

The world today is entirely different, demographically speaking, to the 1970s. The underlying drivers of aggregate demand growth are much weaker today. Furthermore, most of the other significant factors that contributed to the extended period of high inflation in the 1970s and early 1980s are absent in 2022. Persistent and entrenched high inflation is unlikely in the medium to longer term.

Inflation is caused by surplus aggregate demand relative to aggregate supply. However, aggregate demand growth is structurally weak, and supply chains are likely to continue to recover from the COVID-19 disruption. Therefore, it is difficult to imagine sustained high inflation levels, particularly with accelerating technology advancements that will reduce costs and boost productivity.

The scaling of more efficient and lower-cost renewable energy generation and storage, combined with the electrification of the transportation system, will reduce energy and transportation costs, increase energy independence and resilience, and boost productivity in the long run. Improving AI, ML, and robotic technologies that benefit from declining technology cost curves will help to reduce costs and encourage economic efficiency.

Economic growth is primarily a function of changes in:

- the size of the workforce;
- the productivity of that workforce;
- the cost and availability of energy; and
- consumer, business, and government consumption, investment, and savings patterns.

The size of the workforce, the productivity of that workforce and the cost of energy are supply-side factors. Consumer, government, and business spending and saving patterns impact aggregate demand. Productivity is influenced by the workforce's age, knowledge, skills and experience and the available technology.

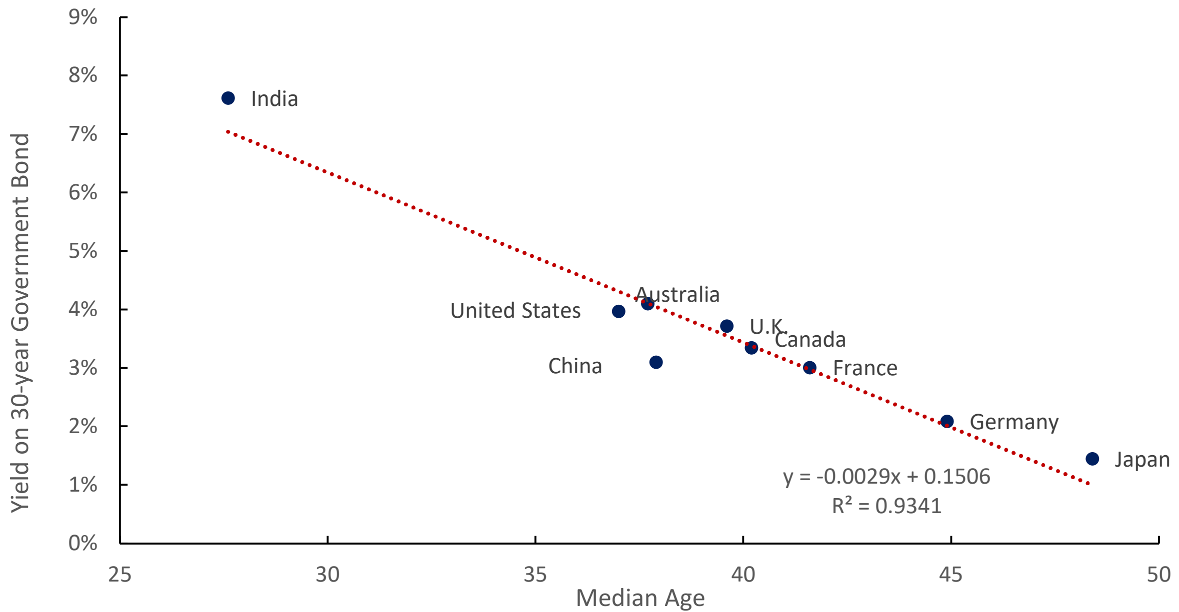
Productivity gains improve both corporate profits and wages. Cheap energy is core to civilisation and the modern economy. All economic and human activity is reliant on inexpensive energy. Key sources of useful energy generation come from the sun, including fossil fuels. For example, we use technology to convert the free energy from the sun into food, shelter, transport, infrastructure, electricity, heating and cooling and industrial production. Fossil fuel energy is heating the planet's climate and is unsustainable, increasingly expensive and exacerbating geopolitical tensions. Therefore, the rapid transformation to cheaper renewable energy and the electrification of transportation, heating, cooling, and industrial processes is essential for sustaining civilisation in the long run. Transitioning to sustainable energy generation will involve the electrification of transportation, heating and cooling and most industrial processes. Moving away from fossil fuels will improve energy independence for most nations rather than them being highly reliant on a relatively small group of countries to supply the fossil fuels necessary to power their economies. Most countries can generate low cost solar and wind-based energy and thus achieve energy independence in the long run. On the demand side, growth in consumption, investment and savings are influenced by age demographics, education, political stability, productivity, inflationary expectations, wealth level distribution and government safety nets.

Population growth and age demographics determine the change in the size of the workforce over time.

Figure 38 shows the inverse relationship between the median age of a population and the yield on 30-year Treasury Bonds. Germany and Japan have extremely old populations. India is in the best position with a young population. China and the U.S. have a similar median age. However, China is ageing much more quickly. The legacy one-child policy and low immigration levels have made China's population age faster than the U.S..

The extremely old populations of Germany and Japan virtually guarantee low rates of real economic growth in the future and increase the probability of also having low inflation and low bond yields. The following chart shows that older (younger) populations tend to have lower (higher) long-term bond yields.

Figure 38: Median Age vs 30-year Government Bond Yield for Major Economies

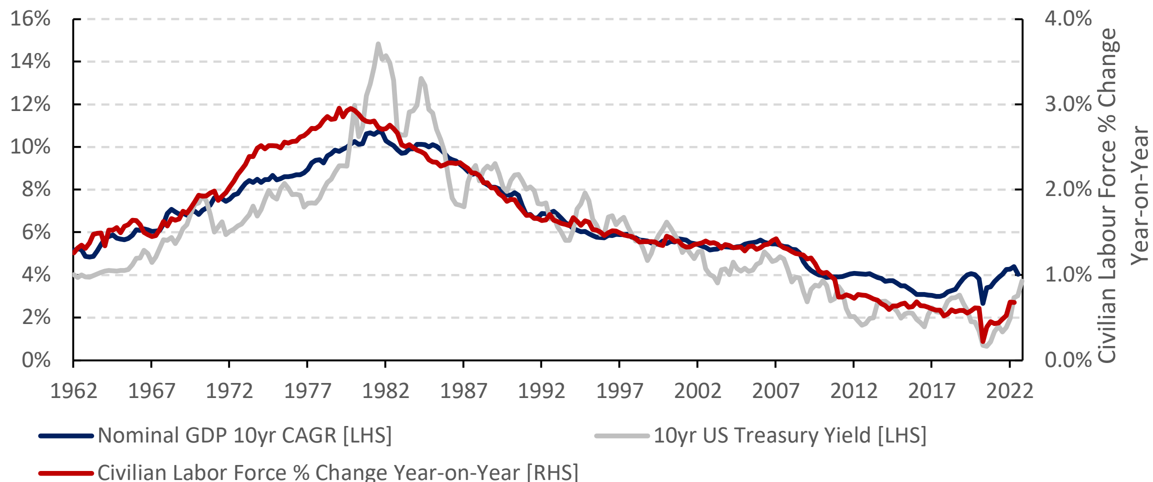


Source: Hokenson-Demographics, United Nations – Population Division, Trading Economics. Government Bond Yield data as at 1st November 2022.

Figure 39 shows the close relationship between growth in the labour force, nominal GDP growth and the yield on 10-year U.S. Treasuries since 1962.

Demographics have an enormous influence on the sustainable level of economic growth and, in turn, the real cost of capital. The red line represents the annual growth in the U.S. labour force. Growth in the labour force and productivity gains drive economic activity. The level of productivity growth is largely determined by technology-based innovation. The level of economic activity combined with inflation determines the cost of capital in the form of interest rates on long-term government debt. The labour force in the U.S. will only grow modestly in the years ahead due to declining population growth and an ageing population.

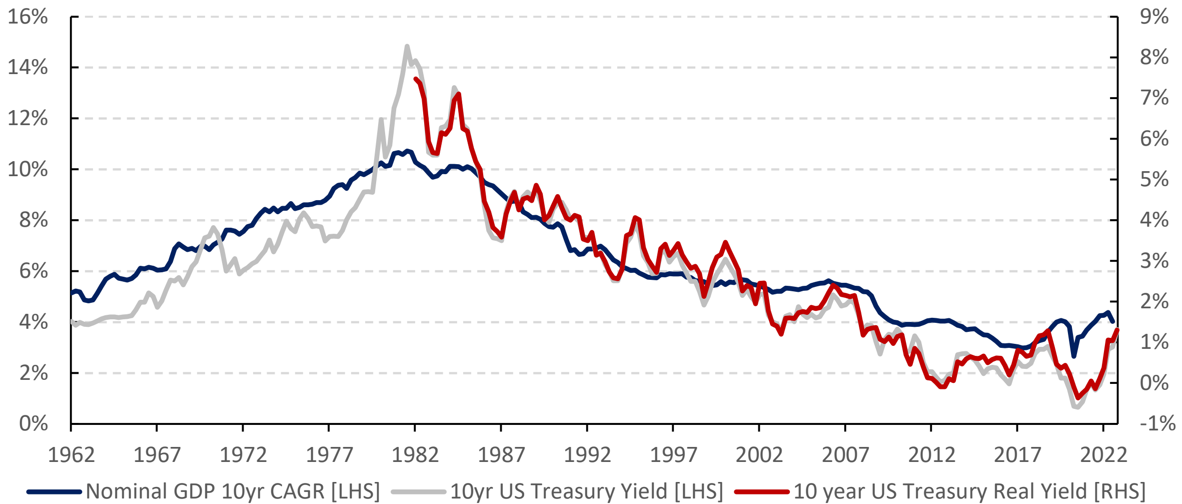
Figure 39: U.S. GDP Growth, Treasury Yield, and Civilian Labour Force Growth



Source: Federal Reserve Economic Data.

The following chart shows the relationship between economic growth and bond yields (both real and nominal) over the long run. Again, the relationship is strong over long periods.

Figure 40: U.S. Nominal GDP Growth and 10-year Treasury Yields

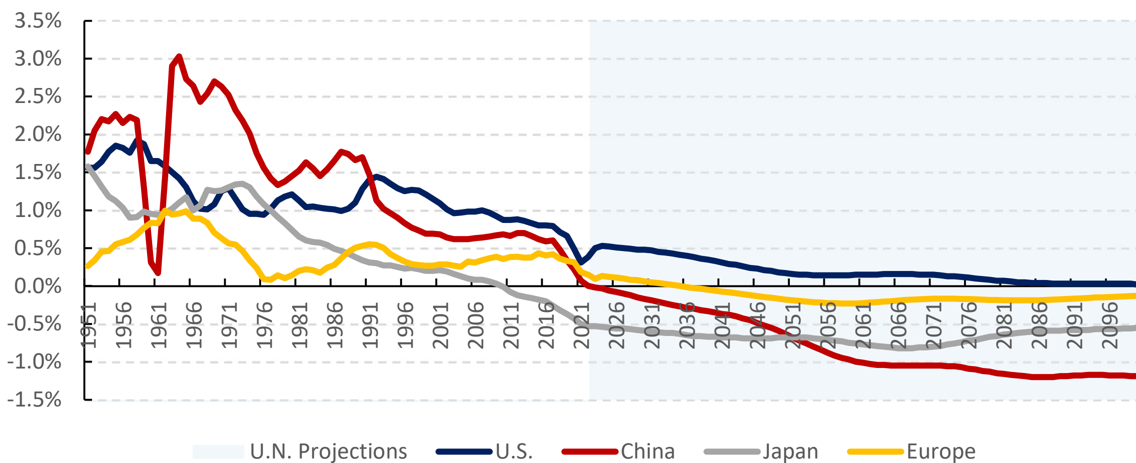


Source: Federal Reserve Economic Data.

Figure 41 shows the trend towards lower population growth. The U.S. is in a good position relative to China, Japan, and Europe, regarding future levels of population growth. China and Japan face negative population growth in the future, whereas the U.S. will likely experience modest but positive population growth.

Declining population growth combined with ageing populations will result in weak future levels of aggregate demand growth for all major economies.

Figure 41: Annual Population Growth, U.N. Projections

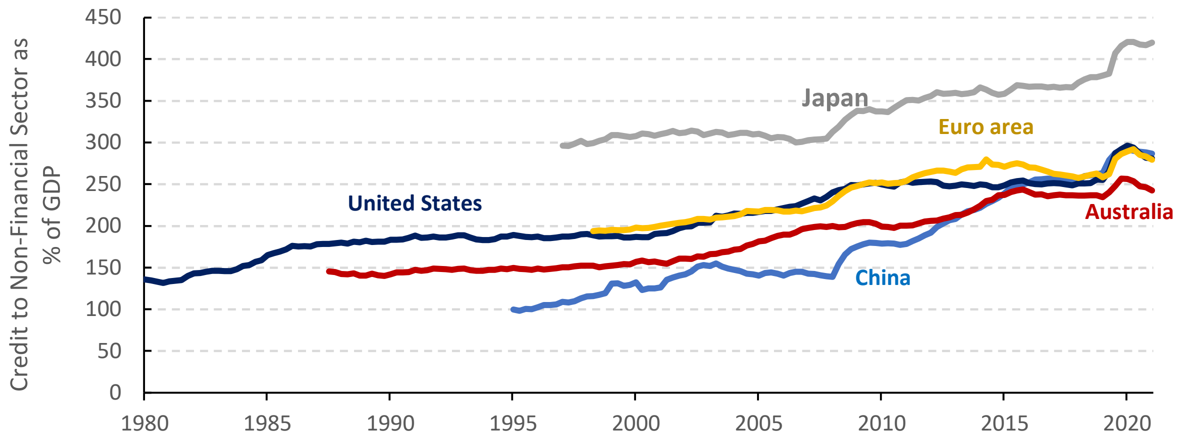


Source: MacroTrends, United Nations Department of Economic and Social Affairs.

Figure 42 illustrates the increase in financial leverage measured by debt to GDP ratios over the past four decades. This gearing-up process brought forward economic growth by allowing people to spend more than they earned. High debt levels will reduce future growth in aggregate demand and restrain inflation. The increase in financial gearing in China has been significant since the GFC, as shown by the

light blue line in Figure 42. Most of this new debt is private and, therefore, riskier than government debt. This higher level of non-government debt makes the Chinese economy less stable, and high debt levels will impede future aggregate demand growth. The lower demand growth associated with high debt levels is disinflationary.

Figure 42: Debt to GDP (%) for Major Economies

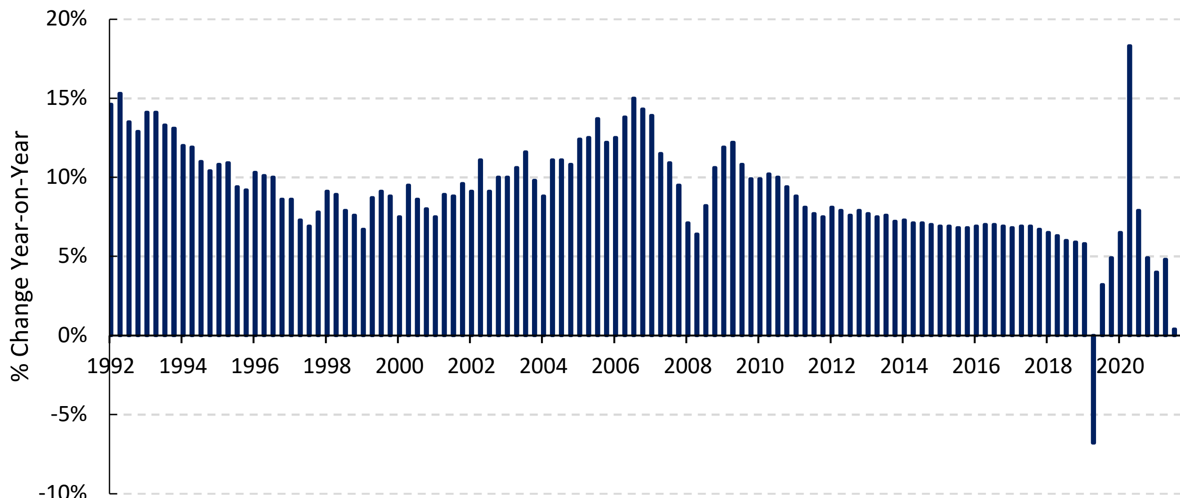


Source: Bank for International Settlements.

The decades of robust demand growth are over, and declining populations in China, Japan, and Europe and weak but still positive population growth in the U.S., combined with high debt levels, will ensure demand growth and inflation return to low levels in the future. Moreover, demand growth is likely to be weak in the short term because of the Federal Reserve's aggressive tightening of monetary policy.

China, the growth engine for the global economy over the past two decades, is in structural decline based on extremely poor and deteriorating demographics. In addition, China is suffering from a shrinking relative labour cost advantage, over-investment, poor capital allocation in property and infrastructure, and a reduced likelihood of technology transfers from the West. Thus, China, is no longer in a position to materially stimulate global economic demand growth over the long term.

Figure 43: China Real GDP Growth % Change Year-on-Year



Source: Trading Economics. Data shown of quarterly frequency to 30th September 2022.

These demographic factors will result in low real aggregate demand growth. Moreover, the combination of both low population growth and high debt levels is particularly disinflationary. When combined with low inflation levels, weak aggregate demand growth will lead to structurally low yields on government bonds.

Therefore, high, or even modestly positive real long-term bond yields are unlikely to be sustained. Instead, they will only remain high while the Federal Reserve maintains a bias toward tighter monetary policy. Once it becomes clear to the market that economic growth is weak, we expect real long-term bond yields to move back close to zero or even into negative territory.

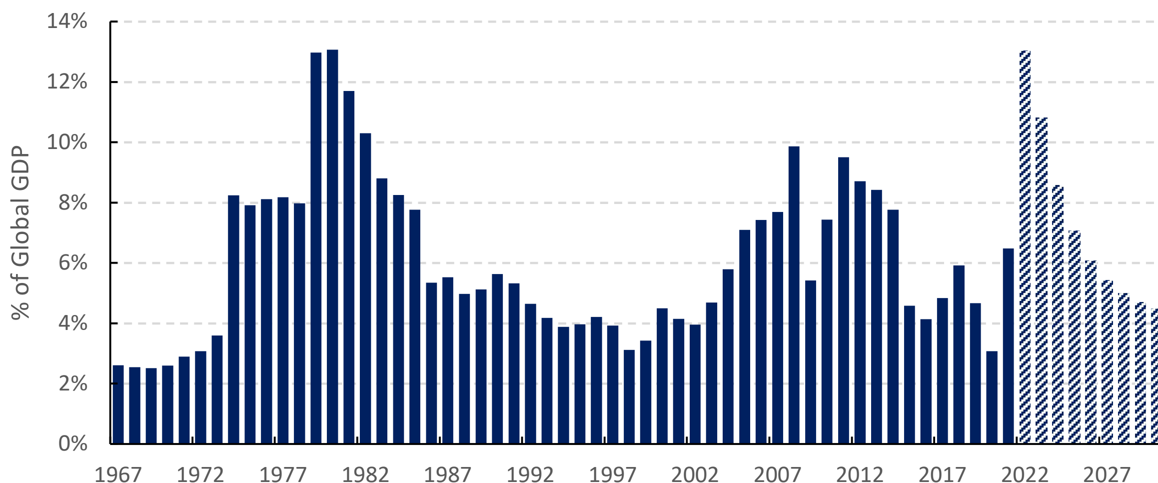
Structural trends to lower population growth and high debt levels will ensure aggregate demand growth continues to decline in the long run. This lower aggregate demand growth is disinflationary, but it is particularly so in combination with likely technology-based innovation boosting productivity and creating better products and services at lower prices.

Technology innovation will drive productivity gains and be disinflationary

A key supply-side factor that will likely be disinflationary over the next decade is technology-based innovation and the cost benefits of scaling new technologies. Advancements in AI and ML are accelerating. The potential for autonomous robots and motor vehicles is real, and the technology already exists to achieve commercially viable products in these areas within the next few years.

The energy industry is an example of where technology and scale are likely to increase productivity, ultimately leading to disinflation. The cost of energy as a percentage of GDP is at elevated levels, similar to the 1970s and early 1980s, as shown in Figure 44.

Figure 44: Energy Costs as % of Global GDP



Source: MacroStrategy, Bloomberg, Thunder Said Energy.

High fossil fuel prices have resulted from the war in Ukraine and growing fears of the long-term impact of climate change on civilisation, which has started to result in the restriction of new oil, gas, and coal supplies.

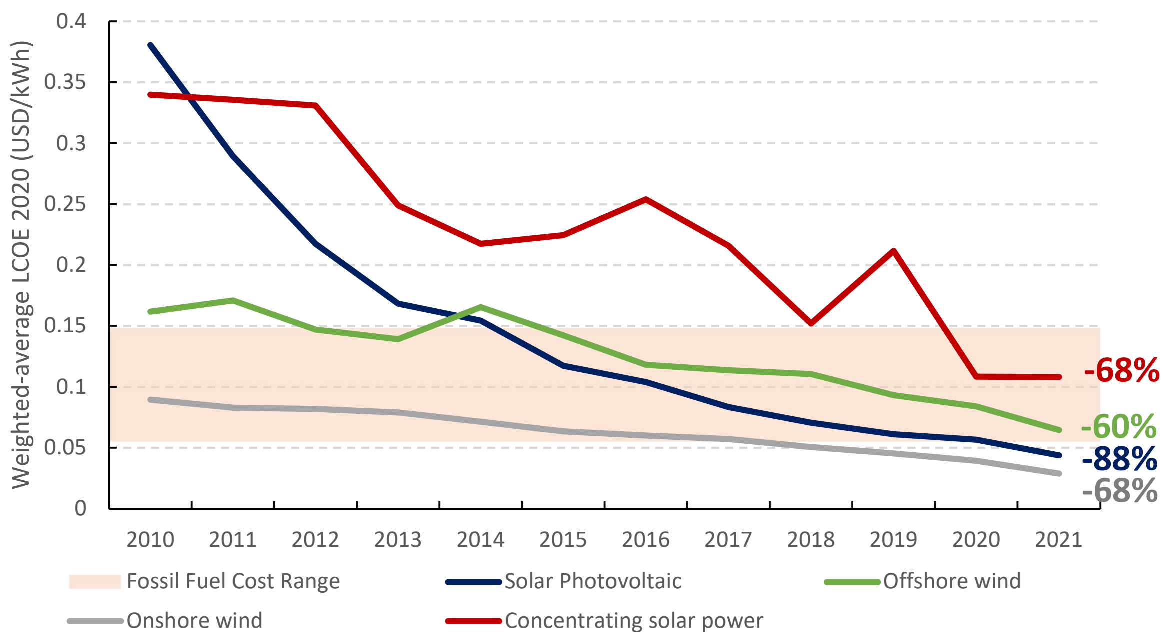
Elevated fossil fuel costs have been acting to slow economic growth and have been boosting current inflation levels. However, the peak inflationary impact of elevated fossil fuel prices is likely to have

occurred earlier this year. In recent months most fossil fuel prices have been declining and starting to act to curb inflation levels.

In addition, elevated fossil fuel-based energy prices are accelerating the trend to new, lower-cost, sustainable energy technologies.

The following chart shows that the price of renewable energy from solar and wind has been declining exponentially. As a result, critical renewable energy technologies now have a lower cost than fossil fuel alternatives. Technology-based factors should boost productivity and be disinflationary in the long term.

Figure 45: Global Weighted Average LCOE* 2020 USD/kWh



*Global weighted average levelised cost of electricity (LCOE) calculated on project level data for total installed costs and capacity factors from the IRENA Renewable Cost Database. LCOE estimates the average cost per unit of energy generated over the lifetime of a project. Source: International Renewable Energy Agency (IRENA), Bloomberg, Our World in Data.

Share price declines are not the same as permanent loss of capital

Genuine investment risk relates to permanent loss of capital, not short-term share price volatility (relative or absolute). This permanent loss of capital results when an asset's expected future free cash flows disappear, suffer a permanent material decline, or when there is a forced and highly dilutive capital raising. Permanent loss of capital occurs when the business ceases to exist because of bankruptcy or takeover or when the asset owner sells. Academic researchers use short-term share price volatility to represent investment risk in research studies because it is convenient to measure, and its abundance enables the use of substantial amounts of data.

High-quality businesses with structural growth characteristics will suffer from periodic price declines. However, these price declines do not become a permanent loss of capital unless the investor succumbs to the perceived pain of adverse short-term movements in paper wealth. Selling undervalued shares is wealth destructive if the business' long-term value and quality characteristics

remain intact and above the current share price. In this scenario, the share prices will ultimately recover and revert to moving in line with movements in their underlying value.

"To be an investor, you must be a believer in a better tomorrow."

Benjamin Graham, The Intelligent Investor

Historically the intrinsic value of the Hyperion portfolios has grown at double-digit annual rates over the long term.

The market prices of many stocks have recently suffered due to the rapid increase in long-term Treasury yields. Moreover, the impact has been most severe in parts of the market with high numbers of long-duration stocks.

Long-duration characteristics are associated with companies with strong and sustainable competitive advantages, strong value propositions, and the ability to sustain high levels of organic sales growth over the long term. Many stocks with these characteristics are early in their life cycle. They have limited or no profits and low or negative returns on equity (ROE). These stocks are particularly sensitive to higher bond yields.

Table 3 shows that 39.4% of the NASDAQ, or 1,361 companies, have declined on average by 73.5% since 19 November 2021. Comparing this to their share price highs, 65.0% or 2,245 companies have declined on average by 84.4% since their peaks. Some of these companies are of average or below-average quality. Thus, their share price declines relate both to a duration impact and a realisation that these companies will need to raise capital at low prices, be forced into bankruptcy during a recession, or be unable to sustain attractive levels of organic growth in the long run.

Table 3: Recent Performance of NASDAQ Companies

	% NASDAQ Index	Number of Companies	Average Return
Since 19 Nov 2021	39.4%	1,361	-73.5%
Since All-Time-Highs	65.0%	2,245	-84.4%

Source: Hyperion, Factset. Prices as at 3rd November 2022.

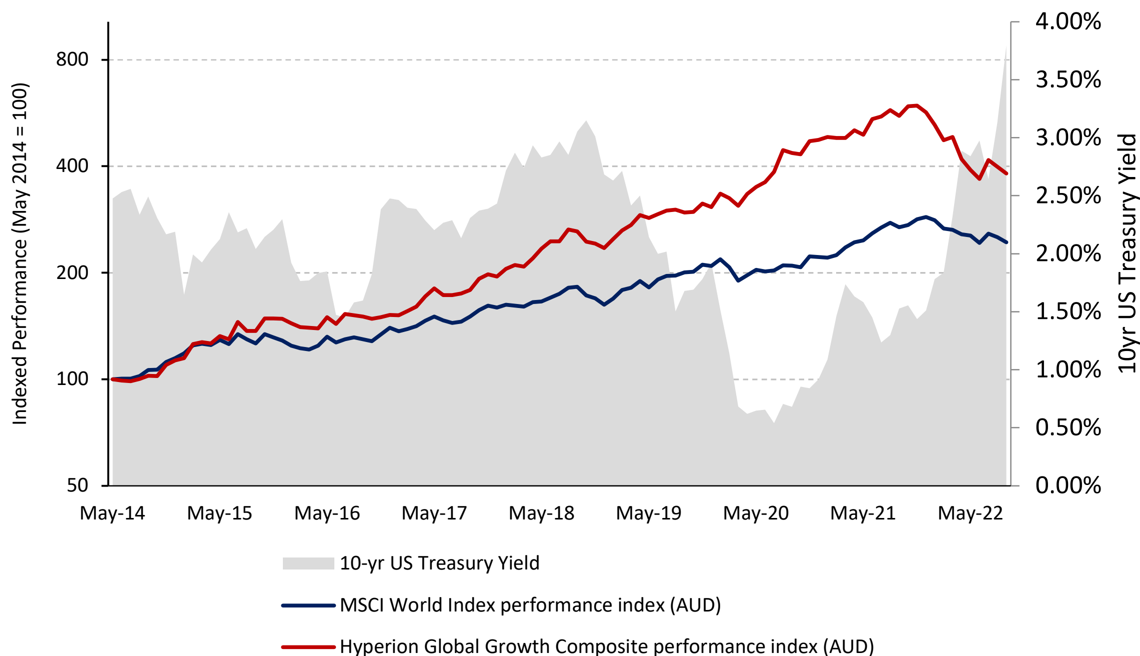
It is impossible to predict short-term share price movements. This lack of predictability is because most factors that drive share prices in the short term are random, mean reverting, and not reflective of long-term intrinsic valuation. Most short-term share price movements are determined by demand and supply imbalances resulting from temporary capital flows. We consider periods of short-term relative underperformance as an unavoidable part of achieving attractive long-term returns. It is difficult to accrue long-term alpha by focusing on accruing short-term alpha. We believe it is impossible to do both well in the long run. That is, accrue both consistent short-term and long-term alpha. Short-term trading strategies tend to be momentum based while long-term investment strategies are normally contrarian in nature. Momentum based strategies tend to purchase shares

that are rising or at least have a catalyst to create positive future share price action, while long-term investment strategies tend to purchase shares that are declining or at least inexpensive relative to their intrinsic value. Arguably, it is much harder to accrue short-term alpha where the market is more focussed and competitive ("red ocean") than at the long end of the market where there is less focus on fundamental research and long-term earnings ("blue ocean"). However, it is often uncomfortable for investors to take a contrarian view as although the probability of being "right" long term is higher, the probability of being "wrong" short term is also higher. The short-term feedback loops in terms of share price moves are amplified with (negative) commentary from the media and your peers.

Superior and sustained long-term EPS growth is the fundamental "signal"

The Hyperion Global fund has significantly outperformed its broader market benchmark since its inception in 2014. This investment outperformance results from superior EPS growth that is expected to be sustained at an attractive level in the future. Historically, the level and changes in long-term bond yields and their influence on short-term P/E ratios and other short-term valuation metrics have had no discernible impact on our portfolios' long-term returns. This lack of material return impact is because changes in long-term bond yields and their influence on short-term P/E ratios are range bound, mean-reverting, and amortising. The mean reverting nature of changes in bond yields and P/E ratios results in most of their short-term influence in one direction reversing in subsequent periods. Thus, the net impact of changes in bond yields and P/E ratios tends to net out to zero or close to zero for our portfolios over the long term. In addition, these changes in bond yields and P/E ratios are one-off and non-compounding; therefore, their influence declines over extended periods. In contrast, the influence of EPS growth compounds and therefore increases over extended periods.

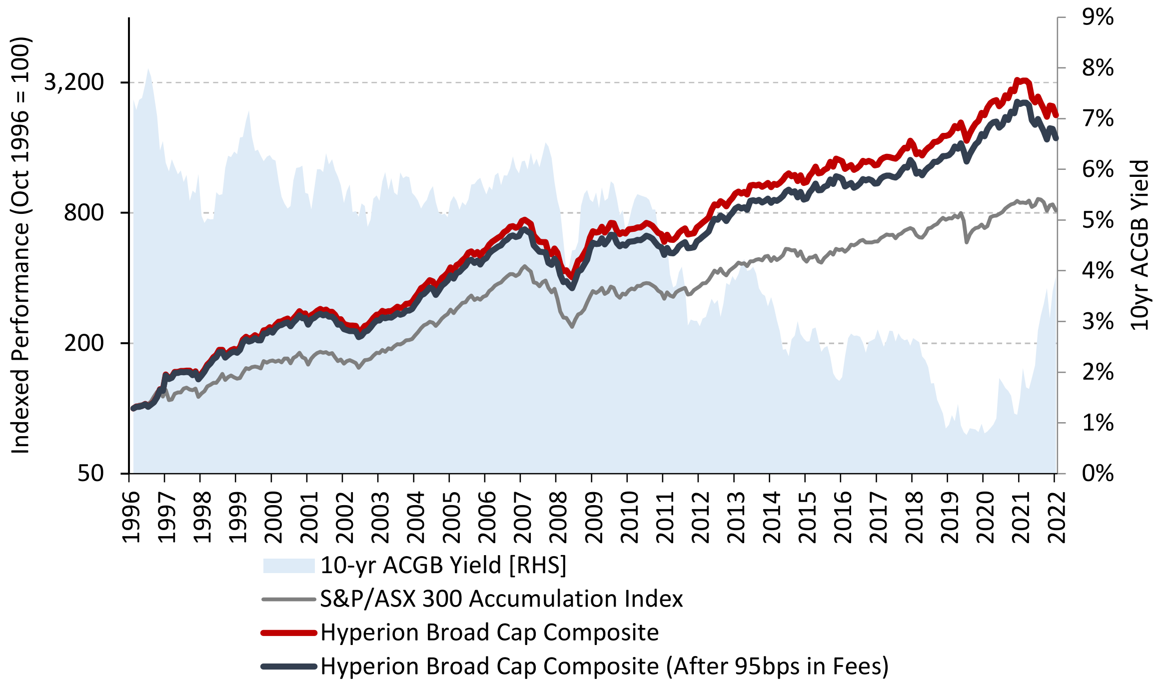
Figure 46: Hyperion Global Growth Companies Fund (Managed Fund) vs Treasury Yields



Source: Hyperion, FactSet. Past performance is for illustrative purposes only and is not a reliable indicator of future performance.

The same relationship has been observed for the Australian Fund over a longer period.

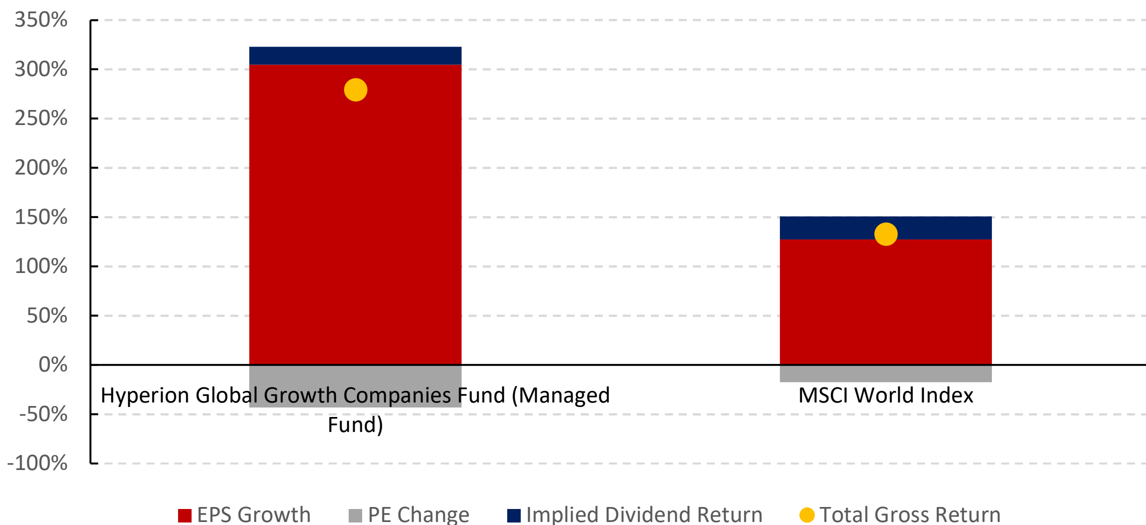
Figure 47: Hyperion Australian Growth Companies Fund vs Government Bond Yields



Source: Hyperion, Factset. Past performance is for illustrative purposes only and is not a reliable indicator of future performance.

The excess returns of Hyperion funds compared with their broader benchmarks can be largely explained by their higher relative EPS growth. The long-term superior EPS growth for the Global fund versus the broader market is shown in Figure 48.

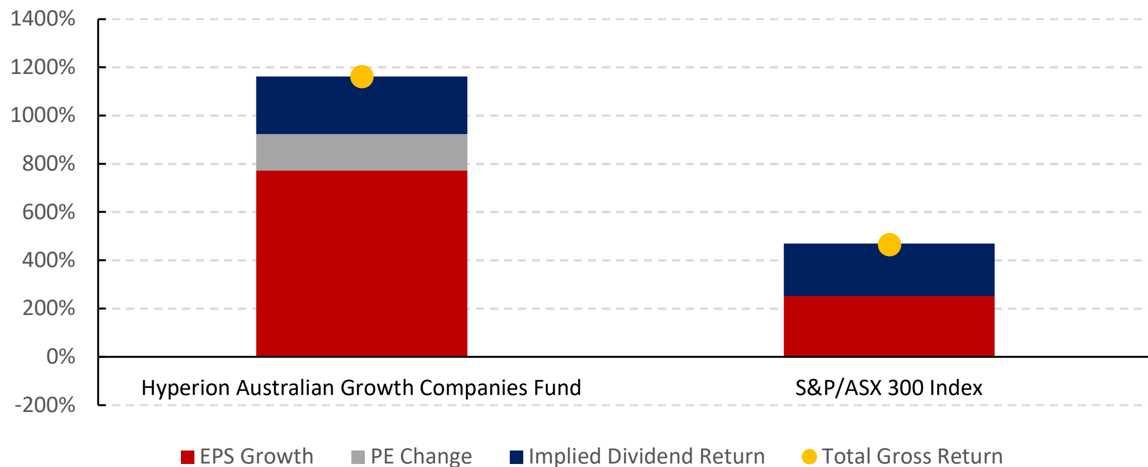
Figure 48: Breakdown of Total Shareholder Returns for Hyperion's Global Strategy



Source: Hyperion, FactSet, Macquarie. Returns for 31st May 2014 to 30th September 2022. Past performance is for illustrative purposes only and is not a reliable indicator of future performance.

The same relationship has been observed for Hyperion's Australian funds over a longer period.

Figure 49: Breakdown of Total Shareholder Returns for Hyperion's Australian Strategy



Source: Hyperion, FactSet, Credit Suisse. Returns for 30th September 2002 to 31st December 2021. Past performance is for illustrative purposes only and is not a reliable indicator of future performance.

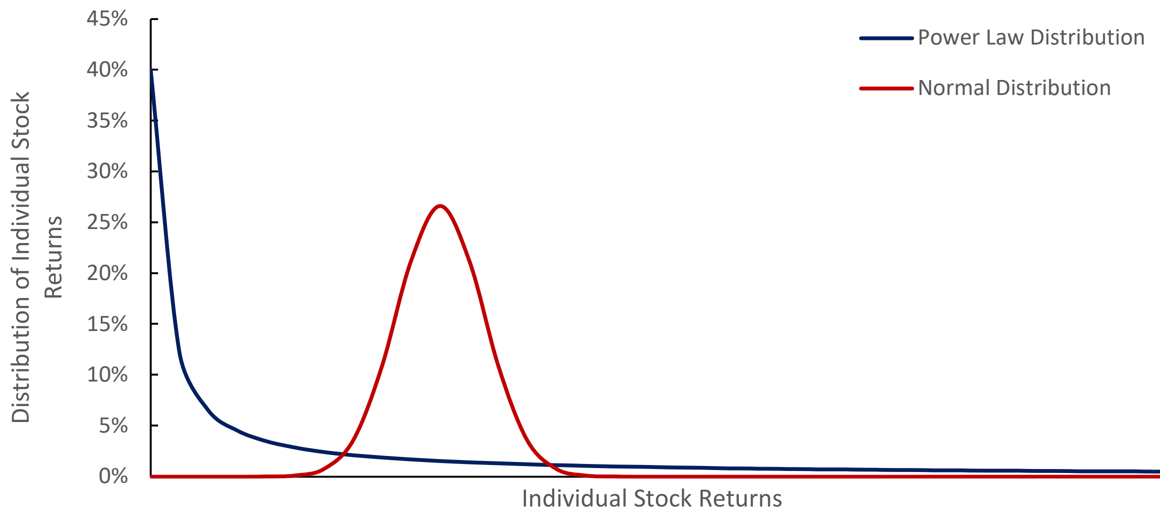
Successful equity investing is about having a reasonable portfolio exposure to a relatively small number of elite structural growth businesses. Most listed companies suffer from poor long-term economic fundamentals and an inability to grow organically at attractive rates over the long term.

The significant outperformance of this small number of high-quality structural growth businesses produces positive skews in returns that are not normally distributed. Essentially, the extreme fundamental economic success of a few listed equities masks the failure of most individual stocks. We discuss this in detail in our white paper *Equity returns are driven by the few, not the average – back the winners!*

An extremely narrow group of stocks drove the returns produced by U.S. equities from 1926 to 2016. Excess returns relative to Treasury bills were derived from a small number of stocks that generated abnormally large returns, not from the performance of a typical common stock (or the "average"). The net gain for the entire U.S. stock market since 1926, measured using CRSP monthly stock returns, is explained by the best-performing 4% of listed companies.[2]

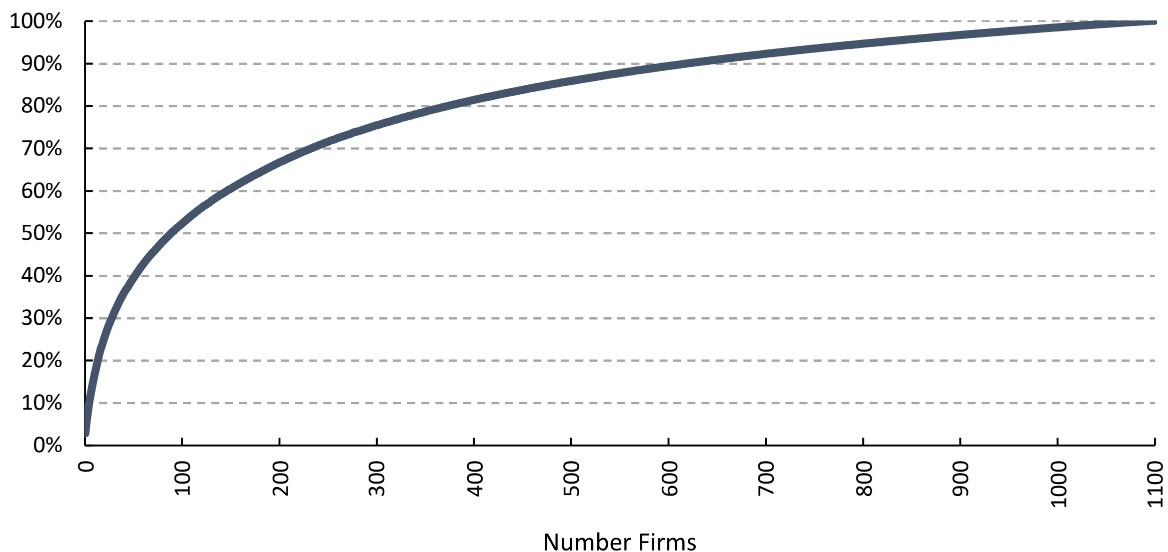
[2] CRSP monthly stock returns contain all common stocks listed on the NYSE, Amex and NASDAQ exchanges. Bessembinder, H. 2018. Do Stocks Outperform Treasury Bills? *Journal of Financial Economics*, 129(3): 440-457.

Figure 50: Power Law Distribution of Returns versus a Normal Distribution



Source: Hyperion

Figure 51: Cumulative Percent of Wealth Creation in U.S. Listed Markets, Top 1,100 Companies



Source: Bessembinder (2018), Hyperion

The economics of "creative destruction" drives capitalism, and for most long-term investments, this results in business failure and loss of capital. This destruction can occur quickly, with most common stocks having short lifespans. According to Bessembinder, more than half of CRSP common stocks deliver negative lifetime returns, with the most common outcome being a loss of 100%. Individual common stocks tend to have short lives; for example, the median time a stock was listed on the CRSP database between 1926 and 2016 was 90 months (or 7.5 years). This short life is another indicator of the inherent low quality of benchmarks, with many companies operating with unsustainable business models and financial structures (both across cash flows and balance sheets).

Long-term fundamental investors can take advantage of structural inefficiencies in the market

With passive and quantitative strategies' overwhelming role in equity markets, you must apply fundamental analysis within a long-term investment framework to accrue meaningful alpha. UBS estimates quantitative investors are 19% of listed equity markets.[3] Passive vehicles held 53.8% of U.S. publicly traded equity fund assets as of December 2020.[4] A recent conservative estimate was that passive investors held 37.8% of the U.S. stock market in 2020.[5] The Hyperion Global fund has significantly outperformed its broader market benchmark since its inception in 2014. This long-term alpha generation results from superior EPS growth over that period. Moreover, we expect this attractive level of future EPS growth to continue.

The lack of long-term fundamental analysis means the markets are highly momentum-driven in the short term but very inefficient in the long term. Most active market participants focus on predicting near-term share price moves rather than analysing securities' quality and long-term intrinsic value.

The level of long-term fundamental risk in the major global benchmarks is high. Mature "old world" businesses dominate these benchmarks. Modern companies with robust value propositions are disrupting low growth "old world" businesses that rely heavily on economic growth. Over the next decade, we believe there will be significant levels of creative destruction as this transition from incumbents to challengers progresses. In this highly competitive environment, it will be difficult for these large, listed businesses to sustain their current profit margins and to match the stronger value propositions of these newer innovative and more modern businesses. We already see the transition in market leaders in the biggest weights in some of the more sophisticated benchmarks globally. However, Australia is currently a significant laggard in this trend.

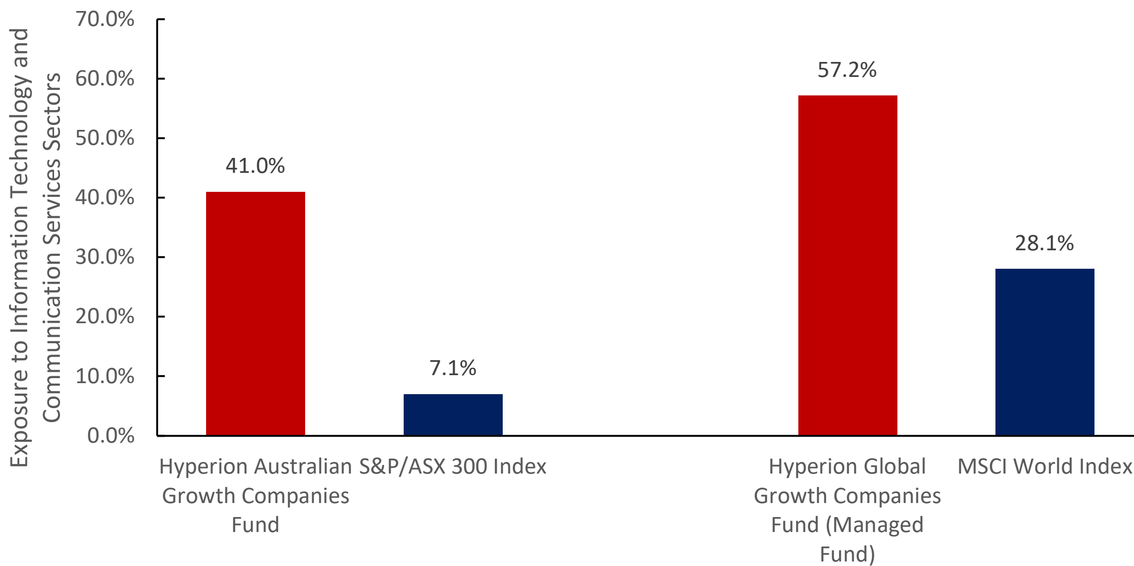
We estimate that software-related businesses represent less than 30% of developed global equities and around 7% of the Australian listed market. The Information Technology and Communication Services sectors currently have weights of 21.0% and 7.1%, respectively, in the MSCI World Index. See Appendix B for further details.

[3] Winter, P et al. 2022. Opportunities for Active Managers – Attractive opportunity to generate alpha lies ahead. UBS.

[4] Seyffart, J. 2021. Passive Likely Overtake Active by 2026, Earlier if Bear Market. Bloomberg Intelligence.

[5] Chinco, A, Sammon, M. 2022. The Passive-Ownership Share is Double What You Think It Is.

Figure 52: MSCI World Index and S&P/ASX 300 Index Sector Weightings



Source: FactSet. Data as at 30th September 2022.

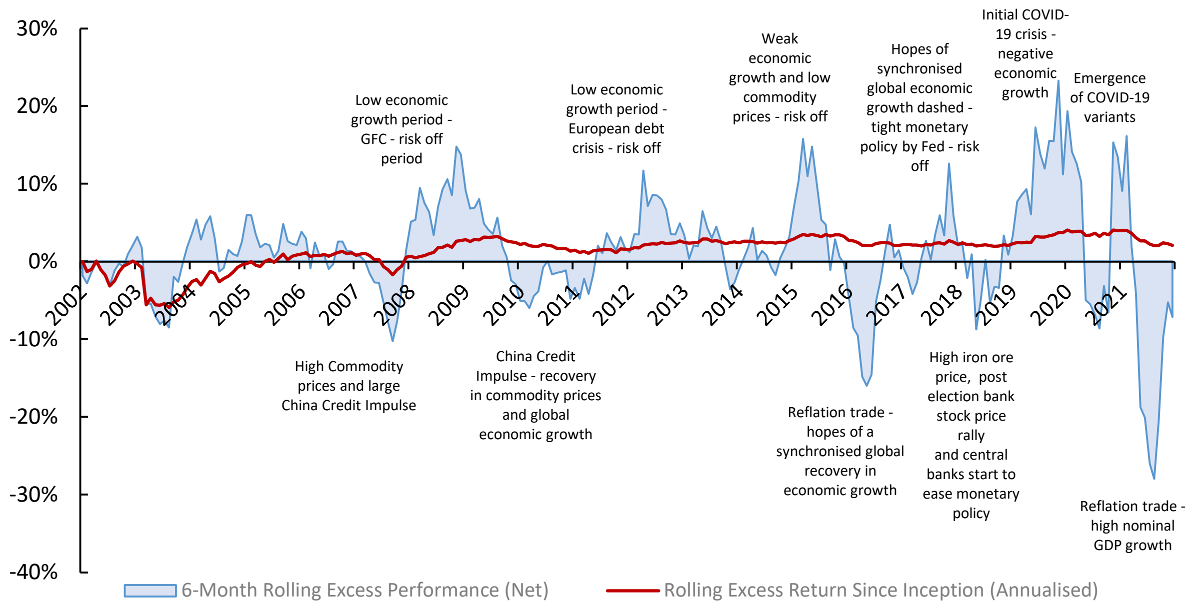
Furthermore, Information Technology and Communication Services are 3.1% and 3.9%, respectively, of the S&P/ASX300 Index. We believe software is a good market segment to discover companies with strong pricing power and the ability to increase their penetration in large addressable markets organically. With good security selection, you should be able to construct an equity portfolio with enduring double digit EPS growth through the cycle.

Large, incumbent, mature businesses typically dominate listed equity markets. Furthermore, these businesses were often developed through effectively understanding and targeting the growing baby boomer cohort. Over time, a younger generation that is digitally native, better educated, and globally aware, will drive consumer behaviour and corresponding investment decisions. Changes in behaviour and consumption patterns will be fundamentally driven and structural. We expect the sector allocations of the broader benchmarks to change significantly over the next decade.

In the short term, markets and investment styles are highly unpredictable

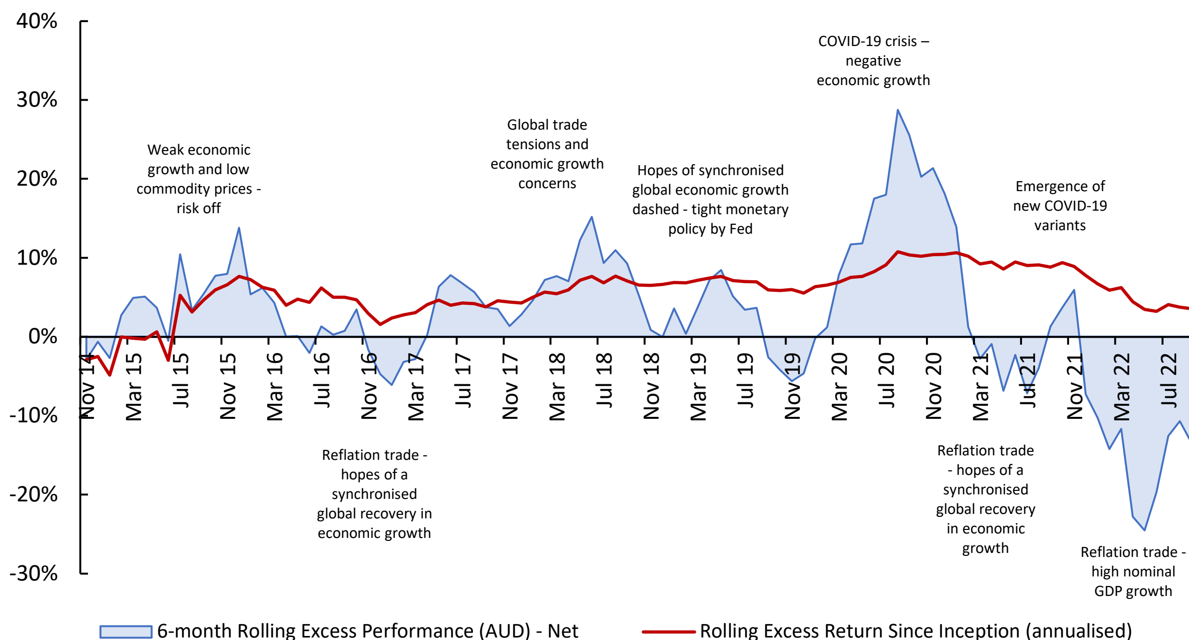
Despite our strong track record of outperformance over the long term, additional returns do not accrue smoothly and tend to cluster in specific periods. This short-term style-based volatility is shown in the charts below. The current environment is unfavourable for our style but as discussed should be temporary and is highly unusual.

Figure 53: Hyperion Australian Growth Companies Fund vs S&P/ASX 300 Accumulation Index Excess Returns



Source: Hyperion. Past performance is for illustrative purposes only and is not a reliable indicator of future performance.

Figure 54: Hyperion Global Growth Companies Fund (Managed Fund) vs. MSCI World Index Excess Returns



Source: Hyperion. Past performance is for illustrative purposes only and is not a reliable indicator of future performance.

Investors must be comfortable with sporadic periods of underperformance to compound returns at above-average rates over the long term. The Global fund has had two periods of relative underperformance since its launch in June 2014. These periods were in calendar 2016 with -6% alpha and from November 2021 to now, the most significant period of under-performance we have seen.

Multiple studies have shown that if you miss a few high-returning days, you underperform the market substantially and can accrue no absolute growth.

It is impossible to avoid these underperformance periods as timing markets is so difficult on a short-term basis, despite the secular trends that tend to drive equities higher over time. This inability to predict short-term periods of under and outperformance also applies to style-based investment returns that are heavily influenced by short-term macro factors.

"*In the 20 years between 1999 and 2018, the annual return on the S&P500 was 5.6%, but your return would only have been 2.0% if you had sat out the ten best days, and you wouldn't have made any money at all if you had missed the 20 best days*."

Howard Marks (January 2022 Memo)

"*In the post-war period, the U.S. stock market has gone up in around 70% of the years . . . Odds much less favourable than that have made casino owners very rich, yet most investors try to guess the 30% of the time stocks decline, or even worse spend time trying to surf, to no avail, the quarterly up and down waves in the market*."

Bill Miller (3Q2021 Market Letter)

A lot of randomness occurs in markets, including momentum, feedback loops, short-term news flow, P/E ratio changes, earnings arbitrage plays, shorting and macro news flow. Investors need a structure to take advantage of this noise. If share prices move for significant non-fundamental reasons, you can adjust portfolio weights to capture additional long-term returns. We expect our long-term excess returns to be broadly driven by 50% portfolio management and 50% stock selection, in line with Hyperion's historical experience.

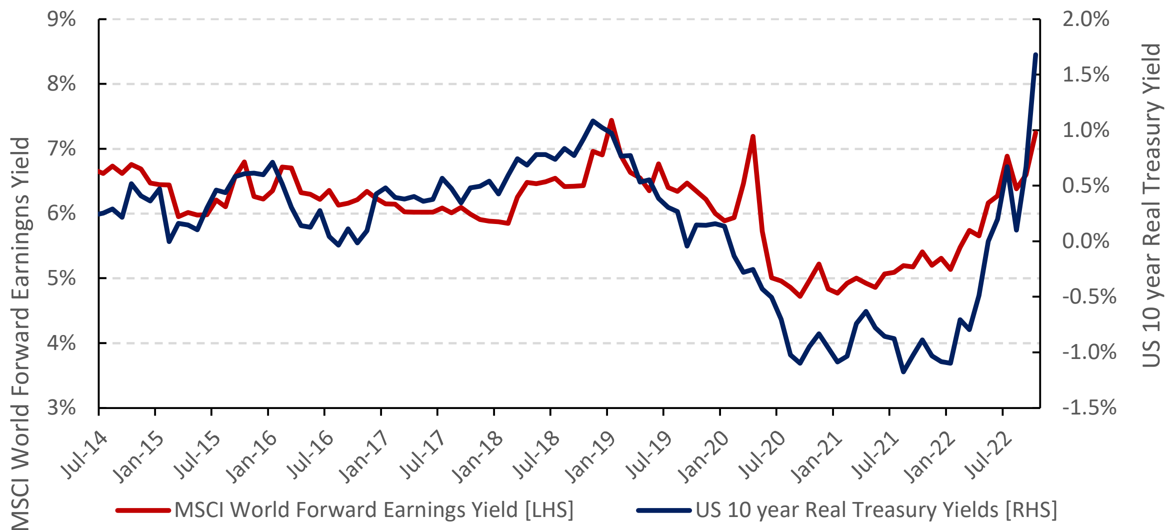
Short-term macro factors are providing long-term investors with an attractive opportunity

The recent selloff is providing an attractive opportunity for long-term investors.

Equity markets have experienced a significant reduction in traditional valuation metrics, such as P/E ratios and EV/Sales ratios, over the past 12 months. These ratios generally look reasonable at current levels based on a reasonable probability of inflation returning to low levels over the next 12 to 18 months. However, as shown in the following chart, higher real 10-year Treasury yields in recent months are now temporarily forcing equity market earnings yields higher and P/E ratios lower, independently of inflationary expectations.

The increase in real Treasury yields is temporary and will end once the Federal Reserve's monetary tightening phase ends. Real bond yields will likely decline to low levels in the longer term, given the structural economic headwinds mentioned previously.

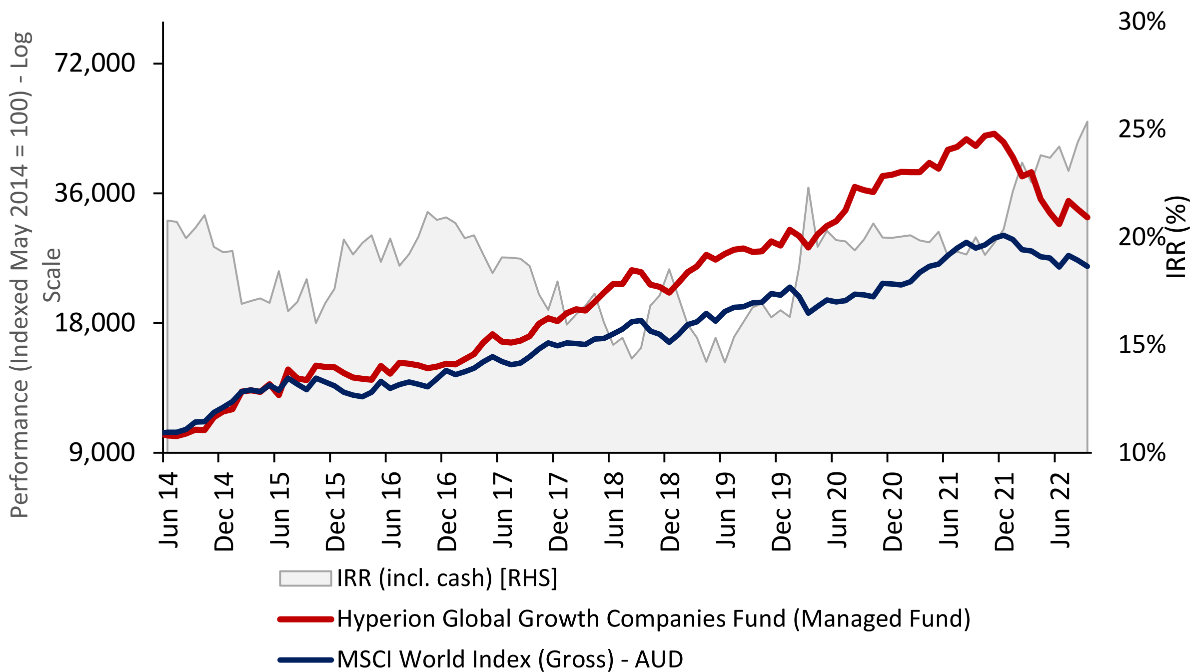
Figure 55: Real Yields vs MSCI World Forward Earnings Yield



Source: Federal Reserve Economic Data, FactSet. Data to October 2022.

The forecast total return or IRR for the Global fund is shown in Figure 56 by the shaded area. Currently, the IRR is estimated to be 25% p.a. pre-fees.

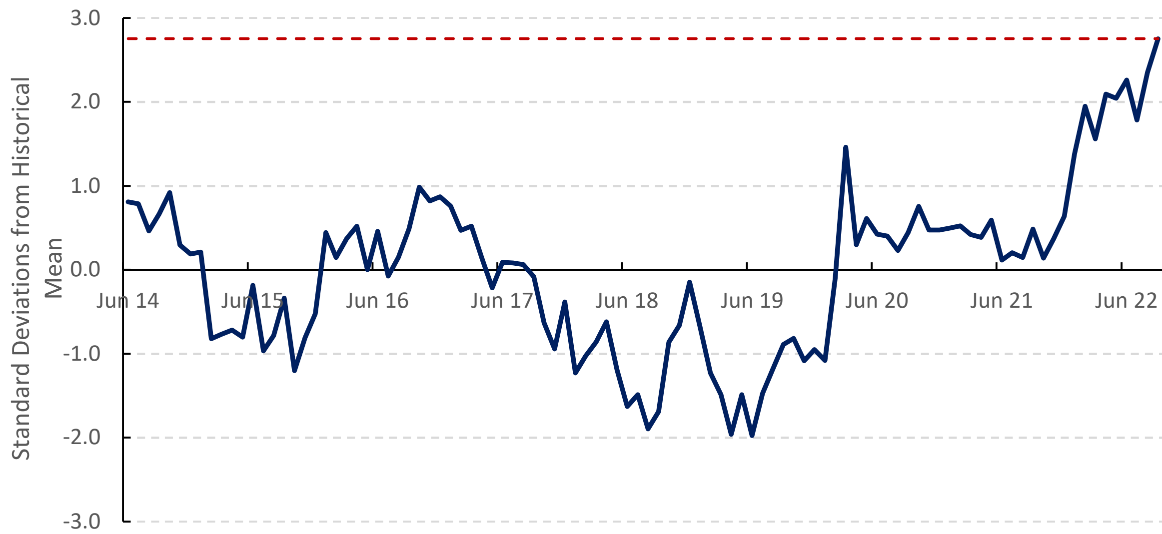
Figure 56: Hyperion Global Growth Companies Fund (Managed Fund) Performance vs. IRR



Past performance and IRR are not reliable indicators of future performance. Source: Hyperion, MSCI.

In the following charts, you can see in standard deviation terms the IRR for the Global fund is over 2.7 standard deviations above the long-term average, and the Australian Growth Companies Fund's IRR is over two standard deviations above the long-term average. So, based on our forecasts, both represent attractive opportunities at current price levels.

Figure 57: Hyperion Global Growth Companies Fund (Managed Fund) Forecast (Ex-ante) Portfolio IRR relative to Historical Average



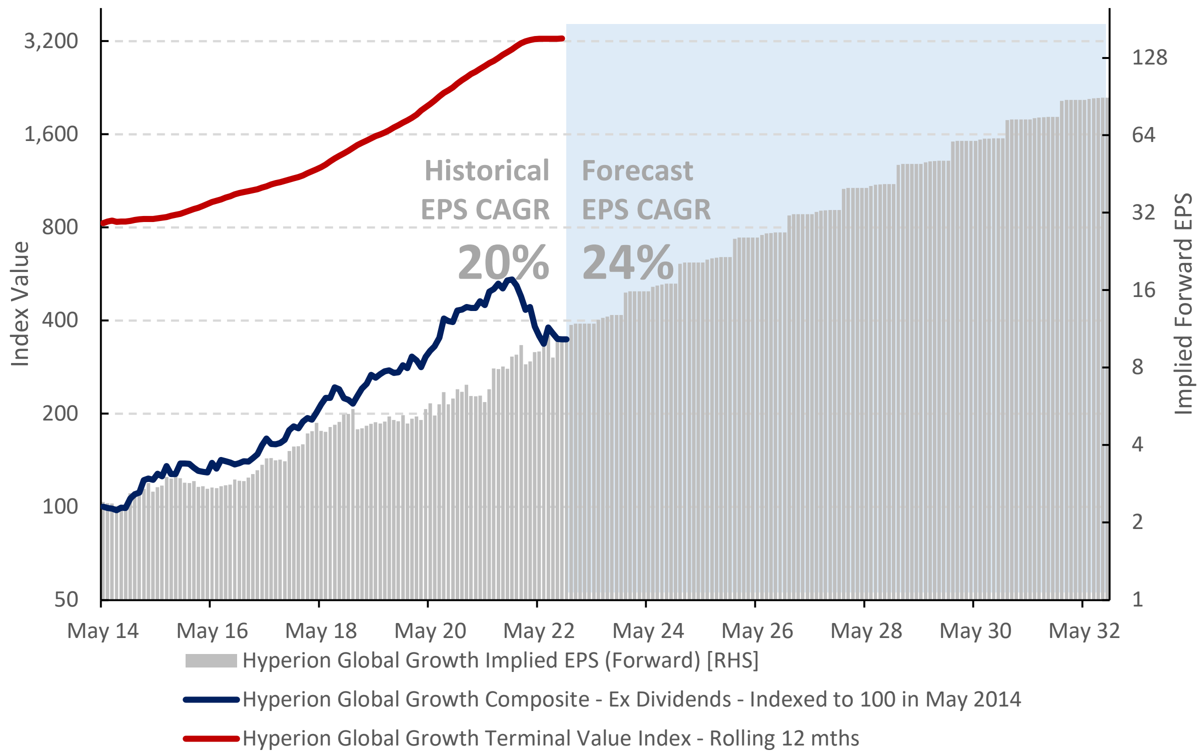
Forecast portfolio IRR shown is for illustrative purposes only and is not indicative of future performance. Data as at 30th September 2022. Source: Hyperion.

Figure 58: Hyperion Australian Growth Companies Fund Forecast (Ex-ante) Portfolio IRR relative to 10-Year Average

Forecast portfolio IRR shown is for illustrative purposes only and is not indicative of future performance. Data as at 30th September 2022. Source: Hyperion.

The following chart shows the Global portfolio's performance relative to its historical and estimated future EPS. We estimate that the Global portfolio's EPS growth should be around 24% p.a. over the next 10 years. This is in line with the forecast IRR mentioned previously.

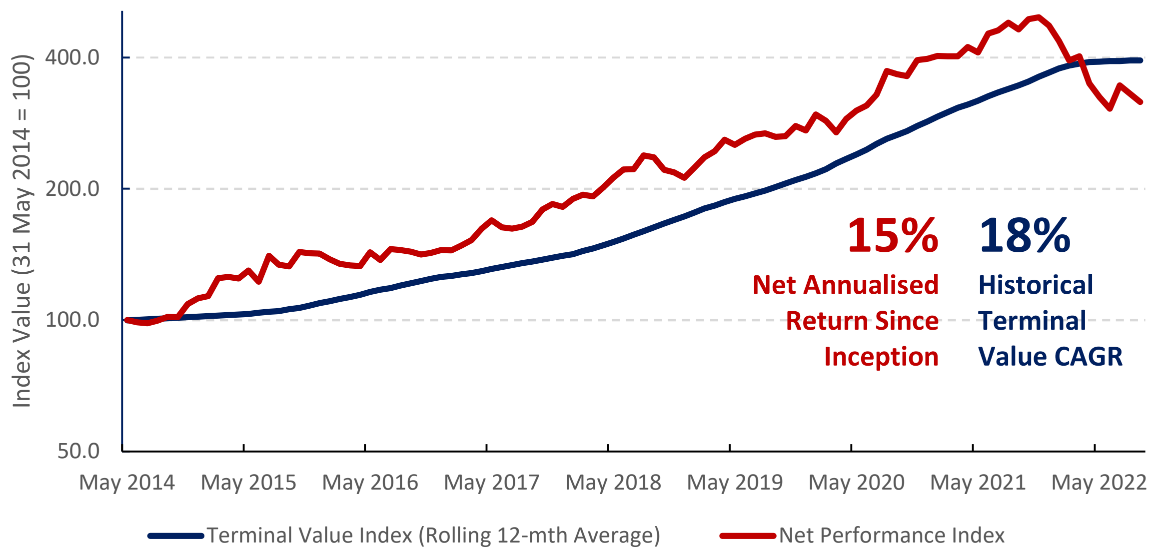
Figure 59: Hyperion Global Growth Companies Composite Valuation Trendline



Past performance, historical long-term valuation, and forecast EPS growth is not a reliable indicator of future performance and is shown for illustrative purposes only. Forecast Forward EPS assumes static portfolio as at 30th September 2022. Long term valuation index and HGGCF Forward EPS calculated based on monthly weighted-average change in forecasted terminal value and EPS of portfolio companies based on Hyperion's internal modelling. HGGCF Gross Value index excludes reinvestment of dividends and is gross of management fees. Source: Hyperion. Data as at 30th September 2022.

The long-term valuation of the Global fund has increased at an average compound rate of 18% p.a. since its inception in 2014. The following chart shows the relationship between the market price of the Global fund and its long-term intrinsic value. During the past 12 months, the market value of the Global fund has declined materially, whereas the long-term estimated value of the portfolio has been steady.

Figure 60: Hyperion Global Growth Companies Fund (Managed Fund) Intrinsic Value vs Indexed Performance



Terminal Value Index calculated based on monthly weighted-average change in forecasted terminal value of portfolio companies. Past Performance is for illustrative purposes only and is not indicative of future performance. Net Performance Index presented is net of applicable fees and costs. Source: Hyperion internal modelling. Data as at 30th September 2022.

Conclusion

The rapid change in long-term bond yields, particularly over the past 12 months, has been the primary cause of the decline in the market value of our portfolios.

Our portfolios' underlying EPS growth has been unable to offset the valuation impact from lower P/E ratios due to this rapid change. This inability of EPS growth to offset the duration impact of higher bond yields is because EPS growth is time-dependent, whereas bond yield and P/E ratio changes are not time constrained. However, EPS growth will dominate valuations over more extended periods, but significant changes in bond yields over short periods can overwhelm the impact of EPS growth.

Despite recent declines in our portfolios, the underlying fundamentals have not deteriorated, with our companies' competitive positions and long-term earnings growth profiles remaining strong.

If the change in bond yields occurred over a more extended period, then the underlying increase in EPS and the associated increase in the intrinsic values of our portfolios would have been able to counteract the impact of higher bond yields more effectively.

We remain confident that the Federal Reserve will ensure low inflation because most of the population is adversely impacted by high inflation. In contrast, a smaller percentage of the population is adversely affected by high unemployment.

The economic environment for our investing style should improve over the next 12 months. Low levels of nominal economic growth, including low inflation, remain the most probable long-run economic framework. Moreover, technology-based innovation will be a significant structural deflationary force in the long term.

Our forecasts assume very little economic growth over the coming decade. Furthermore, a cyclical recession over the next year is unlikely to impact our portfolios' long-term forecast EPS and valuations

materially. Any short-term, cyclical EPS downgrades will likely be recouped in the economic recovery following a downturn. Furthermore, a growth scarcity economic environment with low inflation still appears to be the most likely scenario in the long run. This low-growth economic environment suits our investment style. In a world where growth will again become scarce, businesses that grow by taking market share will be in a strong position to produce attractive returns over the long term. The current selloff is providing an opportunity for long-term investors to get exposure to some of the best businesses in the world at attractive prices.

November 2022

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Appendix A

Table 1: Global Top 10 Holdings – Low Penetration Rates

Ticker	Market Share in Niche	Penetration of TAM
TSLA	19% share of battery electric vehicle sales 6% share of total battery market (GWh)	1.7% penetration of global auto sales (units) 2.4bps penetration of overall global energy market ($)
AMZN	39% share of US E-commerce retail sales 11% share of Global E-commerce retail sales AWS has 39% share of IaaS/PaaS market 6% share of global online advertising market	7.0% penetration of US adjusted retail sales 2.3% penetration of Global adjusted retail sales 1.6% penetration of global IT spend 4.1% of total global advertising market
MSFT	20.6% share of IaaS/PaaS market 23.2% share of IaaS, PaaS and SaaS Market 6% share of Global Paid Search 7.7% of Gaming TAM	20.5% share of total TAM 3.8% penetration of Global IT spend
NOW	10% share of IT Workflows Market 1% share of CSM Market 4% share of HR Market 1% share of Creator Market	4.1% penetration of Total TAM Total TAM is 3.6% of Total Worldwide IT Spending
SQ	Square 8.8% penetration of # of SMEs in current markets Square 2.0% penetration of # of global SME's Square 1.6% share of retail spend in current markets 87% penetration of USA underbanked/unbanked population Cash App 17% share of USA adult population	Square has 0.6% penetration of global retail spend Cash App has 0.6% penetration of global population 2.3% penetration of the combined $190bn gross profit opportunity with Square at 1.9% and Cash App at 2.7% (ex-BTC).

Ticker	Market Share in Niche	Penetration of TAM
V	60% penetration (via cardholders) of Global Population ex. China 47.5% market share of global card volume 44% penetration (via cardholders) of Global Population ex. US and China	27.8% market share of global PCE volume Digital 14% of retail spend (2020 investor day) 6.7% penetration of TAM (based on $185T TAM at 2020 investor day)
ABNB	2.8% share of SAM (by GBV) Excludes conversion of global serviced apartment and residential market. Note: SAM listed at $1.4t in 2020 prospectus - $1.2t short-term stays (<28 days); and $0.2t experiences.	1.2% penetration of Total TAM (by GBV) Note: TAM listed at $3.4t in 2020 prospectus - $1.8t short-term stays (<28 days); $1.4t experiences; and $0.2t long-term stays. Difference between TAM and SAM: • Incremental $1.2t Experiences adds non-tourist recreational spend, as estimated by Euromonitor. • Incremental $0.6t ST stays assumes an increase in trips per capita in line with expected travel market growth. • Incremental $0.2t LT stays assumes $48 billion global serviced apartment market and 10% of the $1.6 trillion global residential rental market is addressable.
WDAY	12% core customer penetration (customer count) 9% market share of HCM TAM 1.5% market share of Financials TAM	4.9% Share of Total TAM
SPOT	17% penetration of Global Smartphone users ex-China 6% penetration of Global Population ex-China	10.3% penetration of Total TAM 5% penetration of Global audio ad spend (radio + podcast)
GOOGL	>90% Google paid search market share GCP has an 8.5% share of IaaS/PaaS market 42.5% share of Global Internet Advertising spend	27.4% share of current Global Advertising Spend

Source: historical annual data from Hyperion financial models – incorporates industry sources, management feedback and Hyperion estimates.

Note: the top 10 holdings in the Hyperion Global Growth Companies Fund (Managed Fund) are 73% of the portfolio as at the end of September 2022.

Table 2: Hyperion Australian Growth Companies Fund Top 10 Holdings – Low Penetration Rates

Ticker	Market Share in Niche	Penetration of TAM
SQ2	Square 8.8% penetration of # of SMEs in current markets Square 2.0% penetration of # of global SMEs Square 1.6% share of retail spend in current markets 87% penetration of USA underbanked/unbanked population Cash App 17% share of USA adult population	Square has 0.6% penetration of global retail spend Cash App has 0.6% penetration of global population 2.3% penetration of the combined $190bn gross profit opportunity with Square at 1.9% and Cash App at 2.7% (ex-BTC).
WTC	Involved with 10 of top 25 global freight forwarders Rolling out 43 large global freight forwarders onto CargoWise	8.2% share of Total software TAM (excludes displacement of labour)
RMD	63% market share in sleep market (OSA) OSA industry penetration of 20% in US and 5% in Europe	Estimate global penetration of severe sleep apnea at 11.8%
CSL	25.3% share of the IG global market TAM ($) 36.3% share of the IG global market TAM (volume) 21.8% share of global influenza vaccine market ($) through Seqirus	22.1% of current protein therapeutic market ($) Large part of market untreated Market expanding at high single digit rates
XRO	ANZ SAM share of SMEs – 69% UK SAM share of SMEs – 16% US SAM share of SMEs – 0.5% (including self-employed) Share in payroll globally (core growth) – 2% (TAM)	7.3% penetration of # of SMEs in current markets (in 12 key markets) 1.4% penetration of global SMEs Penetration of ancillary SAM – 3%
FPH	15.3% penetration of respiratory and acute care ($) 6.5% share of obstructive sleep apnoea ($)	9.4% penetration of total patient pool (volume)

Ticker	Market Share in Niche	Penetration of TAM
MQG	Credit penetration – 4.1% (Australia) Asset management AUM penetration – 0.44% (Global) IB and brokerage penetration – 1.87% (Global) FICC and Equities penetration – 1.47% (Global)	2.1% penetration of global asset management, investment banking and capital markets World's largest infrastructure manager and financial advisor
COH	Cochlear global implant share – 57% (volume) Acoustics global share – 72% ($)	4% global market penetration (volume) More than 60m people with severe or higher hearing loss (WHO)
JHX	90% USA fibre cement penetration ($)	20% share of the total US siding market ($) 23% share of the total ANZ siding market ($) <2% European facade market penetration ($)
DMP	ANZ pizza market penetration – 37.4% ($) Japan pizza market penetration – 26.3% ($) Europe pizza market penetration – 8.14% ($)	ANZ QSR market penetration – 4.4% ($) Europe takeaway market penetration – 2.7% ($) Est. weighted average share of takeaway across key markets is 5.1% ($)

Source: historical annual data from Hyperion financial models – incorporates industry sources, management feedback and Hyperion estimates.

Note: the top 10 holdings in the Hyperion Australian Growth Companies Fund are 74% of the portfolio as at the end of September 2022.

Appendix B

Table 1: Sector Weights Benchmarks

	S&P/ASX 300 (%)	MSCI World Index (%)	Difference
Communication Services	3.9	7.1	-3.2
Consumer Discretionary	6.5	11.2	-4.7
Consumer Staples	5.0	7.8	-2.8
Energy	6.3	5.2	1.1
Financials	28.0	13.5	14.5
Health Care	10.5	14.1	-3.6
Industrials	6.0	10.0	-4.0
Information Technology	3.1	21.0	-17.9
Materials	23.4	4.2	19.2
Real Estate	6.0	2.8	3.3
Utilities	1.2	3.1	-1.9

Source: S&P/ASX 300, MSCI, FactSet. Weights as at 30th September 2022.

Table 2: Sector Weights Hyperion Global Growth Companies Fund (Managed Fund)

	Portfolio (%)	Benchmark (%)	Under/overweight
Communication Services	11.0	7.1	3.9
Consumer Discretionary	35.4	11.2	24.2
Consumer Staples	3.4	7.8	-4.4
Energy	0.0	5.2	-5.2
Financials	0.0	13.5	-13.5
Health Care	2.0	14.1	-12.1
Industrials	0.0	10.0	-10.0
Information Technology	46.2	21.0	25.2
Materials	0.0	4.2	-4.2
Real Estate	0.0	2.8	-2.8
Utilities	0.0	3.1	-3.1

Source: MSCI, FactSet. Weights as at 30th September 2022.

Table 3: Sector Weights Hyperion Australian Growth Companies Fund

	Portfolio (%)	Benchmark (%)	Under/overweight
Communication Services	9.4	3.9	5.5
Consumer Discretionary	6.2	6.5	-0.3
Consumer Staples	0.0	5.0	-5.0
Energy	0.0	6.3	-6.3
Financials	10.5	28.0	-17.5
Health Care	33.8	10.5	23.3
Industrials	2.6	6.0	-3.4
Information Technology	31.6	3.1	28.4
Materials	3.9	23.4	-19.5
Real Estate	0.0	6.0	-6.0
Utilities	0.0	1.2	-1.2

Source: S&P/ASX 300, FactSet. Weights as at 30th September 2022.

General Disclaimer

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