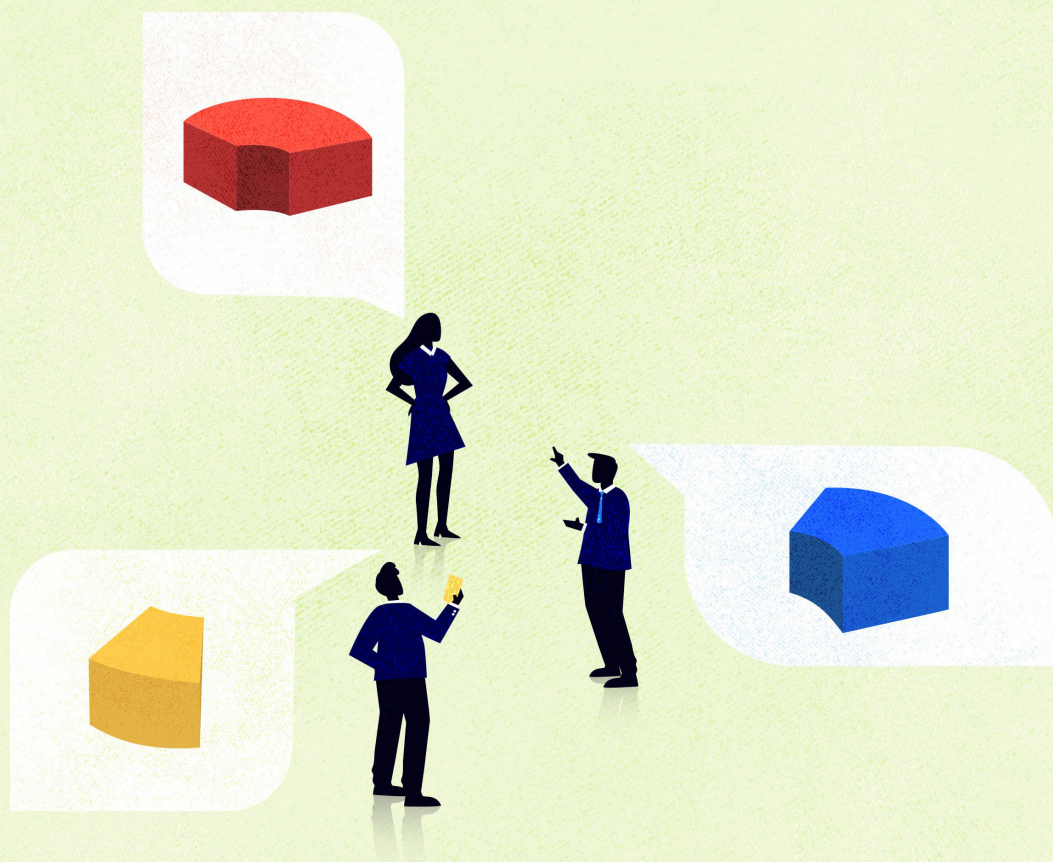


APRIL 2022

Actively navigating economic and geopolitical shocks

INVESTMENT INSTITUTE
FRANKLIN TEMPLETON THINKS™

GLOBAL INVESTMENT
OUTLOOK



Introduction



Stephen Dover, CFA
Chief Market Strategist
Franklin Templeton
Investment Institute

Russia's invasion of Ukraine has caused broad destruction and terrible turmoil on a humanitarian level. This has led to a series of shocks to the global economy and political order. At the Franklin Templeton Investment Institute, we seek to identify how these shocks might have persistent and significant impacts on the global economy, capital markets and long-term investment returns.

- Russia's invasion of Ukraine does not signal the end of globalization. We anticipate shifting sources of production and investment flows will result from today's economic dislocations. Worldwide, countries will need to reconsider energy and food security risks. Trade and investment flows will shift, and how countries cope will have a large impact on future economic growth, the distribution of income, after-tax returns, inflation, interest rates, and political and financial stability in countries large and small. The implication is not de-globalization as much as it is re-globalization.

Contributor



Gene Podkaminer, CFA
Head of Research
Franklin Templeton
Investment Solutions

- Global growth expectations are being reset downwards as uncertainty is permeating through businesses and consumers. While Western Europe's proximity to the war puts it at greatest risk of stagflation, we do not expect conditions anywhere else in the world will trigger a combination of enduring stagnation and inflation.
- Inflation remains elevated and is likely to be pushed higher by surging global energy and commodity prices due to war, sanctions and the threat of supply disruptions. Supply-led inflation is particularly concerning when it comes with an energy shock. Energy is used in many facets of the global economy from production through consumption. However, energy does not hit every sector equally. Will companies react quickly to inflation, and will they be able to pass on costs to consumers? Which countries might pick up the slack in commodity production?
- For investors who've known nothing except low and stable inflation, this is a new world that creates volatility due to uncertainty. If one could make the case for active management, we think now would be the time. Heightened market correlations make achieving excess returns more challenging, and a wider dispersion of returns provides an opportunity for active managers to pick up alpha (above-market returns).

We will be monitoring the aforementioned factors closely as the year unfolds and wish peace to the people of Ukraine.

A handwritten signature in black ink that reads "Stephen Dover".

Shifting sources of production and investment

The impact of this geopolitical crisis is rippling across the global economy. Consumers and businesses emerged from the pandemic with an inflation overhang, and now the war in Ukraine has further magnified global economic uncertainty and volatility. While our role as investors is to analyze world events and gauge their market impact, the human toll of these crises is never lost on us. Our thoughts remain with the families suffering and extreme hardship in Ukraine.

We are experiencing a series of shocks to the global economy and political order. The pandemic, war in Ukraine, rising inflation, slowing growth, political instability, challenges to globalization, rising commodity prices, staggering fiscal deficits, monetary overhang and, in some cases, negative real returns, are all challenges for investors. We seek to identify how these shocks might have enduring and significant impacts on the global economy, capital markets and long-term investment returns.

Inflation remains elevated and is likely to be pushed higher by surging global energy and commodity prices due to war, sanctions and the threat of supply

disruptions. It's not surprising the word "stagflation" is trending. Global growth expectations are being reset downwards as uncertainty is permeating through businesses and consumers. While Western Europe's proximity to the war in Ukraine puts it at greatest risk of stagflation, we do not expect conditions anywhere else in the world will trigger a combination of enduring stagnation and inflation. Central banks are committed to fighting inflation; while growth will likely slow, we believe recession can be avoided with appropriate monetary policy responses.

Russia's invasion of Ukraine does not signal the end of globalization. Russia was never a major driver of globalization, whether in trade or finance. For example, China and India, among others, are bigger economic components of emerging markets and remain strong, mostly open economies. Worldwide, countries will need to reconsider energy and food security risks. Trade and investment flows will shift, but global linkages will remain important.

But transitions will not be easy. The ripple effect of higher commodity prices saps purchasing power, above all

in less well-developed nations. If not addressed, falling living standards could trigger pressures for political change. At the same time, however, emerging economies that produce commodities will enjoy a boost from higher export prices.

Overall, we anticipate shifting sources of production and investment flows will result from today's economic dislocations. The implication is not de-globalization as much as it is re-globalization.

The war in Ukraine follows two enormous shocks—the global financial crisis (GFC) and the COVID-19 pandemic—that together left in their wake massive fiscal deficits and debts. The level of government debt relative to gross domestic product has swelled to the largest size in 75 years across an array of advanced, emerging and lower-income economies.¹ Whether and how countries cope with debt burdens will have a lot to say about future economic growth, the distribution of income, after-tax returns, inflation, interest rates, and political and financial stability in countries large and small.

Similarly, higher inflation requires adjustments—including on behalf of investors and workers alike to more closely consider real returns—those net of inflation. Nominal returns on assets or on work (wages) become negative returns if they fail to keep up with inflation. For investors who've known nothing except low and stable inflation, this is a new world.

This quarter, we partner with Gene Podkaminer, our head of multi-asset research, who coauthored a series of

Russia's invasion of Ukraine does not signal the end of globalization. Russia was never a major driver of globalization, whether in trade or finance. For example, China and India, among others, are bigger economic components of emerging markets and remain strong, mostly open economies.

peer-reviewed journal articles on shocks to growth, interest rates and inflation.² The team's research analysis combines client objectives and their sensitivity to macroeconomic "shocks," and translates findings into actionable portfolio adjustments. Our conversation aims to support your decision-making across equities, fixed income and alternatives as you navigate geopolitical shocks.

The overarching conclusion is that active management is essential in investment and portfolio decisions at this moment. And, what may surprise you is that the decision to "hold" is actually an active decision.

Persistent inflation, lethargic labor recovery, and geopolitics shape market backdrop

Stephen: Can you set the stage regarding some of the challenges policymakers and markets are dealing with today?

Gene: After the initial COVID-19 wave hit more than two years ago, global economies experienced a nascent recovery largely propped up by pent-up consumer demand, fiscal stimulus and the rapid vaccine development and deployment. But that doesn't mean today's situation has reverted to the pre-COVID-19 environment.

In the first half of 2021, as inflation reared its head, we argued that the US economy was operating within a demand-pull environment. Inflation was mostly driven by "above-trend growth that caught business by surprise."³ However, as 2021 progressed and inflation worsened, it became clear that supply chains were not keeping up with the record-breaking shift in consumption from services to goods.⁴ Related to the inflation question, the labor market's recovery from the pandemic has puzzled economists. As we noted in December, COVID-19 brought a precipitous drop in labor

force participation, "with limited signs of recovery," for a multitude of reasons.⁵

These dynamics have created a unique challenge for policymakers, particularly central bankers, tasked with the so-called "soft landing"—raising interest rates enough to keep inflation in check but not so much that the economy contracts. In response, asset managers were making decisions around yield-curve expectations and the magnitude and duration of interest-rate hikes. The US Federal Reserve (Fed) began 2022 walking a tightrope, and the chance for a policy error was present given heightened uncertainty.⁶ Then came the Russian invasion of Ukraine.

Opportunities and risks influencing the market

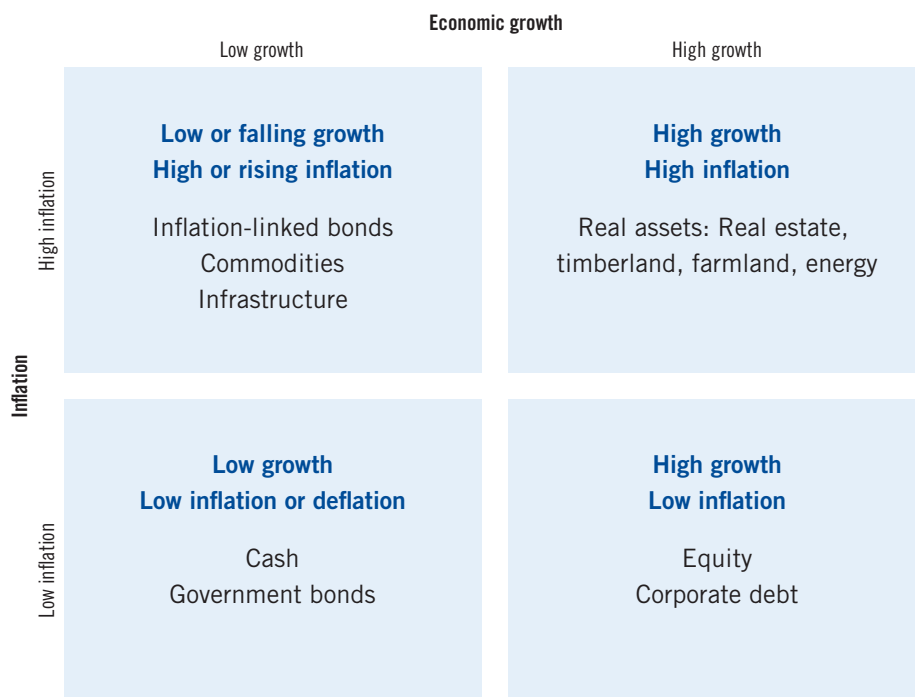
Stephen: How does your team view the current environment from an investment perspective?

Gene: We have observed some flight to perceived quality in light of geopolitical concerns, including certain stock markets and metals markets. We recently noted that "energy pressures...autos, semiconductors, food and fertilizers will also be deeply impacted by the Russian/Ukraine war."⁷

Demand-pull inflation can be troubling, but ultimately, it is due to a growing economy. In response to increased demand, companies need to hire more workers and produce more, and the economy then further expands. This ultimately could be positive for risk assets. On the flip side, supply-led inflation is very concerning. When people can't afford goods and services, and the demand isn't there for companies to produce, people lose jobs and the economy contracts, potentially leading to the type of stagflation the United States experienced in the 1970s.

THE INTERSECTION OF INFLATION AND GROWTH INFLUENCES INVESTMENT SELECTION

Exhibit 1: Asset classes and macro environments cross referenced



Source: Franklin Templeton Investment Solutions. For illustrative purposes only.

Today, investment managers are still examining the yield curve and making bets on rate hikes. But as a direct result of Russia's invasion of Ukraine, they are likely asking themselves many more questions about recent paradigm shifts. For instance, we know supply-led inflation is particularly concerning when it comes with an energy shock. Energy is used in so many facets of the global economy—from production through consumption, it hits everything. But energy doesn't hit every sector equally. Where is it going to hit hardest? How quickly can companies react to inflation, and will they be able to pass on costs to consumers? Which countries might be able to pick up the slack in commodity production? What is already priced in?

Market corrections and conventional wisdom

Stephen: In terms of asset allocation within a portfolio, what are you thinking about today—based on your research of similar market shocks?

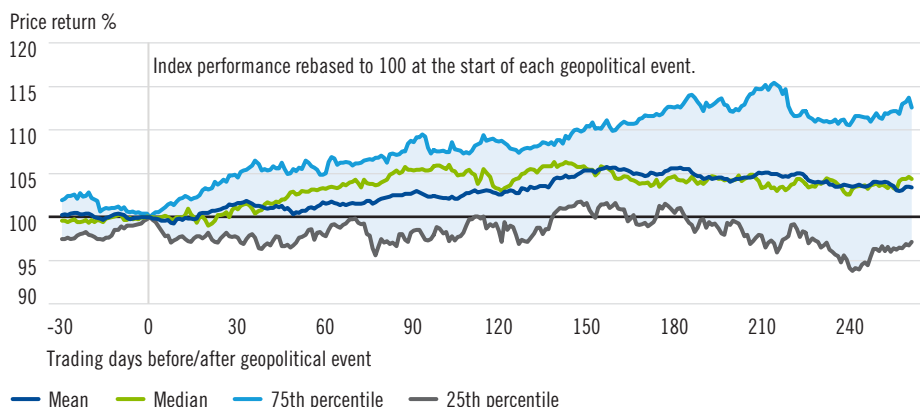
Gene: Conventional wisdom often directs investors to “buy the dip.” However, the world is hard to predict during a shock—often there are too many independent factors at play in every geopolitical crisis to write a playbook on how to react. Revisionist history is said to provide 20/20 vision. So, we examined short-term equity performance following military incursions since World War II in Exhibit 2, looking at various short-term time horizons. It is difficult to discern a cohesive pattern from this data. In other words, each event seems to be heterogenous, meaning, we don't believe you can look back at history after a military incursion and confidently say, “buy the dip.”

As such, we believe the path forward is opaque, based on our analysis. We are cognizant that large moves during times of uncertainty can be disastrous.

EQUITY PERFORMANCE VARIES WIDELY POST-GEOPOLITICAL SHOCKS

Exhibit 2: Measured by S&P 500 Index through January 1970, MSCI World Index from January 1970–January 1988, and the MSCI ACWI Index thereafter. September 1, 1939–March 31, 2022

Geopolitical event	Date	Equity change (price returns)				
		1-month	3-month	6-month	9-month	12-month
WWII begins	09-01-1939	14.6%	9.1%	7.4%	-18.6%	-8.7%
Pearl Harbor attack	12-07-1941	-3.1%	-8.7%	-12.1%	-7.8%	-0.1%
North Korea invades south	06-25-1950	-8.7%	0.4%	3.2%	11.2%	14.1%
Suez crisis	10-29-1956	-3.2%	-3.0%	-1.6%	4.7%	-13.1%
Cuban missile crisis	10-16-1962	5.4%	13.6%	19.6%	22.2%	27.4%
Gulf of Tonkin	08-02-1964	-1.3%	2.3%	4.4%	6.3%	1.2%
Tet offensive	01-31-1968	-3.1%	5.7%	6.2%	13.4%	10.6%
Munich Olympics	09-05-1972	-1.5%	4.3%	6.4%	1.9%	-2.4%
Yom Kippur war	10-06-1973	-2.4%	-13.6%	-15.5%	-22.6%	-39.2%
Iranian revolution	01-01-1978	-3.3%	-0.2%	4.7%	15.6%	12.1%
Iran/Iraq war	09-01-1980	2.7%	9.4%	1.9%	4.0%	2.9%
Fall of Berlin wall	11-09-1989	5.7%	3.7%	-7.7%	-0.2%	-12.2%
Iraq invades Kuwait	08-02-1990	-7.4%	-9.8%	-8.2%	-0.1%	-1.9%
Gulf War (Desert Storm)	01-17-1991	12.5%	14.5%	7.4%	11.8%	17.3%
9/11	09-11-2001	0.0%	6.6%	6.8%	1.0%	-12.5%
Iraq war	03-20-2003	3.0%	17.8%	20.4%	28.4%	38.1%
London bombing	07-05-2005	4.9%	6.9%	10.9%	17.1%	12.0%
Arab Spring	12-18-2010	4.5%	1.1%	3.4%	-10.0%	-7.2%
Crimea annexed	02-20-2014	-0.2%	2.0%	4.5%	3.7%	3.6%
Paris attacks	11-13-2015	-1.8%	-10.2%	-0.9%	3.6%	1.5%
Bombing of Syria	04-07-2017	2.8%	4.2%	9.1%	14.8%	13.0%
North Korea missile crisis	07-28-2017	-0.4%	3.4%	13.7%	8.3%	7.8%
Aramco drone strike	09-14-2019	-1.3%	3.9%	-9.3%	0.1%	9.8%
US/Iran tension	01-03-2020	-1.1%	-24.8%	-8.3%	-3.0%	12.4%
US exits Afghanistan	08-30-2021	-3.7%	-1.0%	-7.4%		
Russia invades Ukraine	02-24-2022	4.1%				
Average return		0.7%	1.5%	2.4%	4.4%	3.6%
Median return		-0.8%	3.4%	4.4%	3.8%	3.3%
Unconditional return		0.4%	1.3%	2.6%	3.9%	5.3%



Source: Analysis by Franklin Templeton Investment Solutions, S&P Down Jones indices, Macrobond. Indexes are unmanaged and one cannot directly invest in them. They do not include fees, expenses or sales charges. **Past performance is not an indicator or a guarantee of future results.** Important data provider notices and terms available at www.franklintempletondatasources.com.

“ When examining equities against fixed income, it is difficult to perceive a clear path forward given the likelihood the Fed raises rates. Investment-grade fixed income would usually be unappealing in a rising-rate environment, whereas equities have been capable of producing positive returns during prior hiking cycles. This includes when inflation is high or when the Fed moves quickly.”

Gene Podkaminer

Our comments here are irrespective of a specific time horizon. A very long-term investor with a horizon spanning decades could make the argument for buying many market dips. However, thinking somewhat dynamically, when we consider overall weighting of equities within portfolios, we think now may be a good time to hold and then re-evaluate as new developments unfold. We are less bullish on equities now than we were toward the end of last year. However, it is important that we distinguish between making tactical, sub-asset class moves, versus adding to the total weight of equities.

That’s not to say that “under the hood” we shouldn’t make any moves. For example, we see opportunities in Japan and less favorable opportunities in Europe, excluding the United Kingdom. As time marches on, it will be important to examine the secondary and tertiary effects of this war and refugee exodus across multiple economies.

When examining equities against fixed income, it is difficult to perceive a clear path forward given the likelihood the Fed raises rates. Investment-grade fixed income would usually be unappealing in

a rising-rate environment, whereas equities have been capable of producing positive returns during prior hiking cycles. This includes when inflation is high or when the Fed moves quickly.

The case for a multi-asset portfolio, including alternatives

Stephen: In times of stock or bond market volatility, many investors look to investments outside of traditional equity and fixed income. What is your philosophy for creating attractive multi-asset solutions?

Gene: We are often trying to accomplish a singular goal with our portfolios: produce the highest real (net of inflation) return possible per unit of risk. Given pre-determined risk constraints, we attempt to do this while maintaining ample liquidity, and if desired, while generating income.

Asset managers devote time to analyze the weightings of the many pieces of the pie chart comprising their portfolios. We believe it is important to begin at a high level and stress the importance of investments that are different in kind, rather than in degrees. This approach provides perspective on several distinct

big pieces of the investment pie, namely, investments closely tied to growth, interest rates and the real economy.⁸ As such, we can use a four-bucket framework when constructing multi-asset portfolios.

Alternative assets, encompassing a wide range of strategies and approaches, can fall within the growth, capital preservation, inflation-linked or absolute return buckets. As the name implies, they should provide an alternative exposure to the other components of the portfolio, which are typically public equity and fixed income.

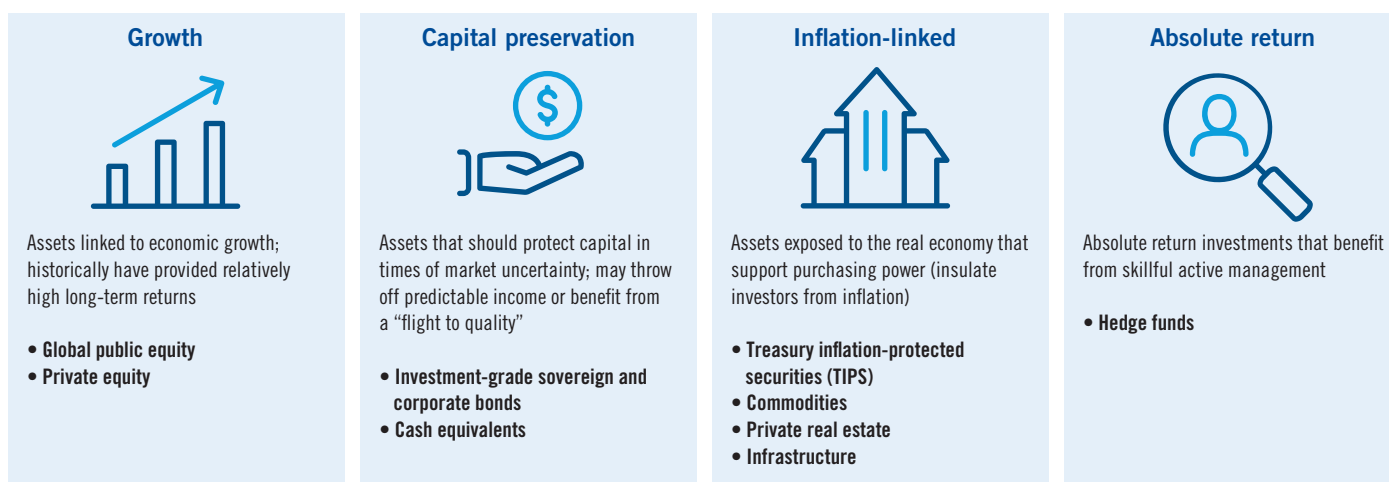
1. Private equity: We tend to think of this asset class as supercharged equity, and as such it belongs in the growth bucket. Should an investor have a perpetual—or long enough—time horizon, ample liquidity and the ability to access superior managers in the space, then a significant allocation within the growth bucket might even be warranted.

However, costs must be kept in mind, as this asset class is typically expensive. It is also levered, as well as less transparent and less liquid (lockup period) than its public counterparts, and investors should be compensated for this risk. Private equity provides access to different companies and deal structures than public equities and traditional fixed income do. But, if an investor’s intention is to gain direct access to the real economy, we prefer to focus on the other asset classes listed above in that bucket.

2. Treasury Inflation-Protected Securities (TIPS): We look at TIPS differently than some. Yes, they are US sovereigns and overlap with assets reserved for preserving capital. But their variable-rate mechanism provides automatic exposure to inflation trends—via the

BUILDING BLOCKS FOR PORTFOLIO DIVERSIFICATION

Exhibit 3: Elements of portfolio diversification and associated asset classes



Source: Franklin Templeton Investment Solutions. For illustrative purposes only and not reflective of the portfolio composition of any Franklin Templeton fund.

Consumer Price Index—like no other investment. Moreover, they are liquid and inexpensive to purchase.

3. Commodity futures: In our 2022 paper about protecting portfolios from inflation, we’ve noted studies showing “commodity futures collateralized with interest-bearing cash have significantly outperformed the ‘spot’ prices of commodities” and that they are “positively correlated with both the anticipated and unanticipated (shock) components of inflation.”⁹

The theory behind this finding is intuitive: commodities provide access to our economy’s most basic inputs of production. As an asset class, they are comprised of energy, base metals, precious metals and agriculture—everything that is used to “make stuff.” As such, they should be linked to inflation, not mechanically like TIPS, but still in a direct fashion. During times of benign inflation, investors may be wary to utilize commodities due to the inconsistent return expectations and high volatility of the asset class.

4. Private real estate: We also noted in the same paper that, while not having a perfect relationship, real estate is often a good inflation hedge, as rents tend to rise with income. This relationship did break down during the housing bubble and related GFC during 2007–2009. Typically, in the short term, private real estate has tended to be a better inflation hedge than equities. During periods of disinflation, both asset classes have generally done well. Some investors may consider turning to real estate investment trusts (REITs), but we would note that REITs tend to be more closely correlated to stocks and may not offer as substantial an inflation hedge.¹⁰

5. Infrastructure: If commodities are used to make stuff, infrastructure is what’s used to move that stuff around. As such, these types of investments are closely tied to the real economy. These include airports, seaports, highways, water networks and power-generation facilities.

An opportune time for active management

Stephen: Are there more opportunities for active managers during times of high market volatility?

Gene: If one could make the case for active management, we think now would be the time. Active decisions cascade throughout the investment process,

“ Identifying winners when stocks and bonds are moving up in unison is challenging. Looking back, from the end of the GFC through the beginning of the pandemic, it was difficult for active managers to outperform their respective benchmarks.”

Gene Podkaminer

ranging from index providers to active (and yes, sometimes even “passive”) managers. Index providers, including Franklin Templeton, make decisions regarding the starting investment universe, weighting of index constituents and rebalancing rules—these are all inherently active choices, even if only implied. For example, the S&P 500 Index enforces requirements before admitting companies for inclusion, historically providing intended, or implied, tilts.

Identifying winners when stocks and bonds are moving up in unison is challenging. Looking back, from the end of the GFC through the beginning of the pandemic, it was difficult for active managers to outperform their respective benchmarks. As our team

highlighted in the 2018 *Journal of Portfolio Management* paper on shocks to growth, a “Goldilocks” scenario was created largely due to coordinated monetary policy on the part of central banks.¹¹ A manager could have a portfolio that was primarily exposed to large-cap US equities and absolutely crush it. Although holding a passive market-capitalization-weighted US equity exchange-traded fund may seem boring, it produced attractive returns.

This has led some investors to shy away from the previously mentioned “boring” passive portfolio and ask whether they should embrace active management yet again. If heightened market correlations make active management difficult, then a relatively wide dispersion of returns provides an opportunity for active managers to pick up alpha—or above-market return.¹²

Ultimately, the type of management an investor chooses should be based on individual goals. But it’s worth noting that in times of great uncertainty, which may lead to divergent returns among investments, an experienced active manager may not only have a deep understanding of the issues impacting the markets (the Russia-Ukraine war, COVID-19, inflation, labor markets, etc.), but will also likely have more opportunities “at bat” to make choices that can lead to alpha.

We will be monitoring the aforementioned factors closely as the year unfolds and wish peace to the people of Ukraine.

Endnotes

1. Source: International Monetary Fund (IMF). 2021. *Fiscal Monitor: Strengthening the Credibility of Public Finances*. Washington DC, October.
2. To go deeper, we encourage you to read the following three journal articles: (1) Tollette, W., Podkaminer, E., and Siegel, L. 2018. Preparing a Multi-Asset Class Portfolio for Shocks to Economic Growth. (2) *The Journal of Portfolio Management*, vol. 45(2): 106–116. Podkaminer, E., Tollette, W., and Siegel, L. 2020. Real Interest Rate Shocks and Portfolio Strategy. (3) *The Journal of Investing*, vol. 29(6); 23–41. Podkaminer, E., Tollette, W. and Siegel, L. 2022. Protecting portfolios against inflation. *The Journal of Investing*, vol. 31(3).
3. Source: Podkaminer, G., Sampson, M., and Greco, J. “What to Expect When We are Expecting (Inflation),” Franklin Templeton, June 12, 2021.
4. Source: Podkaminer, G., Walling, S., and Sampson, M. “The Supply-Chain Storm: Planes, Cranes, and Automobiles,” *Beyond Bulls & Bears*, December 29, 2021.
5. Source: Podkaminer, G. et. al. “Where are the Workers?,” *Beyond Bulls & Bears*, December 22, 2021.
6. Source: Podkaminer, G. et. al. “The Fed: Walking a Tightrope in 2022,” *Beyond Bulls & Bears*, January 28, 2022.
7. Source: Podkaminer, G. et. al. “Russia-Ukraine War Heightens Supply Chain and Inflation Woes,” *Beyond Bulls & Bears*, March 15, 2022.
8. Source: Tollette, W., Podkaminer, E., and Siegel, L. 2018. Preparing a Multi-Asset Class Portfolio for Shocks to Economic Growth. *The Journal of Portfolio Management*, vol. 45(2): 106–116.
9. Source: Podkaminer, E., Tollette, W. and Siegel, L. 2022. Protecting portfolios against inflation. *The Journal of Investing*, vol. 31(3).
10. *Ibid*.
11. Source: Tollette, W., Podkaminer, E., and Siegel, L. 2018. Preparing a Multi-Asset Class Portfolio for Shocks to Economic Growth. *The Journal of Portfolio Management*, vol. 45(2): 106–116.
12. Alpha indicates how a stock performs in comparison to a benchmark.

About Global Investment Outlook

Global Investment Outlook allows the Franklin Templeton Investment Institute strategists to highlight manager's views on markets across the firm. The mission of the Investment Institute is to deliver research-driven insights, expert views and industry-leading events for clients and investors globally through the diverse expertise of our autonomous investment groups, select academic partners and our unique global footprint.

Two related Franklin Templeton Thinks publications of note are Allocation Views, produced by Franklin Templeton Investment Solutions, which offers you our best thinking on multi-asset portfolio construction; and, Macro Perspectives, produced by the Investment Institute, featuring economists from across the firm dissecting key macroeconomic themes driving markets.

Notes

WHAT ARE THE RISKS?

All investments involve risks, including possible loss of principal. The value of investments can go down as well as up, and investors may not get back the full amount invested. The positioning of a specific portfolio may differ from the information presented herein due to various factors, including, but not limited to, allocations from the core portfolio and specific investment objectives, guidelines, strategy and restrictions of a portfolio. There is no assurance any forecast, projection or estimate will be realized. Stock prices fluctuate, sometimes rapidly and dramatically, due to factors affecting individual companies, particular industries or sectors, or general market conditions. Bond prices generally move in the opposite direction of interest rates. Thus, as the prices of bonds in an investment portfolio adjust to a rise in interest rates, the value of the portfolio may decline. Special risks are associated with foreign investing, including currency fluctuations, economic instability and political developments. Investments in emerging markets, of which frontier markets are a subset, involve heightened risks related to the same factors, in addition to those associated with these markets' smaller size, lesser liquidity and lack of established legal, political, business and social frameworks to support securities markets. Because these frameworks are typically even less developed in frontier markets, as well as various factors including the increased potential for extreme price volatility, illiquidity, trade barriers and exchange controls, the risks associated with emerging markets are magnified in frontier markets. Investing in the natural resources sector involves special risks, including increased susceptibility to adverse economic and regulatory developments affecting the sector—prices of such securities can be volatile, particularly over the short term. Real estate securities involve special risks, such as declines in the value of real estate and increased susceptibility to adverse economic or regulatory developments affecting the sector. Investments in infrastructure-related securities involve special risks, such as high interest costs, high leverage and increased susceptibility to adverse economic or regulatory developments affecting the sector. Alternative investments include private equity, commodities, hedge funds and property. They may be difficult to sell in a timely manner or at a reasonable price. It may be difficult to obtain reliable information about their value. The value of derivatives contracts is dependent upon the performance of an underlying asset. A small movement in the value of the underlying can cause a large movement in the value of the derivatives, which may result in gains or losses that are greater than the original amount invested. Actively managed strategies could experience losses if the investment manager's judgment about markets, interest rates or the attractiveness, relative values, liquidity or potential appreciation of particular investments made for a portfolio, proves to be incorrect. There can be no guarantee that an investment manager's investment techniques or decisions will produce the desired results. Diversification does not guarantee profit or protect against the risk of loss.

IMPORTANT LEGAL INFORMATION

This material is intended to be of general interest only and should not be construed as individual investment advice or a recommendation or solicitation to buy, sell or hold any security or to adopt any investment strategy. It does not constitute legal or tax advice. This material may not be reproduced, distributed or published without prior written permission from Franklin Templeton.

The views expressed are those of the investment manager and the comments, opinions and analyses are rendered as of the publication date and may change without notice. The underlying assumptions and these views are subject to change based on market and other conditions and may differ from other portfolio managers or of the firm as a whole. The information provided in this material is not intended as a complete analysis of every material fact regarding any country, region or market. There is no assurance that any prediction, projection or forecast on the economy, stock market, bond market or the economic trends of the markets will be realized. The value of investments and the income from them can go down as well as up and you may not get back the full amount that you invested. Past performance is not necessarily indicative nor a guarantee of future performance. **All investments involve risks, including possible loss of principal.**

Any research and analysis contained in this material has been procured by Franklin Templeton for its own purposes and may be acted upon in that connection and, as such, is provided to you incidentally. Data from third party sources may have been used in the preparation of this material and Franklin Templeton ("FT") has not independently verified, validated or audited such data. Although information has been obtained from sources that Franklin Templeton believes to be reliable, no guarantee can be given as to its accuracy and such information may be incomplete or condensed and may be subject to change at any time without notice. The mention of any individual securities should neither constitute nor be construed as a recommendation to purchase, hold or sell any securities, and the information provided regarding such individual securities (if any) is not a sufficient basis upon which to make an investment decision. FT accepts no liability whatsoever for any loss arising from use of this information and reliance upon the comments, opinions and analyses in the material is at the sole discretion of the user.

Products, services and information may not be available in all jurisdictions and are offered outside the U.S. by other FT affiliates and/or their distributors as local laws and regulation permits. Please consult your own financial professional or Franklin Templeton institutional contact for further information on availability of products and services in your jurisdiction.

Issued in the U.S. by Franklin Distributors, LLC, One Franklin Parkway, San Mateo, California 94403-1906, (800) DIAL BEN/342-5236, franklintempleton.com - Franklin Distributors, LLC, member FINRA/SIPC, is the principal distributor of Franklin Templeton U.S. registered products, which are not FDIC insured; may lose value; and are not bank guaranteed and are available only in jurisdictions where an offer or solicitation of such products is permitted under applicable laws and regulation.

Australia: Issued by Franklin Templeton Australia Limited (ABN 76 004 835 849) (Australian Financial Services License Holder No. 240827), Level 47, 120 Collins Street, Melbourne, Victoria, 3000. **Austria/Germany:** Issued by Franklin Templeton International Services S.à r.l., Niederlassung Deutschland, Frankfurt, Mainzer Landstr. 16, 60325 Frankfurt/Main. Tel: 08 00/0 73 80 01 (Germany), 08 00/29 59 11 (Austria), Fax: +49(0)69/2 72 23-120, info@franklintempleton.de, info@franklintempleton.at. **Canada:** Issued by Franklin Templeton Investments Corp., 200 King Street West, Suite 1500 Toronto, ON, M5H3T4, Fax: (416) 364-1163, (800) 387-0830, www.franklintempleton.ca. **Netherlands:** Franklin Templeton International Services S.à r.l., Dutch Branch, World Trade Center Amsterdam, H-Toren, 5e verdieping, Zuidplein 36, 1077 XV Amsterdam, Netherlands. Tel: +31 (0) 20 575 2890. **United Arab Emirates:** Issued by Franklin Templeton Investments (ME) Limited, authorized and regulated by the Dubai Financial Services Authority. **Dubai office:** Franklin Templeton, The Gate, East Wing, Level 2, Dubai International Financial Centre, P.O. Box 506613, Dubai, U.A.E. Tel: +9714-4284100 Fax: +9714-4284140. **France:** Issued by Franklin Templeton International Services S.à r.l., French branch, 55 avenue Hoche, 75008 Paris France. **Hong Kong:** Issued by Franklin Templeton Investments (Asia) Limited, 17/F, Chater House, 8 Connaught Road Central, Hong Kong. **Italy:** Issued by Franklin Templeton International Services S.à r.l.—Italian Branch, Corso Italia, 1 – Milan, 20122, Italy. **Japan:** Issued by Franklin Templeton Japan Co., Ltd., registered in Japan as a Financial Instruments Business Operator [Registered No. The Director of Kanto Local Finance Bureau (Financial Instruments Business Operator), No. 417, Member of the Investment Trust Association, Japan, the Japan Investment Advisers Association, and Type II Financial Instruments Firms Association. **Korea:** Issued by Franklin Templeton Investment Trust Management Co., Ltd., 3rd fl., CCMM Building, 12 Youido-Dong, Youngdungpo-Gu, Seoul, Korea 150-968. **Luxembourg/Benelux:** Issued by Franklin Templeton International Services S.à r.l.—Supervised by the Commission de Surveillance du Secteur Financier - 8A, rue Albert Borschette, L-1246 Luxembourg. Tel: +352-46 66 67-1 Fax: +352-46 66 76. **Malaysia:** Issued by Franklin Templeton Asset Management (Malaysia) Sdn. Bhd. & Franklin Templeton GSC Asset Management Sdn. Bhd. This document has not been reviewed by Securities Commission Malaysia. **Poland:** Issued by Templeton Asset Management (Poland) TFI S.A.; Rondo ONZ 1; 00-124. Warsaw. **Romania:** Franklin Templeton International Services S.à r.l. Luxembourg, Bucharest Branch, at 78-80 Buzesti Str, Premium Point, 8th Floor, Bucharest 1, 011017, Romania. Registered with Romania Financial Supervisory Authority under no. PJM07.1AFIASMDLUX0037/10 March 2016 and authorized and regulated in Luxembourg by Commission de Surveillance du Secteur Financier. Tel: + 40 21 200 9600. **Singapore:** Issued by Templeton Asset Management Ltd. Registration No. (UEN) 199205211E and Legg Mason Asset Management Singapore Pte. Limited, Registration Number (UEN) 200007942R. Legg Mason Asset Management Singapore Pte. Limited is an indirect wholly owned subsidiary of Franklin Resources, Inc. 7 Temasek Boulevard, #38-03 Suntec Tower One, 038987, Singapore. **Spain:** Issued by Franklin Templeton International Services S.à r.l.—Spanish Branch, Professional of the Financial Sector under the Supervision of CNMV, José Ortega y Gasset 29, Madrid, Spain. Tel: +34 91 426 3600, Fax: +34 91 577 1857. **South Africa:** Issued by Franklin Templeton Investments SA (PTY) Ltd, which is an authorised Financial Services Provider. Tel: +27 (21) 831 7400 Fax: +27 (21) 831 7422. **Switzerland:** Issued by Franklin Templeton Switzerland Ltd, Stockerstrasse 38, CH-8002 Zurich. **UK:** Issued by Franklin Templeton Investment Management Limited (FTIML), registered office: Cannon Place, 78 Cannon Street, London EC4N 6HL. Tel: +44 (0)20 7073 8500. Authorized and regulated in the United Kingdom by the Financial Conduct Authority. **Nordic regions:** Issued by Franklin Templeton International Services S.à r.l. Swedish Branch, filial, Nybrokajen 5, SE-111 48, Stockholm, Sweden. Tel: +46 (0)8 545 012 30, nordicinfo@franklintempleton.com, authorised in Luxembourg by the Commission de Surveillance du Secteur Financier to conduct certain financial activities in Denmark, Sweden, Norway, Iceland and Finland. Franklin Templeton International Services S.à r.l., Swedish Branch, filial conducts activities under supervision of Finansinspektionen in Sweden. **Offshore Americas:** In the U.S., this publication is made available only to financial intermediaries by Franklin Distributors, LLC, member FINRA/SIPC, 100 Fountain Parkway, St. Petersburg, Florida 33716. Tel: (800) 239-3894 (USA Toll-Free), (877) 389-0076 (Canada Toll-Free), and Fax: (727) 299-8736. Investments are not FDIC insured; may lose value; and are not bank guaranteed. Distribution outside the U.S. may be made by Franklin Templeton International Services, S.à r.l. (FTIS) or other sub-distributors, intermediaries, dealers or professional investors that have been engaged by FTIS to distribute shares of Franklin Templeton funds in certain jurisdictions. This is not an offer to sell or a solicitation of an offer to purchase securities in any jurisdiction where it would be illegal to do so.

Please visit www.franklinresources.com to be directed to your local Franklin Templeton website.

CFA® and Chartered Financial Analyst® are trademarks owned by CFA Institute.

