

Citi Global Wealth Investments

Global Strategy | Quadrant

August 18, 2022

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Forecast Update: No Avoiding Slowing

Looking ahead to 2023, there is no way to avoid the economic impact of the rapid central bank monetary tightening campaign of 2022. We've cut our global growth forecast for 2023 from 2.7% to 1.7%. This is roughly half the long-term trend. The stall in the world economy should leave interest rates peaking and inflation on a decelerating path into 2024.

We see the US economy growing just 0.7% in 2023 before rebounding to a 2.0% growth rate in 2024. We also expect S&P 500 EPS to fall 9.7% in 2023 after a 6.4% gain this year (+4.5% in 2024).

Investor worries have been premature and positioning bearish, setting the stage for the present rebound in risk assets. Strongly-telegraphed central bank moves set markets on a path of forecasting recession in 1H 2022. Various indicators don't suggest a disastrous economic collapse. Nonetheless, it is also premature to price in a recovery when the slowdown has yet to significantly unfold.

Recessions have always had a component of "surprise" and "shock" amid overconfidence. Widespread market fears suggest this dynamic (which worsens the outcomes) is lacking.

Nonetheless, we see US labor markets swinging to small net job losses in 2023. The semantics of what constitutes recession shouldn't be the primary concern of investors, but we see the outlook divided between 50% recession (mild or deep), 40% slow growth, and a 10% probability of a stronger recovery.

The possibility remains that the US economy "comes to grips" without contraction. This is predicated on falling inflation in the period just ahead when labor markets are still improving. It would require a speedy recognition by the Fed that it doesn't need to push the economy into collapse. Conditions in Europe and the UK, meanwhile, seem too far gone to avoid a contraction. We expect these regions to see real GDP declines of 0.5% and 1.0%, respectively, in 2023.

Without a "pivot" from the Fed, we see significant risk of an early end to the post-COVID economic expansion. We've made additional asset allocation changes to reflect this. On the Fed's hawkish guidance, the US Treasury 2-year note now yields 3.2%, more than any other US Treasury. Short-duration US Treasury yields are now nearly as high as 30-year Italian or Greek debt yields.

With some very-low-risk, short-duration bonds now yielding close to 4%, we've added 2% to these holdings. We continue to overweight intermediate IG corporate bonds and long-term US Treasuries as a risk hedge. We believe US 10-year Treasury yields could temporarily fall back to 2% on signs of economic contraction sometime in 2023.

To fund the increase in US bonds, we've eliminated the overweight to global natural resources equities. This reduces our global equity weighting to -2% from neutral. This weighting is now the same with- or without commodities.

On average over the last four recessions, the Energy and Materials sectors (combined) posted an average peak-to-trough EPS decline of 86%. While we see attractive dividends across the industry and a valuable hedge against supply shocks, our risk posture no longer favors an overweight. We would prefer to maintain opportunistic overweight positions in narrow industry groups such as LNG and EV materials rather than petroleum.

Like the broader world, we have cut China's growth outlook for 2023 and see a below consensus 4% growth rate in 2024. Nonetheless, the contrast between the US and China is growing, with China's economy likely to benefit from a new easing cycle while the Fed continues to tighten. We remain slightly overweight both equity markets within a global underweight. We are more defensively positioned in US equities through large cap dividend growers, pharmaceuticals and cybersecurity themes while underweight small caps.

With a 300-basis-point leap in 2-year US Treasury yields over the past year, and the Fed inverting the yield curve, the Global Investment Committee added 2 percentage points to our Global Fixed Income allocation at our August 17, 2022, meeting. The addition was split evenly between short-term US Treasuries and short-term US Investment Grade Corporate Bonds.

To fund the shift, we eliminated our overweight in global natural resources equities. This reduced our Global Equity position from neutral to underweight 2% (excluding commodity-related industries, the equities position remains unchanged at 2% underweight).

Our Global Fixed Income weighting was raised from -1% to +1%. Our US Fixed Income overweight rose from +10.2% to +12.2%. Gold remains 2% overweight, with cash at 1% underweight.

With the Fed and other developed market central banks continuing to tighten, we see very weak GDP growth or recession ahead in 2023. In the US, this should result in modest employment declines and, at minimum, a small drop in corporate profits. Weaker inflation should help real incomes stabilize. However, there is low probability that the US economy can reaccelerate unless the Fed pivots quickly toward policies to preserve the expansion.

The severe price shocks in Europe and the likely central bank policy path in both the EU and UK point to a contraction there after a strong start for economic growth in early 2022. China is suffering from the aftermath of sharp policy tightening last year, but is now in the process of easing. While a growth recovery may be slower to gain traction, we look for a stronger gain for China's economy in 2023.

Equity markets have changed course in the past two months with strong gains coming on the back of more stable bond yields and slightly weaker inflation. The communication of rapid central bank tightening – particularly from the Fed – had caused investors to expect recession in the first half 2022. However, the likelier timeframe for economic weakening has always been 2023 rather than this year. The now-inverted US yield curve has on average led US economic peaks by 10 months. For now, continued employment gains reflect rebounding production and inventory accumulation. However, these gains, along with a drop in housing, will weigh on economic growth in 2023.

The Fed has now raised short-duration yields high enough to suppress longer-term yields, giving us reason to add short-term bonds in portfolios. Prior to the yield rise at the front end of the curve, we had kept overweight bond weightings at intermediate- and long durations only, adding sharply over the past year. With short-term US Treasury yields at 3.2% and short-duration IG corporate yields near 4%, this low-volatility asset offers opportunity at very low risk.

To fund the addition, we removed our thematic overweight to global natural resources equities. While we see attractive dividends across industry segments, with shares also representing a valuable hedge against supply shocks, our risk posture no longer favors an outright overweight. These equities continue to be fully weighted in global benchmarks. We would prefer to maintain opportunistic overweight positions in narrow industry groups such as LNG and EV materials rather than petroleum.

Last month, we eliminated a position in Oilfield Services, which we also considered an inflation hedge. While the supply issues surrounding Russia and Ukraine have not been resolved, over the last four recessions, the energy and materials sectors (combined) posted an average peak-to-trough EPS decline of 86%. This was the largest decline among industry sectors.

Gold may also come under downward pressure as the Fed raises policy rates further, inflation decelerates, and the US dollar remains a beneficiary of global safe-haven flows. However, gold may benefit if and when the Fed pivots to easing. While this may take many months, the first signs of a US employment contraction could boost expectations of such a shift, benefiting safer bonds and gold.

We have maintained a focus on defensive, income-oriented equities through most of 2022, including both the sharp correction and the rebound of the past two months. In the year-to-date, these equities have outperformed. The severe weakening of US small cap shares (-32% at the low point) boosted our tactical returns as we are underweight. However, as small and mid-cap shares have bounced back, this has recently detracted from our performance.

Investor sentiment readings in the past few months have been acutely bearish. This is typically a contrarian positive indicator, suggesting defensive positioning. As we have always believed the lag between the Fed's tightening and the impact on US economic growth would be sizable, the immediate panic over recession can fade. The world economy, however, cannot avoid an economic slowdown in the year ahead. As such, we believe it is premature for investors to discount an economic reacceleration before the full impact of economic slowing can be gauged.

That said, we do not suggest "market timing" or wholesale liquidation of equities positions. The 17% rise in US large cap equities in the last two months (a GIC overweight) shows why. With our return outlook now dimmer over the 12-18 month tactical period ahead, we have simply shifted holdings to incorporate safer bond and dividend yield components while maintaining market exposure.

The period of rapid central bank tightening may generate a recession in the year ahead. It has already resulted in double-digit declines in both global equities and bonds for the first time in observable history during 1H 2022. While costly, these actions are also likely to set inflation on a decelerating path. Though we are concerned that US monetary policy actions will generate greater-than-necessary market volatility, containing inflation will yield economic benefits for long-term investors and the public. While too early for immediate action, we would expect to see greater potential opportunities in equities during the coming year.

ASSET CLASSES | Global USD with Alternatives Level 3

| | -2 | -1 | 0 | 1 | 2 |
|---------------------------------------|----|----|---|---|---|
| FIXED INCOME | | | | | |
| Developed Sovereign | | | → | | |
| Developed Investment Grade Corporates | | | | | → |
| High Yield | ■ | | | | |
| Emerging Market Sovereigns | | | | ■ | |
| EQUITIES | | | | | |
| Developed Equities | | ■ | | | |
| Large Cap | | | | ■ | |
| US | | | | ■ | |
| Europe | | ■ | | | |
| Asia ex-Japan | | | | ■ | |
| Japan | | ■ | | | |
| Small and Mid Cap | | ■ | | | |
| US SMID Cap | | ■ | | | |
| Non-US SMID Cap | ■ | | | | |
| Emerging Market Equity | | | | ■ | |
| Thematic Equity* | | | | ← | |
| CASH | | ■ | | | |
| COMMODITIES | | | | | ■ |

*Thematic equities include, Cyber security, Fintech, Pharmaceuticals, Global Natural Resources and US Oilfield Services.

Please refer to the [Portfolio Allocations](#) for a comprehensive breakdown of the portfolios at each risk level.

-2 = very underweight | -1 = underweight | 0 = neutral |
1 = overweight | 2 = very overweight

Arrows indicate changes from previous GIC meeting

Forecasts Aren't "Nowcasts"

The real economy
can't keep up with
the speed of
information.

Ships don't cross
oceans as fast as
investors can buy
and sell.

Inflation is a pre-
cursor to a recession,
but not the real thing.

Recession, recession everywhere... except for labor markets and corporate profits.

In a world of 140-character communications and same-day delivery, investors can't seem to understand why recession forecasts aren't recession "nowcasts." (If you've read this far, you probably are an overachiever in the realm of attention span.)

As we will discuss in our forecast update below, the prospect of a central bank-driven economic downturn is still very much a risk in the coming year. We believe a path to an unbroken economic expansion remains. However, either "contraction" or "slow growth" constitutes 90% of our probability distribution for the US economy in 2023.

Economic growth risks are very much worth managing in portfolios. However, it can be confounding for market timers hoping to trounce the averages. Why would global share prices fall 23% just to regain half of it? Is recovery just around the corner? Is it a new bull market?

Before we discuss the economic outlook for the coming two years (a lifetime, we know), we hope to clarify the recent market context for those suffering from investor "whiplash."

Unwinding Bearish Positioning Is Not Economic Recovery

As readers well know, a shocked world economy yielded a sharp spike in consumer prices in the past year; energy and food most painfully. Key services prices are now "carrying the inflation ball" further into 2023. The inflation spike collapsed consumer sentiment as governments – once keen to protect consumers – couldn't use their usual inflationary medicine in a fight *against* inflation (see figures 1-2). This left many to expect an immediate end to a statistically young economic recovery.

Figure 1: US CPI: Food and Energy Y/Y%

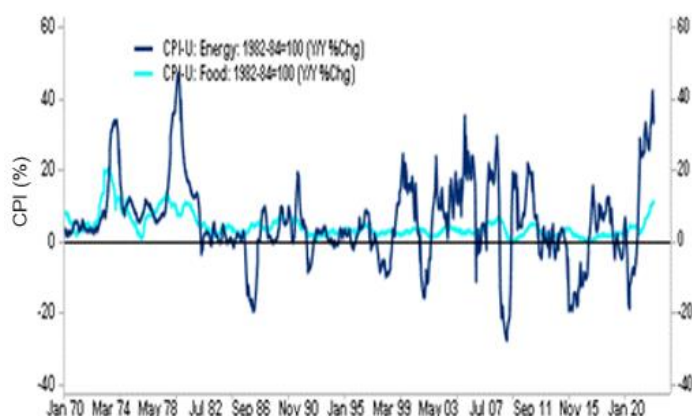


Figure 2: US Consumer Sentiment Index



Source: Haver as of August 16, 2022. Note: Grey areas are recessions.

The word recession seems to have become a "catch-all" term for any problem affecting a large share of the population. Recession jumped to the forefront of public attention even as inflation – not immediate job loss – is the key issue for public well-being (see figures 3-6). With this in mind, investors scrambled to deploy "recession plays" and proceeded to dump equities (see figure 7).

Figure 3: Recession? US Employment and Industrial Production Rise Through 2022-to-date



Source: Haver as of August 16, 2022. Grey areas note recession.

Figure 4: US Averages 471,000 New Jobs Per Month in 2022-to-date

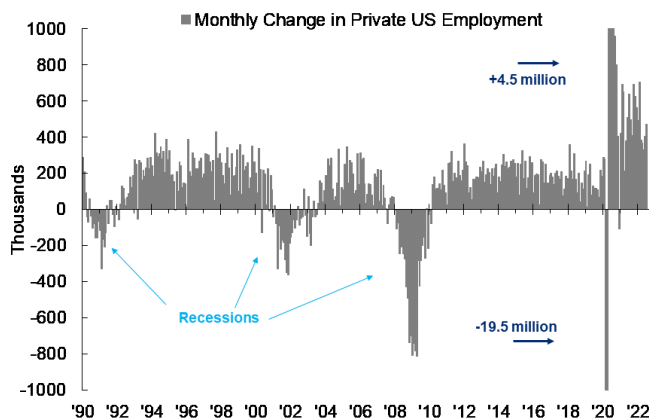
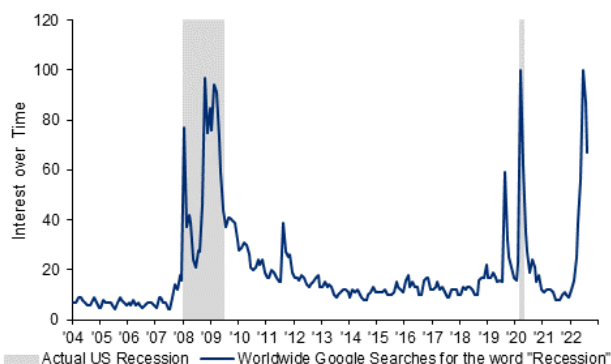


Figure 5: World-Wide Google Searches: “Recession”



Source: Google as of August 16, 2022. Grey areas note recession.

Figure 6: World-Wide Google Searches: “Inflation”

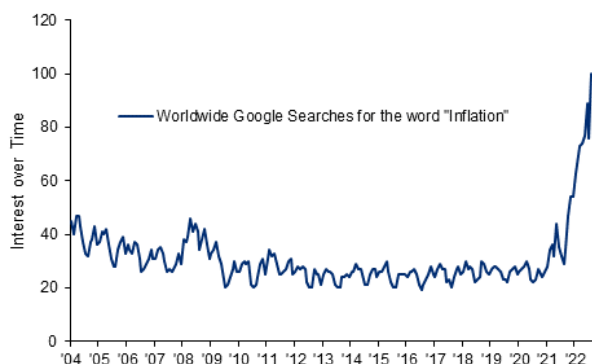
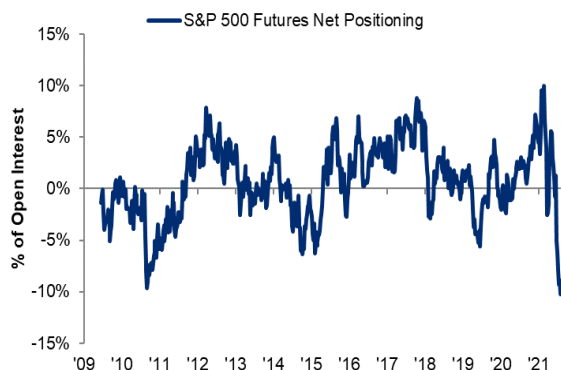


Figure 7: Net Short Positions in S&P 500 Futures



Source: Bloomberg, as of August 16, 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.

We have long expected a new record high for US corporate profits in 2022.

The question is future profitability, not the past or present.

While there were sequential declines in US real GDP in 1H 2022, another missing element of recession was a decline in corporate profits. As figure 8 shows, S&P 500 EPS rose to a record high in 2Q, up about 6.5%. While EPS were stronger than our estimates, we would note that prior to the results, we expected a 5.5% gain in S&P

500 EPS this year. This contrasts markedly with the 10% year-to-date drop in US equities.

Recession and profit declines were never our forecasts for 2022. Unfortunately, investors don't value equities on past profits and dividend payments, only future profits and payouts. Here, the cumulative impact of Fed policy tightening will still come to bear. As figure 9 illustrates, the "strongest" fit between expected policy tightening priced into the US Treasury market and US corporate profits is 18 months. And as discussed below, the weakening in consumption, production and sensitive goods prices should cut S&P 500 EPS by nearly 10% in 2023 before recovery in 2024 (see figure 10).

Figure 8: "Profits Today": S&P 500 EPS through 2Q 2022

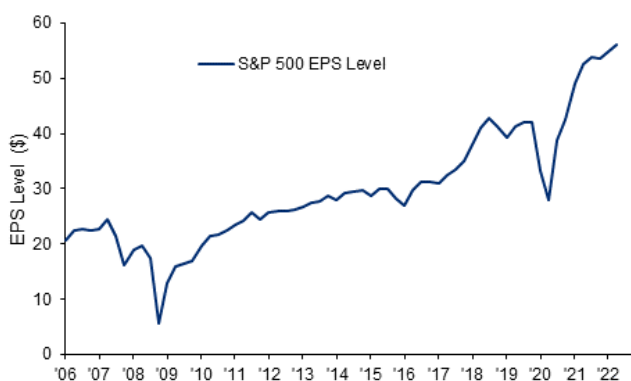
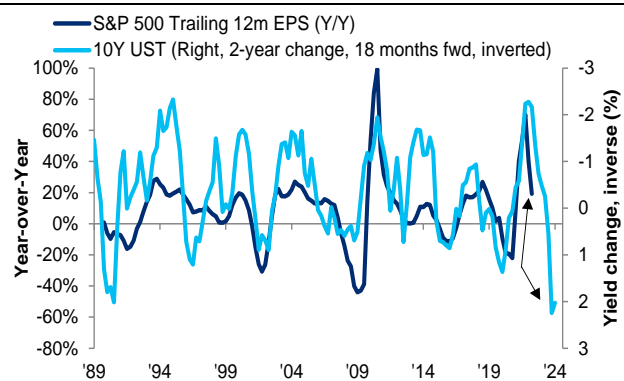


Figure 9: "Profits Tomorrow" – Two Year Change in Long-Term US Treasury Yield vs S&P 500 EPS (Yields Shown with 18 month Lead Time)



Source: Haver Analytics as of August 16, 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.

Figure 10: Citi Global Wealth S&P 500 EPS Forecasts

| Citi Global Wealth Investments | | | |
|---|---------------------|-----------------------|----------------|
| S&P 500 Earnings Estimates (Updated as of Aug 2022) | | | |
| | Earnings/Share (\$) | Earnings/Share (Y/Y%) | Price/Earnings |
| 2019 | 164.60 | 1.0 | |
| 2020 | 142.34 | (13.5) | |
| 2021 | 209.06 | 46.9 | 20.1 |
| 2022 | 222.50 | 6.4 | 18.9 |
| 2023 | 201.00 | (9.7) | 20.9 |
| 2024 | 210.00 | 4.5 | 20.0 |

Source: Citi Global Wealth Investments (CGWI) as of August 16, 2022. All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events. Past performance is not indicative of future returns. For illustrative purposes only. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment.

The initial rise in US Treasury yields in 2020 was driven by recovery expectations from the COVID collapse. The second stage of the yield rise in 2022 was driven not by stronger growth expectations, but by the Fed's shift to "rapid tightening."

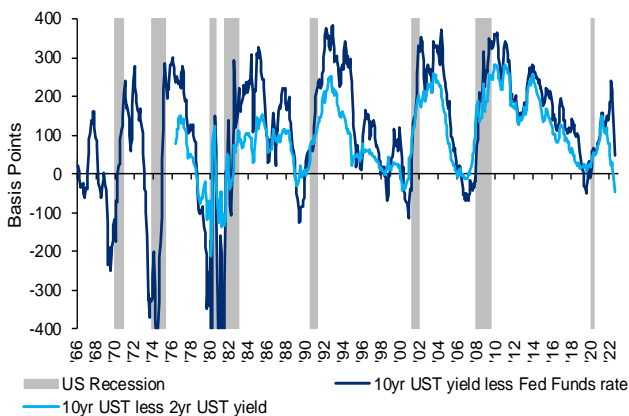
The starting point for US 10-year yields of 0.5% may tend to exaggerate the absolute extent of policy restraint. Yet the change in Fed policy has still been historically severe. It has caused an inversion of the US yield curve, which has led US recessions

The Fed has inverted the US yield curve, pointing the economy in the direction of contraction in the year ahead.

by 10 months on average, with arguably only one false warning in six decades (see figure 11).

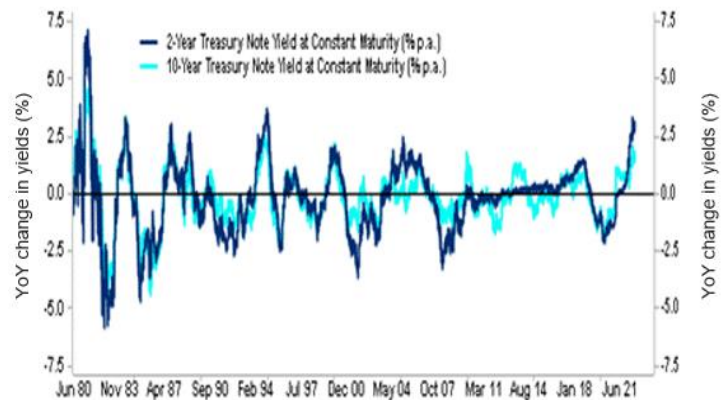
With long-term US bond yields surging in the first five months of 2022, the CGW Global Investment Committee (GIC) added long-duration Treasuries as a risk hedge in late April and added further to intermediate Treasury and investment grade corporate yields from May through July. Now, with the Fed following through with 225 basis points of rate hikes in the year-to-date and another 100 expected by year end, the Fed has pushed 2-year US Treasury yields to the highest across the curve (see figure 12).

Figure 11: US Treasury yield curve: 10y/2yr and 10yr/Fed Funds Recessions have followed on average 10 months later



Source: Haver as of August 16, 2022.

Figure 12: Annual Change in 2 Year US Treasury and 10 Year US Treasury Yield



US 2-year investment grade corporates yield more than 30-year Greek debt.

In our lengthy experience, recessions have been particularly painful when they occur amid hubris and denial.

The low level of confidence today is just one contrast with the 2000 and 2008 episodes.

The US 2-year yield – now at 3.2% -- is nearly as high as 30-year duration Italian or Greek debt. Short-duration investment grade US corporate yields are above the yield of those volatile sovereigns.

Irrespective of “recession” semantics, the Fed has made very low-risk and less volatile bonds a compelling relative value. This week, the GIC added more to its US bond overweight by raising the allocation to short-term US Treasuries and similar duration investment grade corporate bonds by 2% for medium risk portfolios. As we discuss below, to make the allocation change, the GIC reduced exposure to assets we consider “inflation hedges,” as we believe there is high probability the coming period will see inflation decelerate.

Inflation is a sign of economic illness, a supply-demand imbalance that needs to be resolved over either the short- or long-term. There is much to criticize in the Fed’s policy approach, particularly last year’s easing steps during an economic boom. At least, however, the inflation problem is being confronted without delay.

We also see a possible silver lining in the economy’s performance. In our lengthy experience, recessions have been particularly painful when they occur amid hubris and denial. The 2001 recession was particularly painful for a so-called “new economy” suffering from wreckless corporate spending (see figure 13). During the housing bubble period, many denied there was a macroeconomic problem as lending standards plunged and construction soared (see figure 14).

Figure 13: Manufacturers Shipments of US Information Technology Equipment Boomed in late 1990s

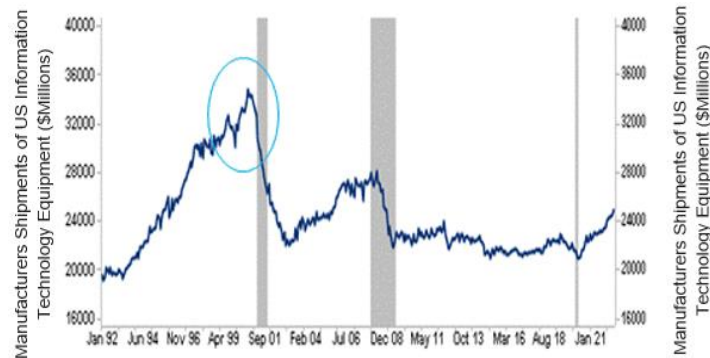
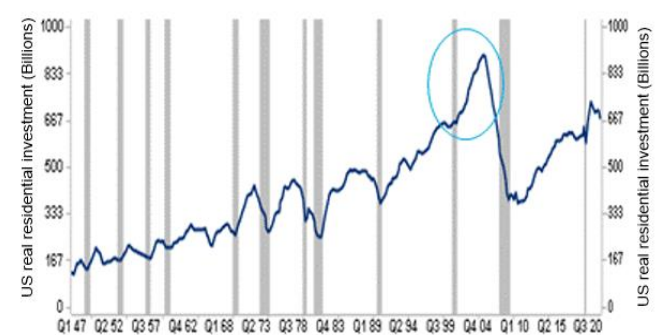


Figure 14: Real US Residential Investment (Blns 2012\$) Booming Construction and Lending in mid-2000s



Source: Haver as of August 16, 2022. Grey areas are recessions.

Interest-rate sensitive spending never reached levels in line with past historic peaks. This leaves less room for decline.

Today's economy harkens back to past supply shocks. Perhaps the first Persian Gulf War period of 1990/1991 is more similar to the current period than the energy catastrophe of 1974 (see figure 15).

Today, interest rate increases are poised to suppress economic activity at fairly low levels of both supply and demand (see figure 16). If a broad-based economic contraction does occur, the depth of a near-term downturn would appear to be limited.

Figure 15: Inflation and Real GDP Y/Y%

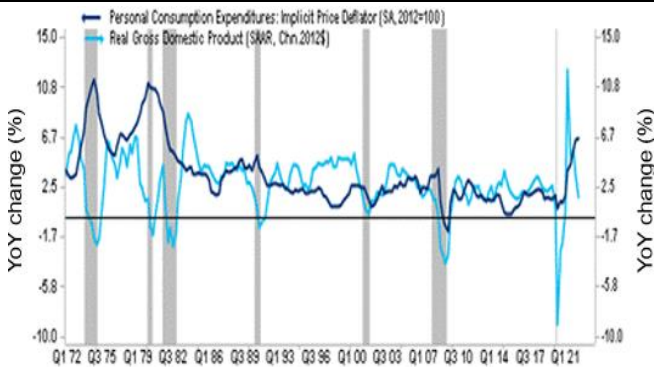
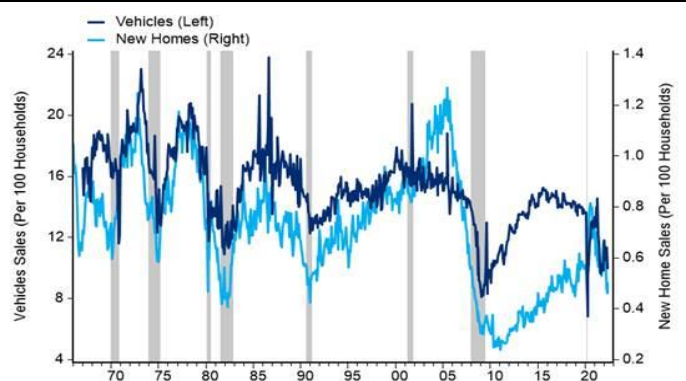


Figure 16: New Home and Vehicle Sales per US Household: Weak Recovery Getting Weaker



Source: Haver as of August 16, 2022. Grey areas note recessions.

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Forecast Update: No Avoiding Slowing

Signs of peaking inflation are accumulating. The latest supply shock in Russia/Ukraine is gradually easing with Russian petroleum trade redirected to Asia and Ukrainian grain supplies managing to leave the port of Odessa. Despite this, central banks in developed markets are moving to ever-greater monetary restraint. The preponderance of evidence suggests a deeper slowing in the world economy has yet to occur (see figure 17).

Figure 17: Citi Global Wealth Revised Real GDP Forecast

| Citi Global Wealth Investments Real GDP Forecasts (Updated as of Aug 2022) | | | | | |
|---|-------|------|------|-------|------|
| | 2020 | 2021 | 2022 | 2023 | 2024 |
| China | 2.4 | 7.5 | 3.5 | 4.5 | 4.0 |
| US | (3.4) | 5.7 | 1.6 | 0.7 | 2.0 |
| EU | (6.5) | 5.3 | 3.0 | (0.5) | 1.0 |
| UK | (9.3) | 7.4 | 3.4 | (1.0) | 1.0 |
| Global | (3.2) | 5.7 | 3.3 | 1.7 | 2.3 |

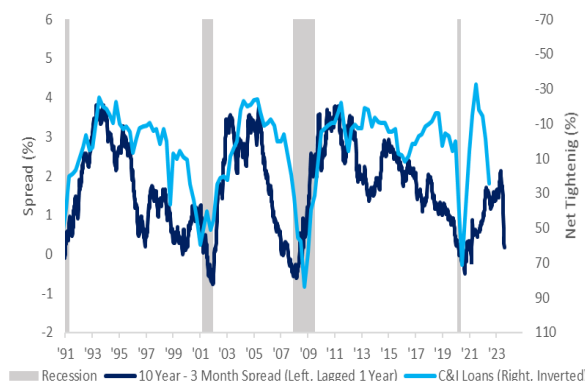
Source: Citi Global Wealth Investments (CGWI) as of August 16, 2022. All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events. Past performance is not indicative of future returns. For illustrative purposes only.

The Fed has barely begun its planned lending reductions to the US Treasury and mortgage market. US bank reserves held at the Fed have already fallen in a way reminiscent of the QT program of 2018 (see figure 18). US banks are tightening lending standards with the flattening US yield curve pointing to greater credit restraint ahead (see figure 19). More importantly, if the Fed follows through with perhaps another 100 basis points of rate hikes this year, we would expect cyclical industries to contract output and employment in the coming year (see figure 20).

Figure 18: US Banks: Reserve Balances Held at Fed Y/Y%

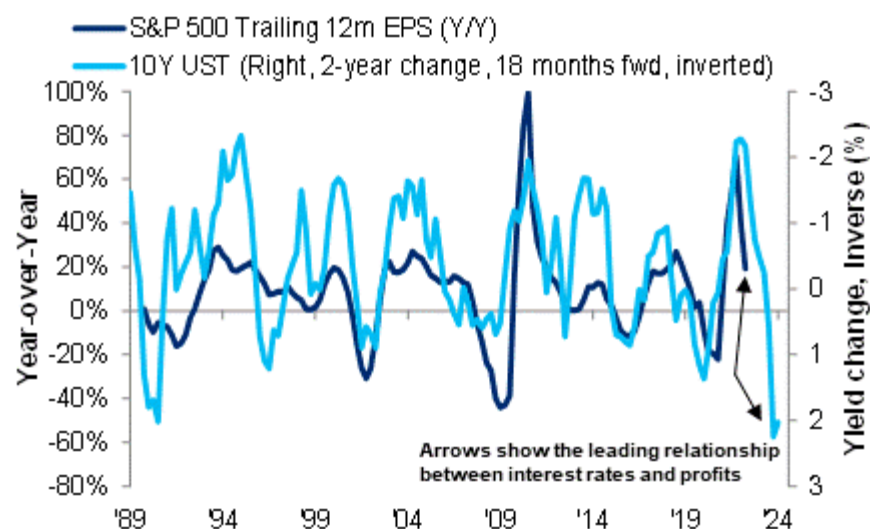


Figure 19: US Banks Tightening Standards for Commercial and Industrial Loans vs Yield Curve (leading 1-year)



Source: Haver as of August 16, 2022. Grey areas note recession.

Figure 20: 2-Year Difference in Long-Term US Treasury Yield (Leading 18 months) vs ISM Manufacturing Orders

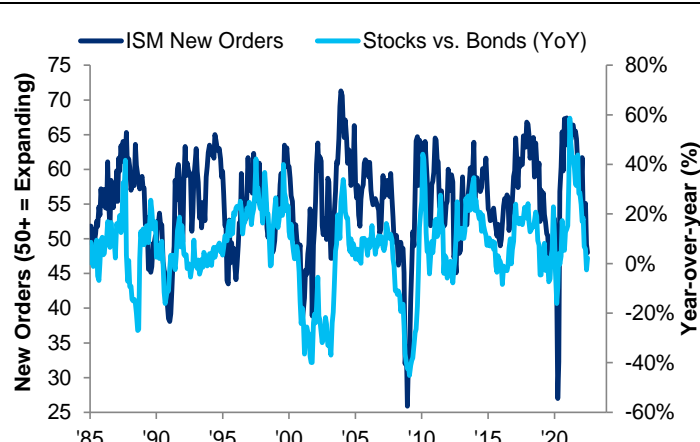
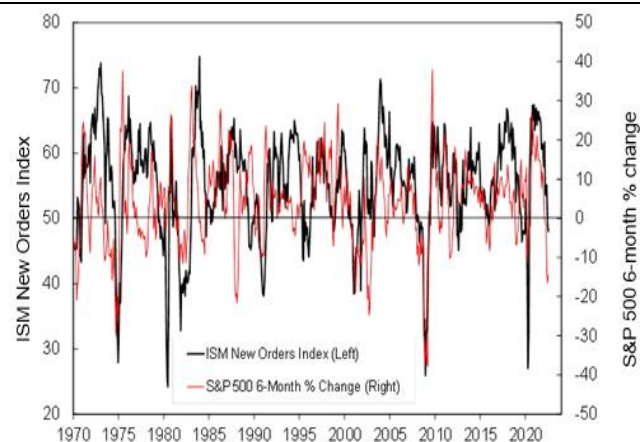


Source: Haver as of August 16, 2022

Financial markets, of course, look to the future. As figure 21 shows, the roughly 20% drop in US share prices in 1H 2022 appears to anticipate all of the recent deceleration in cyclical industries and more. With this said, why should markets begin to discount a recovery when the actual contraction has yet to begin? Periods such as this one typically see bonds outperform equities, albeit briefly (see figure 22).

Figure 21: S&P 500 vs ISM Manufacturing New Orders

Figure 22: ISM Manufacturing New Orders vs US Stock/Bond Relative Performance



Source: Haver as of August 16, 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary. Note for Figure 22: ISM Manufacturing Index is based on surveys of more than 300 manufacturing firms by the Institute of Supply Management. MSCI USA used as proxy for stocks and Bloomberg Barclays US Aggregate used as proxy for bonds.

Global trade and corporate profits are closely correlated. Watch inventory accumulation for signs of trade weakness in the coming year.

Our purpose here is to show evidence for our forecast changes. For the US, the strongest signs may be coming from the accumulation of inventories (see figure 23). As real consumer spending growth has already moderated to a 1.5% annual growth rate at mid-year, and a 3% rate of decline for consumer goods sales, producers continue to increase production and imports (see figure 24). However, as inventories

rise to undesirable levels, we would expect the “brakes” to be applied before long. Global goods trade appears poised for contraction in 2023. Idle factories and mostly fixed labor costs point to a profit decline next year (see figure 25).

Figure 23: US Nominal Retail Inventories and Total Real Business Inventories Y/Y%

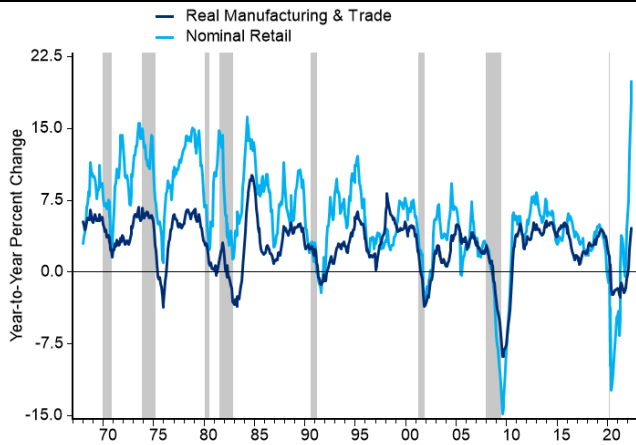
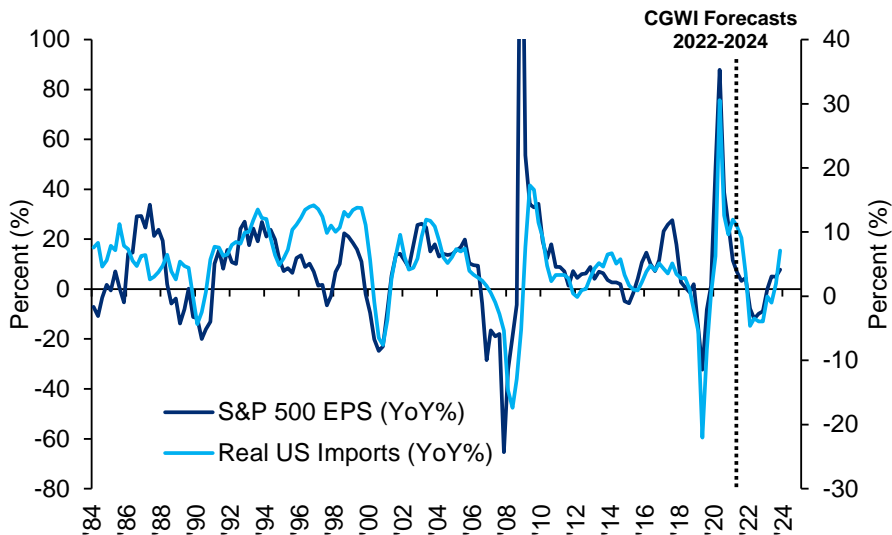


Figure 24: US Real Goods Consumption vs Production



Source: Haver through August 16, 2022. Grey areas note recessions.

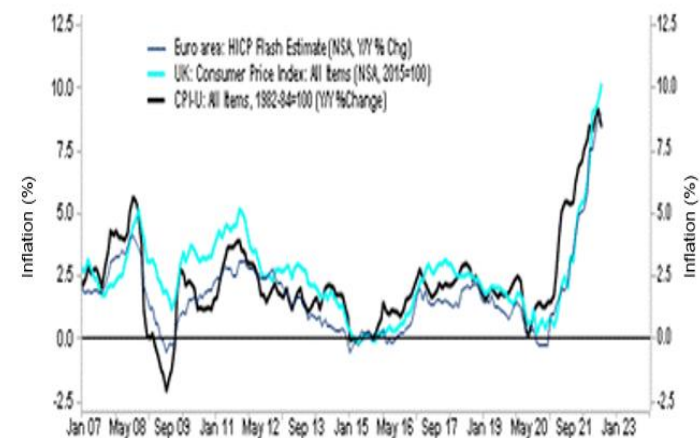
Figure 25: S&P 500 EPS vs Real US Imports Y/Y%



Source: Haver through August 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.

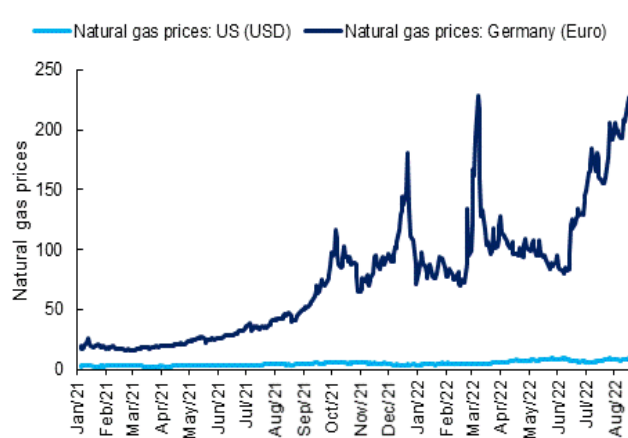
Europe and the UK have significant exposure to the more difficult export environment we anticipate next year, though somewhat less than Asia and Latin America. However, the EU and UK are lagging the US cycle again, with inflation spiking to even higher rates than the US. The European Central Bank in particular is at an earlier stage of monetary tightening. By acting slowly, it may avoid a policy reversal. However, local energy costs are already dragging on European competitiveness and will likely lower industry output and income in the coming year (see figures 26-27).

Figure 26: Headline CPI: US, UK, EU Larger Gains and Upward Inertia More Recently in Europe



Source: Haver as of August 16, 2022.

Figure 27: Natural Gas Cost: US, UK, Germany



As we discuss below, China is an outlier in the global policy picture, having tightened “destructively” in 2021, and added near-term restraint with another round of COVID lockdowns in 2022 (see figures 28-29). Nonetheless, the present level of depressed activity in China should only gradually reflate in the two years ahead.

Figure 28: China: Property Sales and Home Prices Y/Y%

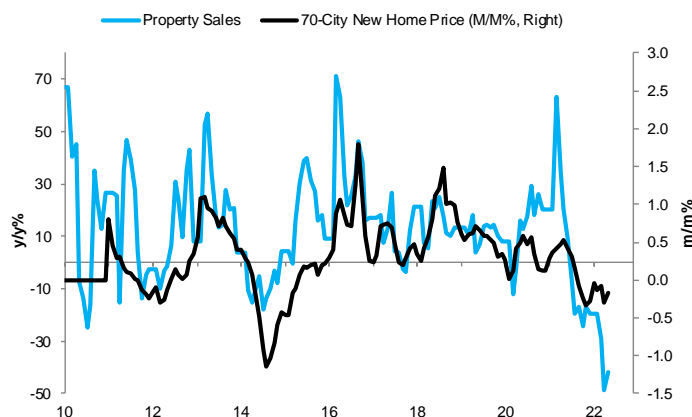
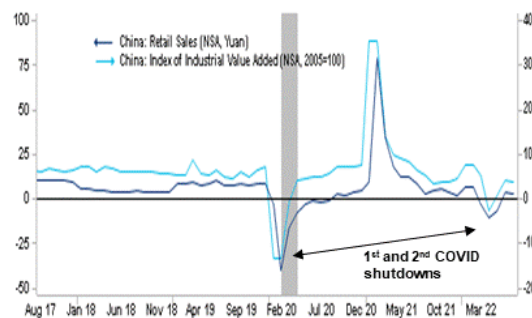


Figure 29: China Retail Sales and Industrial Production Y/Y%



Source: Haver as of August 16, 2022. Note: Grey area is US recession.

Russia/Ukraine developments mean supply abnormalities persist.

We can't ignore, however, that energy has seen the largest EPS declines of all sectors during the past four recessions.

Why Cut Commodities?

We have no insights as to when hostilities in Ukraine will end or when, if ever, trade between Russia and western economies will normalize. The potential for commodity supply disruptions is not limited to Eastern Europe. That said, the coming period is likely to see reduced commodities inflation from the demand side. Many have overestimated commodity supply losses from the war in Ukraine, while other key commodity producers expand output. As figures 30-31 show, US crude oil output continues to grow more rapidly than demand, while commercial crude oil inventories are beginning to grow.

Figure 30: US Crude Oil Production

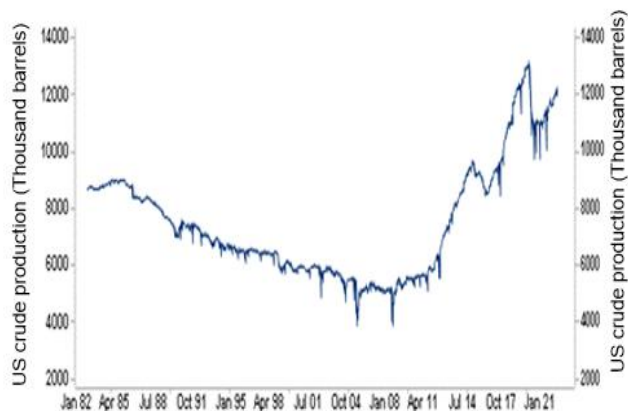


Figure 31: US Crude Oil Inventories Excluding Strategic Reserves (Commercial Inventories)



Source: Haver as of August 16, 2022.

Owing to the war in Russia/Ukraine, the starting point for a commodities price correction was a high one (see figure 32). Particularly for crude oil, periods of acute strength tend to be mean reverting. This impacts industry profits acutely (see figure 33). Averaged together, the Energy and Materials sector has posted an 86% peak-to-trough EPS decline during the past four recessions (see figure 34).

Figure 32: US Dollar Index (Inverted) vs CRB Commodities Price Index

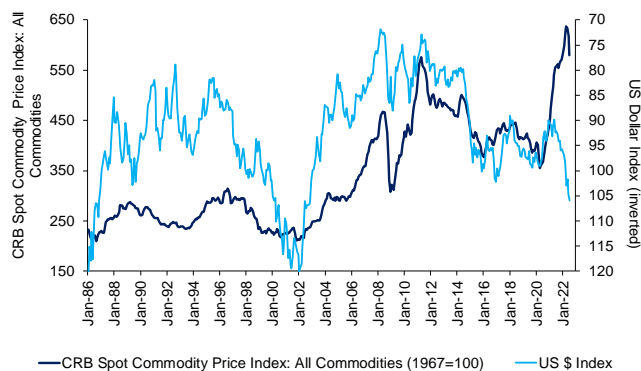
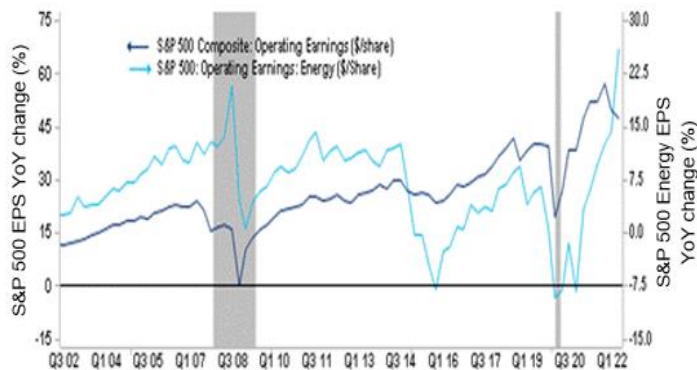


Figure 33: S&P 500 EPS vs Energy Sector EPS Y/Y%



Source: Haver as of August 16, 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary. Grey area notes recession.

Figure 34: Peak-to-Trough % Change in S&P 500 Sector EPS on Average in Last Four US Recessions

| | |
|------------------------|--------|
| Healthcare | 7.7 |
| Consumer Staples | 4.9 |
| Utilities | -13.2 |
| Telecom Services | -27.4 |
| IT | -32.3 |
| Industrials | -42.8 |
| Consumer Discretionary | -50.7 |
| Materials | -58.3 |
| Financials | -71.4 |
| Energy | -113.9 |

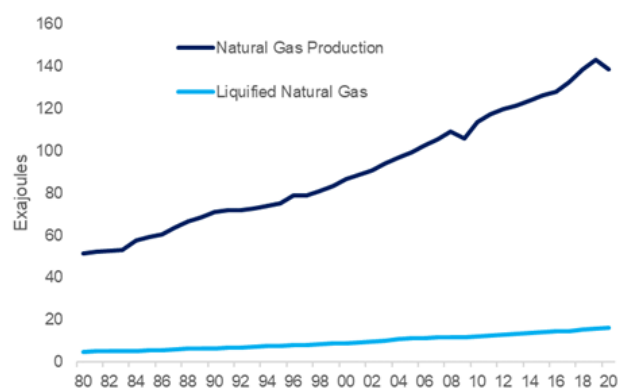
Source: Haver through August 2022. Last four recessions were 1990, 2001, 2008, 2020. Note: The Real Estate Sector was included in Financials during most of the 1989-2022 sample period. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.

OPEC supply restraint and evolving opportunities such as LNG suggest EPS declines for energy will be much less severe than 2020.

Profit declines for the energy sector are not likely to be close in scope to the severe losses of 2020. Nonetheless, the divergence between our underweight position in broad global equities and overweight in commodities equities was a greater risk than we would prefer to bear. Moreover, US short-term bond yields have been quickly rising toward the dividend yields of the most profitable commodity producers.

That said, our overall global equity exposure will still include a roughly full allocation to natural resources firms. Niche opportunities remain, for example, in liquified natural gas exporters, an energy solution with vast growth ahead if Russian exporters remain isolated (see figure 35).

Figure 35: Total Global Natural Gas Output vs Liquified Natural Gas (Piped Gas vs Broadly Transportable)



Source: Haver through August 16, 2022

China Review: Opportunities, Complexities and Risks

David Bailin
Steven Wieting
Ken Peng
Ligang Liu

Assessing the opportunities and risks associated with investing in China is complex. Despite the Covid setback, China is still expected to overtake the United States to become the world's biggest economy by 2030, according to the Centre for Economics and Business Research (2022). Yet, as an investor, the decision to maintain and increase exposure to Chinese equities and debt has become far more nuanced since the pandemic hit in 2019.

China has pursued its own paths regarding its economic priorities, market interventions and health policies. These reflect its evolving values and priorities. Covid has accelerated and altered China's view of itself and its role on the geopolitical stage, with further contortions based on China's relationship with Russia given the war in the Ukraine. Before we discuss our economic and market views, here is a summary of major issues facing China:

Domestic political concerns:

China's "dynamic clearance" Covid policies have required stringent social controls as well as economic sacrifices. As the Politburo admitted in July, this was done for political purposes, implying that containing the virus was an imperative ahead of the upcoming Party Congress expected in October. We suspect it also means there is potential for policy change once the political imperative wanes. It is possible that the resumption of direct flights between Beijing and London later this year can be seen as a signal. In our view, China is unlikely to sustain the closure of its borders for travelling that started two years ago.

Similarly, Hong Kong has struggled between re-opening with the Mainland versus with the rest of the world. The new Chief Executive has managed to reduce quarantine requirements. Additional plans for reopening to the rest of the world are on the agenda.

Some observers worry about leadership continuity at the 20th Party Congress. Yet, others are concerned there is too little diversity of views after passage of the constitutional amendment to allow for "president for life." We believe that the leadership changes during the Party Congress will be minimal, but the issue of succession is likely to become much more important in the 21st Party Congress in 2027.

Geopolitical uncertainties:

China's relationship with the US has deteriorated materially over the past decade, as China became more assertive on the global stage and the US adopted tariffs in response to trade practices and intellectual property threats that it deemed unacceptable. We expect this strategic competition to continue for many years, but that does not mean armed conflict is likely even in moments of great tension. What it does mean for major industries is a requirement to build a new global supply chain with fewer single country dependencies.

While the US and its Western allies fault China for not sanctioning Russia directly, China has significantly restrained its activity with Russia. All Belt & Road projects in Russia have been stopped. China has stayed clear of direct military support. Chinese financial institutions complied with US sanctions. And although China continues to trade actively with Russia, so do India and many other European nations. Rhetorically, China still appears to side with Russia, but this also reflects local political objectives that speak to China's unwillingness to be publicly pressured to adopt views aligned with the West.

China's response to Nancy Pelosi's visit to Taiwan was sharp and swift, indicative of China's growth as a major regional military power and its determination to defend what it has long declared Chinese sovereign territory. There is a lot more to be studied as a result of recent military and political maneuvers given the concentration of semiconductor manufacturing in Taiwan.

China's Belt & Road Initiative (BRI) was conceived of as a US-style Marshall Plan for emerging markets. Over the past few years, the plan has been curtailed and has completely stopped in many countries, such as Russia and Egypt. Altogether, BRI engagements amounted to \$28.4bn in the first half of 2022, or about half of 2019 level.

China is now heavily focused on the development of its own domestic markets. China's trade surplus with the US remains large at nearly \$400bn over the past 12 months, but exports to the US have fallen to 17% of China's total exports from 19% in 2018, while imports from the US have also fallen from 8.4% to 6.6% of China's total imports. Effectively, China's economic relationship with the US is still growing, just at a slower speed than with the rest of the world. The decoupling has begun, but from an enormous base.

Market intervention and regulation (tech and property):

China's economic and political priorities have led to major market interventions under the banner of "common prosperity." China's new policies created major and lasting curbs on the after-school tutoring sector, e-commerce and fintech, online gaming and real estate. Valuations of these businesses have collapsed as a result. China continues to evolve its policies and regulators are done with their investigations on some high-profile companies. One example is the Politburo announcement in July that it wanted to see "green light" platform companies (those that are compliant under the new regulatory environment) to raise financing, which we believe means more tech companies could IPO in the coming year.

China's growth over the last 20 years has relied heavily on real estate development as a major driver of economic growth. For example, the sale of land to developers amounted to over 40% of local government revenues in 2021. Developers grew rich by building more apartments based on excessive borrowing from the bond market and state-affiliated banks. Homebuyers were encouraged to buy investment properties in addition to primary residences through attractive "pay as you build" financing.

Real estate has become a major economic headwind as new residential development has now largely come to a halt with the "three red lines" policy that effectively cut off new financing to developers, who are now unable to complete unfinished, but already pre-sold properties. This led to mortgage payment strikes from homebuyers, which in turn deepened developer financing problems. While we believe the systemic risks are contained, this issue will linger and curtail growth across as much as one-third of the economy. More decisive policy action is needed here.

Many challenges are "priced in" and there are opportunities on the horizon

Against this complex and, in many cases, "negative" backdrop, many investors would simply look elsewhere. But the reality of 2022 is that many geographies face significant headwinds. For example, China's macroeconomic policies are easing, while most of the world central banks are tightening to fight high inflation that is not present in China.

In July, the setback in China's property market and industrial activities led to another decline in equity markets. The MSCI China forward PE ratio has fallen to under 11x

again. This is close to the depths of the March 2022 dip that occurred just ahead of draconian Covid lockdown in Shanghai.

We believe China's macroeconomic policy outlook is much clearer now in the face of numerous headwinds. Credit growth slowed in July after a record boom in June. The aggregate new credit reached nearly 28% of GDP in June, exceeding the year-ago level for the first time since March 2021. Money supply growth continued to advance in July, with M2 rising 12%/y/y, the highest since 2016 (Figure 39).

Low valuations and better credit policies suggest that the market is underpricing Chinese equities (figure 36).

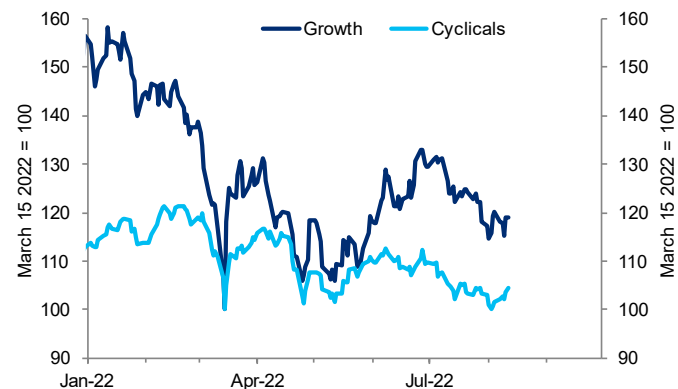
Some parts of the Chinese equity market have done better than others. Compared to the March 15 lows, growth sectors (Consumer Discretionary, IT, Telecom Services and Healthcare) remain 20% higher despite the July correction. In contrast, cyclical sectors (Financials, Industrials, Materials and Energy) have barely moved (figure 37). We believe that the outperformance of growth shares reflects more clarity in China's tech regulation.

As we noted in "[Cyclical Divergence, Pick the Recovering Side](#)," stabilized tech regulations and progress towards resuming IPOs in HK may be critical catalysts for recovery in the Chinese equity market. The July Politburo meeting stated to support the "platform economy" and to launch a batch of "green light" companies to raise financing, implying potential IPO of platform companies that are considered compliant under the new regulatory environment.

Figure 36: Credit expansion continues to point to more valuation repair despite the July setback



Figure 37: Chinese growth stocks have substantially outperformed cyclicals since March bottom



Source: Bloomberg, as of 12 Aug 2022. Indices are unmanaged and forecasts are expression of opinion. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. For illustrative purposes only. Past performance is no guarantee of future results. Real results may vary.

Playing it safe before the 20th Party Congress

China's path to a broader economic recovery is likely to be bumpy. Nonetheless, we retain our constructive view of Chinese equities for 2023 as China is the sole large economy that is easing monetary and fiscal policy, seeing rising growth, and presenting historically low equity valuations. The numerous policy delays and geopolitical issues represent key risks, but likely do not change the direction of its economic trajectory.

In terms of future policies, many look for major fiscal spending and monetary easing, but we see neither as likely in the near term. The amount of easing is already visible in credit growth (see figure 1). In fact, the PBOC may soon begin to reduce excess

liquidity that had accumulated in the financial system that is feeding speculation in the bond market. With the Covid lockdown, it has been hard to see stimulus positively impact the wider economy.

With less than three months before the Party Congress, and after the July Politburo meeting downplayed its growth target, there appears to be little will to take risks at the local government level. Preventing systemic risks remains the top priority rather than achieving stronger near-term economic growth. Major policy changes, such as those that might result in restructuring defaulted developers or those that might relax Covid restrictions, may have to wait until after the Congress.

This all means that China's recovery process is likely to take longer than many expected and will last well into 2023-24. Since the economy lost further momentum in July due to the mortgage boycotts, the progress of recovery is likely to be very slow. Rising recession risks in the US may weigh further on external demand in 2023. But future policies to lift Covid restrictions, to restructure developers, and to enable more IPOs are also likely to take place in late 2022 and into 2023. These developments are likely to drag growth marginally lower than our last round of forecasts for the Midyear Outlook, but are likely to accelerate into 2023.

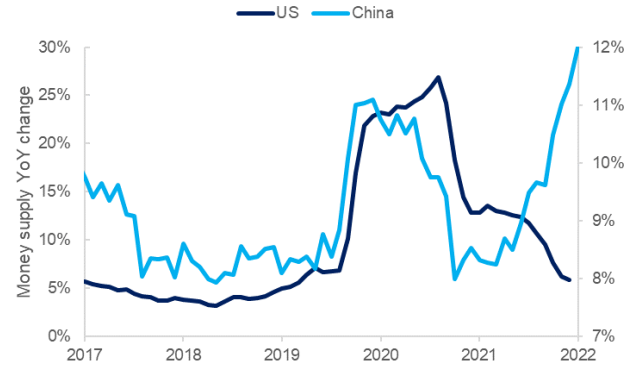
Maintaining high enough growth in China is the only way to achieve "common prosperity." Cyclical differences between the US and China have rarely ever been this large. The unemployment rate in China rose to above 2020 levels amid the lockdowns in March-May this year, and is just beginning to come back down (Figure 38). In the US, the unemployment rate is at the lowest since 1969, with some signals for potential increase soon. Money supply growth in China just rebounded to a 6-year high, while that in the US is falling to a 4-year low (Figure 39). While the US will continue to slow in H2 on tightened monetary policy conditions, China's cyclical growth is expected to pick up, albeit at a slower pace, on policy easing and accelerated fiscal policy implementation.

Given the fast-changing conditions on the ground, we will be closely monitoring China's policy, economy and market situations and will write more on this in the months to come. In sum, just as we invested more in many beaten down developed markets in 2020 when economies showed weakness with room for recovery, we believe the same risks are worth more portfolio allocations in China now. As a result, we have recently added to our overweight allocation in Chinese equities. In short, China remains a core constituent of fully global portfolios.

Figure 38: US vs China Unemployment Rate (%)



Figure 39: US vs China Money Supply Growth Y/Y%



Source: Bloomberg, as of 4 Aug 2022. Indices are unmanaged and forecasts are expression of opinion. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. For illustrative purposes only. Past performance is no guarantee of future results. Real results may vary.

Portfolio allocations

This section shows the strategic and tactical asset allocations. The Quant Research & Global Asset Allocation (QRGAA) team creates strategic asset allocations (SAAs) using the [CPB Adaptive Valuations Strategy](#) (AVS) methodology on an annual basis. Global Investment Committee (GIC) provides underweight and overweight decisions to AVS's Global USD without Hedge Funds Risk Level 1 through Level 5 portfolios. QRGAA then creates tactical allocations for all other profiles or subprofiles such as Global USD with Hedge Funds and Illiquids PE & RE Level 2 through Level 5 portfolios. These sample portfolios included below reflect 2022 SAAs and the tactical over/under weights expressed at the August 17, 2022 GIC meeting.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 2

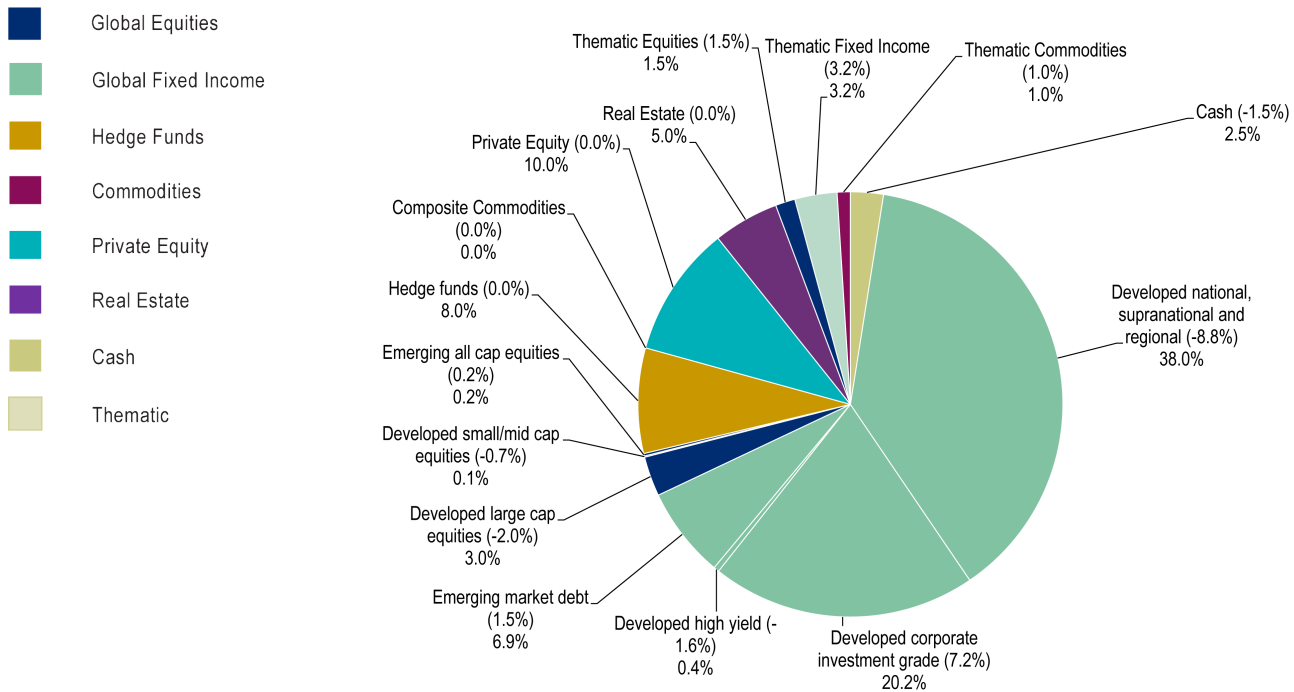
Risk Level 2 is designed for investors who emphasize capital preservation over return on investment, but who are willing to subject some portion of their principal to increased risk in order to generate a potentially greater rate of return on investment.

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------|---------------|---------------|------------|
| Cash | 4.0 | 2.5 | -1.5 |
| Fixed Income | 67.1 | 68.7 | 1.5 |
| Developed Investment Grade | 59.8 | 58.2 | -1.6 |
| US | 34.2 | 43.5 | 9.2 |
| Government | 14.8 | 15.7 | 0.9 |
| Inflation-Linked | 2.1 | 2.3 | 0.2 |
| Short | 3.9 | 2.4 | -1.6 |
| Intermediate | 6.1 | 6.3 | 0.2 |
| Long | 2.6 | 4.7 | 2.1 |
| Securitized | 10.9 | 12.0 | 1.2 |
| Credit | 8.6 | 15.8 | 7.2 |
| Short | 1.2 | 2.4 | 1.3 |
| Intermediate | 4.5 | 10.4 | 5.9 |
| Long | 2.9 | 2.9 | 0.0 |
| Europe | 19.5 | 12.3 | -7.3 |
| Government | 15.2 | 7.9 | -7.3 |
| Credit | 4.4 | 4.4 | 0.0 |
| Australia | 0.4 | 0.4 | 0.0 |
| Government | 0.4 | 0.4 | 0.0 |
| Japan | 5.6 | 2.1 | -3.5 |
| Government | 5.6 | 2.1 | -3.5 |
| Developed High Yield | 2.0 | 0.4 | -1.6 |
| US | 1.5 | 0.4 | -1.1 |
| Europe | 0.5 | 0.0 | -0.5 |
| Emerging Market Debt | 5.4 | 6.9 | 1.5 |
| Asia | 0.9 | 2.0 | 1.1 |
| Local currency | 0.5 | 1.0 | 0.6 |
| Foreign currency | 0.5 | 1.0 | 0.5 |
| EMEA | 2.8 | 2.8 | -0.0 |
| Local currency | 1.4 | 1.4 | -0.0 |
| Foreign currency | 1.4 | 1.4 | -0.0 |
| LatAm | 1.7 | 2.1 | 0.4 |
| Local currency | 0.8 | 0.8 | -0.0 |
| Foreign currency | 0.8 | 1.3 | 0.4 |
| Thematic Fixed Income | 0.0 | 3.2 | 3.2 |
| US Bank Loans | 0.0 | 1.2 | 1.2 |
| Preferreds | 0.0 | 2.0 | 2.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------------|---------------|---------------|------------|
| Equities | 5.9 | 4.8 | -1.0 |
| Developed Equities | 5.9 | 3.1 | -2.7 |
| Developed Large Cap Equities | 5.1 | 3.0 | -2.0 |
| US | 3.5 | 2.2 | -1.3 |
| Canada | 0.2 | 0.1 | -0.1 |
| UK | 0.2 | 0.1 | -0.1 |
| Switzerland | 0.1 | 0.1 | -0.1 |
| Europe ex UK ex Switzerland | 0.5 | 0.2 | -0.3 |
| Asia ex Japan | 0.2 | 0.1 | -0.1 |
| Japan | 0.3 | 0.1 | -0.2 |
| Developed Small/Mid Cap Equities | 0.8 | 0.1 | -0.7 |
| US | 0.4 | 0.1 | -0.4 |
| Non-US | 0.4 | 0.0 | -0.3 |
| Emerging All Cap Equities | 0.0 | 0.2 | 0.2 |
| Asia | 0.0 | 0.2 | 0.2 |
| China | 0.0 | 0.1 | 0.1 |
| Asia (ex China) | 0.0 | 0.1 | 0.1 |
| EMEA | 0.0 | 0.0 | 0.0 |
| LatAm | 0.0 | 0.0 | 0.0 |
| Brazil | 0.0 | 0.0 | 0.0 |
| LatAm ex Brazil | 0.0 | 0.0 | 0.0 |
| Thematic Equities | 0.0 | 1.5 | 1.5 |
| Global Equity REITs | 0.0 | 0.0 | 0.0 |
| US Mortgage REITs | 0.0 | 0.0 | 0.0 |
| Global Healthcare | 0.0 | 0.0 | 0.0 |
| Global Pharma | 0.0 | 1.5 | 1.5 |
| Cyber Security | 0.0 | 0.0 | 0.0 |
| Fintech | 0.0 | 0.0 | 0.0 |
| Natural Resources | 0.0 | 0.0 | 0.0 |
| Oil Services | 0.0 | 0.0 | 0.0 |
| Commodities | 0.0 | 1.0 | 1.0 |
| Composite Commodities | 0.0 | 0.0 | 0.0 |
| Thematic Commodities | 0.0 | 1.0 | 1.0 |
| Gold | 0.0 | 1.0 | 1.0 |
| Thematic 2 | 0.0 | 0.0 | 0.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |
| Hedge Funds | 8.0 | 8.0 | 0.0 |
| Private Equity | 10.0 | 10.0 | 0.0 |
| Real Estate | 5.0 | 5.0 | 0.0 |
| Total | 100.0 | 100.0 | 0.0 |

Active = the difference between tactical and strategic allocations. Minor differences may result due to rounding.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 2 - Tactical Allocations



Figures in brackets are active allocations. All allocations are subject to change at discretion of the GIC of the Citi Private Bank.

Core Positions

Global equities have an underweight position of -1.0%, global fixed income has an overweight of +1.5%, cash has an underweight of -1.5% with gold overweight at +1.0%.

Within equities, developed large cap equities are at an underweight position of -2.0% and small/mid cap equities are at an underweight position of -0.7%. Emerging market equities have a slight overweight of +0.2%. Thematic equities have an overweight of +1.5%.

Within fixed income, developed investment grade has an underweight position of -1.6%; developed high yield has an underweight position of -1.6% and emerging market debt has an overweight position of +1.5%. Thematic fixed income has an overweight of +3.2%.

Hedge Fund allocation in the tactical portfolio is 8%. Private Equity and Real Estate allocations are 10% and 5%, respectively. All these three asset classes positionings are neutral.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 3

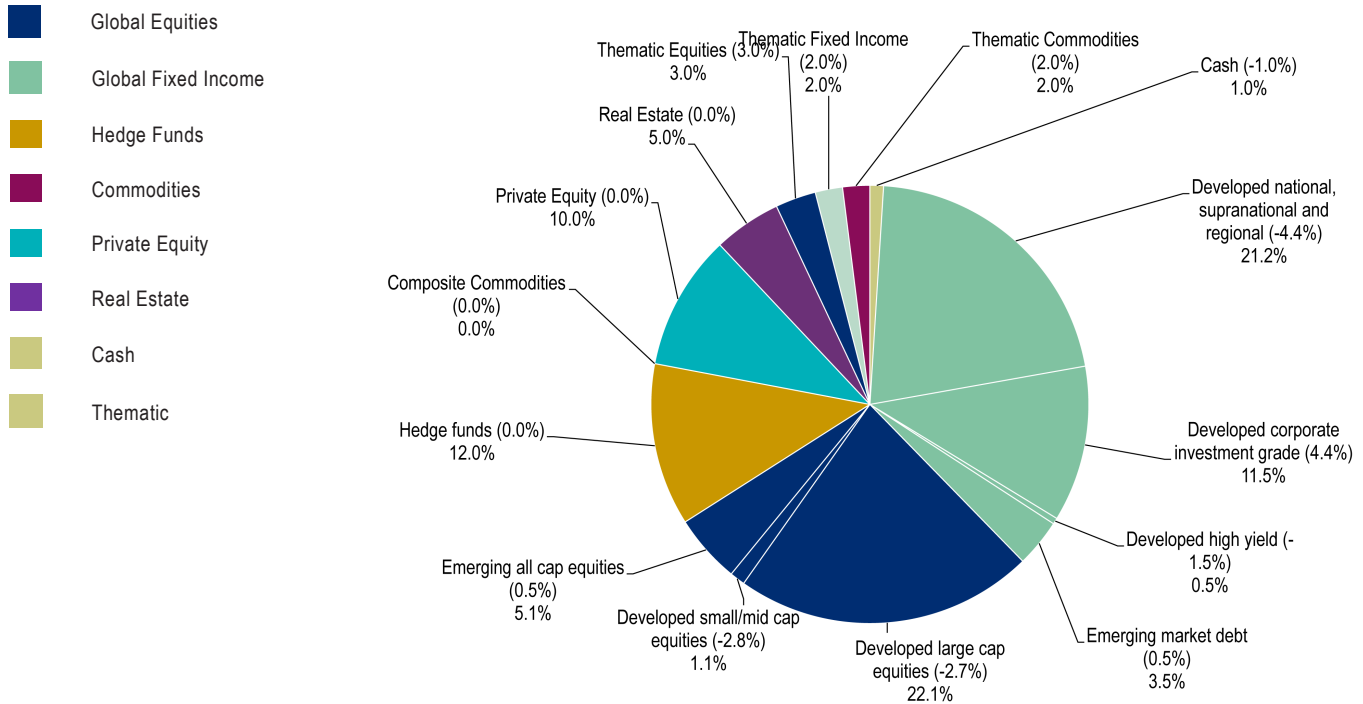
Risk Level 3 is designed for investors with a blended objective who require a mix of assets and seek a balance between investments that offer income and those positioned for a potentially higher return on investment. Risk Level 3 may be appropriate for investors willing to subject their portfolio to additional risk for potential growth in addition to a level of income reflective of his/her stated risk tolerance

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------|---------------|---------------|------------|
| Cash | 2.0 | 1.0 | -1.0 |
| Fixed Income | 37.7 | 38.7 | 1.0 |
| Developed Investment Grade | 32.7 | 32.7 | 0.0 |
| US | 18.7 | 28.7 | 9.9 |
| Government | 8.1 | 13.7 | 5.6 |
| Inflation-Linked | 1.1 | 2.2 | 1.0 |
| Short | 2.2 | 1.2 | -0.9 |
| Intermediate | 3.3 | 6.8 | 3.5 |
| Long | 1.4 | 3.5 | 2.0 |
| Securitized | 5.9 | 5.6 | -0.3 |
| Credit | 4.7 | 9.3 | 4.6 |
| Short | 0.6 | 1.7 | 1.0 |
| Intermediate | 2.5 | 6.1 | 3.6 |
| Long | 1.6 | 1.6 | 0.0 |
| Europe | 10.7 | 3.8 | -6.9 |
| Government | 8.3 | 1.7 | -6.6 |
| Credit | 2.4 | 2.2 | -0.2 |
| Australia | 0.2 | 0.2 | 0.0 |
| Government | 0.2 | 0.2 | 0.0 |
| Japan | 3.1 | 0.0 | -3.1 |
| Government | 3.1 | 0.0 | -3.1 |
| Developed High Yield | 2.0 | 0.5 | -1.5 |
| US | 1.5 | 0.5 | -1.0 |
| Europe | 0.5 | 0.0 | -0.5 |
| Emerging Market Debt | 3.0 | 3.5 | 0.5 |
| Asia | 0.5 | 1.0 | 0.5 |
| Local currency | 0.3 | 0.6 | 0.3 |
| Foreign currency | 0.3 | 0.5 | 0.2 |
| EMEA | 1.6 | 1.6 | 0.0 |
| Local currency | 0.8 | 0.8 | 0.0 |
| Foreign currency | 0.8 | 0.8 | 0.0 |
| LatAm | 0.9 | 0.9 | 0.0 |
| Local currency | 0.5 | 0.5 | 0.0 |
| Foreign currency | 0.5 | 0.5 | 0.0 |
| Thematic Fixed Income | 0.0 | 2.0 | 2.0 |
| US Bank Loans | 0.0 | 0.0 | 0.0 |
| Preferreds | 0.0 | 2.0 | 2.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------------|---------------|---------------|------------|
| Equities | 33.3 | 31.3 | -2.0 |
| Developed Equities | 28.7 | 23.2 | -5.5 |
| Developed Large Cap Equities | 24.7 | 22.1 | -2.7 |
| US | 17.2 | 16.2 | -1.0 |
| Canada | 0.9 | 0.8 | -0.1 |
| UK | 1.0 | 1.0 | -0.1 |
| Switzerland | 0.7 | 0.6 | -0.1 |
| Europe ex UK ex Switzerland | 2.4 | 1.7 | -0.7 |
| Asia ex Japan | 0.9 | 0.8 | -0.1 |
| Japan | 1.7 | 1.1 | -0.6 |
| Developed Small/Mid Cap Equities | 3.9 | 1.1 | -2.8 |
| US | 2.2 | 0.8 | -1.4 |
| Non-US | 1.7 | 0.4 | -1.4 |
| Emerging All Cap Equities | 4.6 | 5.1 | 0.5 |
| Asia | 3.8 | 4.6 | 0.7 |
| China | 1.5 | 2.4 | 0.9 |
| Asia (ex China) | 2.3 | 2.1 | -0.2 |
| EMEA | 0.4 | 0.2 | -0.2 |
| LatAm | 0.3 | 0.3 | -0.0 |
| Brazil | 0.2 | 0.2 | -0.0 |
| LatAm ex Brazil | 0.1 | 0.1 | -0.0 |
| Thematic Equities | 0.0 | 3.0 | 3.0 |
| Global Equity REITs | 0.0 | 0.0 | 0.0 |
| US Mortgage REITs | 0.0 | 0.0 | 0.0 |
| Global Healthcare | 0.0 | 0.0 | 0.0 |
| Global Pharma | 0.0 | 2.0 | 2.0 |
| Cyber Security | 0.0 | 1.0 | 1.0 |
| Fintech | 0.0 | 0.0 | 0.0 |
| Natural Resources | 0.0 | 0.0 | 0.0 |
| Oil Services | 0.0 | 0.0 | 0.0 |
| Commodities | 0.0 | 2.0 | 2.0 |
| Composite Commodities | 0.0 | 0.0 | 0.0 |
| Thematic Commodities | 0.0 | 2.0 | 2.0 |
| Gold | 0.0 | 2.0 | 2.0 |
| Thematic 2 | 0.0 | 0.0 | 0.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |
| Hedge Funds | 12.0 | 12.0 | 0.0 |
| Private Equity | 10.0 | 10.0 | 0.0 |
| Real Estate | 5.0 | 5.0 | 0.0 |
| Total | 100.0 | 100.0 | 0.0 |

Active = the difference between tactical and strategic allocations. Minor differences may result due to rounding.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 3 - Tactical Allocations



Figures in brackets are active allocations. All allocations are subject to change at discretion of the GIC of the Citi Private Bank.

Core Positions

Global equities have an underweight position -2.0%, global fixed income has an overweight of +1.0%, cash has an underweight of -1.0% with gold overweight at +2.0%.

Within equities, developed large cap equities have an underweight position of -2.7% and developed small/mid cap equities have an underweight position of -2.8%. Emerging market equities have an overweight position of +0.5%. Thematic equities have an overweight position of +3.0%.

Within fixed income, developed investment grade debt has a neutral position; developed high yield has an underweight position of -1.5%; emerging market debt has an overweight position of +0.5%. Thematic fixed income has an overweight position of +2.0%.

Hedge Fund allocation in the tactical portfolio is 12%. Private Equity and Real Estate allocations are 10% and 5%, respectively. All these three asset classes positionings are neutral.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 4

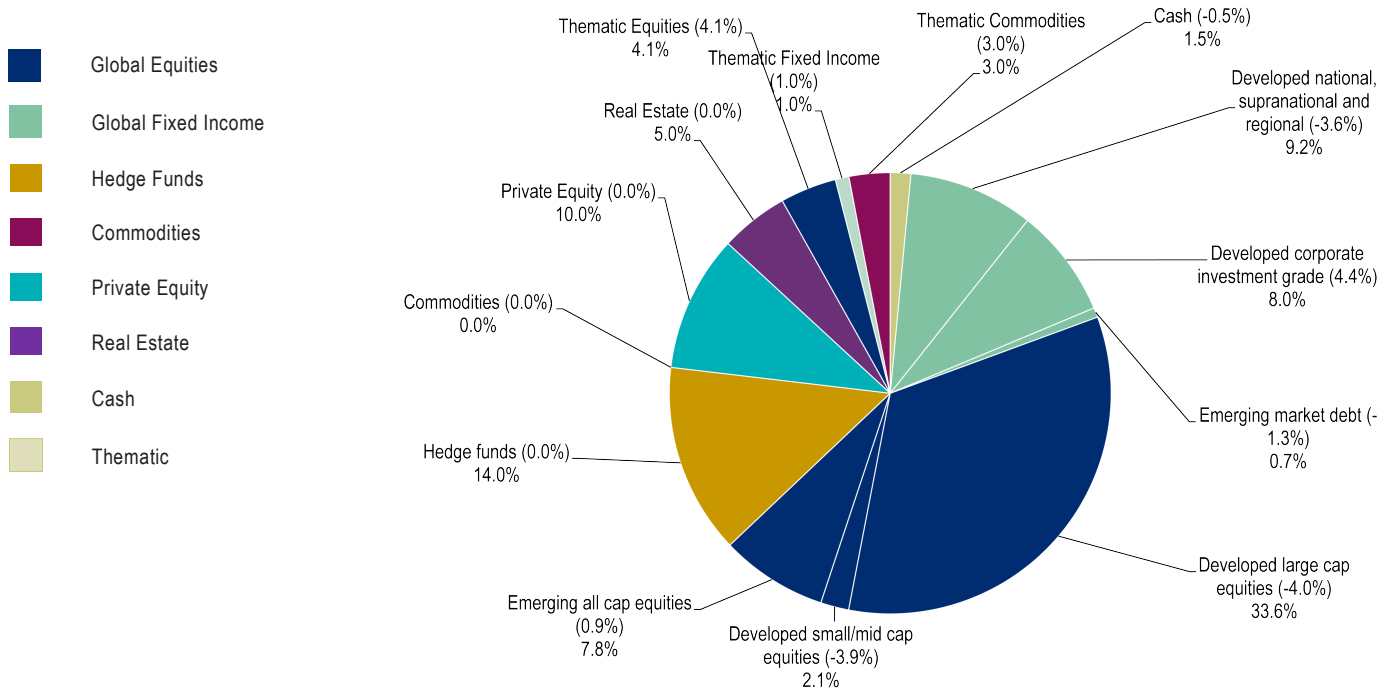
Risk Level 4 is designed for investors with a blended objective who require a mix of assets and seek a balance between investments that offer income and those positioned for a potentially higher return on investment. They are willing to subject a large portion of their portfolio to greater risk and market value fluctuations in anticipation of a potentially greater return on investment. Investors may have a preference for investments or trading strategies that may assume higher-than-normal market risks and/or potentially less liquidity with the goal (but not guarantee) of commensurate gains.

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------|---------------|---------------|------------|
| Cash | 2.0 | 1.5 | -0.5 |
| Fixed Income | 18.4 | 18.9 | 0.5 |
| Developed Investment Grade | 16.4 | 17.2 | 0.8 |
| US | 9.4 | 16.8 | 7.4 |
| Government | 4.0 | 8.6 | 4.6 |
| Inflation-Linked | 0.6 | 0.5 | -0.0 |
| Short | 1.1 | 1.1 | -0.0 |
| Intermediate | 1.7 | 4.3 | 2.6 |
| Long | 0.7 | 2.7 | 2.0 |
| Securitized | 3.0 | 0.4 | -2.6 |
| Credit | 2.4 | 7.8 | 5.4 |
| Short | 0.3 | 2.0 | 1.7 |
| Intermediate | 1.2 | 5.5 | 4.2 |
| Long | 0.8 | 0.3 | -0.5 |
| Europe | 5.4 | 0.4 | -5.0 |
| Government | 4.2 | 0.2 | -4.0 |
| Credit | 1.2 | 0.2 | -1.0 |
| Australia | 0.1 | 0.0 | -0.1 |
| Government | 0.1 | 0.0 | -0.1 |
| Japan | 1.5 | 0.0 | -1.5 |
| Government | 1.5 | 0.0 | -1.5 |
| Developed High Yield | 0.0 | 0.0 | 0.0 |
| US | 0.0 | 0.0 | 0.0 |
| Europe | 0.0 | 0.0 | 0.0 |
| Emerging Market Debt | 2.0 | 0.7 | -1.3 |
| Asia | 0.3 | 0.4 | 0.1 |
| Local currency | 0.2 | 0.2 | 0.1 |
| Foreign currency | 0.2 | 0.2 | 0.0 |
| EMEA | 1.0 | 0.0 | -1.0 |
| Local currency | 0.5 | 0.0 | -0.5 |
| Foreign currency | 0.5 | 0.0 | -0.5 |
| LatAm | 0.6 | 0.3 | -0.3 |
| Local currency | 0.3 | 0.0 | -0.3 |
| Foreign currency | 0.3 | 0.3 | -0.1 |
| Thematic Fixed Income | 0.0 | 1.0 | 1.0 |
| US Bank Loans | 0.0 | 0.0 | 0.0 |
| Preferreds | 0.0 | 1.0 | 1.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------------|---------------|---------------|------------|
| Equities | 50.7 | 47.7 | -3.0 |
| Developed Equities | 43.7 | 35.7 | -8.0 |
| Developed Large Cap Equities | 37.7 | 33.6 | -4.0 |
| US | 26.2 | 25.4 | -0.8 |
| Canada | 1.3 | 1.2 | -0.1 |
| UK | 1.6 | 1.3 | -0.3 |
| Switzerland | 1.0 | 0.6 | -0.4 |
| Europe ex UK ex Switzerland | 3.6 | 2.2 | -1.4 |
| Asia ex Japan | 1.3 | 1.2 | -0.1 |
| Japan | 2.6 | 1.5 | -1.0 |
| Developed Small/Mid Cap Equities | 6.0 | 2.1 | -3.9 |
| US | 3.4 | 1.5 | -1.8 |
| Non-US | 2.7 | 0.6 | -2.1 |
| Emerging All Cap Equities | 7.0 | 7.8 | 0.9 |
| Asia | 5.8 | 7.1 | 1.2 |
| China | 2.3 | 3.8 | 1.5 |
| Asia (ex China) | 3.5 | 3.3 | -0.2 |
| EMEA | 0.6 | 0.3 | -0.4 |
| LatAm | 0.5 | 0.5 | -0.0 |
| Brazil | 0.3 | 0.3 | -0.0 |
| LatAm ex Brazil | 0.2 | 0.2 | -0.0 |
| Thematic Equities | 0.0 | 4.1 | 4.1 |
| Global Equity REITs | 0.0 | 0.0 | 0.0 |
| US Mortgage REITs | 0.0 | 0.0 | 0.0 |
| Global Healthcare | 0.0 | 0.0 | 0.0 |
| Global Pharma | 0.0 | 2.8 | 2.8 |
| Cyber Security | 0.0 | 1.4 | 1.4 |
| Fintech | 0.0 | 0.0 | 0.0 |
| Natural Resources | 0.0 | 0.0 | 0.0 |
| Oil Services | 0.0 | 0.0 | 0.0 |
| Commodities | 0.0 | 3.0 | 3.0 |
| Composite Commodities | 0.0 | 0.0 | 0.0 |
| Thematic Commodities | 0.0 | 3.0 | 3.0 |
| Gold | 0.0 | 3.0 | 3.0 |
| Thematic 2 | 0.0 | 0.0 | 0.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |
| Hedge Funds | 14.0 | 14.0 | 0.0 |
| Private Equity | 10.0 | 10.0 | 0.0 |
| Real Estate | 5.0 | 5.0 | 0.0 |
| Total | 100.0 | 100.0 | -0.0 |

Active = the difference between tactical and strategic allocations. Minor differences may result due to rounding.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 4 - Tactical Allocations



Figures in brackets are active allocations. All allocations are subject to change at discretion of the GIC of the Citi Private Bank.

Core Positions

Global equities have an underweight position of -3.0%, global fixed income has an overweight of +0.5%, cash has an underweight of -0.5% with gold overweight at +3.0%.

Within equities, developed large cap equities have an underweight position of -4.0% and developed small/mid cap equities have an underweight position of -3.9%. Emerging market equities have an overweight of +0.9%. Thematic equities have an overweight of +4.1%.

Within fixed income, developed investment grade has an overweight position of +0.8%; developed high yield has a neutral position and emerging market debt has an underweight position of -1.3%. Thematic fixed income has an overweight of +1.0%.

Hedge Fund allocation in the tactical portfolio is 14%. Private Equity and Real Estate allocations are 10% and 5%, respectively. All these three asset classes positionings are neutral.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 5

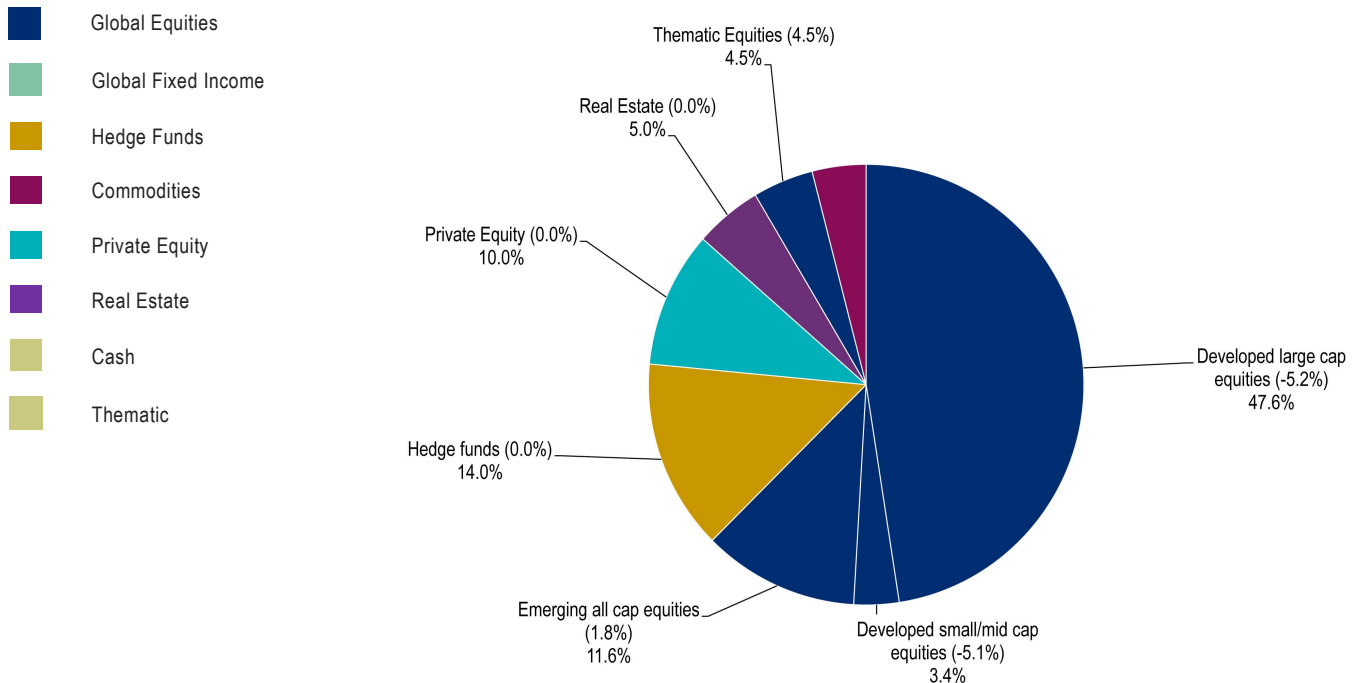
Risk Level 5 is designed for investors who emphasize return on investment. They are willing to subject their entire portfolio to greater risk and market value fluctuations in anticipation of a potentially greater return on investments. Investors may have a preference for investments or trading strategies that may assume higher than-normal market risks and/or potentially less liquidity with the goal (but not guarantee) of commensurate gains. Clients may engage in tactical or opportunistic trading, which may involve higher volatility and variability of returns.

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------|---------------|---------------|------------|
| Cash | 0.0 | 0.0 | 0.0 |
| Fixed income | 0.0 | 0.0 | 0.0 |
| Developed Investment Grade | 0.0 | 0.0 | 0.0 |
| US | 0.0 | 0.0 | 0.0 |
| Government | 0.0 | 0.0 | 0.0 |
| Inflation-Linked | 0.0 | 0.0 | 0.0 |
| Short | 0.0 | 0.0 | 0.0 |
| Intermediate | 0.0 | 0.0 | 0.0 |
| Long | 0.0 | 0.0 | 0.0 |
| Securitized | 0.0 | 0.0 | 0.0 |
| Credit | 0.0 | 0.0 | 0.0 |
| Short | 0.0 | 0.0 | 0.0 |
| Intermediate | 0.0 | 0.0 | 0.0 |
| Long | 0.0 | 0.0 | 0.0 |
| Europe | 0.0 | 0.0 | 0.0 |
| Government | 0.0 | 0.0 | 0.0 |
| Credit | 0.0 | 0.0 | 0.0 |
| Australia | 0.0 | 0.0 | 0.0 |
| Government | 0.0 | 0.0 | 0.0 |
| Japan | 0.0 | 0.0 | 0.0 |
| Government | 0.0 | 0.0 | 0.0 |
| Developed High Yield | 0.0 | 0.0 | 0.0 |
| US | 0.0 | 0.0 | 0.0 |
| Europe | 0.0 | 0.0 | 0.0 |
| Emerging Market Debt | 0.0 | 0.0 | 0.0 |
| Asia | 0.0 | 0.0 | 0.0 |
| Local currency | 0.0 | 0.0 | 0.0 |
| Foreign currency | 0.0 | 0.0 | 0.0 |
| EMEA | 0.0 | 0.0 | 0.0 |
| Local currency | 0.0 | 0.0 | 0.0 |
| Foreign currency | 0.0 | 0.0 | 0.0 |
| LatAm | 0.0 | 0.0 | 0.0 |
| Local currency | 0.0 | 0.0 | 0.0 |
| Foreign currency | 0.0 | 0.0 | 0.0 |
| Thematic Fixed Income | 0.0 | 0.0 | 0.0 |
| US Bank Loans | 0.0 | 0.0 | 0.0 |
| Preferreds | 0.0 | 0.0 | 0.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------------|---------------|---------------|-------------|
| Equities | 71.0 | 67.0 | -4.0 |
| Developed Equities | 61.2 | 50.9 | -10.3 |
| Developed Large Cap Equities | 52.8 | 47.6 | -5.2 |
| US | 36.7 | 38.1 | 1.3 |
| Canada | 1.8 | 1.1 | -0.7 |
| UK | 2.2 | 1.2 | -1.0 |
| Switzerland | 1.5 | 0.7 | -0.8 |
| Europe ex UK ex Switzerland | 5.1 | 2.6 | -2.4 |
| Asia ex Japan | 1.9 | 1.8 | -0.0 |
| Japan | 3.6 | 2.1 | -1.5 |
| Developed Small/Mid Cap Equities | 8.4 | 3.4 | -5.1 |
| US | 4.7 | 2.5 | -2.2 |
| Non-US | 3.7 | 0.9 | -2.8 |
| Emerging All Cap Equities | 9.8 | 11.6 | 1.8 |
| Asia | 8.2 | 10.4 | 2.2 |
| China | 3.3 | 5.5 | 2.2 |
| Asia (ex China) | 4.9 | 4.9 | -0.1 |
| EMEA | 0.9 | 0.5 | -0.4 |
| LatAm | 0.7 | 0.7 | -0.0 |
| Brazil | 0.4 | 0.4 | -0.0 |
| LatAm ex Brazil | 0.3 | 0.3 | -0.0 |
| Thematic Equities | 0.0 | 4.5 | 4.5 |
| Global Equity REITs | 0.0 | 0.0 | 0.0 |
| US Mortgage REITs | 0.0 | 0.0 | 0.0 |
| Global Healthcare | 0.0 | 0.0 | 0.0 |
| Global Pharma | 0.0 | 3.0 | 3.0 |
| Cyber Security | 0.0 | 1.5 | 1.5 |
| Fintech | 0.0 | 0.0 | 0.0 |
| Natural Resources | 0.0 | 0.0 | 0.0 |
| Oil Services | 0.0 | 0.0 | 0.0 |
| Commodities | 0.0 | 4.0 | 4.0 |
| Composite Commodities | 0.0 | 0.0 | 0.0 |
| Thematic Commodities | 0.0 | 4.0 | 4.0 |
| Gold | 0.0 | 4.0 | 4.0 |
| Thematic 2 | 0.0 | 0.0 | 0.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |
| Hedge Funds | 14.0 | 14.0 | 0.0 |
| Private Equity | 10.0 | 10.0 | 0.0 |
| Real Estate | 5.0 | 5.0 | 0.0 |
| Total | 100.0 | 100.0 | -0.0 |

Active = the difference between tactical and strategic allocations. Minor differences may result due to rounding.

Global USD with Hedge Funds and 15% Illiquids (PE & RE): Risk Level 5 - Tactical Allocations



Figures in brackets are active allocations. All allocations are subject to change at discretion of the GIC of the Citi Private Bank.

Core Positions

Global equities have an underweight position of -4.0% while gold has an overweight position of +4.0%. Global fixed income and cash both have neutral position.

Within equities, developed large cap equities have an underweight position of -5.2% and developed small/mid cap equities have an underweight position of -5.1%. Emerging market equities have an overweight of +1.8%. Thematic equities have an overweight of +4.5%.

Within fixed income, developed government debt, developed corporate investment grade, developed high yield and emerging market debt are all at neutral position.

Hedge Fund allocation in the tactical portfolio is 14%. Private Equity and Real Estate allocations are 10% and 5%, respectively. All these three asset classes positionings are neutral.

Global USD without Hedge Funds: Risk Level 1

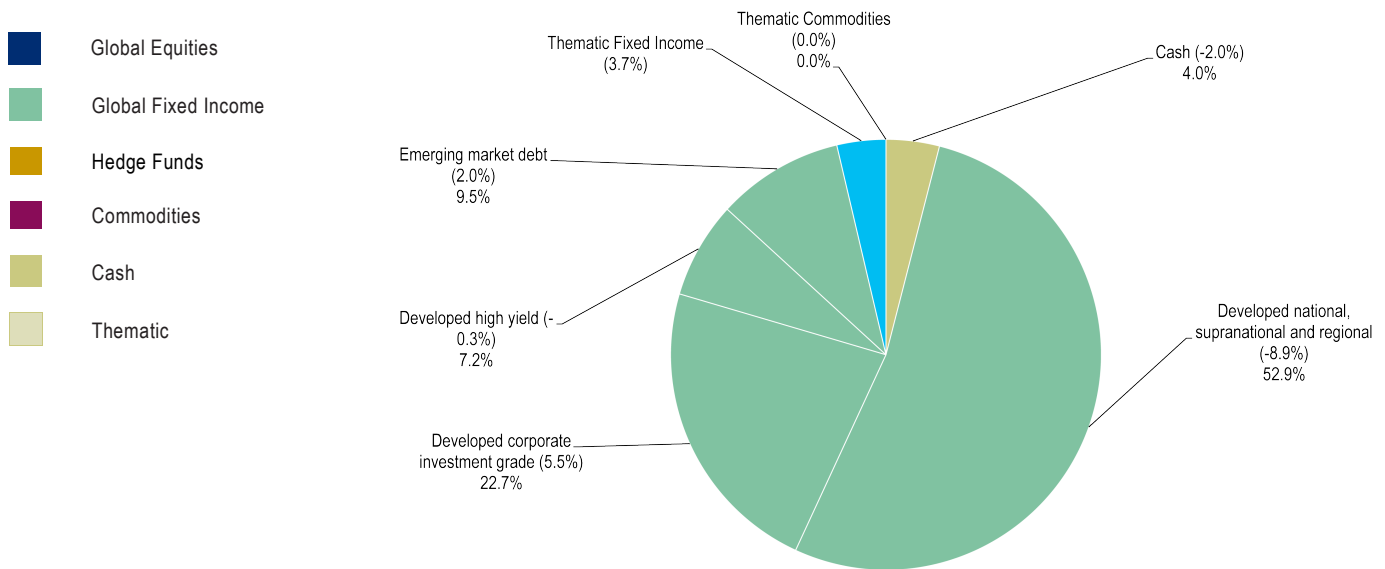
Risk Level 1 is designed for investors who have a preference for capital preservation and relative safety over the potential for a return on investment. These investors prefer to hold cash, time deposits and/or lower risk fixed income instruments.

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------|---------------|---------------|------------|
| Cash | 6.0 | 4.0 | -2.0 |
| Fixed Income | 94.0 | 96.0 | 2.0 |
| Developed Investment Grade | 79.0 | 75.6 | -3.4 |
| US | 45.3 | 52.4 | 7.1 |
| Government | 19.5 | 20.1 | 0.6 |
| Inflation-Linked | 2.8 | 2.6 | -0.2 |
| Short | 5.2 | 5.0 | -0.2 |
| Intermediate | 8.1 | 7.1 | -1.0 |
| Long | 3.5 | 5.5 | 2.0 |
| Securitized | 14.4 | 15.9 | 1.5 |
| Credit | 11.4 | 16.4 | 5.0 |
| Short | 1.6 | 2.6 | 1.0 |
| Intermediate | 6.0 | 10.0 | 4.0 |
| Long | 3.9 | 3.9 | 0.0 |
| Europe | 25.8 | 18.8 | -7.0 |
| Government | 20.1 | 12.6 | -7.5 |
| Credit | 5.8 | 6.3 | 0.5 |
| Australia | 0.5 | 0.5 | 0.0 |
| Government | 0.5 | 0.5 | 0.0 |
| Japan | 7.4 | 3.9 | -3.5 |
| Government | 7.4 | 3.9 | -3.5 |
| Developed High Yield | 7.5 | 7.2 | -0.3 |
| US | 5.6 | 4.2 | -1.4 |
| Europe | 1.9 | 3.0 | 1.1 |
| Emerging Market Debt | 7.5 | 9.5 | 2.0 |
| Asia | 1.3 | 2.6 | 1.3 |
| Local currency | 0.6 | 1.1 | 0.5 |
| Foreign currency | 0.6 | 1.4 | 0.8 |
| EMEA | 3.9 | 3.9 | 0.0 |
| Local currency | 2.0 | 2.0 | 0.0 |
| Foreign currency | 2.0 | 2.0 | 0.0 |
| LatAm | 2.3 | 3.0 | 0.7 |
| Local currency | 1.2 | 1.2 | 0.0 |
| Foreign currency | 1.2 | 1.9 | 0.7 |
| Thematic Fixed Income | 0.0 | 3.7 | 3.7 |
| US Bank Loans | 0.0 | 1.7 | 1.7 |
| Preferreds | 0.0 | 2.0 | 2.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |

| Classification | Strategic (%) | Tactical* (%) | Active (%) |
|----------------------------------|---------------|---------------|------------|
| Equities | 0.0 | 0.0 | 0.0 |
| Developed Equities | 0.0 | 0.0 | 0.0 |
| Developed Large Cap Equities | 0.0 | 0.0 | 0.0 |
| US | 0.0 | 0.0 | 0.0 |
| Canada | 0.0 | 0.0 | 0.0 |
| UK | 0.0 | 0.0 | 0.0 |
| Switzerland | 0.0 | 0.0 | 0.0 |
| Europe ex UK ex Switzerland | 0.0 | 0.0 | 0.0 |
| Asia ex Japan | 0.0 | 0.0 | 0.0 |
| Japan | 0.0 | 0.0 | 0.0 |
| Developed Small/Mid Cap Equities | 0.0 | 0.0 | 0.0 |
| US | 0.0 | 0.0 | 0.0 |
| Non-US | 0.0 | 0.0 | 0.0 |
| Emerging All Cap Equities | 0.0 | 0.0 | 0.0 |
| Asia | 0.0 | 0.0 | 0.0 |
| China | 0.0 | 0.0 | 0.0 |
| Asia (ex China) | 0.0 | 0.0 | 0.0 |
| EMEA | 0.0 | 0.0 | 0.0 |
| LatAm | 0.0 | 0.0 | 0.0 |
| Brazil | 0.0 | 0.0 | 0.0 |
| LatAm ex Brazil | 0.0 | 0.0 | 0.0 |
| Thematic Equities | 0.0 | 0.0 | 0.0 |
| Global Equity REITs | 0.0 | 0.0 | 0.0 |
| US Mortgage REITs | 0.0 | 0.0 | 0.0 |
| Global Healthcare | 0.0 | 0.0 | 0.0 |
| Global Pharma | 0.0 | 0.0 | 0.0 |
| Cyber Security | 0.0 | 0.0 | 0.0 |
| Fintech | 0.0 | 0.0 | 0.0 |
| Natural Resources | 0.0 | 0.0 | 0.0 |
| Oil Services | 0.0 | 0.0 | 0.0 |
| Commodities | 0.0 | 0.0 | 0.0 |
| Composite Commodities | 0.0 | 0.0 | 0.0 |
| Thematic Commodities | 0.0 | 0.0 | 0.0 |
| Gold | 0.0 | 0.0 | 0.0 |
| Thematic 2 | 0.0 | 0.0 | 0.0 |
| Thematic 3 | 0.0 | 0.0 | 0.0 |
| Thematic 4 | 0.0 | 0.0 | 0.0 |
| Thematic 5 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 0.0 |

Active = the difference between tactical and strategic allocations. Minor differences may result due to rounding.

Global USD without Hedge Funds: Risk Level 1 - Tactical Allocations



Figures in brackets are active allocations. All allocations are subject to change at discretion of the GIC of the Citi Private Bank.

Core Positions

Global equities have an overall neutral position, global fixed income has an overweight of +2.0%, cash has an underweight of -2.0%.

Within equities, developed large cap equities, developed small/mid cap equities and emerging market equities are all at neutral positions.

Within fixed income, developed investment grade debt has an underweight position of -3.4%; developed high yield has an underweight position of -0.3% and emerging market debt has an overweight position of +2.0%. Thematic fixed income has an overweight position of +3.7%.

Asset Allocation Definitions

| ASSET CLASSES | Benchmarked against |
|--|---|
| Global equities | MSCI All Country World Index, which represents 48 developed and emerging equity markets. Index components are weighted by market capitalization. |
| Global bonds | Bloomberg Barclays Capital Multiverse (Hedged) Index, which contains the government -related portion of the Multiverse Index, and accounts for approximately 14% of the larger index. |
| Hedge funds | HFRX Global Hedge Fund Index, which is designed to be representative of the overall composition of the hedge fund universe. It comprises all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage and relative value arbitrage. The strategies are asset-weighted based on the distribution of assets in the hedge fund industry. |
| Commodities | Dow Jones-UBS Commodity Index, which is composed of futures contracts on physical commodities traded on US exchanges, with the exception of aluminum, nickel and zinc, which trade on the London Metal Exchange (LME). The major commodity sectors are represented including energy, petroleum, precious metals, industrial metals, grains, livestock, softs, agriculture and ex-energy. The Thomson Reuters / Core Commodity Index is designed to provide timely and accurate representation of a long-only, broadly diversified investment in commodities through a transparent and disciplined calculation methodology. |
| Cash | Three-month LIBOR, which is the interest rates that banks charge each other in the international inter-bank market for three-month loans (usually denominated in Eurodollars). |
| Equities | |
| Developed market large cap | MSCI World Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure the equity market performance of the large cap stocks in 23 developed markets. Large cap is defined as stocks representing roughly 70% of each market's capitalization. |
| All Country Ex US | MSCI All Country ex US, which is free-float adjusted and weighted by market capitalization. The index is designed to measure the equity market performance of the large cap stocks in all countries excluding the US. |
| US | Standard & Poor's 500 Index, which is a capitalization-weighted index that includes a representative sample of 500 leading companies in leading industries of the US economy. Although the S&P 500 focuses on the large cap segment of the market, with over 80% coverage of US equities, it is also an ideal proxy for the total market. |
| Europe ex UK | MSCI Europe ex UK Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure large cap stock performance in each of Europe's developed markets, except for the UK |
| UK | MSCI UK Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure large cap stock performance in the UK |
| Japan | MSCI Japan Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure large cap stock performance in Japan. |
| Asia Pacific ex Japan | MSCI Asia Pacific ex Japan Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure the performance of large cap stocks in Australia, Hong Kong, New Zealand and Singapore. |
| Developed market small and mid-cap (SMID) | MSCI World Small Cap Index, which is a capitalization-weighted index that measures small cap stock performance in 23 developed equity markets. |
| Emerging market | MSCI Emerging Markets Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure equity market performance of 22 emerging markets. |
| Bonds | |
| Developed sovereign | Citi World Government Bond Index (WGBI), which consists of the major global investment grade government bond markets and is composed of sovereign debt, denominated in the domestic currency. To join the WGBI, the market must satisfy size, credit and barriers-to-entry requirements. In order to ensure that the WGBI remains an investment grade benchmark, a minimum credit quality of BBB-/Baa3 by either S&P or Moody's is imposed. The index is rebalanced monthly. |
| Emerging sovereign | Citi Emerging Market Sovereign Bond Index (ESBI), which includes Brady bonds and US dollar -denominated emerging market sovereign debt issued in the global, Yankee and Eurodollar markets, excluding loans. It is composed of debt in Africa, Asia, Europe and Latin America. We classify an emerging market as a sovereign with a maximum foreign debt rating of BBB+/Baa1 by S&P or Moody's. Defaulted issues are excluded. |
| Supranationals | Citi World Broad Investment Grade Index (WBIG)—Government Related, which is a subsector of the WBIG. The index includes fixed rate investment grade agency, supranational and regional government debt, denominated in the domestic currency. The index is rebalanced monthly. |
| Corporate investment grade | Citi World Broad Investment Grade Index (WBIG)—Corporate, which is a subsector of the WBIG. The index includes fixed rate global investment grade corporate debt within the finance, industrial and utility sectors, denominated in the domestic currency. The index is rebalanced monthly. |
| Corporate high yield | Bloomberg Barclays Global High Yield Corporate Index. Provides a broad-based measure of the global high yield fixed income markets. It is also a component of the Multiverse Index and the Global Aggregate Index. |
| Securitized | Citi World Broad Investment Grade Index (WBIG)—Securitized, which is a subsector of the WBIG. The index includes global investment grade collateralized debt denominated in the domestic currency, including mortgage -backed securities, covered bonds (Pfandbriefe) and asset-backed securities. The index is rebalanced monthly. Moody's Baa Corporate Bond Index is an investment bond index that tracks the performance of all bonds given a Baa rating by Moody's Investors Service. |

BAML US Corporate index (Bank of America Merrill Lynch) tracks the performance of US dollar denominated investment grade rated corporate debt publically issued in the US domestic market.

Other miscellaneous definitions

Asset Backed Securities (ABS) A security whose income payments and hence value are derived from and collateralized (or "backed") by a specified pool of underlying assets such as consumer credit card debt or auto loans.

Commercial Mortgage Backed Securities (CMBS) Commercial mortgage-backed securities (CMBS) are a type of mortgage-backed security that is secured by mortgages on commercial properties, instead of residential real estate.

High Yield Corporate Bonds (HY) High yield corporate bonds are bonds with a credit rating less than BBB- (S&P) or Baa3 (Moody's), and are debt securities issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations.

Investment Grade Corporate Bonds (IG) Investment grade corporate bonds are bonds with a credit rating equal to or above BBB- (S&P) or Baa3 (Moody's), and are debt securities issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations.

COVID-Cyclicals Financials, Industrials, Energy, Materials, Real Estate, Consumer Discretionary ex-Amazon.

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Bond rating equivalence

Alpha and/or numeric symbols used to give indications of relative credit quality. In the municipal market, these designations are published by the rating services. Internal ratings are also used by other market participants to indicate credit quality.

| Bond credit quality ratings | Rating agencies | | |
|---|----------------------|----------------------------------|----------------------------|
| | Moody's ¹ | Standard and Poor's ² | Fitch Ratings ² |
| Investment Grade | | | |
| Highest quality | Aaa | AAA | AAA |
| High quality (very strong) | Aa | AA | AA |
| Upper medium grade (Strong) | A | A | A |
| Medium grade | Baa | BBB | BBB |
| Not Investment Grade | | | |
| Lower medium grade (somewhat speculative) | Ba | BB | BB |
| Low grade (speculative) | B | B | B |
| Poor quality (may default) | Caa | CCC | CCC |
| Most speculative | Ca | CC | CC |
| No interest being paid or bankruptcy petition filed | C | D | C |
| In default | C | D | D |

¹ The ratings from Aa to Ca by Moody's may be modified by the addition of a 1, 2, or 3 to show relative standing within the category.

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