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PANORAMA

QUARTERLY THOUGHT LEADERSHIP PUBLICATION FOR OUR CLIENTS

SECOND QUARTER, 2022

WELCOME.....

.....to the second quarter 2022 edition of Panorama, T. Rowe Price's investment magazine for Australian investors.

All told, it has been a bumpy ride for investors so far in 2022, with headwinds from inflation, interest rate hikes and Russia's invasion of Ukraine. As a result, forecasts of global growth in 2022 have been cut, though the IMF in their April World Economic Outlook still project positive growth of 3.6% for this year and next. Markets are always forward looking, and an optimist might say that we may soon be approaching peak pessimism on rates, growth, and inflation with better times beyond.

We begin with a discussion of global markets with T. Rowe Price's CIO and Head of International Equity, Justin Thomson. Visiting Asia in person for the first time since the pandemic, Justin fielded a broad range of questions from Asian clients, covering geopolitical tensions, energy prices, transitory versus permanent inflation, interest rate hikes, emerging markets, and China. On markets broadly he remains optimistic, even if in the short term we could experience more bumps and volatility.

Next, Maria Elena Drew, Director of Research for Responsible Investing at T. Rowe Price, assesses some of the ESG (Environment, Social and Governance) implications of Russia's invasion of Ukraine. A key impact is that pressure to reduce dependence on Russian gas could in the medium term expedite Europe's green energy transition. Short term, however, a greater focus on "energy insecurity" could slow the planned phase-out of legacy fuels such as coal, nuclear, and gas.

Nathan Wang and Thomas Poullaouec from the Global Multi-Asset team consider whether volatility spikes make good sell signals, noting that extreme share price movements due to "black swan" events have occurred more frequently since 2000. For longer-term investors, they conclude that keeping calm and sitting tight may be a good option when market volatility spikes, as happened after Russia invaded Ukraine.

Chris Kushlis, Chief of China and Emerging Markets Strategy, thinks that Beijing may only shift from its zero COVID policy when the costs of containing the virus exceed the benefits, which is not currently the case. In the short-term the omicron outbreak may crimp growth in 2022 but over the medium term the government could incentivize capital to shift to new growth areas.

Turning next to the Asian bond markets, Sheldon Chan, co-manager of the Asia Credit Bond Strategy, looks at some of the key features of the asset class, defined as the universe of U.S. dollar and other hard currency denominated bonds of Asian issuers, both corporate and sovereign, excluding Japan.

Finally, in our Personal Profile interview we spoke with Richard Coghlan, co-manager of T. Rowe Price's Real Assets Strategy. Based in Tokyo, Richard joined the firm in 2017, and is a is a global solutions portfolio manager within the Multi-Asset Division. He is experienced in building and managing investment solutions for non-U.S. investors.

As always, we welcome your comments and feedback on this issue of Panorama. Contact details can be found on page 31.

T. Rowe Price Australia

Q&A WITH JUSTIN THOMSON

T. Rowe Price's CIO for International Equities.

Justin Thomson on a recent visit to Asia held a fireside chat with clients from across the region. Here, we summarize the lively discussion that took place in Q&A form.

Justin Thomson
CIO and Head of International Equity

Q1: Justin, can you start with a recap of markets in the first quarter and how recent developments may have impacted your view of 2022?

As we entered 2022, I believe many of us expected it was going to be a year of "normalization." By normalization, I mean we would see a reduction in many of the distortions that had arisen as a result of the coronavirus pandemic. These included both supply-side and demand-side distortions. We expected the disruptions to supply chains, particularly for critical manufacturing components like semiconductors, to gradually fade in 2022 as operating conditions for the majority of firms returned to normal. On the demand side, we had seen strong, coordinated economic stimulus from governments and central banks around the world in 2020 and 2021. And so we expected to see a tactical withdrawal of stimulus, with normalization of monetary policy being everybody's base case for 2022.

How would policy normalization impact financial markets? Well, primarily it would manifest itself through rising interest rates. Higher interest rates in turn meant that we were expecting a normalization in bond and equity valuations and a retreat from some of the "pockets of excess" witnessed in 2021. As we entered 2022, markets had already become a bit bumpy during the fourth quarter. Investors had realized that inflation was going to be a more sustained issue for markets in 2022 than previously thought. The upshot was that both

> The very high pandemic recovery rates of earnings growth were bound to slow....

the journey and the final destination on short-term policy rates are going to be longer and higher than previously thought and a bigger potential challenge for stretched valuations. Normalization was also expected to apply to earnings growth. The very high pandemic recovery rates of earnings growth were bound to slow, even if the underlying earnings environment remained robust.

Q2: If 2022 initially appeared to be the year for normalization, this theme was sadly interrupted by the conflict between Russia and Ukraine. How do you see these tragic events impacting global markets?

The first thing we must do is to acknowledge the tremendous scale of the human tragedy there and the massive relief effort that will be required to rebuild Ukraine after the conflict ends. But putting those things to one side, let's think about what it means for financial markets. I don't believe that anybody was positioned for a full-scale incursion by Russia into Ukraine. In a war scenario, the normal rules for markets do not apply. I can't think of a suitable parallel for what we are currently experiencing. We have seen one tail event or shock—the Russia-Ukraine conflict—closely followed by a second—the determined and united response from the Western world to sanction Russia heavily.

Economic sanctions against Russia were as surprising as they were rigorous. The reprisals of shutting off Russian banks from the SWIFT payment system were something that had been talked about. But sanctioning the Russian central bank by denying access to its own reserves was the most surprising element of the sanctions. As such, it represents a new form of economic warfare that no one had previously thought about. And many people have been sitting up and taking notice of that.

I believe that we won't be in a position to understand the longer-term impact of the Russia-Ukraine crisis for quite a while. The Germans have a very good expression for this—zeitenwende. It means that we have reached an inflection point in history that is going to be a game changer. And the world as we think of it is certainly going to change in ways that are difficult to predict as a result of Vladimir Putin's war against Ukraine. One of the first things we are likely to see is a reorientation of energy strategies as Europe reduces its dependence on Russian oil and gas. There will likely be an acceleration of investment in renewables, especially as the switching costs are reduced if energy prices remain elevated. Another obvious implication of Russia's invasion of Ukraine is that we can expect higher defense spending. Germany, in particular, has been explicit in targeting a defense budget that reaches 2.0% of gross domestic product for the first time.

Q3: The immediate impact of sanctions has been a sharp spike in energy prices, notably oil and gas, as happened during the Gulf War in 1991. How is this likely to play out?

What we're seeing today is broad commodity price inflation across a wide range of items—energy, food, and metals—which makes this a very different scenario from what we saw in 1991. The way in which this unfolds for markets is absolutely crucial. The longer the dislocation in energy markets goes on, the more serious it becomes in terms of the direct inflationary impulse, which is obvious, and also in terms of the second-round effects on industry and services. And the second-round effects will be a deflationary or, potentially, a recessionary impulse. So, the rise in energy costs is one of the things we need to think seriously about. Despite all the talk today among investment managers about stagflation, forward oil prices remain below spot prices. I think this offers a glimmer of comfort, as it implies the market expects crude oil prices to be coming down over time.

> Despite all the talk today among investment managers about stagflation, forward oil prices remain below spot prices.

We believe inflation is going to be unevenly spread. The inflationary impulse is not just in oil and gas, it's also in food prices, particularly wheat where Ukraine and Russia are about 25% of global supply and are a very important food source for countries in the Middle East and Africa. So there is going to be a direct effect through food inflation, with a knock-on negative effect on overall consumer spending. Asian economies, being largely rice-based, should be more isolated from these pressures.

Q4: There has been an active debate over whether inflation pressures in the post-pandemic

recovery are transitory or more permanent. Justin, what is your view?

I think what we all need is a sound framework for how to think about inflation—which issues are temporary and which issues are more structural or longer term? When it comes to supply chain problems, for example, there is a great phrase that the cure for high prices is even higher prices that create additional supply and lower demand, in turn bringing prices down. This applies to semiconductors and other electronic inputs, secondhand cars, and other items that we bought in great quantities during the lockdown, such as PCs, bicycles, and RVs. Exceptional price increases for these items are largely pandemic-related and should likely normalize as countries generally learn to live with the coronavirus. Overall, there was exceptionally strong demand for consumer goods that was a direct result of the huge policy stimulus delivered in 2020 and 2021. As the stimulus is withdrawn, we can expect the demand effect to fade.

There is also a need to think about the more permanent or structural effects on inflation due to the pandemic. One important channel concerns labor force participation rates, where many people left the work force, dubbed the "Great Resignation." This has created a strong bid in the labor market, particularly for those with technology skills. So higher wage and salary inflation has become a growing concern for policymakers. It could lead to second-round effects on inflation expectations and also to strong capex demand to substitute away from more expensive labor. And to the extent that we see a trend toward deglobalization as supply chains become more localized, that also is likely to have some impact on inflation.

On top of this, I also detect in policymakers and governments a higher political acceptance of inflation, in part related to the need for greater equality and leveling up. With this, we may see more largesse in fiscal spending and a greater appetite for fiscal deficits. And I think these are important structural changes that signal the end of the era of austerity that we've been living through since the global financial crisis 13 years ago. If I'm to nail my colors to the mast, I think we are currently experiencing a paradigm shift under which inflation is going to be more elevated in the years ahead than we have become accustomed to.

Q5: Another hot topic is the debate on interest rates, which is almost impossible to separate from the view on inflation. Where should interest rates be? How do you see central bank policies evolving in response to all that is happening?

To think about interest rates, one needs to again have a framework, starting first with policy rates and, secondly, what it means for market rates or bond yields. Following the Fed's first 25-basis-point rate hike at the March Federal Open Market Committee meeting, markets expect a series of rate hikes this year, with more to come in 2023. There is nothing in the current market situation that leads me to disagree with this expectation. Besides the Fed, we are seeing central banks around the world, in both developed and emerging economies, having already raised or starting to raise interest rates.

> ...history shows that equities can perform well in an inflationary environment up to a certain point or threshold....

What was highly unusual in this rate environment is that, at the start of the year, real bond yields were at 50-year lows. Something needs to change. If real interest rates are too low, then either nominal rates and bond yields must go up or inflation subsides. I suspect the outcome in 2022 is going to be some combination of the two. My own view is that the direction of least resistance is for interest rates and bond yields to go up. So I would expect bond yields globally—with a few exceptions, such as Japan—to be steadily moving up from current levels. Given what has happened to the 10-year Treasury recently, we are further along the journey than before. One qualification worth making is that given the recessionary impulse, especially if we see further sanctions on Russia, we would likely see shorter-dated yields in the U.S. move above longer-dated yields, i.e., an inversion in the U.S. yield curve.

With regard to stock markets, history shows that equities can perform well in an inflationary environment up to a certain point or threshold, typically an inflation rate of around 3% to 4%. It has only been when inflation has been sustained above 4% for a period that equity markets have tended to suffer. Much will depend on the pace of interest rate hikes and on the starting point for economies. In the present episode, we have already seen a pretty decisive sell-off. All equity markets in March had fallen into correction territory, down 10% or more. Some had entered bear market territory, defined as a drawdown in excess of 20%.[1] So, from this starting point, it is difficult to say exactly how rates and

markets will interact going forward. Many emerging markets, though not all, appear to be well progressed in their tightening cycles. A few, such as China, may even be on the cusp of a rate-cutting cycle.

Q6: Next question, after a number of disappointing years, how should clients think about investing in emerging markets (EM)? What do you feel is the strongest case for maintaining exposure to emerging markets in the portfolio?

Obviously, being overweight emerging markets is a bet that hasn't paid off for a while now. But I think it is still possible to construct both a tactical and a structural case for investing in emerging markets. There's a lot happening in emerging markets today for investors to like, which I think defies the popular narrative that we're seeing in markets at the moment. And that's in spite of what happened in February with the sudden removal of Russian securities from the emerging markets indices. Despite this shock, the tactical argument for EMs is that there is an attractive valuation case to be made. If I look at it on a price-to-book[2] basis, EMs are at a 40% discount to developed markets, a 20-year relative low. Sector adjusted, so that you're comparing apples with apples, emerging markets today look relatively cheap.

> There's a lot happening in emerging markets today for investors to like....

On a dividend yield basis also, EMs are at a premium to the dividend yield in developed markets of approximately 40%, a two-standard-deviation event.[3] Another tactical argument concerns monetary policy. Emerging markets generally are better placed in the monetary cycle than developed markets. And in fiscal policy, China is the only large economy that plans to add significant fiscal stimulus this year, which should likely benefit Asian economies in particular.

The structural investment case for emerging markets remains a strong one, in my view. The investable universe for EMs has changed dramatically over the past decade with much less reliance on resources and commodities and growing exposure to sectors such as consumer discretionary, health care, technology, and the internet, with growing levels of innovation and research and development spending. There have also been structural improvements in EMs' macro fiscal and external balances that appear to be underappreciated by markets. In many cases, EM currencies have not followed the many improvements in current accounts and balance of payments. And the adage that I've observed over the years is that you buy emerging markets, both equity and fixed income, when their currencies are fundamentally cheap, which they are today based on relative exchange rate parities.

Q7: Turning to China, what do you think drove the recent heavy sell-off in Chinese equities? How is it different from previous sell-offs?

Chinese equity markets came under considerable pressure in March, and there are a few different reasons for this, we believe. First, there has been increased investor concern around the crisis in Ukraine and the potential risk of sanctions being imposed on China given the relationship the country has with Russia. Second, concerns around the potential delisting of Chinese American Depositary Receipts (ADR) in the U.S. came to the fore again, as we had the first batch of ADRs identified by the Securities and Exchange Commission in the U.S. as potential delisting candidates under the Holding Foreign Companies Accountable Act (HFCAA).

Finally, we also had news of the recent outbreak of omicron in China, with the authorities announcing a lockdown in Shenzhen (a major manufacturing and technology hub as well as the fourth-largest port in the world) and this likely reignited concerns around supply chain issues. The confluence of these factors likely exacerbated negative sentiment in the short term, triggering some extreme price action, but we do believe that there are factors the market is currently overlooking.

The ADR delisting issue is not new, and we think it is important to remember that stocks will not be delisted immediately. The HFCAA requires companies to comply to auditing standards within three years of being put on notice. This is more than enough time for companies to set up a secondary—or even a primary—listing on another exchange. Also important to recognize is that many of these ADRs already have a secondary listing, so there is low likelihood that the shares will be untradeable.

[1] Source: Bloomberg Finance L.P. Index percentage changes from December 31, 2021, to March 15, 2022, for S&P 500 Index, NASDAQ Composite Index, MSCI Emerging Markets Index, MSCI AC World Index, Shanghai SE Composite Index, and Hang Seng Index.
[2] Source: Bloomberg Finance L.P. MSCI Emerging Markets Price-to-Book Value Index less MSCI Developed Markets Price-to-Book Value Index as of February 2022 and compared to data from January 2000 to February 2022.
[3] Source: Bloomberg Finance L.P. MSCI Emerging Markets Dividend Yield Index relative to MSCI Developed Markets Dividend Yield Index as of February 2022 and compared to data from March 2002 to February 2022.

In cases where ADRs do get delisted, provided the secondary listing has been established, the ADRs and local shares will be fully fungible.

We have also seen the regulatory environment adjust—when the ADR issue came back into the headlines, one of the concerns over setting up a secondary listing was the relatively strict requirements on the Hong Kong exchange. However, the Hong Kong exchange has loosened its listing requirements to accommodate companies to either list in Hong Kong (if they have not done this already) or to switch their primary listing to Hong Kong over the next few years.

As such, it seems that the recent selling pressure on Chinese equities is not being driven by "new" news, but rather by a combination of previous concerns and negative headlines in a market with fragile sentiment. Previous market sell-offs were driven by a range of different factors but largely focused on domestic issues. Last year, we had the ongoing regulatory focus on sectors such as technology and online education with a view to promoting social equity by addressing perceived anti-competitive practices, high cost burdens, and low wage levels. We also saw selective selling of some Chinese equities on environmental, social, and governmental concerns.

In 2021, we also saw concerns around the real estate sector impact the equity market as the government took action to prevent overheating in the property market. Worries around potential default risk against a backdrop of slowing growth and concerns over the health of the financial system contributed to the market sell-off. This recent sell-down is quite different as it has been focused on the offshore sector, and to some extent, negative sentiment in the market became a self-fulfilling narrative.

Q8: Following the regulatory shocks last year, there has been some debate as to whether China is "investable" at this point. Can you please share your thoughts on this?

We at T. Rowe Price strongly refute the notion that China is uninvestable and believe one should not lose sight of the opportunity going forward. The investable universe in China is rapidly expanding, and one can look below large-cap technology/ state-owned enterprises to find really interesting companies that have been good capital allocators and that we think present many exciting investment opportunities. Also, today, the Chinese economy is in a position where the authorities are looking to loosen economic policy in order to support growth. The credit impulse is increasing, which in the past has tended to have a positive impact on the stock market.

> Some Chinese stocks are trading at one to two standard deviations from their Western peers....

And last, I think valuations in many cases are looking attractive compared with history and with other regions. Some Chinese stocks are trading at one to two standard deviations from their Western peers, and history would suggest that dislocations like these tend to provide longer-term opportunities.

One final thought I would like to leave our clients with in this time of market turbulence and geopolitical tensions is that the world rarely comes to an end. As surely as day follows night, the sun will rise on markets again. On markets more broadly, I remain optimistic, even if in the short term we experience more bumps and volatility. ■`

ASSESSING THE ESG IMPLICATIONS OF RUSSIA'S INVASION OF UKRAINE

Pressure to reduce dependence on Russian gas could expedite Europe's energy transition.

- Oil and gas price shocks, in addition to the current scare over security of supply from Russia, could accelerate progress on the European Green Deal.
- It is very difficult to switch energy supply quickly without incurring higher costs and hurting the economy. However, the European Union (EU) is arguably better positioned to do so today than ever before.
- The EU can accelerate the growth of renewable energy but will have to take a pragmatic approach to phasing out legacy fuels.

Maria Elena Drew
Director of Research, Responsible Investing

ENVIRONMENTAL SOCIAL GOVERNANCE

Russia's invasion of Ukraine is proving deeply concerning on many fronts. First and foremost is the unfolding humanitarian crisis and the impact on the well-being of those caught in the midst of the conflict. The initiation and escalation of the conflict has elevated geopolitical tensions and rattled global markets as investors seek to evaluate the immediate- and longer-term implications. With global commodity prices soaring, and concerns over social and human impacts intensifying, Europe and the world could experience far-reaching

FIGURE 1: The Energy Trilemma: Striking a Balance

The stability of a country's energy systems is dependent on balancing three key—and often conflicting—criteria

Source: The World Energy Council's World Energy Trilemma Index.

reverberations across the environmental, social, and governance (ESG) landscape.

Fast-Tracking Europe's Transition to Renewables

Governments around the world have been setting out an unprecedented number of punitive sanctions on Russia in recent weeks. By the same token, investors and corporates concerned about the impacts of the conflict, including human rights violations, are increasingly rolling out their own restrictive measures toward Russia. While we continue to assess the evolving crisis and the overall ESG implications, one thing has become clear: The current conflict has the potential to accelerate the energy transition, particularly in Europe.

The stability of a nation's energy systems is dependent on balancing three key—often conflicting—criteria, as defined by the World Energy Council's World Energy Trilemma Index—which serves as an annual measurement of national energy system performances.[1] These criteria include:

1. Energy Security: Measures a country's capacity to withstand system shocks and meet current and future energy supply reliably.
2. Energy Equity: Assesses a country's ability to provide universal access to energy that is not only affordable, but also reliable and abundant.
3. Environmental Sustainability: Focuses on the productivity and efficiency of energy generation, transmission, and distribution—in addition to air quality and decarbonization.

As the World Energy Council highlights, managing and balancing the competing demands of this energy trilemma is a major challenge for countries worldwide. The first two criteria, covering energy security and energy equity, have previously served as arguments for Europe to delay the transition to renewables. The dependence on Russian energy was not treated as a major issue, with its cost advantage over renewables adding to its attraction. However, Russia's decision to invade Ukraine has turned this on its head, potentially reducing the inherent tensions of the "energy trilemma" as a result of the conflict—making it a lot easier for Europe to promote the sustainable agenda through affordable and nationally produced renewables.

While the recent jump in the cost of oil and gas might be short-lived, the security of supply scare won't be. Russia accounts for 12% of global oil production and 18% of global natural gas production.[2] Given its proximity, the EU's dependence on Russian oil and gas supplies is much higher. In 2020, more than half of Russia's oil exports and about 85% of its natural gas exports went to Europe.[3]

[1] The annual World Energy Trilemma Index ranks the energy performance of 128 countries, based on global and national data—looking at energy security, energy equity, and environmental sustainability. worldenergy.org/transition-toolkit/world-energy-trilemma-index.
[2] International Energy Agency (based on 2020 production levels).
[3] BP Statistical Review of World Energy (2021).

Crucially, this price shock—together with the security of supply scare from Russia—could potentially facilitate progression of the goal of the European Commission's European Green Deal to achieve EU climate neutrality by 2050. The EU countries that have been most averse to passing the deal include some of those most vulnerable to Russia. Key developments include Germany's recent decision to freeze the approval process for the Nord Stream 2 pipeline, which was set to double the volume of Russian gas to Germany.

It is very difficult to switch energy supply quickly without incurring higher costs and hurting the economy. However, the EU is arguably well positioned to do so today given the availability of economical non-fossil fuel alternatives, more innovation in energy consumption patterns, concerns that foreign energy reliance could be used as a weapon, and consumer awareness of the climate and security crises.

This gives the EU another very strong reason to push the energy transition harder and faster. This will likely mean increased investing in renewables, but, perhaps more importantly, it could also mean investing in energy efficiency (such as smart appliances and green buildings), electrification, and other innovations.

Increasing Pragmatism Toward Legacy Fuels

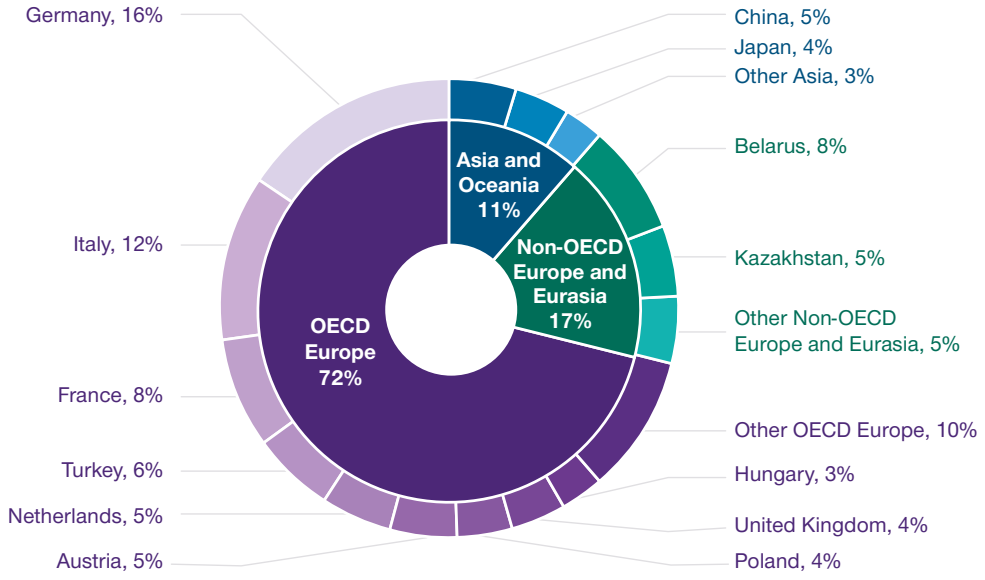
While some countries have already started to reconsider their path to reducing reliance on Russian oil and gas following Russia's invasion of Ukraine—they are going to have to be pragmatic about it. The EU's energy problem has shifted from cyclical "energy inflation" to a more structural "energy insecurity" problem. Under the "energy inflation" scenario, it's possible to weather the storm—with options such as subsidizing citizens, using CO2 tax proceeds, or charging windfall taxes to energy companies. A shift to "energy insecurity" mode means a change in behaviors, including a possible slowdown in the planned phase-outs of legacy fuels such as coal, nuclear, and gas. For example, the German government had been opposed to the addition of nuclear energy as a transition fuel in the EU taxonomy, but recent reports suggest that Russia-Ukraine events may have led them to reconsider.

While some countries have already started to reconsider their path to reducing reliance on Russian oil and gas...they are going to have to be pragmatic about it.

The International Energy Agency (IEA) has recently suggested that the EU could reduce its reliance on Russian gas supplies by more than one-third

FIGURE 2: Russia's Natural Gas Exports by Destination, 2020

Europe is heavily reliant on Russian gas



As of December 13, 2021.
Percentages may not total 100 due to rounding.
Source: Graph by the U.S. Energy Information Administration, based on Russian export statistics and partner country import statistics from Global Trade Tracker and on delivery statistics from Gazprom.

> There will undoubtedly be short-term disruption, but the long-term outlook for clean energy looks more positive.

within a year. However, stepping back from Russian gas raises salient questions over whether there is an alternative to gas for building the base for electricity supply—until non-fossil fuel alternatives can deliver.

In the immediate term, the EU could ramp up its utilization of liquified natural gas (LNG) regas capacity, in addition to other pipeline imports. As already mentioned, higher utilization of nuclear power, including extending the life of existing nuclear plants, is also a possible option to help reduce Europe's dependence on Russian gas. Another decidedly non-ESG option would be to keep coal plants open for longer. The situation would have to be extremely serious for the EU to go down this route, but it's certainly not impossible.

In the long term, EU countries could look at general electrification across heating and transport, energy-efficiency measures, and an increase in renewables and storage. The IEA has said that accelerating energy-efficiency improvements in buildings and industry could reduce gas use by nearly 2 billion cubic meters within a year.

Ultimately, the extent to which corporations and investors are setting out sanctions is likely to intensify as the situation worsens. Added to this, from an ESG-integration point of view, is the potentially accelerative impact the developments could have on Europe's energy transition. This could still take years to play out. There will undoubtedly be short-term disruption, but the long-term outlook for clean energy looks more positive. Reducing the EU's reliance on Russia—as a major player in global commodity markets—would be no small feat. Nevertheless, there are multifarious ways in which Europe can become less dependent on Russia for gas and other raw materials. The EU can certainly ramp up the growth of renewables and other fossil-free alternatives but will have to be thoughtful about changing the pace of phasing out legacy fuels—until renewables, hydrogen, and storage technology can reliably and economically deliver. If the problem has changed, the solution must change too. ■

VOLATILITY SPIKES MAY NOT BE GOOD SELL SIGNALS

Better for investors to stay calm in times of market turbulence.

- Since 2000, extreme share price movements due to 'black swan' events have occurred more frequently, creating a problem of 'fat tail risks' for investors.
- For longer-term investors, keeping calm and sitting tight may be a good option when market volatility spikes, as happened after Russia invaded Ukraine.
- We showed that 18-month returns tended to be above average following a spike in volatility due – there is a natural tendency for markets to rebound.

Nathan Wang
Solutions Analyst,
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Thomas Poullaouec
Head of Multi-Asset Solutions, APAC

Recently, stock market volatility has spiked as a result of the Russia-Ukraine conflict, the subsequent sanctions from western countries, elevated inflation levels, the tightening of central bank monetary policies, and the Chinese ADR panic sell-off. In this note we consider what actions investors might take to mitigate the risk to their portfolios. For longer term investors, keeping calm and sitting tight may be their best option.

Black Swan Events Show Up More Often in Headline News

Theoretically, if daily equity returns follow a normal distribution, then a 3.35 sigma (standard deviation) daily price movement is an outcome or event that should only occur around once in every decade. In the history

> *Black Swan events show up more often...*

FIGURE 1: S&P 500: Number of Extreme Daily Price Changes By Decade
Average of 3.35 Sigma Daily Price Changes

	1950's	1960's	1970's	1980's	1990's	2000's	2010's	2020's (2 years)
S&P 500 index	1	2	3	13	7	60	11	17

Period: 01/01/1950 – 12/31/2021.
Sources: Haver Analytics/Bloomberg Finance L.P. Analysis by T. Rowe Price. We took an expanding window of historical daily returns data for the S&P 500 from 1928 (constructed from the S&P 90 index prior to inception of the S&P 500 in March 1957) to the start of each decade in order to calculate daily return z□scores for that decade. We prefer this methodology to one in which the 3.35 sigma return threshold is held constant throughout the period covered by Figure 1 since an expanding window does not allow future, unknown returns to be used in the calculation of the number of tail risk events per decade.

of the S&P 500 Index, however, days of 3.35 sigma price movements have occurred more often than a normal return distribution would suggest. (Figure 1). This feature of equity returns is sometimes referred to as the problem of 'fat tails' or extreme outcomes facing equity investors. Extreme events occur more often than many investors might expect.

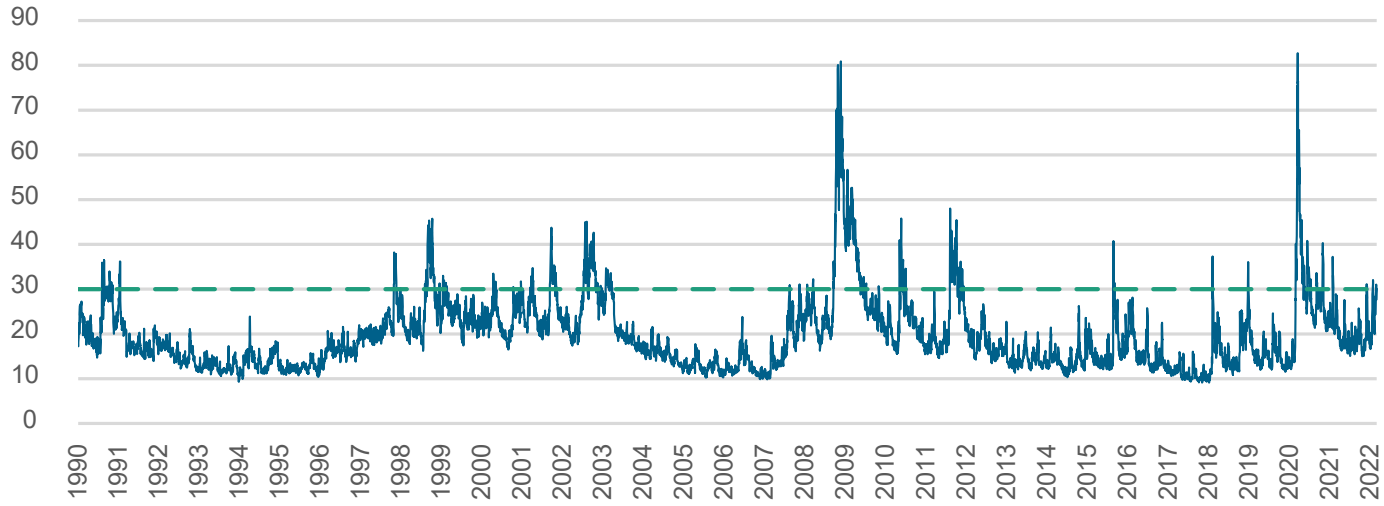
> *we analyzed the cumulative returns of the S&P 500 index over a subsequent period of up to 18 months...*

Figure 1 also shows that extreme share price movements have occurred more frequently since the year 2000 than might have expected based on the entire post-war history of such events. This increase in frequency reflects a succession of extreme events including the 2000/2001 IT bubble, the global financial crisis in 2007/2008 followed by the great recession, the Fed's 'taper tantrum' in 2013, and most recently, the coronavirus pandemic that began in 2020. Investors who have based their portfolio construction on a normal distribution assumption need to quickly revisit their processes to include fat tails. The increase in the number of extreme outcomes naturally raises the question "What can, or should, investors do to lower the risk of their portfolios during these now more frequent periods of market stress or turbulence?

It Pays to Stay Invested During Stress Periods

To help answer the question of what should investors do when volatility spikes, we looked at the history of daily price changes in the S&P 500 over the past thirty plus years (since 1990). We first divided the observations of daily S&P returns into two groups: 1) Days with heightened implied volatility levels, as measured by the VIX index.[1] We chose 30 as the VIX threshold since it represents the 90th percentile for the period,

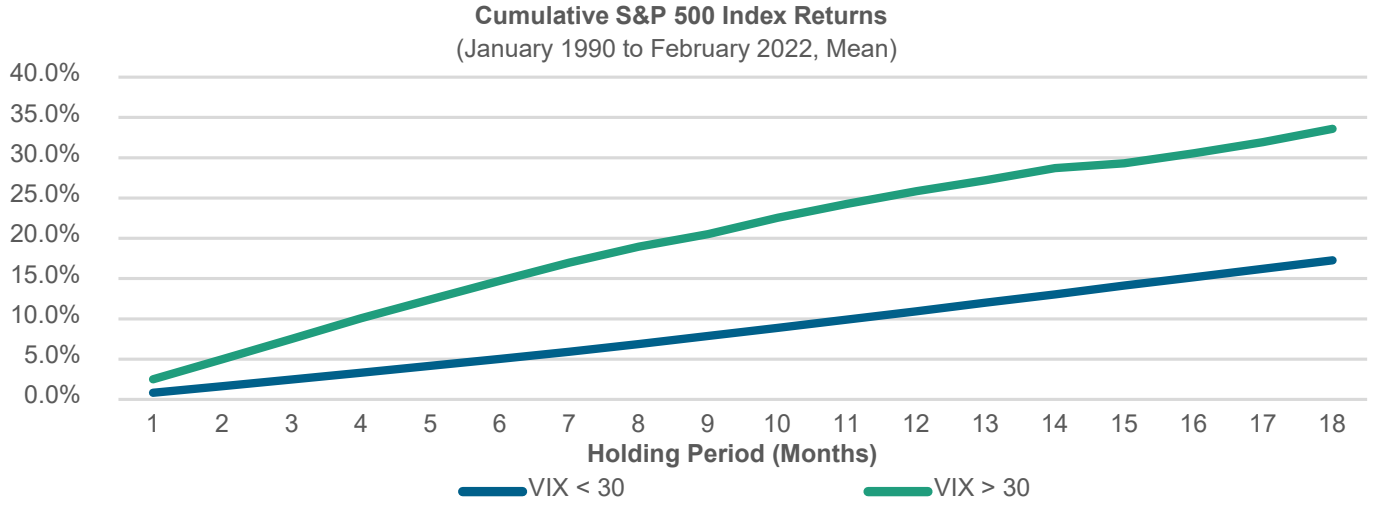
FIGURE 2: VIX: A 'Greed & Fear' Gauge for Equity Investors
Daily observations and 90th percentile threshold (1 Jan 1990 to 15 Mar 2022)



As of March 15, 2022.
Sources: Haver Analytics/Bloomberg Finance L.P. Analysis by T. Rowe Price.

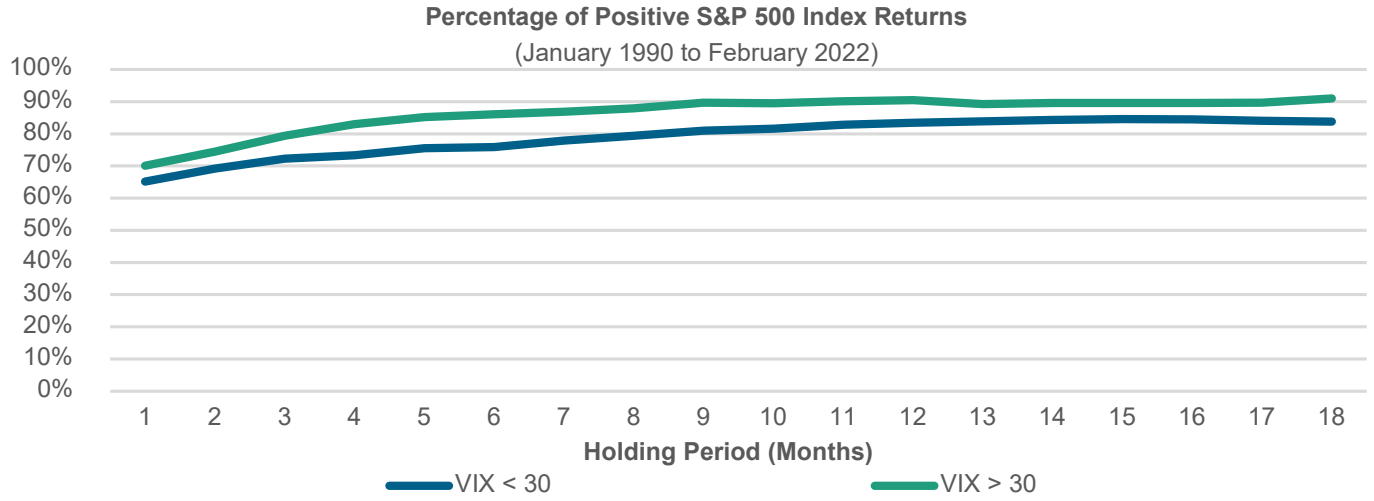
[1] The Chicago Board Options Exchange's CBOE Volatility Index, or VIX, is a real-time index of the market's expectations for volatility over the coming 30 days, derived from option pricing. Many investors employ VIX to measure the general level of risk, fear, or stress in the market when making their investment decisions.

FIGURE 3: Cumulative S&P 500 Index Returns Over 18-months Based on VIX
Conditioned by starting level of VIX less than or greater than 30.



Past performance is not a reliable indicator of future performance.
As of March 15, 2022.
Sources: Haver Analytics/Bloomberg Finance L.P. Analysis by T. Rowe Price.

FIGURE 4: Probability of Achieving a Positive 12-month Return Based on VIX
Conditioned by starting level of VIX less than 30, or greater than 30.



Past performance is not a reliable indicator of future performance.
As of March 15, 2022.
Sources: Haver Analytics/Bloomberg Finance L.P. Analysis by T. Rowe Price.

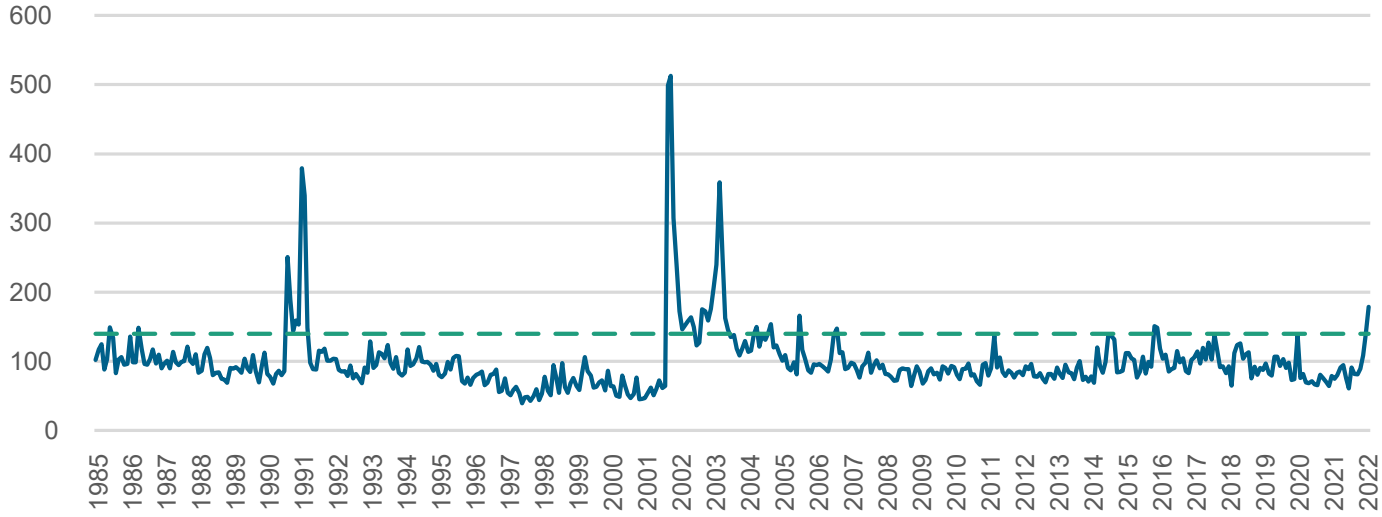
and 2) Other days, when the VIX fell below the chosen threshold.

Next, we analyzed the cumulative returns of the S&P 500 index over a subsequent period of up to 18 months, conditioned on the starting level of VIX. The results of this calculation are shown in Figure 3. For this historic period, the cumulative 18-month return when the starting level of VIX was above 30 (90th percentile) has on average been around double the return for periods when the starting point for VIX was below 30. Moreover, the probability of achieving a positive cumulative return over a 12-month period was over 90% when the starting point for VIX was above 30, while the probability was closer to 80% when the starting point for VIX was below 30 (Fig. 4).

our analysis suggested that spikes in volatility did not make good sell signals...

Our analysis suggested that spikes in volatility did not make good sell signals. Returns tended to be above average in the 18 months following a spike in volatility since there is a natural tendency for markets to rebound, having become oversold during the correction. In our view, investors need to stay disciplined and not sell in a panic close to a market bottom. Those that do so often succeed only in locking in their losses. Market timing is always difficult, even more so in periods of extreme stress and turbulence. An investor who sells

FIGURE 5: Federal Reserve Board (FRB) Geopolitical Risk Index
Daily observations and 90th percentile (1 January 1985 to 15 March 2022)



As of March 15, 2022.
Sources: Federal Reserve Board. Analysis by T. Rowe Price.

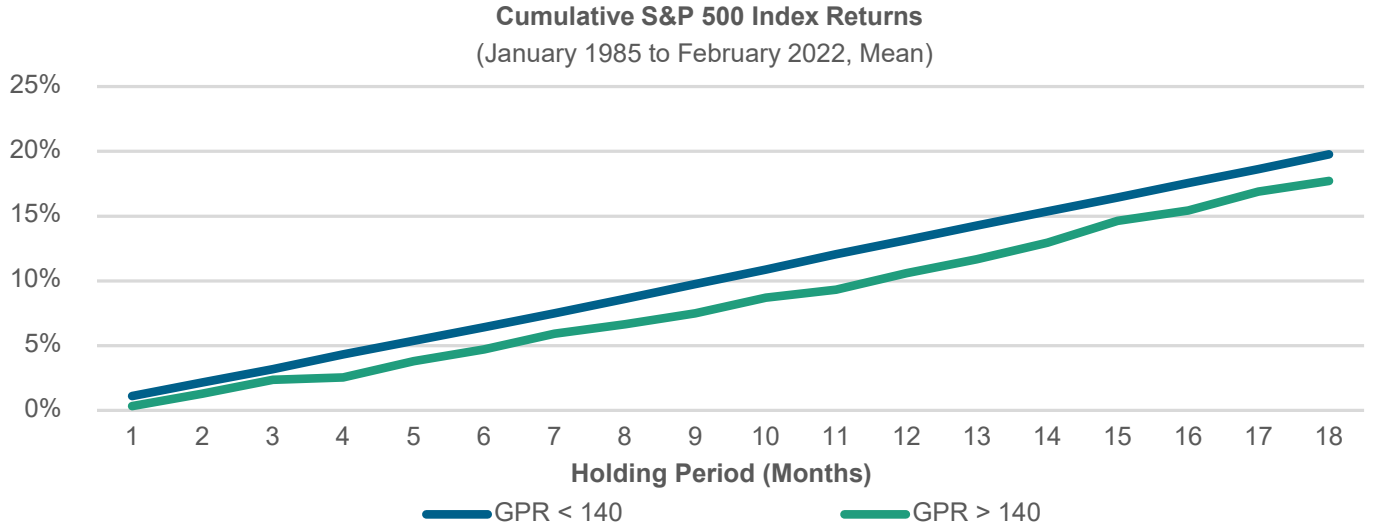
> *Market timing is always difficult, even more so in periods of extreme stress and turbulence.*

and moves into cash may be late to re-enter the market. From another angle, periods with heightened volatility can potentially provide good longer-term entry points for investors, summed up in the phrase "Be greedy when others are fearful."

As mentioned in the introduction, it was the geopolitical tensions in eastern Europe following Russia's invasion of Ukraine that was one of the major factors behind the recent market turbulence. Does it pay to invest in periods when geopolitical tensions escalate? To answer this question, we employed a Geopolitical Risk Index (GPR) that was developed by Dario Caldara and Matteo Lacoviello at the Federal Reserve Board. Their GPR Index reflects the results of an automated text-search of the electronic archives of 10 newspapers, starting in 1985 and is shown in Figure 5.

Similar to the treatment of the VIX analysis, we picked 140 as the threshold to partition the history as it represents the 90th percentile. However, on repeating the analysis of Figures 3 and 4 above, we didn't find historical evidence that heightened geopolitical risks can lead to strong forward returns. Thus, in our view,

FIGURE 6: Cumulative S&P 500 Index Returns Over 18-months & FRB Geopolitical Risk Index (GPR)
Conditioned by FRB Geopolitical Risk Index less or greater than 140.



Past performance is not a reliable indicator of future performance.
As of March 15, 2022.
Sources: Federal Reserve Board. Analysis by T. Rowe Price.

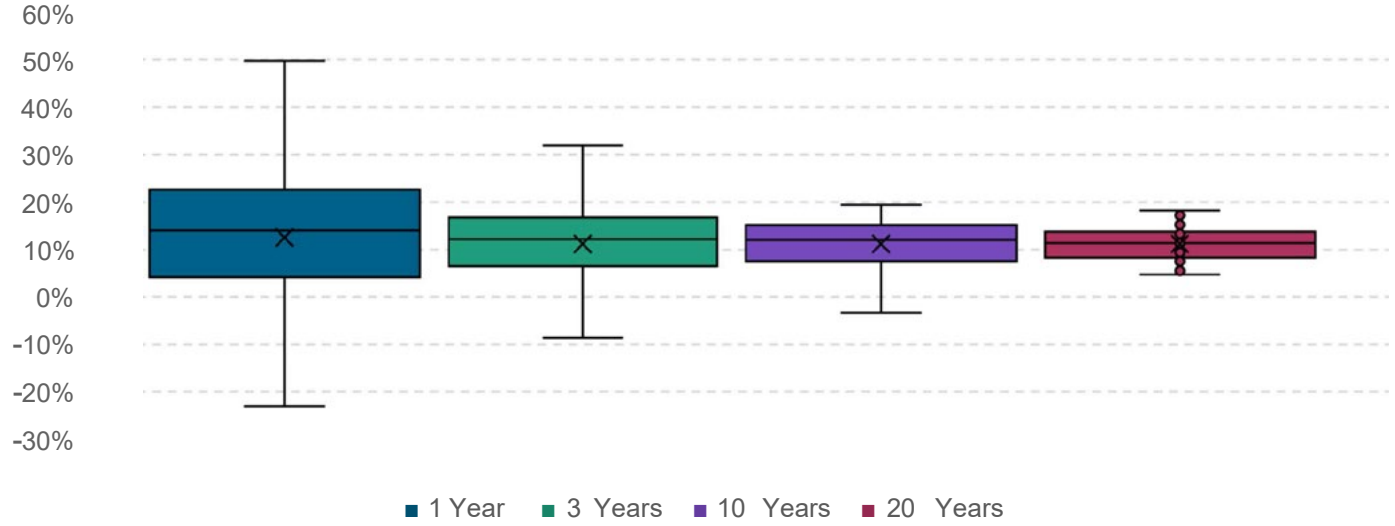
> *sitting tight and waiting for the market turbulence to pass may be a good option.*

investors should pay more attention to surges in market implied volatility (VIX) rather than to geopolitical risks on a standalone basis, reflected by the volume of media discussions of Russia/Ukraine. We believe that the reason why periods with heightened geopolitical risk do not as a rule provide good entry points for investors is that few of us have an edge on the duration and severity of geopolitical developments, so it might not be wise to use a gauge of geopolitical risk as a market timing signal.

When Investing, Time Is Your Friend

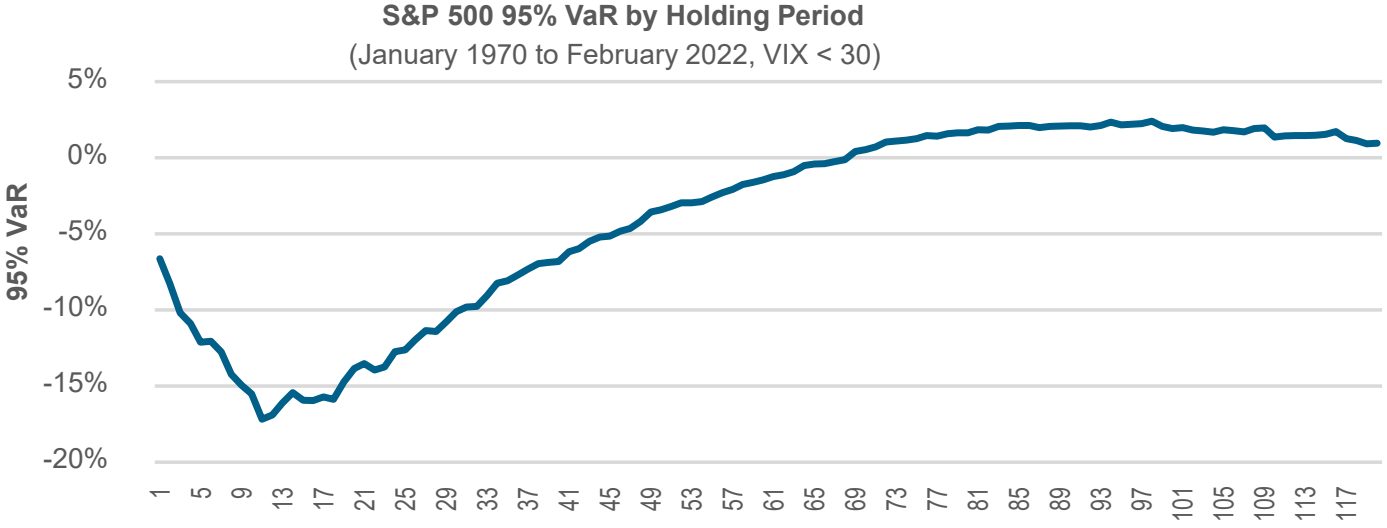
While investors often tend to evaluate their financial success over a relatively short time frame, such as quarterly or annually, in practice their real investment horizon is typically much longer than that. As an investor, once you extend your time horizon to match your financial plan, then your potential deviation from the median outcome is likely to be reduced significantly. This is illustrated by Figure 7 which shows the 1-,

FIGURE 7: Over Longer Investment Horizons Return Uncertainty Diminished
Average return (horizontal line) and median return (x) by holding period.
Box equals +/- one standard deviation. Vertical line represents minimum and maximum return.



Past performance is not a reliable indicator of future performance.
As of March 15, 2022.
Sources: Haver Analytics/Bloomberg Finance L.P. Analysis by T. Rowe Price.

FIGURE 8: Risk of Losing Money Diminished With The Length of The Investment Horizon
S&P 500 95% Value-at-Risk (VaR) by Holding Period (in months)



As of March 15, 2022.
Sources: Haver Analytics/Bloomberg Finance L.P. Analysis by T. Rowe Price.

3-, 10- and 20-year average and median returns for the S&P 500, together with their standard deviation (represented by the height of the box), and extreme values (represented the vertical line). Merely extending the investment horizon from twelve months to three years is seen to reduce the uncertainty of future returns significantly. Longer investment horizons reduced volatility in investment outcomes.

Finally, even when we focus on worst-case scenarios as measured by the Value at Risk at the 95% confidence level over various time periods (Figure 8), we can see that the risk of losing money via a large drawdown diminished as the investment horizon was lengthened.

Concluding Thoughts

We are living in a world with extreme outcomes arising frequently from multiple sources: worldwide healthcare crises, rising geopolitical and social tensions, deglobalization and hardening of spheres of interest, increasing wealth inequality, tightening monetary and fiscal policies, and elevated inflation pressures.

Earlier we asked the question "What should investors do to lower the risk of their portfolios during periods of market stress?" Our answer based on the above analysis is that for investors who can afford to take a longer-term view, sitting tight and waiting for the market turbulence to pass may be a good option. Rather than succumb to the temptation to engage in market timing with all its potential difficulties and pitfalls, a commitment to positive 'inaction' may be preferable. Remember that short-term events tend to have only a small impact on long-term returns. So we believe maintaining a strategic equity allocation rather than rushing to sell during each short-term market decline may be a better way to achieve long-term portfolio objectives. ■

CHINA IS AN OUTLIER IN A COVID-ACCEPTING WORLD

Beijing remains cautious about a near term policy shift.

- China may shift from zero COVID policy only when the costs of containing the virus exceed the benefits. A prolonged outbreak could crimp growth acceleration.
- Main growth stimulus efforts likely to come from fiscal sources as policy shifts from deleveraging to pro-growth.
- Beijing could incentivize a capital shift from property to new growth areas such as high-end manufacturing, electric vehicle supply chain, and IT hardware.

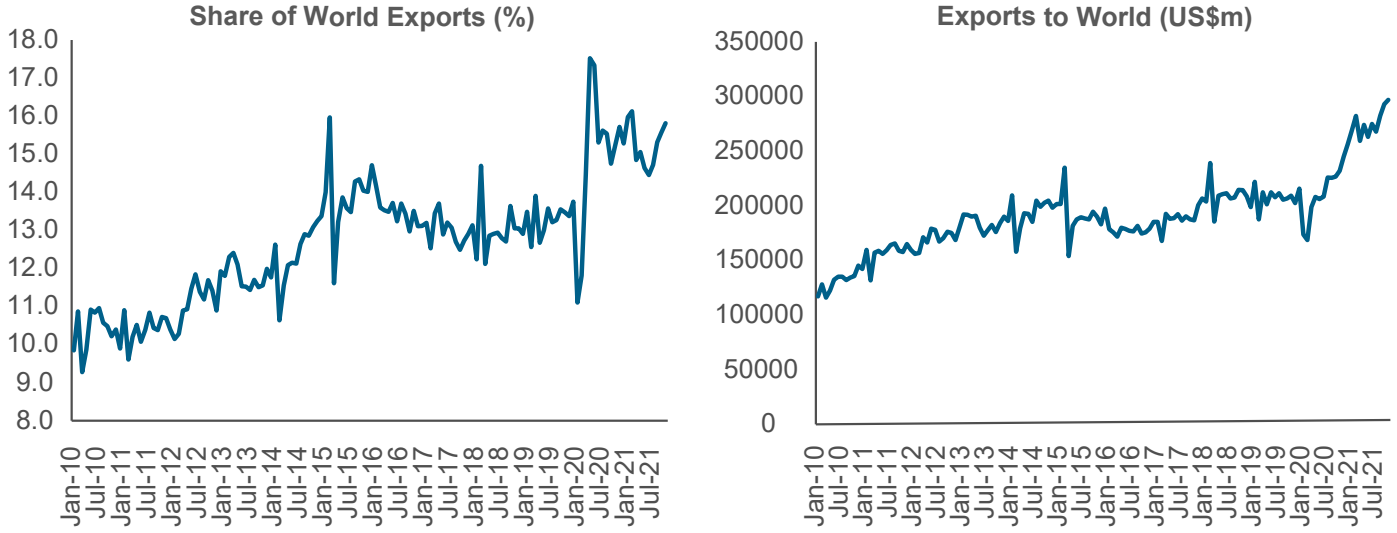
Chris Kushlis
Chief of China and Emerging Markets Macro Strategy

As governments across the world embrace living with COVID-19, China stands out in its steadfast adherence to a zero covid policy. Beijing is determined to check the spread of the coronavirus with partial lockdowns, tight border controls, quarantines, mass testing, and aggressive contact tracing.

While these measures have largely created resiliency in China's supply chains and exports have held up reasonably well, sustained controls will exact a tax on the economy although this would be followed by a period of strong growth when restrictions are eased. The estimated hit to economic expansion varies from 0.5-3% on a full year basis depending on the intensity of control that needs to be maintained. In a scenario of full removal of control, we could see a sharp hit to growth followed by a stronger rebound in the second half of 2022. Still, any recurrence of an outbreak or a failure to rein in its spread could cap growth acceleration from here.

FIGURE 1: China exports, Trade surplus surge

Gains larger share of global export market



As of October 2021.
Source: The International Monetary Fund, data analysis by T. Rowe Price.

China's exports beat expectations in 2021 with trade surplus hitting USD676.43 billion in 2021, the highest since records started in 1950, up from USD523.99 billion in 2020. Exports rose 29.9% in 2021, increasing its share in the world export market. After a strong start to 2022, exports dipped sequentially for two months in a row following the latest round of restrictions. However, the net effect was a 9% growth in the first quarter thanks to a strong January.

Supportive Policies

Even as questions swirl around the sustainability of China's recovery, we think policy will shift from deleveraging to pro-growth this year given the 5.5% growth target. We expect main stimulus effort to come from fiscal sources, especially spend down of carry over cash from previous years.

The credit impulse has started to pick up – while People's Bank of China (PBOC) target for credit growth is unchanged, for the GDP target to be met the total social funding to GDP ratio needs to be cranked up. Although local expectations for monetary easing have increased with multiple open market operations and a required reserve ratio (RRR) cut, albeit smaller than expected, since the growth target was unveiled at the National People's Congress (NPC) in March. We think expectations of monetary easing may be getting too aggressive, particularly if the aim is to add stimulus through regulatory and fiscal tools.

We think investing in China is no longer about chasing headline GDP numbers in the fast-evolving economy whose growth drivers are changing with a greater emphasis on self-reliance, technology upgradation, and "dual circulation" strategy.

The qualitative transformation from a labor-intensive to an engineering-intensive economy with the education dividend taking over from demographic dividend as the key driver. This has opened up opportunities in a myriad of sectors. The change has also manifested itself in the composition of the MSCI China index sector breakdown – for example, financials now account for only 18% versus 35% a decade ago while technology dominates with a 43% weight, a significant rise from 6% ten years ago.[1]

> New secular growers .... on the right side of government regulations and present good opportunities, in our view

There are reasons for this surge. China's R&D spend at 2% of its GDP is higher than European standards and three sectors – EV (Electric Vehicles), biotech and Internet – alone have alone account for USD2.8 trillion market capitalisation (as of 31 March 2022). Innovation has become the major source of opportunity for wealth creation.

[1] As of 30 September 2021. Sources: Bloomberg Finance L.P. FactSet. Financial data and analytics provider FactSet. Copyright 2021 FactSet. All Rights Reserved.

FIGURE 2: Innovations: A critical driving force for the economy and wealth creation

Investments flow into innovation led sectors

Market Cap (USD m)	March-22	March-19	% Change
EV	668,247	141,453	372%
Biotech	427,782	171,308	150%
Internet	1,737,460	1,626,676	7%
Internet ex. Alibaba/Tencent[1]	969,996	715,913	35%

[1] The specific securities identified and described are for informational purposes only and do not represent recommendations.
For illustrative purposes only. This is not intended to be investment advice or a recommendation to take any particular investment action.
Source: FactSet, Bloomberg Finance L.P.

Innovations: A critical driving force for the economy and wealth creation

Investment prospects are opening up in the "more productive", new areas of growth for China – such as more advanced manufacturing, environmental protection, healthcare, software, and some new internet models under the recent government regulations. New secular growers in areas such as high-end manufacturing, EV supply chain, and IT hardware are on the right side of government regulations and present good opportunities, in our view. We also believe that in the post-pandemic era, the world will need traditional industries to transition to a greener economy and meet climate goals, and China will play an important role in that supply chain.

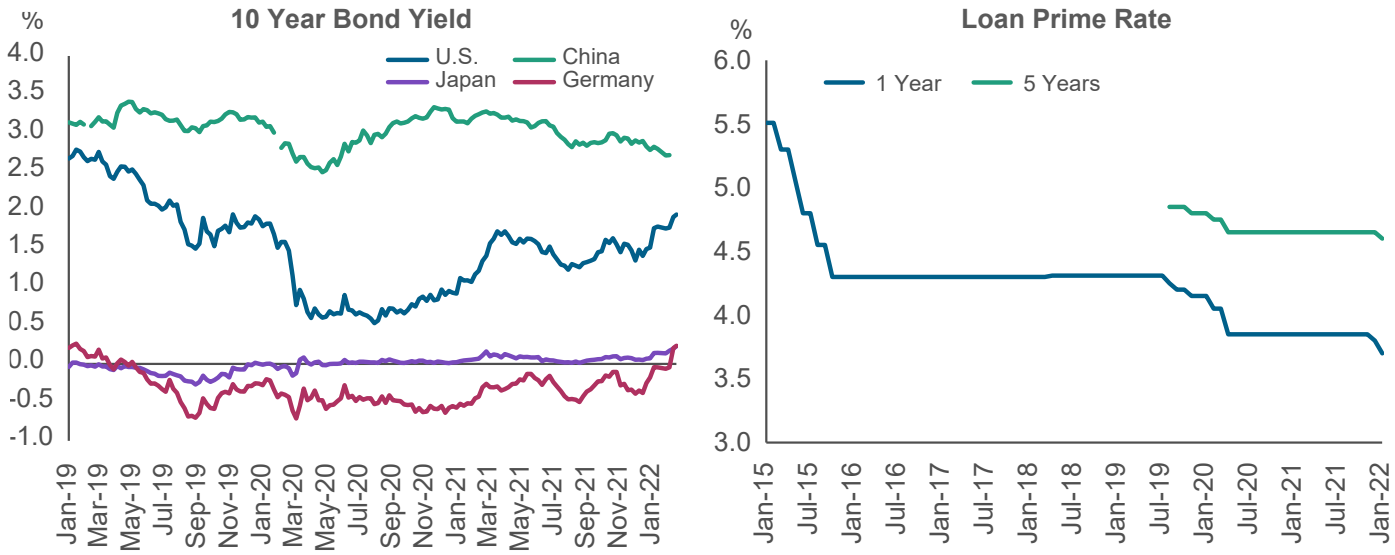
Property Shakeup, Dovish PBOC

We think the government will find a way to shift capital to these new growth areas from property, by potentially offering direct or indirect stimulus. While the property sector has been pressured by tougher funding conditions both offshore and onshore, we feel the measures reflect Beijing's ongoing efforts to deleverage and "fix the roof on sunny days". The recent standardization of use of funds in escrow accounts is a relaxation of the earlier move when some cities went too far in restricting the use of funds for cash-strapped developers previously. We think the government has the right tools to avoid serious systemic risk and a "hard landing", although a slowdown in the overall economy is inevitable as

> We think the government will find a way to shift capital to these new growth areas from property...."

FIGURE 3: Interest rates in China still declining as other central bank turn hawkish

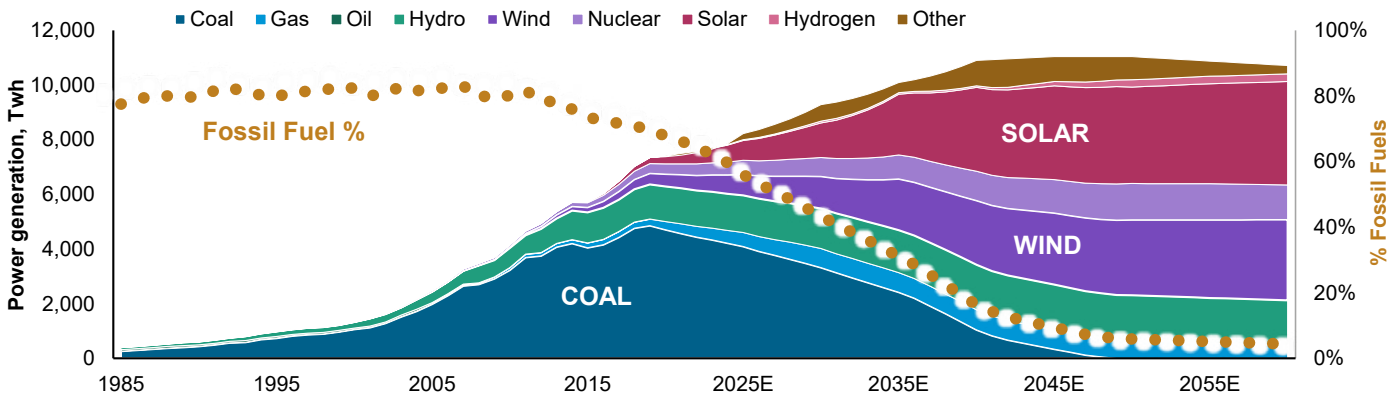
PBOC has cut banks' reserve ratio and urged banks to support the economy



Past performance is not a reliable indicator of future performance.
As of January 2022.
Source: People's Bank of China/Haver Analytics.

FIGURE 4: Transformation of China's power generation profile

Growing share of clean energy



As of 31 December 2020.
Source: Goldman Sachs Global Investment Research.

property and its related sectors account for almost one-third of China's GDP.

Property has been a major driver for China's economy over the past two decades and while policy so far in 2022 has been relatively cautious in providing support, the credit impulse is starting to gain traction suggesting the transmission of monetary policy easing is beginning to work. Mortgage lending has stabilized at the margin although it has yet to pick up significantly while corporate lending has started to accelerate.

The government is aware of the unintended consequences of last year's regulatory crackdowns and is putting more emphasis on policy easing. Government support will be front-loaded but it will take time to filter through the economy. The NPC did not mention more property-easing policies, but many local governments have already taken bolder actions at city levels. There are now 40 cities on mainland China that have lowered local mortgage rates or/and down-payment ratios. The PBOC has also urged Shanghai banks to boost mortgages and developer loans.

Both on-shore and off-shore defaults have been worse than expected over the last couple of months as the offshore funding market is effectively closed to the majority of issuers. And although onshore financing is still available, it is very much limited to the highest grade SOEs, and to the very best private sector issuers. While April's PBOC meeting left interest rates unchanged on the heels of a smaller than expected RRR cut, it has stepped up other means of support to the economy as consumption, real estate and exports took a hit in March. Authorities will guide financial institutions to expand lending and surrender profits to the real economy, the PBOC said recently.

Limited fallout from Ukraine conflict

The sanctions on Russia triggered by the invasion of Ukraine has stoked the prices of oil and many other commodities. While this has triggered inflation fears across the world, we think the effect on China will be contained given that the oil trade deficit adds up to only 1.4% of its gross domestic product (GDP) and because it has one of the lowest consumer price index (CPI) inflation rates among major economies, so there is more room to absorb this second-order impact compared to other countries.

> We continue to expect easing to come via fiscal and regulatory easing channels...."

Inflation has remained low for some time at the core level (excluding food and energy) and although the fallout from Russia/Ukraine will be inflationary at the headline level, with an initial impact via first round fuel prices then food prices, the second-round impact will likely be relatively contained until we see more upward traction on growth later in 2022. The Chinese economy is running with surplus capacity in a range of areas and a downward bias to home prices remain important factors for containing core inflation.

On the economic front, we think the conflict will complicate China's efforts to stabilize its economy this year around an expected 5% growth target, mainly via potential downward pressure on export demand as well as higher commodity input prices.

We expect that this will push Beijing policymakers to extend incremental stimulus. Downstream inflation remains low which both gives the PBOC room to continue to ease even in the face of higher upstream prices, but also means that the impact continues to be felt more in corporate margins of intermediate/downstream players. We continue to expect easing to come via fiscal and regulatory easing channels on the credit/housing sides while monetary policy plays a supporting role via a potential rate and a further RRR cut.

The inflation target is set at 3% as per past years; inflation is currently running just under 1% but will rise as food price base effects from high pork prices roll off and higher commodity prices are passed through; that said, underlying core inflation remains very low which gives the PBOC space to ease further.

- **Sticking with zero covid policy in 2022**
  China has been very cautious about relaxing its COVID strategy ahead of key events this year such as the Winter Olympics in February and the National People's Congress (NPC) in March. Later this year Beijing will host the BRICs summit as well as the 20th party congress of the Chinese Communist Party, arguably the most important political event of 2022 when President Xi will seek a third term of office.

> A shift in the zero COVID strategy could be triggered when the costs start to exceed the benefits.

It is thus highly likely that Beijing will continue with the current dynamic zero COVID strategy which at least until the recent Omicron outbreak has been successful in reining in any widescale spread.

While the Zero Covid policy has been modified to allow for more targeted efforts to manage outbreaks, moving away from this policy completely remains a work in progress. There are signs of plans being lined up with a target date for late 2022 or early 2023 based on a third round of vaccinations, stockpiling therapeutic drugs, creating test zones, and slowly opening to the world. However, these plans remain nascent and have not been officially articulated.

While it is hard to take a call on the timing, a shift in the zero COVID strategy could be triggered when the costs of containing the virus start to exceed the benefits. For example, if prolonged omicron

> The priority has shifted from addressing structural issues to stabilizing growth in the current year.

lockdowns start to seriously hurt the economy by disrupting supply chains and reducing consumer demand. On the positive side, a change may still come about if Beijing is confident a treatment is available to allow the healthcare system to better handle the situation. We expect such a change to be signaled much in advance.

The April lockdowns and temporary closure of factories in Shanghai and Jilin will clearly have a negative impact on consumption and GDP in the second quarter. Although this is the largest outbreak in mainland China since 2Q2020, we have faced similar scenarios before. The last outbreak in 2020 turned out to be a good buying opportunity for investors as the equity market quickly recovered after investors looked past the restrictions.

Policy Support at the National People's Congress (NPC)

At the recently concluded NPC, the annual GDP growth target for 2022 was set at "around 5.5% year on year", which is higher than the last quarter of 2021's 4%, as well as above market expectations. This suggests there could be stronger stimulus measures in the pipeline. Authorities also indicates tax cuts as the main source of support to the economy.

While there looks to be a strong desire to avoid using housing as a tool to reflate the economy, there is also a recognition that policy has swung too far in the tightening direction and needs to loosen somewhat to get back to neutral. We expect there will be ongoing pressure to incrementally loosen to revive home buying demand.

In a departure from earlier practice, no target was set for "energy intensity" which gives authorities greater flexibility to favour growth over controlling pollution. Decarbonization goals have been flexibilized; e.g. specific yearly targets to reduce energy/carbon consumption have been shifted to energy intensity targets with a multi-year timeframe given as the metric. The aim appears to be to smooth the impact on GDP and not repeat the mini-energy shortages seen in Q3 last year. There also appears to be a

renewed focus on domestic energy security and stockpiling sufficient reserves of key commodities, including coal although the target still remains to get to peak carbon by 2030.

Unlike the US, we think China has the ability to ease monetary policy, so in this sense China is in better shape relative to other markets as it has more room to maneuver. While we saw a lot of noise around regulatory crackdowns last year as Beijing was "fixing its roof on sunny days", we think the priority has shifted from addressing structural issues to stabilizing growth in the current year. The regulatory cycle has peaked, liquidity has improved, and excessive valuations of the past have corrected – all supportive factors for the market. ■

ANALYSING THE CASE FOR ASIA CREDIT BONDS

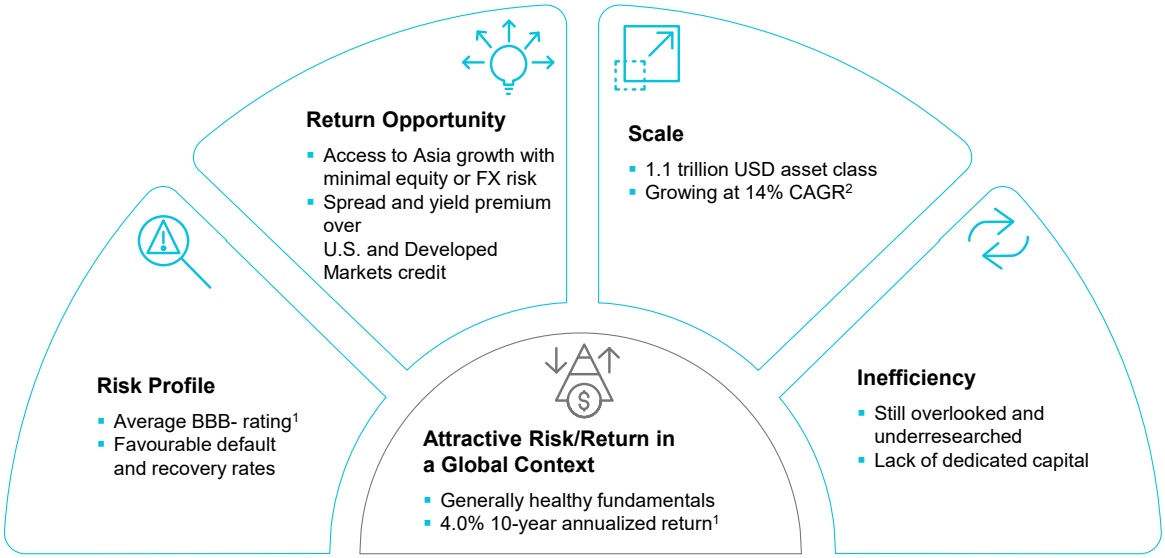
An attractive combination of risk and return.

- We view Asia credit bonds as a relatively new asset class with sound long-term prospects predicated on strong regional economic growth.
- In periods of global market volatility and widening IG credit spreads, Asian corporate bonds generally held up well relative to their developed market peers.
- Many of our Asian credit exposures are from countries that have investment grade credit ratings, with stable or positive ratings trajectories in recent years.

Sheldon Chan
Co-Portfolio Manager
Asia Credit Bond Strategy

In this Insights note, we look at some of the key features of Asia credit bonds, defining the asset class as the universe of U.S. dollar or other hard currency denominated bonds of Asian issuers, both corporate and sovereign, but excluding Japan. We view Asia credit bonds as an exciting, relatively new asset class with sound long-term prospects predicated on strong regional economic growth. An allocation to Asian credit can act as a diversifier within global fixed income portfolios. When compared to regional equities, the corporate segment can also be thought of as providing a more defensive, less risky way for investors to access Asia's high economic growth.

FIGURE 1: Making the Case for Asia Credit Bonds
Key drivers of Asia Credit investing



Past performance is not a reliable indicator of future performance.
[1] Average credit rating and 10-year return are for the J.P. Morgan Asia Credit Index Diversified, as of 31 March 2022. Source: J.P. Morgan.
[2] 14% CAGR over 10 years.
See Additional Disclosures for more information on the source.
As of 31 March, 2022.
Source: J.P. Morgan. See Additional Disclosures For More Information on JP Morgan.

> *Today, the Asia credit bond market consists of around USD1.1 trillion of outstanding bonds[1].*

Advantages of Asia Credit Bonds

Scale: The first advantage of Asian credit bonds is that they possess significant scale, having grown into a universe that is too big for global bond investors to ignore. Today, the Asia credit bond market consists of around USD1.1 trillion of outstanding bonds (as of March 31, 2022). In terms of size, this is roughly comparable to some of the more mainstream global fixed income sectors. For example, the U.S. high yield market – a segment often thought of as mainstream – is only a little larger, with some USD1.5 trillion of bonds outstanding (as of March 31, 2022).

So the Asia credit opportunity today is broadly comparable in terms of magnitude to that offered by U.S. high yield. Importantly, we have reached today's scale via healthy growth in the volumes of Asia credit over the past decade, where annual growth has averaged about 15%. So this is a fixed income market that has experienced significant growth over time. This has led to a corresponding increase in the breadth and the depth of the opportunities available to investors in Asian credit bonds.

Return: The second key advantage of Asian credit bonds concerns prospective returns. Currently, global investors receive a yield pickup that looks quite attractive versus U.S. and devoped credit markets, and also versus global aggregate benchmarks. The average yield for Asian credit bonds is running at 4.8% today, delivering a spread of around 265 basis points over the yield on global bonds.[2] At the same time, we view investors as gaining access to a region where there is still good long-run growth potential that over time can translate into improving credit profiles and lower spreads.

Risk: The third factor supporting Asia credit bonds concerns the risk profile. Out of the emerging market fixed income universe, our analysts characterize Asia credit as belonging to the higher quality segment. The ratings profile is one feature that shows this higher quality bias. Asia credit bonds have an average investment grade rating and almost 80% of the bonds in the universe are rated investment grade.[3]

Inefficiency: A fourth supportive factor is inefficiency. Within Asia credit there are informational asymmetries in the market. This can benefit

[1] As of March 31, 2022
[2] As of March 31, 2022. Comparison is between the average yield of the J.P. Morgan Asia Credit Index (JACI) and the average yield of the Bloomberg Global Aggregate Bond Index.
[3] As of 31 March 2022. Source: J.P. Morgan Asia Credit Diversified Index.

active managers who can navigate these market inefficiencies and identify 'alpha' with a process that is centred around fundamental credit and fixed income research. So ultimately, we believe there is a compelling risk-adjusted potential return opportunity for Asia credit bonds within the overall global fixed income context.

One of the key selling points for Asia credit is that historically the asset class has generated attractive risk-adjusted returns. This is particularly true for the investment grade (IG) part of Asia credit, which is about 80% of the opportunity set. This attractive risk/reward combination can be seen clearly in Figure 2. Over the 10-year period to 31 March, 2022, the Asia IG sector has delivered a similar long-term return to U.S. investment grade, but it has done so with significantly less volatility.

To illustrate this point further, we looked at past periods of global market volatility where IG bond spreads around the world were widening (Figure 3). We found that Asian investment grade bonds in these periods generally held up well against their developed market peers, widening less than or similar to U.S. and European investment grade bonds. A good example is the sell-off that occurred during the peak of the coronavirus pandemic in 2020. Then, Asia IG spreads actually widened about half as much as U.S. investment grade corporate bonds.

To summarize, Asian credit is an asset class that has provided a spread pick-up over U.S. investment grade bonds, but which in periods of global market turbulence has behaved in a fairly similar manner though with with less duration and interest rate sensitivity. We think this is an interesting combination to add to any global fixed income portfolio.

The ESG dimension is particularly critical in terms of achieving investment success in Asia.

Asia Credit Bonds and Responsible Investing

Environmental, Social and Governance (ESG) considerations are an important part of our approach to investing in Asian credit. This is increasingly important to investors around the world. The ESG dimension is particularly critical in terms achieving investment success in Asia. At T. Rowe Price, we believe that integrating ESG into our process can help us to build more resilient Asian bond portfolios.

On the environmental side, Asia is quite clearly starting the race from the back of the starting grid. We carried out a study of global fixed income benchmarks and found that Asia credit has the highest carbon intensity. This partly a function of high growth and high energy intensity, accompanied

FIGURE 2: Asia Credit Has Attractive Risk-adjusted Returns
Asset class 10-year risk/return profile

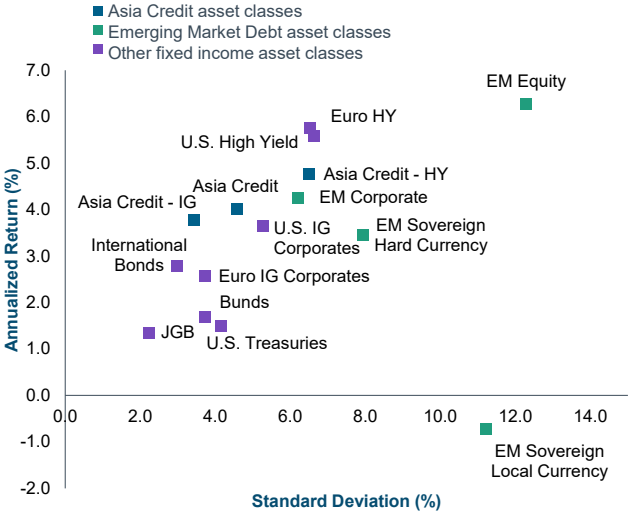
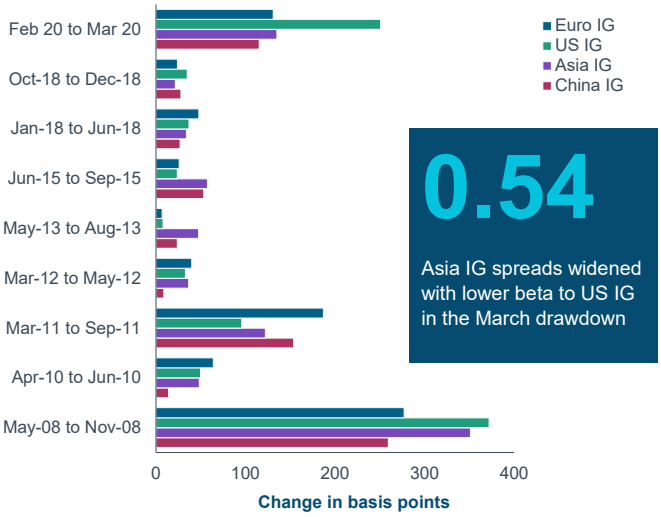


FIGURE 3: Asia IG bonds held up well in turbulent markets
Change in IG spreads over U.S. Treasuries by region



Past performance is not a reliable indicator of future performance.
As of 31 March 2022.
International bonds: Bloomberg Global Aggregate Treasuries Index, U.S. Treasuries: Bloomberg U.S. Treasury Index; U.S. IG Corporate: Bloomberg U.S. IG Corp. I.G. Index; U.S. High Yield: Bloomberg U.S. High Yield; EM Sovereign Hard Currency: J.P. Morgan Emerging Market Global Diversified Bond Index; EM Corporates: J.P. Morgan CEMBI Broad Diversified; EM Sovereign Local Currency: J.P. Morgan GBI EM GD Index; Euro IG Corporate: Euro Aggregate; Euro Corp I.G. Corporates Index; Euro HY: Bloomberg Pan-European High Yield; JGB: Bloomberg Asian Pacific Japan; Bunds: Bloomberg Global Treasury Germany; Asia Credit Composite: J.P. Morgan Asia Credit Diversified Index. Asia Credit IG: J.P. Morgan Asia Credit Index Diversified IG; Asia Credit High Yield: J.P. Morgan Asia Credit Index Diversified HY; EM Equity: MSCI Emerging Markets. This chart is shown for illustrative purposes only and does not represent the performance of any specific security, product or service. It is not possible to invest in an index. Source: Bloomberg Index Services Limited, JP Morgan, T. Rowe Price. Please refer to the Additional Disclosures section.

FIGURE 4: Asia Credit Bonds
Current key investment themes

- Asia Credit can offer attractive risk-adjusted returns potential versus other sectors. Performance in COVID-19 crisis underscores resilience of the asset class
- Deleveraging and regulatory policy in China to remain a key driver for credit trends
- Global macro backdrop and near-term policy implications remain uncertain, with some of these risks increasingly getting repriced in the market
- Regional diversification helps mitigate geopolitical risks, supported by improved external macro buffers
- Integrating ESG analysis is a key part of the investment process and critical to credit selection

A collaborative and fundamentally driven investment approach helps to identify market inefficiencies and uncover attractive opportunities across the region.

Source: T. Rowe Price.
This material is not intended to be investment advice or a recommendation to take any particular investment action.

by above avearge reliance on fossil fuels such as coal. In Asia, bond issues tend to be skewed toward more commodity and energy-intensive industries. On the positive side, we are seeing a stronger response among the companies we monitor to the market's demand for progress on environmental initiatives, as well as better disclosure. As an example, more of the companies within our portfolios are reporting their carbon data, over 50% compared to around 20% in 2020.

> *In our Asia credit bond portfolios, we want to reflect key ESG considerations by design...*

Among ESG screens, in Asia we are seeing greater attention than before to the social side. For example, we have seen a spate of regulatory actions in China over the course of the past year linked to Beijing's goals for financial stability and social objectives, such as more affordable housing, reducing the education cost burden for families, and achieving a more equitable sharing of the revenues from internet platform companies with their employees and their vendors. All of these factors have become very important to valuations are a clearly critical consideration within the research and investment process.

In our Asia credit bond portfolios, we want to reflect key ESG considerations by design, excluding companies and sectors that have higher ESG risks than we are comfortable with. So in the portfolio, there are three things that we must do. The first is to integrate ESG considerations into all of our fundamental credit research and into the decision-making process for credit selection. Our credit analysts work with T. Rowe Price's dedicated ESG specialists to study those factors they feel are material to changes in the credit profile.

The second thing we do is to adopt minimum standards for ESG ratings derived from our proprietary model, the Responsible Investing Indicator Model (RIIM). The model scores every owned issue with either a green, orange, or red rating. The RIIM model is managed by T. Rowe Price's ESG specialist team and combines data from external vendors as well as our own proprietary analysis. The last thing we do is to implement T. Rowe Price's proprietary Responsible Exclusion List. We maintain an exclusion list of companies that responsible investment products cannot invest in, mostly guided by their involvement in certain undesirable activities. Within an Asia credit bond context, the most common exclusions relate to coal production and gambling.

Views On China's Property Sector

The property sector is a meaningful part of the China credit opportunity set, particularly the high yield

segment. As such, the selloff that began last year has had a significant negative impact on overall returns for the Asia credit asset class. To take a step back, what has happened in China's real estate sector really boils down to the policy objectives of the Chinese government. Their aim in recent years has been to deleverage the real estate sector and, from a social perspective, to maintain a more stable house price environment ('houses are for living in, not for speculating'). Coming out of the coronavirus pandemic in 2020 with a strong economic rebound, Beijing introduced measures to tighten funding and restrict capital access to property developers and also dampen housing market enthusiasm. As a result, many developers came under strong financial pressure, with Evergrande the first and most famous example.

Beginning in late 2021 we saw defaults by developers in the Asian bond market that far exceeded our and the market's expectations. Funding access became incredibly tight, with much stricter control of escrow accounts for presales revenues, for example. Banks also cut back on their lending to developers, while presales, starts and home sales fell sharply, creating a negative spiral and a loss of confidence among home buyers. Chinese policymakers were willing to accept a greater degree of pain in the property sector before they would consider compromising on their long-term objective of deleveraging to reduce systemic financial risk.

In the past, the playbook on China's reforms has often been characterized by two steps forward followed by one step back and a bit more stimulus. But in the case of residential property, Beijing took many steps forward on the reform path before conceding one step back. The financial pain from the reforms was concentrated almost entirely in the offshore HY U.S. dollar bond space, with few other asset classes being directly impacted. As other asset markets started to show more turbulence, we have begun to see a more decisive policy easing response from the government, including from the central bank, the People's Bank of China.

In terms of the outlook for the China HY bond sector, our analysts expect to see some further volatility in the short term, followed by a longer period of consolidation. Our expectation is that China's property construction industry will switch to a more utilitarian model, dominated more by state-owned developers, with private sector companies playing a smaller role. In the longer term, investors should welcome a healthier sector backdrop, with stronger balance sheets for those companies that survive the consolidation process. Despite the volatility in China's high yield property sector, the rest of the Asia credit bond asset class remained relatively resilient during the turmoil.

Asia Credit Market and the Coronavirus Pandemic

From an Asian corporate perspective the impact of the coronavirus pandemic has – as in other regions - been very, very uneven. Some sectors suffered much more than others, such as the gaming sector, airlines, tourism etc. Also pertinent is the fact that we still have a strict zero covid policy in place in mainland China and Hong Kong. In contrast, a lot of other Asian countries have begun the process of opening up and are 'learning to live with covid.' From an economic perspective, there has been a disproportionate impact on those Asian countries that are dependent on tourism, such as Thailand. Sri Lanka is one case where the drop in tourism revenues since 2020 has been a factor that has led to the stress of the sovereign balance sheet. The Sri Lankan government recently called on the IMF for advice on debt-restructuring that may lead to a potential default on the country's sovereign debt.

> *Asian governments gained credibility for having more prudent fiscal management...*

More broadly, there has been a larger fiscal burden on Asian governments as they strove to support health care and economic activity in the face of the pandemic. Encouragingly, most Asian economies have shown an ability to weather the storm. Asian governments gained credibility for having more prudent fiscal management, building external buffers etc over the course of the past five to ten years. As a result, we have seen structural improvements in their macro fundamentals that have served them in good stead during the pandemic.

And at the corporate level, many of our Asian credit exposures are from countries that have investment grade credit ratings, with stable or positive ratings trajectories in recent years. In contrast to Asia, a number of emerging market economies in other regions, such as Brazil, South Africa and Turkey have transitioned from IG to high yield, which we think to be a move in the wrong direction for investors. Asia has held up relatively well in this respect and appears to be in a better position to withstand any futher negative shocks, whether arising from the coronavirus or from other sources. ■

MEET RICHARD COGHLAN

An interview with Richard Coghlan,
Portfolio Solutions Manager, Global Multi-Asset Team
Co-manager, T. Rowe Price's Real Assets Strategy.

Richard Coghlan
Portfolio Solutions Manager, Global Multi-Asset Team Co-manager, T. Rowe Price's Real Assets Strategy

BIOGRAPHY

Career

Richard Coghlan is a global solutions portfolio manager within the Multi-Asset Division. He is co-president and a member of the Investment Advisory Committee of the Real Assets Fund and a member of the Multi-Asset Steering Committee.

Richard has over 24 years of investment experience, 4 of which have been with T. Rowe Price, and has worked in the Philippines, South Korea, Hong Kong, and, most recently, the United States prior to relocating to Japan. He is experienced in building and managing investment solutions for non-U.S. investors.

1997

Richard's career in asset management began with the Asian Finance and Investment Corporation in 1997, an affiliate of the Asian Development Bank. In 2000 he joined Schroder Investment Management. As Head of Multi-Asset Asia at Schroders, Richard developed and managed a highly successful multi-asset income product and helped to grow AUM in the region from USD4 billion to USD18 billion over a nine-year period.

2017

Richard joined T. Rowe Price's Global Multi-Asset Division, later relocating to Tokyo. He is co-manager of T. Rowe Price's Real Assets Strategy, an asset allocation solution that provides diversification across real asset sectors for investors, with total AUM of USD9.5 billion as of 31 December 2021.

Professional & Education

Richard earned a B.S. in geology from Duke University, a Ph.D. in geochemistry from Brown University, and an M.B.A. in finance and accounting from the University of Chicago.

Richard, can you begin by telling us a bit about your background. What made you decide to pursue a career in asset management. How have your responsibilities evolved within T. Rowe Price?

At university I studied geology and was intent on a mining career, graduating in 1982 just as the commodity bubble burst, so I ended up doing a Ph.D. in geochemistry. I worked in environment consulting for six years but found it was very regulatory driven. So I decided on a career reset and took an MBA in Finance and Accounting at the University of Chicago, as I had always been interested in the world of investing. I moved to Asia as an investment professional in 1997, just in time for the Asian Financial Crisis, as my wife took a job at the Asian Development Bank in Manila. The first few years of my financial career was managing private equity investments for the Asian Finance and Investment Corporation in Manila.

In 2000 I joined Schroders, managing a distressed debt fund, before moving to multi-asset investing full time in 2006, becoming head of Schroders' Multi-Asset Team for in Hong Kong and then for the Asian region. I joined T. Rowe Price in 2017 and took over the Real Asset Strategy together with Chris Faulkner-MacDonagh and which I discuss below. In 2020, I launched the Multi-Asset Global Income (MAGI) investing, a dynamic multi-asset strategy that seeks to offer durable income and long-term capital appreciation, drawing on T. Rowe Price's global research platform for security analysis.

Can you please discuss your approach as a portfolio manager. How do you expect to generate value on behalf of clients?

For the Real Assets Strategy, we start by keeping the portfolio 100% invested, making sure that any cash lying in separately managed sleeves is invested via derivatives. We do this because the Real Assets strategy is intended as a building block in larger global portfolios and must be fully invested to provide the inflation sensitivity our clients are looking for. I think the key to understanding the strategy is to look at the impact even a small allocation to real assets equities can have on the overall properties of a global equity or balanced portfolio. Notably, many portfolio managers and their clients have neglected to add these exposures and so are poorly positioned for inflation surprises.

We have outsourced five underlying sleeves within the strategy, which at the top level has around 60% in commodities and 40% in real estate. In real estate, about half is in the U.S. real estate sleeve managed by Nina Jones and the other half is in global real estate, managed by Jai Kapadia. For commodities, 30% is invested in the T. Rowe Price platform's Global Natural Resources Equity Strategy managed by Shinwoo Kim, while John Qian manages a 25% metals sleeve and a 5% precious metals sleeve.

The energy sleeve tends to have a strong bias to quality, with a longer-term focus by the analysts on cost curves three to five years out.

Currently, our positioning between the five sleeves is broadly neutral. We also set aside a 5% budget—funded pro rata from the other five sleeves–for taking discretionary positions that do not significantly overlap with our underlying managers. We can be quite flexible and nimble, a year and a half ago increasing our energy exposure, for example, via ETFs and futures, while last summer adding to growth industrials and transportation stocks (airlines and railroads) which are set to benefit from improved pricing power in the post-pandemic recovery. We are not stock pickers, and so we consult the T. Rowe Price platform analysts on stock selection.

A key aim of the real assets is to provide strong positive inflation sensitivity to the portfolio. We find that real assets equities have generally performed in line with our research models, providing a very high degree of defense against rising inflation risk, particularly if inflation is unexpected. The real assets team took a different, non-consensus view of inflation early in 2021 in the initial phase of the post-pandemic recovery. While we saw supply chain disruption raising some prices but at the time few signs of generalized inflation, we believed it was only a matter of time for inflationary pressure to leak through to general inflation, including substantial wage growth and higher owner's equivalent rents. "Team transitory" was about to fail.

Our advice then to the T. Rowe Price asset allocation committee was that inflation was going to surprise to the upside, which supported adding to real assets equity exposure. Since then we have had Russia's invasion of Ukraine, removing up to 3 million barrels per day of oil supply and giving a powerful boost to food prices. As a result, the short-term inflation outlook has deteriorated. December 2022 inflation forecasts have increased from around a 3% estimate a few months ago to possibly as high as a 6% to 8% range now.

The uncertainties are far greater now than pre-February, as agricultural shortages and food price shocks can be destabilizing for many developing economies, as was seen during the 'Arab Spring' protests that began in Tunisia in late 2010. Although, Asia is generally a higher rice consuming region and may be expected to be less affected than other regions, higher grain and seed prices still impact the region and higher fertilizer prices will be a global headwind. The case for adding exposure to real assets equities in a global portfolio can only have strengthened following the Russia-Ukraine crisis.

Richard in his neighborhood in Tokyo

Views on inflation and interest rates are closely linked. What are your views – has the Fed fallen far 'behind the curve?'

I think one problem is that the Fed's own models suggest that interest rates should be rising even more quickly than markets expect given what has happened to inflation. The Fed's projected path for Fed funds appears to be closer to staying neutral than to real tightening. For example, the Fed expects its preferred inflation measure, the personal consumers expenditure deflator, or PCE, to be running at 4.4% in December 2022. And the forecast unemployment rate of 3.5% in 2024 remains below the Fed's estimate of the 'full employment' rate of unemployment, or NAIRU. The Fed's projections do not seem to align very well with each other.

The large demand stimulus in 2021 to counter COVID was necessary to avoid recession and stop people falling into poverty, but it has, no doubt, contributed to today's higher inflation. However, the primary cause has been the supply-side disruption where many of the issues – such as the ongoing chip shortage – have yet to be resolved. More recently, the Russia-Ukraine crisis has endangered supply and boosted many commodity prices from already-high levels, adding to the inflation pressures.

While short-term inflation expectations have risen, so far long-term expectations have changed much less. We think the problem with this view is that wage

expectations have also changed and set the stage for higher inflation. In a tight labor market, workers will seek to offset the compression in their real wage due to higher inflation. This is probably the key thing for both investors and the Fed to monitor, even if a 1970s style wage-price spiral is still only a tail risk. I think that inflation will eventually peak and roll over, but it is going to take much longer than the pundits had expected.

After a decade of low inflation, it seems investors are going to have to refocus their portfolios with an eye on inflation protection. What are the challenges involved in adjusting to a higher inflation regime today?

I think investors need to protect their portfolios by investing in sectors and companies which possess pricing power and real estate equities are one good example. Also, with the crude oil price set to remain above USD100 per barrel and production costs at some U.S. shale formations only USD30 to USD40 per barrel, many energy firms can expect to earn excess profits this year.

In a Real Assets portfolio, the key inflation play is to seek companies with an ability to extract economic rents, a capital-efficient way to achieve a high inflation beta. In our strategy the underlying assets are equity-focused – companies that are able to protect their profit margins and earnings growth in real terms. In contrast, the principal focus of an inflation-protected bond portfolio is to preserve inflation-adjusted capital, not to grow earnings. It is worth noting that real assets do not cover the full extent of companies with good pricing power. Where airlines are re-opening, for example, demand has been very strong, with higher fuel costs not a major obstacle so far. In our strategy, we can include such opportunities, despite being "off-benchmark."

The U.S., as a net oil exporter, benefits at the margin from a higher oil price, and this in turn can provide support to the global economy. Moreover, the negative impact of higher oil prices is less than, say, twenty years ago as the world has become much more energy efficient today. The value factor might work in a higher inflation environment, but I think that pricing power is probably more important.

It is not clear that a steady series of rate hikes will power financials. As in the '70s inflation era, we might see yield curve inversion without recession. Short-duration fixed income assets could be attractive, such as 18-month to two-year bonds. Also, mortgage rates have risen dramatically to above pre-COVID levels. Spreads have already widened a lot which offers a cushion, and mortgage rates may stop rising so aggressively despite the Federal Reserve having just started hiking rates.

There is no sign of a slowdown in the U.S. housing market. Many homebuyers faced with rising house prices may wish to lock in before mortgage rates move higher, given that their incomes have also risen, and cash buyers are still a major force in the market.

Some global portfolio managers still seem to think in terms of the traditional 60:40 stock bond portfolio. Are real assets underappreciated?

I think some managers may have doubted the role of real assets during the post-Lehman decade, a period identified by many economists as 'secular stagnation.' I believe that the global economy has exited secular stagnation permanently and that we are now in a totally different environment, where inflation is again a force to contend with. I think real asset equities today are a good way to start managing inflation risks more actively. Investors might consider the benefits of adding exposures to real assets to a global equity or balanced portfolio.

In the current environment of past underinvestment in many commodities, I believe resources stocks have the potential to bring superior pricing power to the portfolio. Some managers may be moving away from the 60:40 portfolio toward something more like a diversified growth strategy, where real assets clearly have an important role to play.

Finally, can you please share with us your personal interests and how you relax outside of work?

When I first moved to Japan, I planned to play some golf, go skiing, and also get to know the country. Then along came the coronavirus, so these ambitions had to be put on hold. As Japan is in the process of opening up, I hope to make up for lost time. I work out and exercise three times a week with a personal trainer, and I like to walk and have explored much of Tokyo on foot. I have two children – my eldest is studying engineering at university and my second son is at a boarding school in Utah, my home state. Actually, he was on a field trip to Greece and Italy just now, so it seems that global travel is thankfully already making a comeback. ■

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T. Rowe Price is a global independent investment management firm. We are solely focused on long-term results for our clients, managing a full range of investment strategies in multiple asset classes. For over 80 years, our consistent investment approach has helped us focus on promising opportunities while at the same time carefully managing risk.

We established our Tokyo office and Hong Kong office in 1982 and 1987 respectively, and since then we have expanded our business by operating in Australia and Singapore. Today we have more than 200 associates based locally.

INDEPENDENT ASSET MANAGER
Our sole business is managing our clients' interests

ALIGNMENT OF INTERESTS
We are a publicly listed company with substantial employee ownership

FINANCIAL STRENGTH
We carry no outstanding long-term debt and maintain substantial cash reserves

GLOBAL EXPERTISE
Continually growing global team of investment professionals

Founded in
Baltimore, USA in 1937

USD1.55
trillion in assets under management[1, 2]

804
investment professionals worldwide[3]

Local presence in
16
countries[3]

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