Alternative Investment Themes for 2022

Our most recent annual 10-Year Capital Markets Assumptions have highlighted a more challenging return environment and the increasing importance of alternatives within a well-diversified portfolio. Alternative investments can enhance portfolio returns given higher potential return expectations and typically low correlation with traditional assets.

Recognizing the importance alternatives will play in portfolio construction moving forward, we are launching our Annual Alternatives Investment Themes. This publication is designed to share our perspectives on where some of the most exciting opportunities are within the space.

Themes

Our Alternative Investment Themes aim to connect what is transpiring in the real economy with non-traditional strategies that may be positioned to take advantage of the remarkable post-pandemic economic evolution. The themes can be categorized as secular (those that aim to take advantage of the changes in the composition of economies and how economies operate) and cyclical (those that reflect the macro-economic environment we live in).

Cyclical Themes	Secular Themes
Winners and losers of the post-pandemic recovery	Structural changes in equity markets
Heightened inflation	Impact investing
Heightened volatility and market dislocation	Innovation
Low-rate environment	The shift from “global” to “local”
	New geopolitical equilibrium

The Case for Alternatives

We believe certain themes in the real economy may hinder the ability for traditional 60/40 portfolios to continue generating public market returns comparable to the past two decades. The ability to earn the historical risk premium in public equities will continue to come under pressure, while bonds will likely be a drag on total return as interest rates rise from historically low levels. The same themes that threaten classic ways of thinking about portfolio construction call for robust portfolios that are more than just diversified. By this, we mean portfolios that seek to sustain the historical returns of 60/40 with additional solutions to absorb market shocks. We believe non-traditional strategies that provide alpha, risk mitigating attributes, or higher income, are well positioned to provide alternatives for portions of traditional allocations.

Cyclical Themes

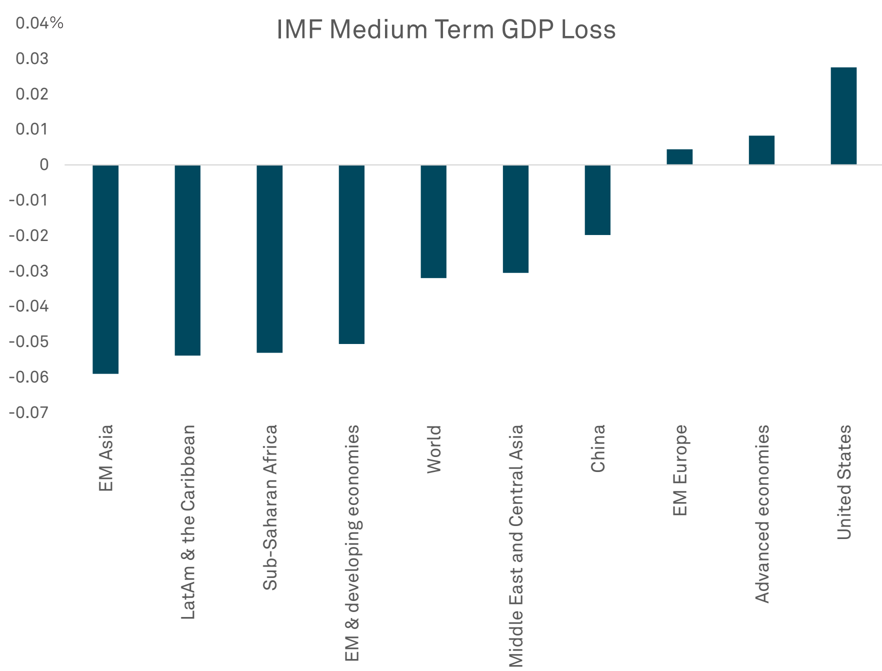
1. Winners & Losers of a Global Economic Recovery

Uneven post-pandemic economic growth patterns, expectations of rising rates and higher inflation will produce clear winners and losers among small and mid-sized businesses, certain real estate sectors and across emerging markets. Some economic sectors will experience permanent changes in demand as consumer preferences shift. Furthermore, countries with significant monetary and fiscal stimulus, deployed by their central banks and governments, will likely experience stronger post-pandemic growth.

Strategies that capitalize on these growth differentials can be deployed in both public and private markets:

- **Long/short equity**: Positioned to delineate between leader and laggard companies that emerge from the pandemic. Executed through long and short equity positions.
- **Merger arbitrage:** Businesses emerging in strength looking to grow through acquisitions and weak businesses looking for a lifeline through M&A provide increased investment opportunities for merger arbitrage strategies.
- **Long/short credit:** Strategies that invest in the debt of healthy companies impacted by the pandemic while shorting those with unsustainable business models.
- **Private equity/growth equity:** Identifies businesses able to pivot and adapt to changing circumstances in the post-pandemic world.
- **Real estate:** Economic growth and shifting trends in work and commuting will lead to investment opportunities in real estate assets, particularly in sectors and geographies poised to emerge as winners.

Chart 1.1 Medium Term GDP Loss Relative to Pre-Covid-19, by Region

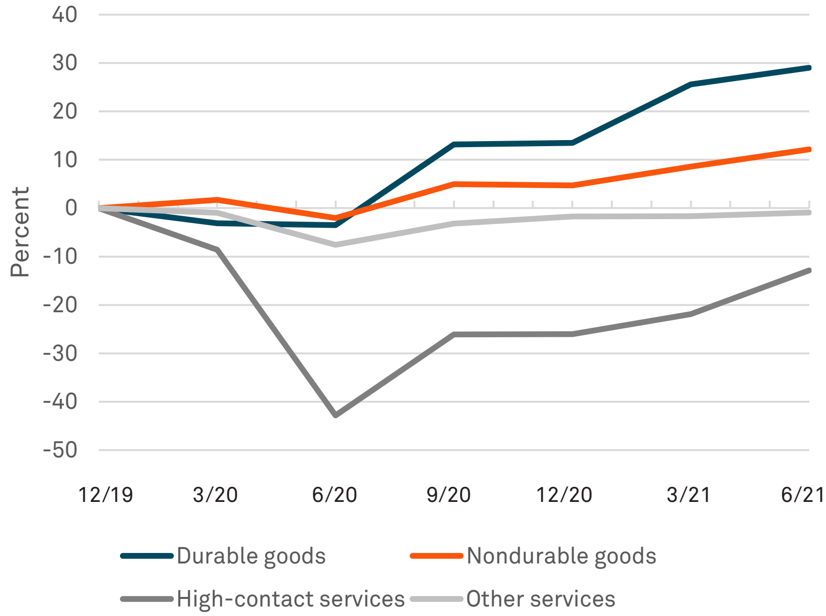


Takeaway

There will be a clear delineation between winners and losers in the recovery across countries.

Revisions to projected 2024 GDP levels between the January 2020 and April 2021 IMF forecasts. Source: IMF. Data as of October 2021.

Chart 1.2: Some Changes in What We Consume May be Permanent

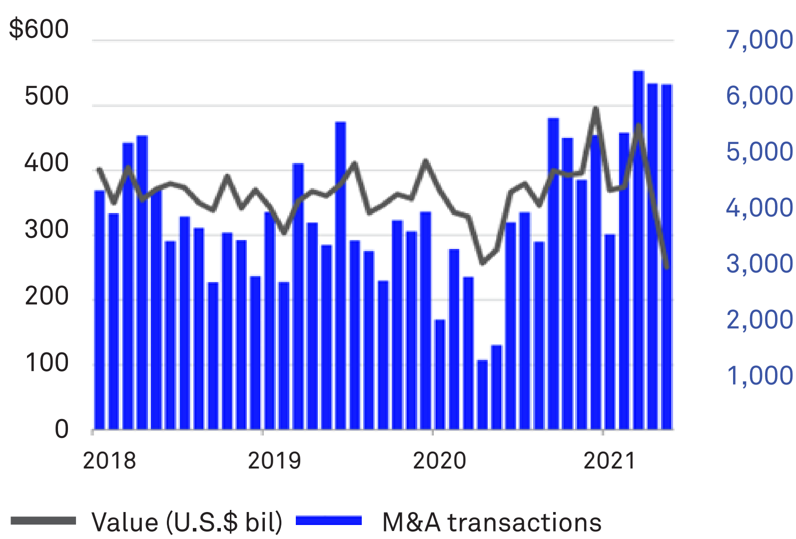


Takeaway

Covid-19 has led to a major change in what and how we consume. Some of these changes are expected to be persistent.

Source: Bureau of Economic Analysis.
Data as of August 2021.

Chart 1.3 Deal Making Hits Record Highs



Takeaway

The winners and losers of the post-pandemic recovery paved the way for increased M&A as the opportunity set for transactions has grown.

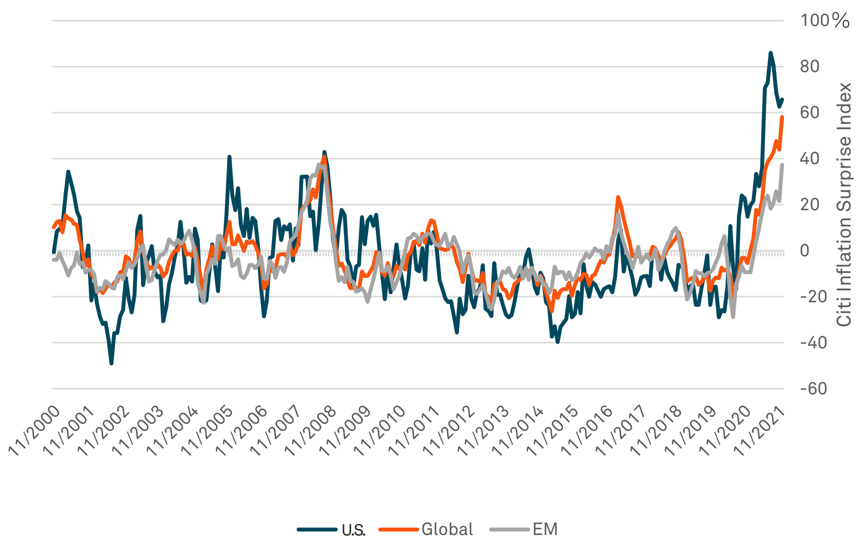
Source: Refinitiv.
Data as of May 2021.

2. Heightened Inflation

Unprecedented government stimulus to restart the economy, supply-side bottlenecks and labor shortages are placing upward pressure on prices and inflation. Shortages in available workers—specifically in the hospitality and restaurant sectors—are contributing to wage growth. Supply-side bottlenecks, driven by Covid-related port closures and coupled with increasing trade volumes, are placing further pressure on input pricing. U.S. money growth is the highest it has ever been, and based on economic projections, the velocity of money is expected to increase. Although transitory price pressures have lasted longer than we initially anticipated, we expect inflation will settle modestly higher than the 0-2% investors have seen over the past decade. Nevertheless, it is important to recognize that certain investments, as highlighted below, have inherent built-in inflation hedges, and have historically provided inflation protection to investor portfolios. Traditional infrastructure, such as toll roads and utilities; non-traditional infrastructure, such as cell towers and renewable energy; real estate, asset-based lending and farmland are all assets that may offer inflation hedging properties.

- **Real estate:** Sectors that will display clear winners and losers post pandemic: suburban office, single family rental, industrial vs. hotel, urban office, retail. Real estate has historically provided hedging in inflationary periods.
- **Traditional Infrastructure** (toll roads, utilities, airports, etc.)**:** Inflation-linked revenue streams often underpinned by economic regulation.
- **Non-traditional Infrastructure** (renewable energy, cell towers, etc.)**:** Hard assets that rise in value with inflation.
- **Asset-based lending:** Value of underlying asset rising with inflation; floating rate debt protects against rising rates.

Chart 2.1 Market Inflation Expectations are on the Rise

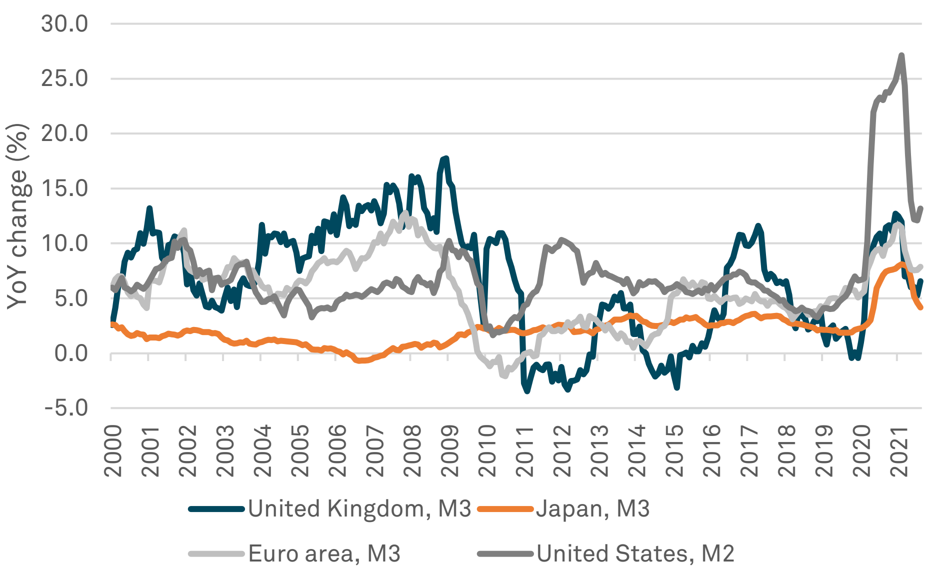


Takeaway

Inflation in the U.S. continues to surprise on the upside.

Source: Bloomberg.
Data as of November 30, 2021.

Chart 2.2 U.S., U.K., Euro Area and Japan Broad Money Growth



Takeaway

The expansion of money supply by central banks around the world can contribute to inflation.

Source: Macrobond and BNY Mellon Global Economics and Investment Analysis Group.
Data as of August 1, 2021.

Chart 2.3 Real Asset Performance During Inflationary Periods

Takeaway

Real Asset performance has generally outperformed public equities and fixed income in periods of rising inflation.

Data includes unanticipated rises in Y/Y CPI of 50 bps , which are the periods: 06/01/10 - 12/31/10, 07/01/12 - 07/31/12, 12/01/12 - 01/31/13, 03/01/13 - 06/30/13, 08/01/13 - 03/31/14, 10/01/14 - 12/31/15, 02/01/16 - 03/31/16, 07/01/16 - 07/31/16, 01/01/19 - 02/28/19, 04/01/20 - 06/30/20

Source: Bloomberg.
Data as of November 2021.

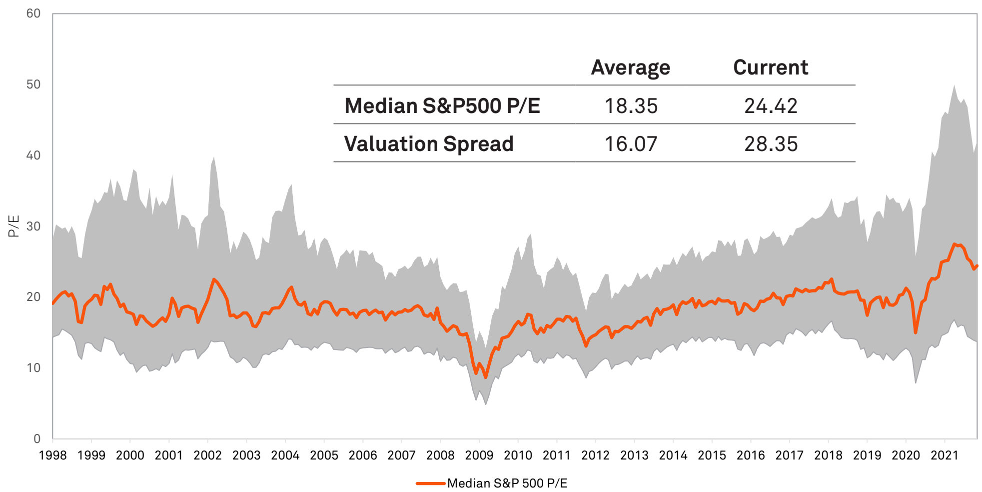
3. Heightened Volatility and Market Dislocations

Volatility in public markets has increased and is expected to remain elevated. Periodic dislocations, often fueled by decreased liquidity in the public markets, are becoming more common than in the past (e.g., Jan 2016, Dec 2018, Feb 2020), providing more frequent and attractive entry points for opportunistic investors.

The increasing correlation between stocks and bonds during volatile periods breaks down the value proposition of a 60/40 portfolio and calls for less-correlated strategies to hedge investment portfolios. Solutions that dampen portfolio volatility through hedged market-neutral positioning include equity market neutral, long/short equity and relative value; while Private Equity, through its illiquid nature, protects against investor-driven volatility. Strategies such as distressed investing and opportunistic real estate are positioned to take advantage of dislocations by acquiring good assets or businesses at attractive valuations.

- **Equity market neutral and relative value:** Market neutral and relative-value hedge fund strategies have historically delivered consistent returns with volatility significantly lower than public markets over market cycles.
- **Private Equity:** Using illiquid vehicles to invest in businesses, with the intention to drive operational improvements, offers stability of returns and protection against equity market volatility. Heightened volatility and market selloffs often drive investors to search for liquidity. By design, less liquid fund structures are much less likely to be a source of liquidity for investors during these periods, which means portfolio managers can pursue long term investments without interruption.
- **Long/Short Equity:** Increased dispersion among assets bodes well for security selection and active management, growing the opportunity set for long/short equity investors who are well positioned to distinguish between winners and losers in the post-pandemic economy.
- **Distressed Investing:** Investing in stressed or distressed companies that have good businesses with bad balance sheets. Opportunities can be in the secondary debt markets (debt market selloff), primary debt markets (rescue lending, debtor-in-possession) and deep value private equity (equity stakes in stressed companies, turnarounds). Distressed investors opportunistically step in as liquidity providers when market liquidity dries up.
- **Opportunistic Real Estate:** Real estate is emerging as one of the most impacted sectors by the pandemic, with a wide dispersion among asset types. Opportunistic real estate funds, which invest in distressed real estate with turnaround/transitional investment themes, can identify complex opportunities at attractive valuations.

Chart 3.1 Dispersion Among the S&P 500 Stocks has Been on the Rise

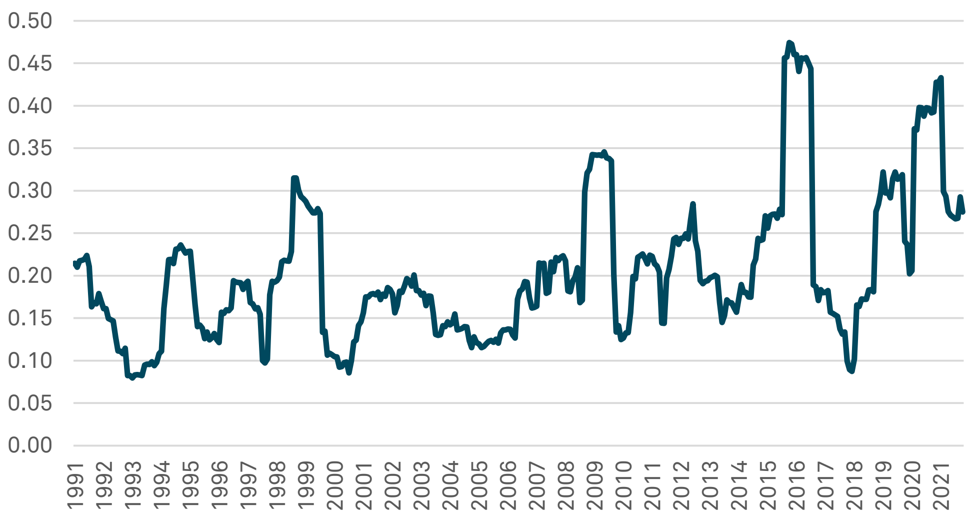


Takeaway

Increased dispersion among securities creates more opportunities for alpha generation.

Source: Bloomberg.
Data as of November 1, 2021.

Chart 3.2 The Volatility of Vix

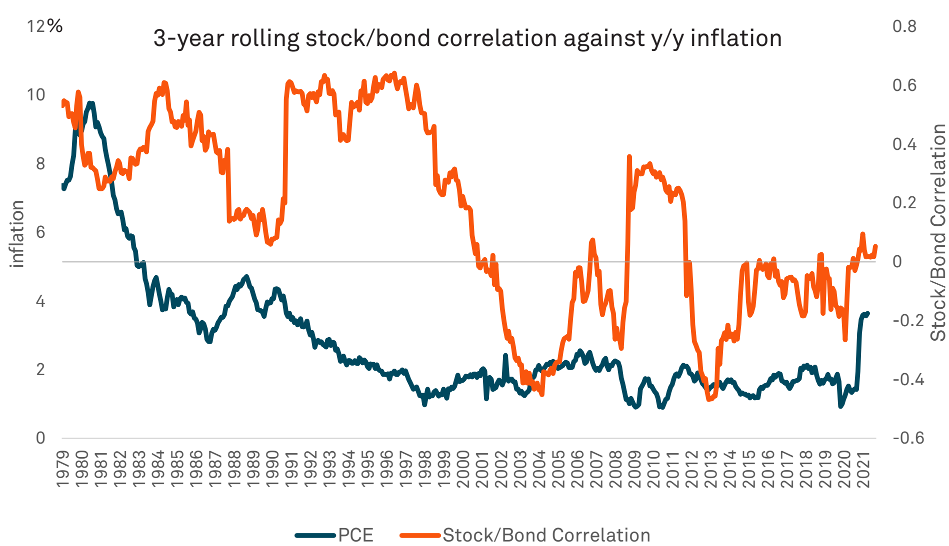


Takeaway

The last 30 years have seen increased frequency and magnitude of volatility shocks.

Source: Bloomberg.
Data as of September 30, 2021.

Chart 3.3 Long-Term Trends in Inflation and Stock/Bond Correlation



Takeaway

Historically, there has been a link between rising inflation expectations and stock/bond correlation, underscoring the benefits of increased diversification during inflationary periods.

Source: Bloomberg.
Data as of September 30, 2021.

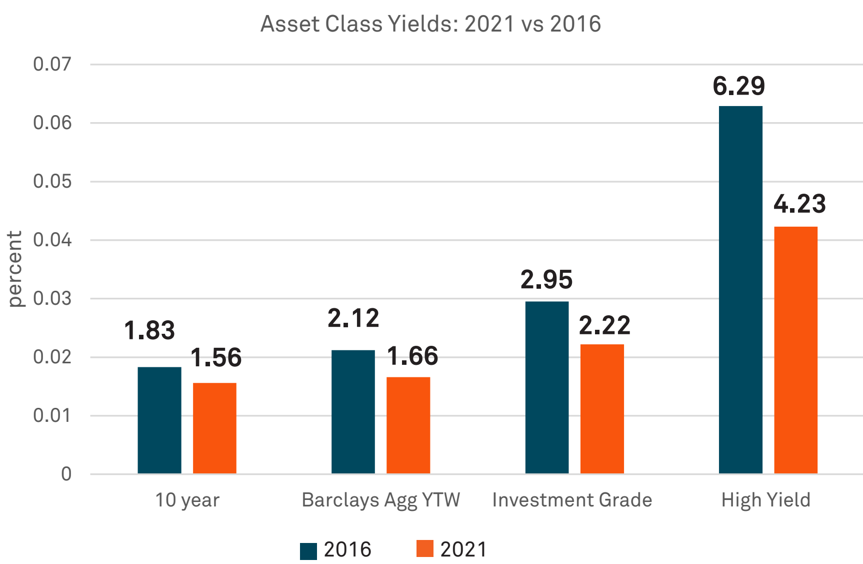
4. Low Rate Environment

In a low interest rate environment, we expect fixed income returns will be limited where interest payments may offset principal loss due to a rise in interest rates. Thus, we continue to advocate diversifying fixed income holdings beyond government bonds to incorporate credit strategies that can add yield. We believe private debt can provide an expanded opportunity set to complement traditional fixed income.

Private debt can provide consistent returns and improve diversification over various economic conditions. Private corporate loans as well as asset-based income solutions, such as real estate, infrastructure or royalties, can offer attractive alternative income streams.

- **Direct lending:** Private loans to middle-market companies (senior or junior in the capital structure and predominantly floating rate) provide attractive current income, in addition to pass through fees as additional return.
- **Asset-based lending:** Privately negotiated loans, backed by hard assets such as real estate, equipment, or specialty lending, with attractive current income components.
- **Core Real Estate:** Stabilized, Class A assets in primary markets with an investment grade tenant base and consistent net operating income, distributed to investors in the form of current income.
- **Core Infrastructure:** Long-term revenue streams often underpinned by economic regulation and generated by assets such as networks of water, utilities, electricity, gas transmission, airports, and rail; distributed to investors in form of current income.

Chart 4.1 Decline in Yields Across Various Asset Classes



Takeaway

Yields across various asset classes have declined over the past five years, leaving investors in search of higher-yielding assets.

Source: Bloomberg.
Data as of October 31, 2021.

Chart 4.2 Decline in 10-Year Treasury Yield Over Time

Takeaway

The 10-year Treasury yield has been on a steady decline for 40 years.

Source: Bloomberg.
Data as of October 31, 2021.

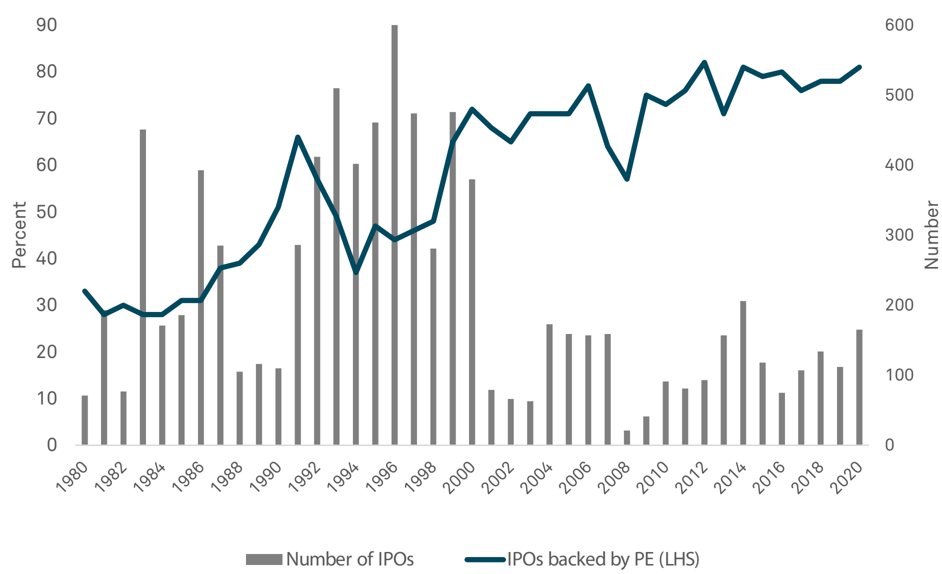
Secular Themes

5. Structural Changes in the Equity Markets

The structure of equity markets has been evolving for over a decade, providing support for private equity and venture capital (VC) investment. The number of U.S. private equity-backed companies surpassed that of public companies over a decade ago, and it continues to rise. Additionally, as the number of public IPOs has declined over the last two decades, the percentage of IPOs backed by PE has risen over the same period. This results in companies that are remaining private for longer, with the majority of value creation materializing during the private phases of a company's life. In turn, the target market for private equity investors has increased with PE funds outperforming public equities, on average, in recent decades.

- **Private equity buyout and growth equity:** The continuously growing target market for private equity acquisition through buyout, or acquiring stakes through growth equity, is providing ample investment opportunities for private equity managers.
- **Venture capital (VC)** – Companies are staying private for longer, providing investment opportunities for VC managers across various stages of business lifecycles.

Chart 5.1 U.S. IPOs – Total Number and Percentage Backed by PE Firms

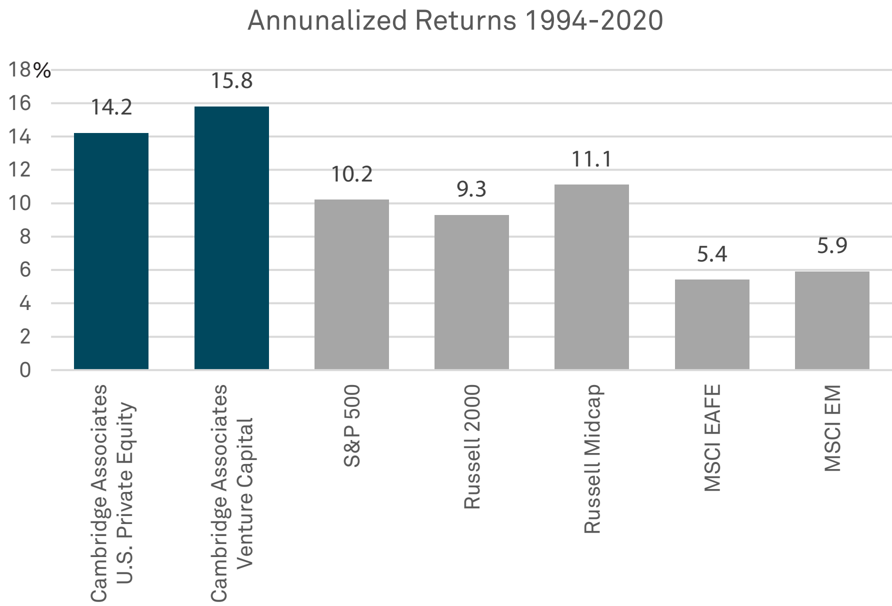


Takeaway

PE firms grew their influence on early-stage equity financing. While the overall number of IPOs in the U.S. declined substantially over time, a larger fraction of IPOs, from 47% to 78% (as of 2018), were by companies backed by PE firms in the form of venture capital or buyouts.

Source: Jay R Ritter, Initial public offerings: updated statistics, University of Florida, Table 4, 2021; company reports; author's calculations. Data as of December 2020.

Chart 5.2 Relative Performance of U.S. Private Equity and Public Equity

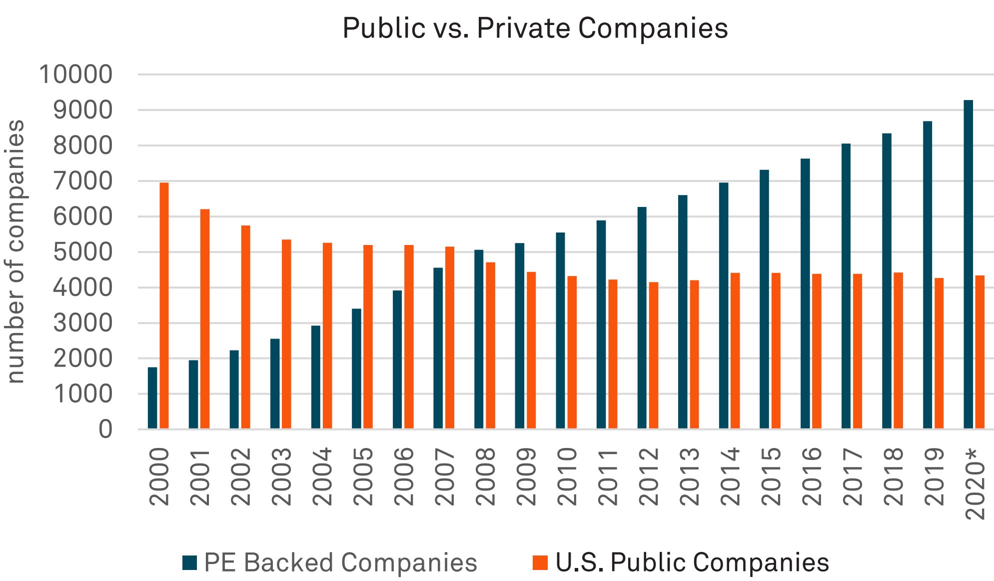


Takeaway

On average, PE funds have outperformed public markets in recent decades.

Source: Cambridge And Bloomberg. Data as of December31, 2021.

Chart 5.3 Number of U.S. Private Equity-Backed Companies has Surpassed Public Companies

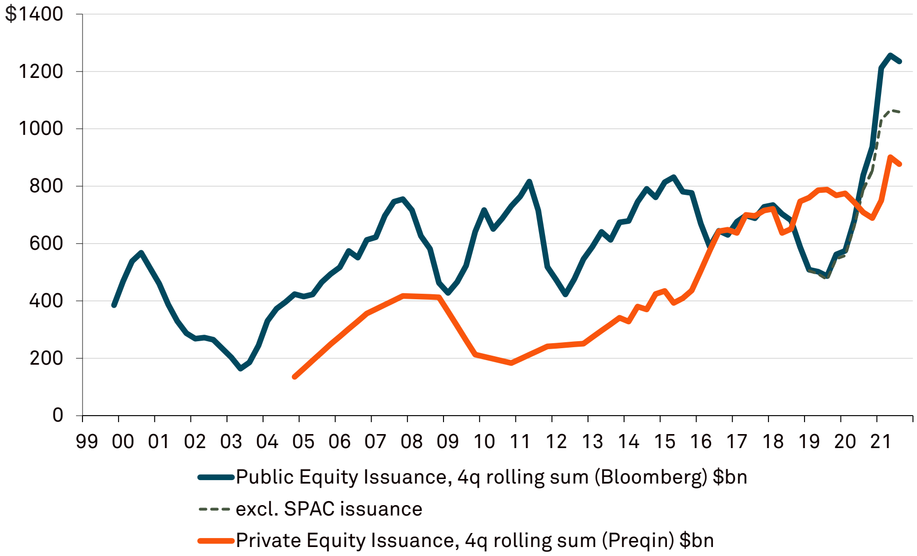


Takeaway

As companies remain private for longer than in the past, the number of U.S. private equity backed companies has surpassed public companies and continues to grow, expanding investment opportunities for PE investors.

Source: Pitchbook data, as of September 2021.

Chart 5.4: Gross Public vs. Private Equity Capital Raising



Takeaway

Public equity markets raised more capital than private equity markets in 2020, but the longer-term trend clearly shows a growing importance of the latter.

Source: Bloomberg, Preqin.
Data as of September 30, 2021.

6. Responsible and Impact Investing

Responsible and Impact Investing strategies are a growing component of client portfolios. Environmental, social and governance (ESG) is no longer an undercurrent of investing, but a standalone theme. Impact investing that addresses environmental and social issues, such as climate sustainability, diversity, equity & inclusion, among others, is becoming increasingly important to investors as part of their portfolio construction process. Furthermore, ESG integration is now a standard component of the manager research and selection process as investors place greater priority on these issues.

Environmental sustainability

- Supports solutions for environmental sustainability and climate change mitigation and/or adaptation.

Social equality and financial inclusion

- Supports underbanked and/or underserved individuals and communities to foster inclusive economic growth and development through financial technology and access to affordable banking.

- Drives increased access to services and/or technology for healthcare, wellness and education services

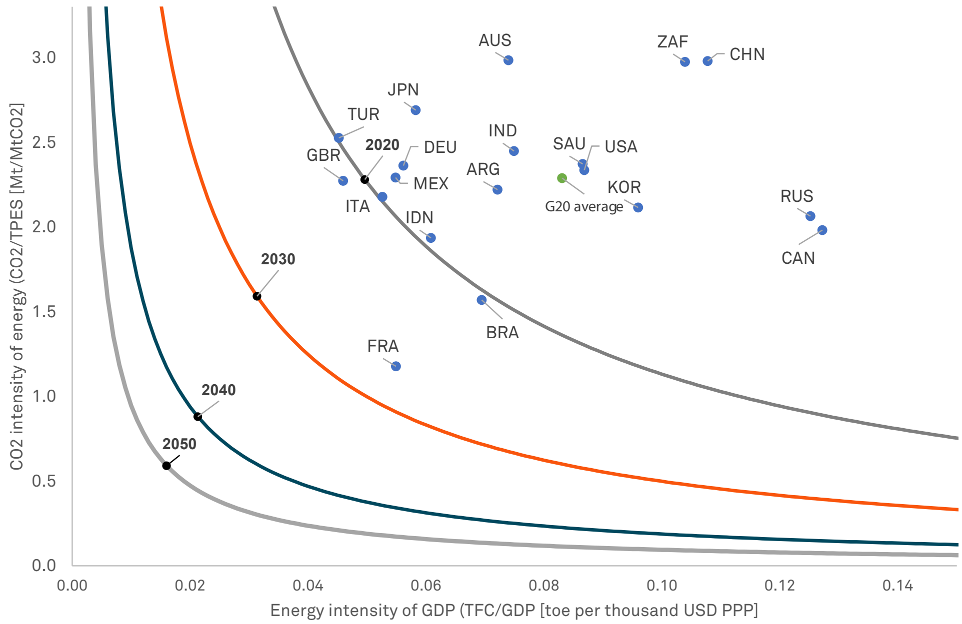
Diversity & Inclusion

- Diversity refers to the differences between individuals that enable each of them to make unique contributions. These differences can include gender, ethnicity, age, religion, socio-economic background, military background, family status and gender identity. Inclusion refers to establishing and maintaining a workplace culture where all employees are valued and respected, feel a sense of belonging and have equal opportunity to contribute to their full potential. This involves leveraging the diversity of individuals to create a fair, healthy, and high-performing organization. An inclusive environment ensures everyone has equal access to resources and opportunities.

Private Market solutions drive capital toward opportunities that not only generate impact but also help create impact through control of the investments. The myth that Responsible Investing leads to lower performance has been dispelled by private market data, which has proven that impact investing generates both social and environmental progress while delivering PE-like returns.

- **Private equity (PE, VC and Growth):** Impact-oriented strategies that invest in companies where financial returns are directly tied to social or environmental impact, and where returns are not sacrificed for impact. Impact must be intentional, additional, and measurable.
- **Private real estate:** Impact-oriented real estate strategies that aim to address social inequality through investments such as private real estate funds focused on workforce and affordable housing.

Chart 6.1: Cross Country Energy Intensity of GDP and CO2 Intensity of Energy

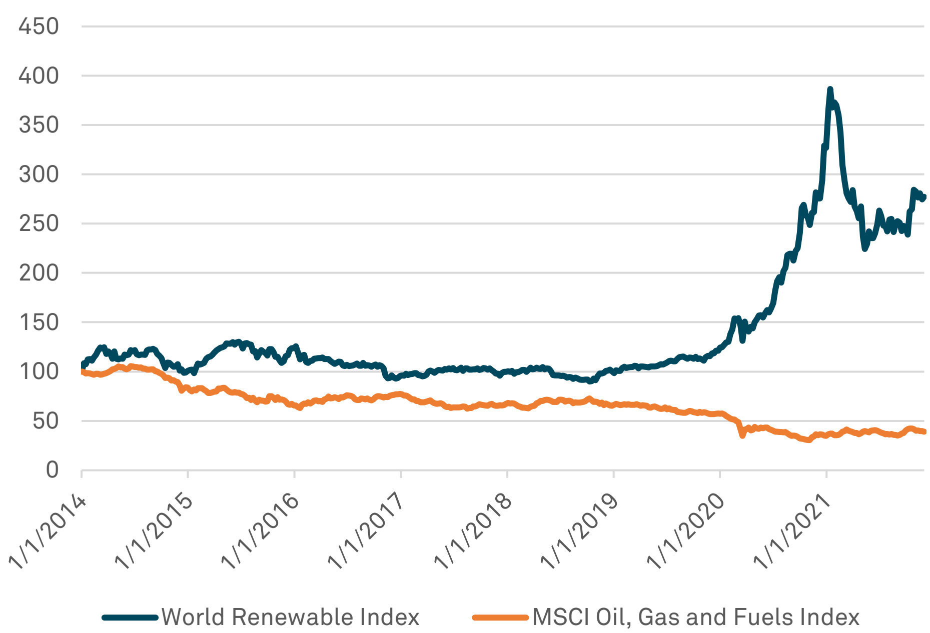


Takeaway

The climate challenge ahead is not yet fully realized by investors.

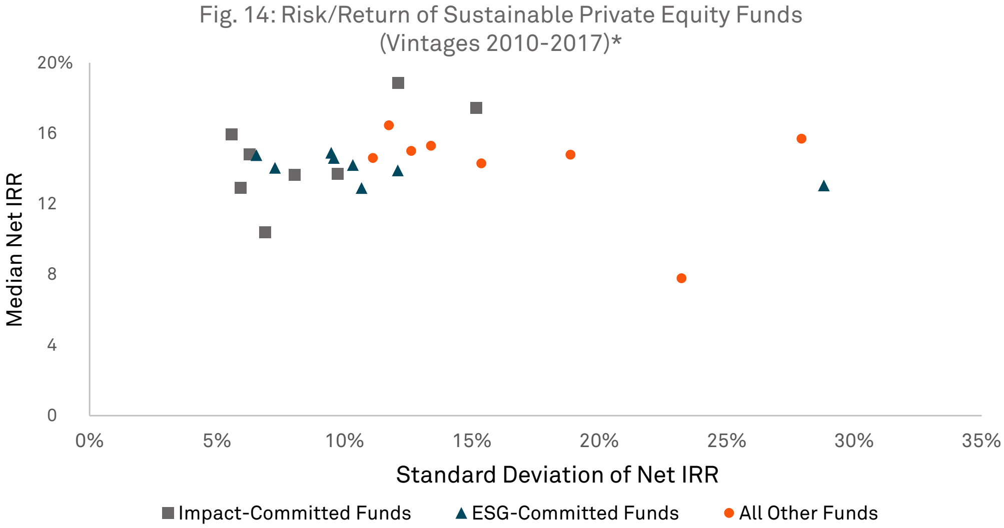
Source: Refinitiv Datastream. Data as of March 2019.

Chart 6.2: Global Renewables Versus Oil & Gas – Equity Index Performance vs MSCI World



Data as of December 1, 2021.

Chart 6.3 Impact and ESG Focused Private Equity Fund Return



Takeaway

Impact and ESG private equity strategies performed similarly or outperformed traditional PE strategies.

Source: Preqin.
Data as of September 30, 2020.

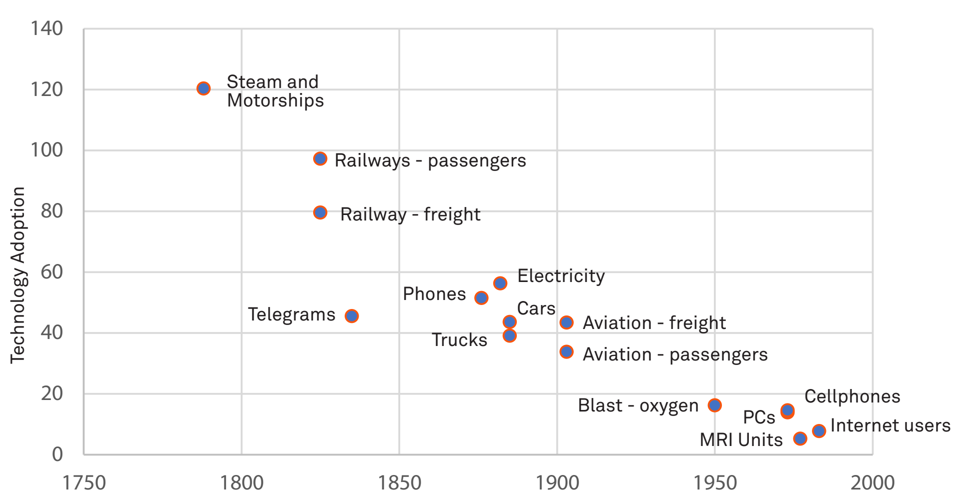
7. Innovation

The pandemic has accelerated trends in technology innovation and resulting shifts in consumer behavior are creating clear winners in the marketplace. Consumers are adopting new technologies faster, making investments in technology highly attractive to investors. The Covid-19 pandemic has accelerated some of these trends, with sectors such as e-commerce undergoing rapid evolution.

Venture capital and tech/healthcare focused long/short equity hedge funds are positioned to take advantage of these trends by identifying winners and losers, early adopters, and businesses that are able to pivot quickly in response to evolving consumer needs. The speed of innovation in healthcare has been revolutionary, paving the way for a radical overhaul of the sector. As the pandemic has further exposed inequalities in accessibility to healthcare and education, technological innovation could be the solution.

- **Venture capital & growth equity:** Invests in businesses that are innovators or early adaptors of technological advancements.
- **Long/short equity hedge funds (Tech & Healthcare):** Identifies companies that are positioned to profit from technological advancements.

Chart 7.1: Technology Adoption Over Time

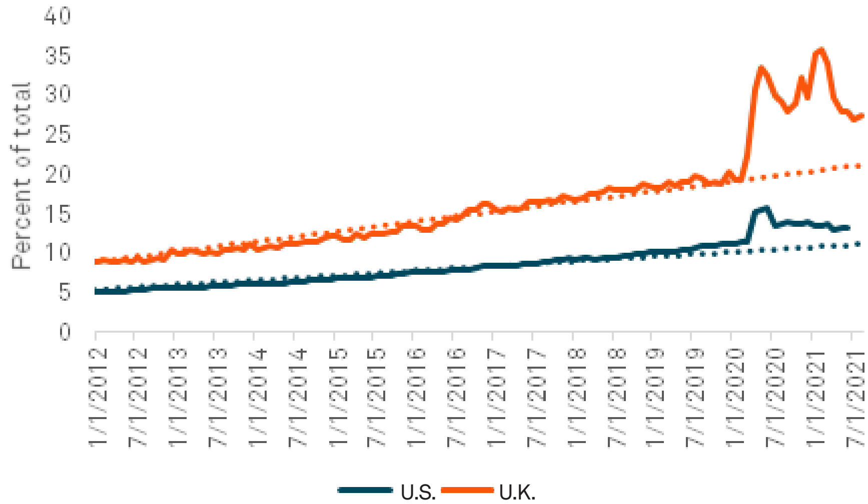


Takeaway

The lag in technology adoption has decreased significantly over time. Investment in new technology can provide benefits.

Source: Comin, D and Hobijn, B (2010), 'An exploration of technology diffusion', American Economic Review, Vol. 100, No. 5, pp2031-59. 2010 report.

Chart 7.2: U.S. and U.K. Online Retail Sales as Share of Total (dotted lines show 2012-2019 trend)

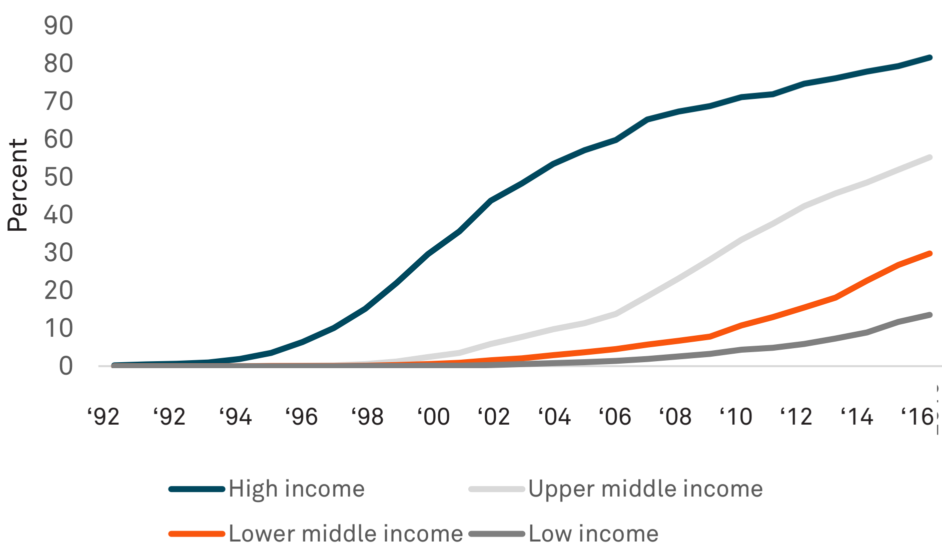


Takeaway

Covid-19 has accelerated the adoption of innovation and opened new possibilities.

Source: Macrobond and BNY Mellon Global Economics and Investment Analysis Group. Data as of August 1, 2021.

Chart 7.3: Share of the Population Using the Internet



Takeaway

Even in mature technologies, such as the Internet, there is still room for growth.

Source: OurWorldinData.
Data as of 2017.Link to chart : https://ourworldindata.org/grapher/share-of-individuals-using-the-internet?tab=chart.
Data as of 2016.

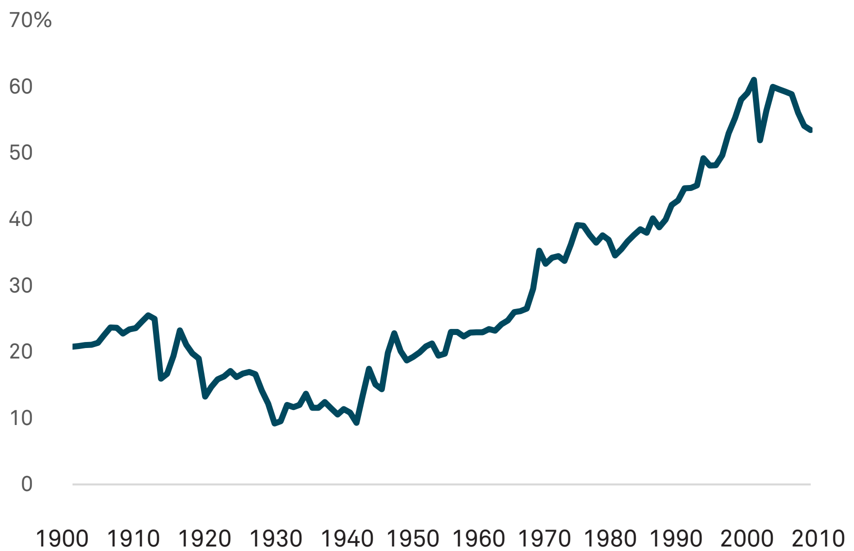
8. Global to Local Shift

Shifts toward domestic consumption and the regionalization of supply chains have been transpiring for some time, further fueled by the Covid-19 pandemic and escalating trade tensions across the world. The world economy has passed the peak of trade openness and economists predict that certain supply chains will shift across borders, creating new investment opportunities. New business models will emerge as a result of these shifts, highlighting the importance of a local presence from an investment perspective.

This will create a clear divide between winners and losers that can be exploited through venture capital investment, which identifies businesses adapting to the change, and private equity (PE), which can help companies adapt.

- Venture capital: Identifies new and emerging business models that are adapting to secular shifts.
- PE buyout and growth equity: Acquires and turns businesses around to help them adjust to a shifting landscape in trade and supply chains.

Chart 8.1: Sum of World Exports and Imports (% World GDP)

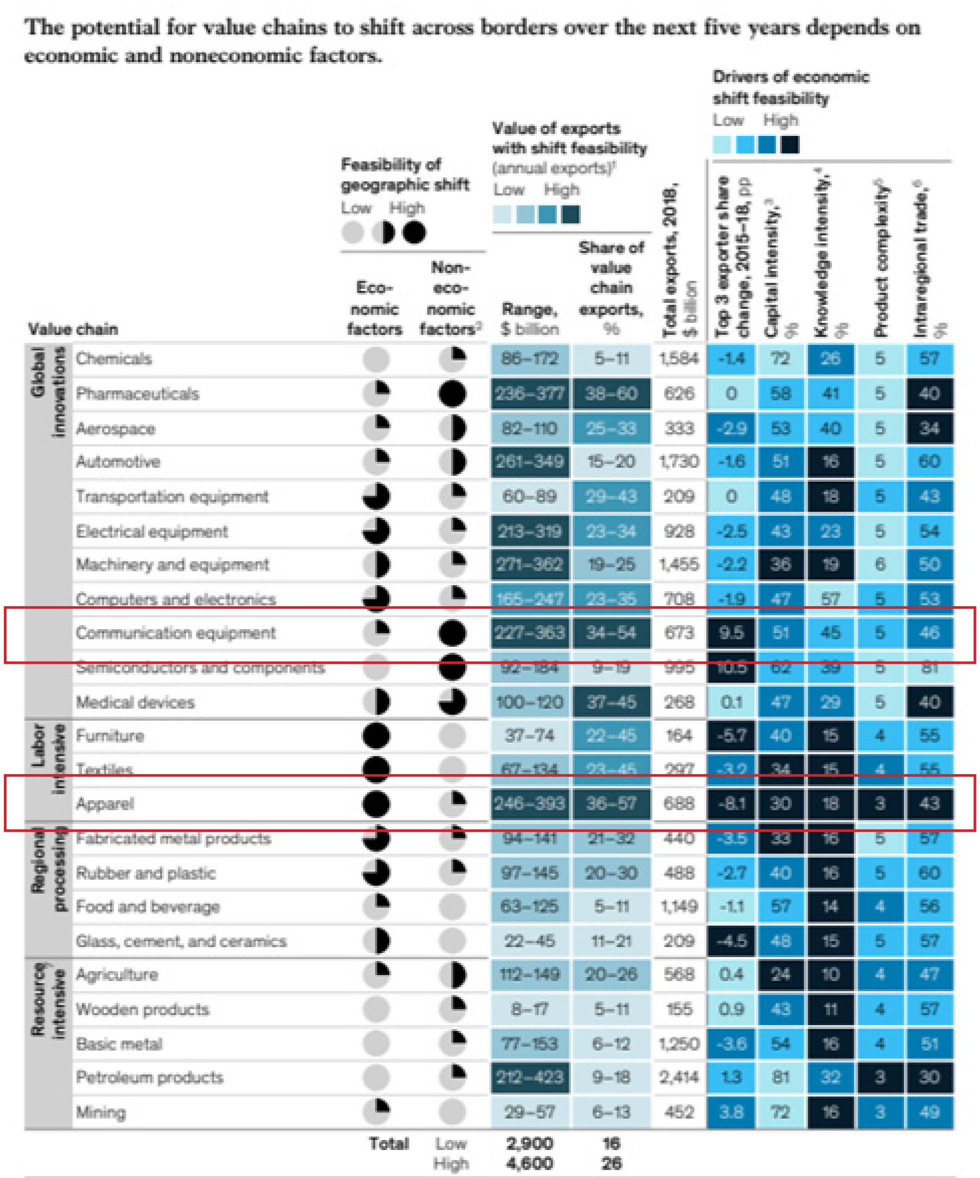


Takeaway

Trade openness and globalization appear to have peaked.

Source: OurWorldinData.
Data as of December 2017.

Chart 8.2: Cross Border Value Chain Shifts



The potential for value chains to shift across borders over the next five years depends on economic and noneconomic factors.

Feasibility of geographic shift (Low ○ ◑ ● High); Value of exports with shift feasibility (annual exports)[1] (Low – High); Drivers of economic shift feasibility (Low – High)

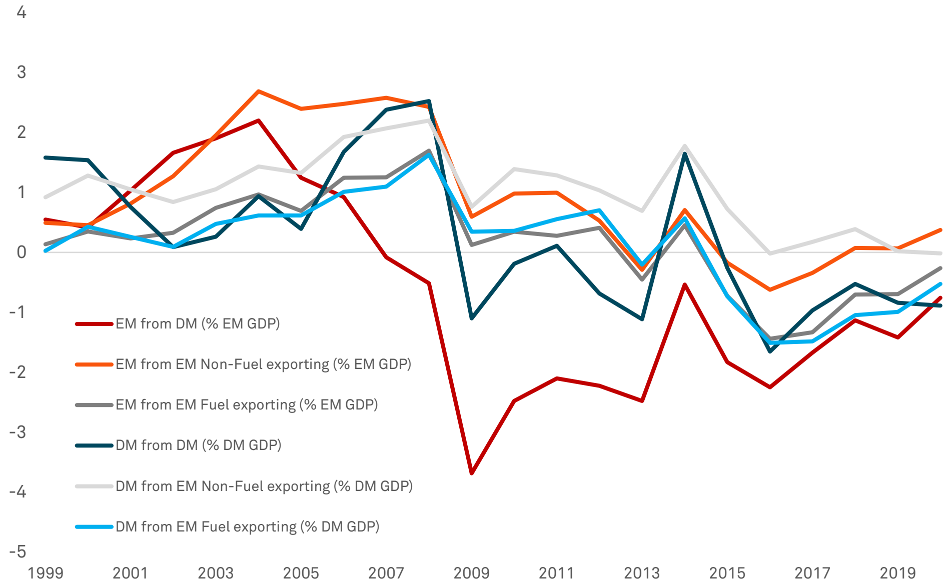
	Value chain	Eco-nomic factors	Non-eco-nomic factors[2]	Range, $ billion	Share of value chain exports, %	Total exports, 2018, $ billion	Top 3 exporter share change, 2015–18, pp	Capital intensity,[3] %	Knowledge intensity,[4] %	Product complexity[5]	Intraregional trade,[6] %
Global innovations	Chemicals	○	◔	86–172	5–11	1,584	-1.4	72	26	5	57
	Pharmaceuticals	◔	●	236–377	38–60	626	0	58	41	5	40
	Aerospace	◔	◑	82–110	25–33	333	-2.9	53	40	5	34
	Automotive	◔	◑	261–349	15–20	1,730	-1.6	51	16	5	60
	Transportation equipment	◕	◔	60–89	29–43	209	0	48	18	5	43
	Electrical equipment	◕	◔	213–319	23–34	928	-2.5	43	23	5	54
	Machinery and equipment	◑	◔	271–362	19–25	1,455	-2.2	36	19	6	50
	Computers and electronics	◕	◔	165–247	23–35	708	-1.9	47	57	5	53
	Communication equipment	◔	●	227–363	34–54	673	9.5	51	45	5	46
	Semiconductors and components	○	●	92–184	9–19	995	10.5	62	39	5	81
	Medical devices	◑	◕	100–120	37–45	268	0.1	47	29	5	40
Labor intensive	Furniture	●	○	37–74	22–45	164	-5.7	40	15	4	55
	Textiles	●	○	67–134	23–45	297	-3.2	34	15	4	55
	Apparel	●	◔	246–393	36–57	688	-8.1	30	18	3	43
Regional processing	Fabricated metal products	◕	◔	94–141	21–32	440	-3.5	33	16	5	57
	Rubber and plastic	◕	◔	97–145	20–30	488	-2.7	40	16	5	60
	Food and beverage	◔	○	63–125	5–11	1,149	-1.1	57	14	4	56
	Glass, cement, and ceramics	◑	○	22–45	11–21	209	-4.5	48	15	5	57
Resource intensive	Agriculture	◔	◑	112–149	20–26	568	0.4	24	10	4	47
	Wooden products	○	◔	8–17	5–11	155	0.9	43	11	4	57
	Basic metal	○	◔	77–153	6–12	1,250	-3.6	54	16	4	51
	Petroleum products	○	◔	212–423	9–18	2,414	1.3	81	32	3	30
	Mining	◔	○	29–57	6–13	452	3.8	72	16	3	49
		Total	Low	2,900	16						
			High	4,600	26						

Takeaway

There is potential for the value chains of several industries to shift across borders over the next few years, fueled by the idea of increasing domestic production and bolstering the resilience of advanced economies. The interconnected nature of global chains, however, may limit the extent of large scale and broad changes. This exhibit estimates what proportion of production for export has the potential to move to new countries as a result of economic factors or non-economic factors, such as government policy. Certain sectors, such as Apparel and Communication equipment, are more likely to reposition value chains as a result of both economic and non-economic factors.

Source: McKinsey
Data as of August 2020.

Chart 8.3: Regional Goods Trade

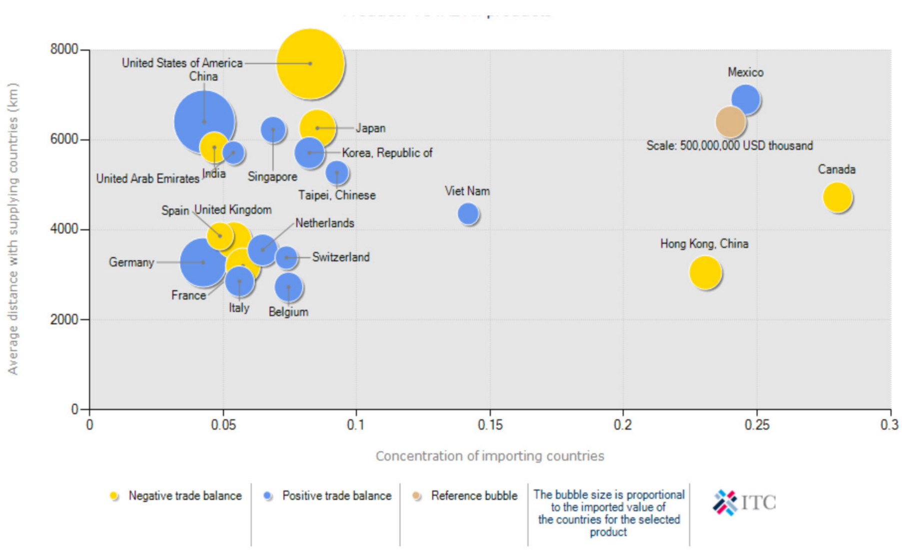


Takeaway

The aggregate slowdown in trade masks regional shifts. Developed markets (DMs) and Fuel exporting Emerging Markets (EMs) (e.g. oil producing countries) are exporting less, non-Fuel exporting EMs more.

Source: Refinitiv Datastream and BNY Mellon Global Economics and Investment Analysis Group.
Data as of June 30, 2020.

Chart 8.4: Concentration of Importing Countries and Average Distance with their Supplying Countries



Takeaway

Some countries appear more susceptible to potential shifts of trade and production from global to local.

Source: ITC.
Data as of 2020.

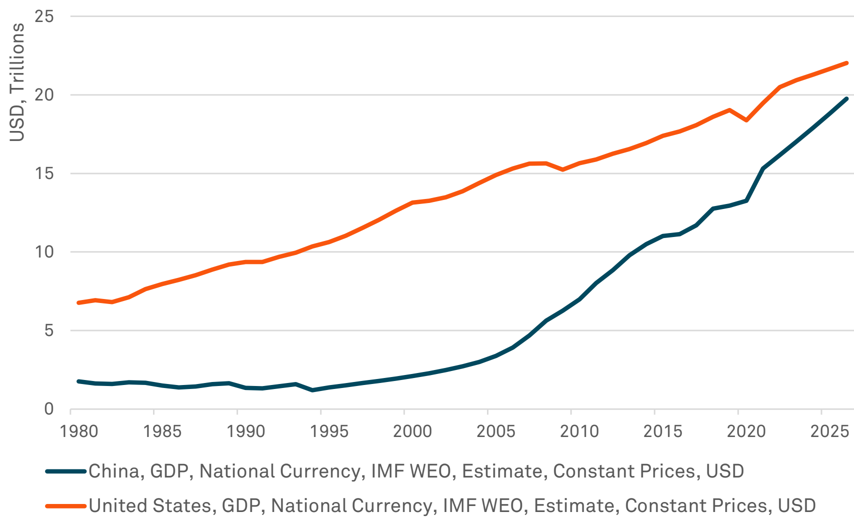
9. The New Geopolitical Equilibrium

The role of state and government vs individualistic culture will continue to shape the geopolitical landscape in a post-pandemic world. Projections (illustrated in the following charts) show that China is well on its way to economic parity with the U.S. and is already the leading power in a number of key industries. Input-output linkages point to ever more interrelated technology, including the U.S. technology sector's increased dependence on imports from Chinese producers.

What winners and losers are resulting from this? Private market and hedge fund strategies are well positioned to take advantage of these long-term structural shifts in the geopolitical arena.

- **Venture capital & growth equity:** Invests in innovative early-stage and growth-stage businesses that will benefit from structural shifts in the geopolitical landscape.
- **Long/short equity hedge funds:** Identifies companies positioned to adapt to geopolitical shifts, and bets against those that are not well positioned.
- **Discretionary macro hedge funds:** Liquid strategies across all asset classes and investment types that aim to profit from market swings caused by geopolitical events.

Chart 9.1: U.S. and China Real GDP (in USD), with IMF Projections to 2026

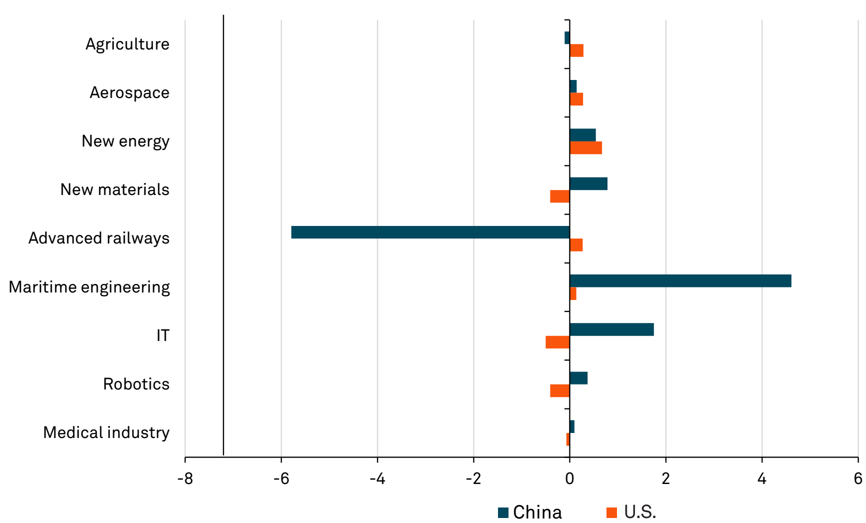


Takeaway

There is still some time until China reaches economic parity with the U.S., but projections show this may occur sooner than anticipated.

Source: IMF.
Data as of October 2021.

Chart 9.2: Change in China and U.S. Market Share in Made in China Industries, Percent, 2017-2019

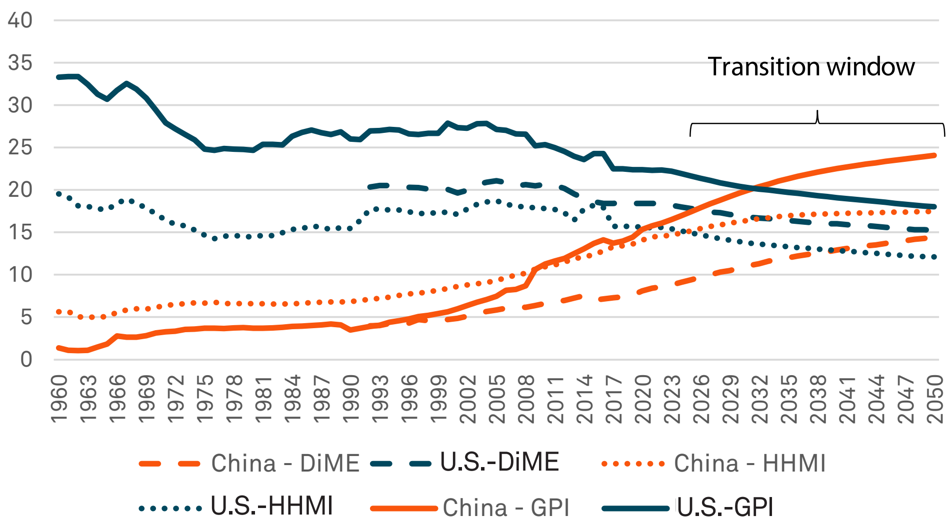


Takeaway

Under the surface, China is already the leading power in a number of key strategic industries.

Source: Fathon Consulting.
Data as of 2019.

Chart 9.3: Relative Power of China and the United States, History and Forecast

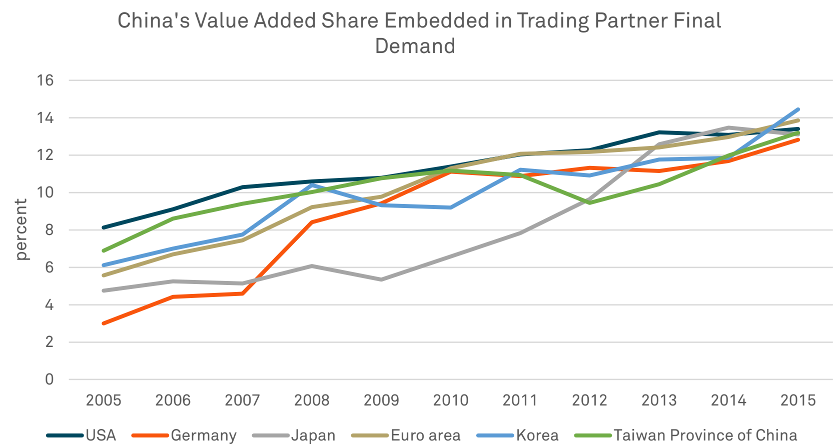


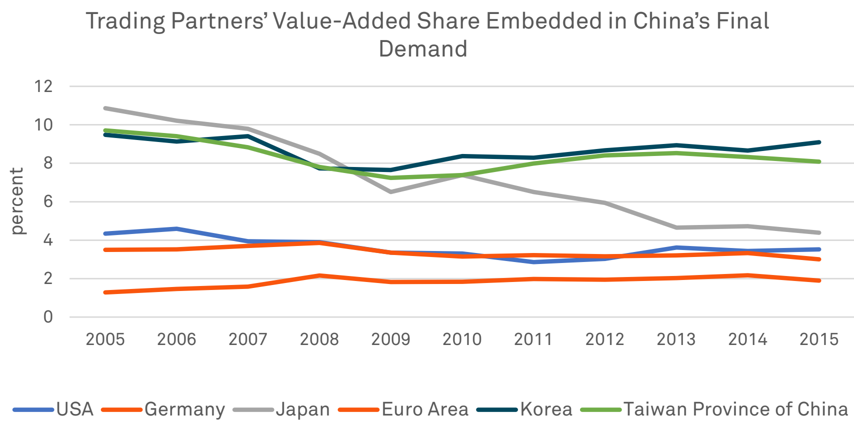
Takeaway

Wider measures of power that account for broader factors indicate that China might overcome the U.S. over the coming decade.

The chart presents the relative power scores for the U.S. and China across the HHI, HHMI, and GPI. These indices are constructed based on variables attempting to capture the different dimensions of power: military, demographic, economic, technological, and soft - proxied by measures of international interactions. Within the indices presented here, this transition happens earliest in the HHMI (2024) and latest in the GPI (2032). The HHI falls just after HHMI at 2025. The GPI measures relative power from 1816 to 1960 using solely material capabilities (military spending, nuclear weapons, iron and steel production, and energy consumption). Source: Pardee Center for International Futures. **DiME** –measures national power as a function of Diplomatic, Informational, Military and Economic capacity. **HHI** - Hillebrand-Herman Index (HHI) is a historical measure of relative national power as a function of Demographics, Economics, Technology, and Military. **HHMI** - Hillebrand-Herman-Moyer Index (HHMI), a historical measure of relative national power which forecasts the power capabilities across Diplomacy, Demographics, Economics, Military and Technology. **GPI** – Global Power Index –measures nation's relative power across military, economic, technological, political, and demographic capacity of nations.

9.4: Tech Hardware Supply Chains (Percent)





Takeaway

Input-output linkages point to ever more interrelated technology, including the US technology sector's increasing dependence on imports of value added from Chinese producers.

Source: IMF.
Data as of October 2019.

Moving into 2022 and beyond

We believe that the cyclical and secular investment themes presented in this paper will be of increasing importance in 2022 and the years beyond. As outlined in our 2022 Capital Market Assumptions, long-term return expectations for traditional assets remain muted. Alternative investment solutions may offer an opportunity to increase portfolio returns by taking advantage of the remarkable post-pandemic economic evolution in a targeted way through public and private markets.

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