THE CURRENT

Lazard Perspectives on the Forces Shaping Today's Markets

LAZARD
ASSET MANAGEMENT

Change is the currency of financial markets. But lately, change feels like it's coming faster and deeper than it has in quite some time. We have identified four themes that we believe will be key to navigating choppy markets in the coming months.

Even seasoned investors may be forgiven for feeling unmoored of late. After more than a decade of low interest rates and low inflation around the globe, prices are soaring, rates are rising in an effort to tame them, and supply chains are disrupted. Perhaps even worse, the root causes of these circumstances have an almost biblical quality: plague, for starters, followed more recently by war.

We listen to our clients closely and have heard over and over again in recent months that they need a navigable path to shore in the face of such profound changes.

We take those concerns very seriously, and offer this inaugural issue of "The Current" as a dynamic assessment of the complex issues facing investors today. We've identified four themes that run through nearly every investment conversation we have and divided them into subthemes to explore them in more depth. We've tapped into insights from around the firm, and our authors bring a variety of perspectives to the market issues we've identified. When their thinking diverges, we don't shy away from our differences. In our view, a healthy debate can only increase the quality of our reasoning.

Markets are constantly evolving, and we are committed to providing our partners a window into the best thinking from around the firm on the key topics that will inform investment decisions not just today or tomorrow, but weeks and months and years from now. Our deep fundamental research capabilities provide us unique insights on world events, market trends, and macroeconomic conditions. We are very pleased to share some of those insights with you, as well as concrete investment opportunities that can help you capitalize on the ideas.

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The Great Rotation

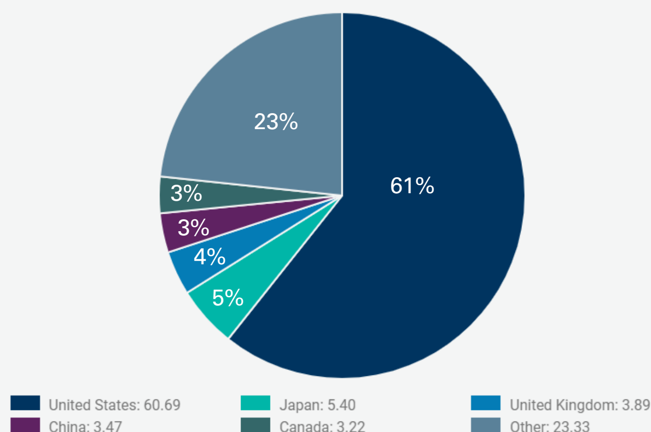
Decade-Long Norms are Shifting Fast

Since the onset of COVID-19, investors have wondered aloud when the world will “return to normal.” In some sense, this is a question about the basic ways people live, interact, and consume, but it also relates to a question that arose well before most people knew what a coronavirus was: How long can trends that have lasted more than a decade continue?

The “normal” many people are looking back on began in response to the financial crisis 14 years ago, when major central banks embarked on unprecedented, coordinated monetary policy, including historically low interest rates. Slow global growth and low inflation in the years after the crisis gave rise to the era of “lower for longer” when policy rates in developed economies remained near zero.

In the low-rate regime, growth companies dominated the equity markets, outperforming value almost every year. US growth stocks, in particular, stood out. By the end of 2021, US equities comprised 61% of the MSCI All Country World Index (Exhibit 1.0.1). Investors around the world, then—not just US investors—are likely to have high exposure to US growth shares in one way or another.

Exhibit 1.0.1
MSCI All Country World Index by Country Weight



As of 29 April 2022
Source: MSCI

For the bond market, the era of low rates meant an almost never-ending search for yield. A new universe of negative-yielding bonds kept expanding, especially in Europe and Japan, peaking at more than $18 trillion in 2020. This

environment drove many investors to corporate and emerging markets bonds for higher yields and gave rise to fixed income alternative strategies that aimed for above-market returns.

Central banks tried several times to normalize rates, but crisis mode returned when the pandemic struck, launching yet another round of rate cuts and asset purchase programs; governments followed with massive fiscal stimulus. Such is the normal we are coming from: bookended by global crises, sprinkled with regional ones, like the European debt crisis in 2011, and defined by low rates, low inflation, low volatility, and slow growth.

Is This What a Multiple-Inflection Point Looks Like?

Over the past year, the scene has changed, to say the least. The worst of the pandemic seems to be fading in many developed countries, though new variants cause (and will likely continue to cause) periodic surges. The scene is different in China, where strict lockdowns in adherence to a zero COVID policy threaten both economic activity locally and global supply chains. And while we entered the year with above-trend growth in many developed economies, Russia's invasion of Ukraine has threatened growth levels in Europe, in particular. At the same time, however, the conflict has boosted inflation, which was already very high, particularly in the food and fuel categories (Exhibit 1.0.2). As a result, monetary policy is tightening in much of the world.

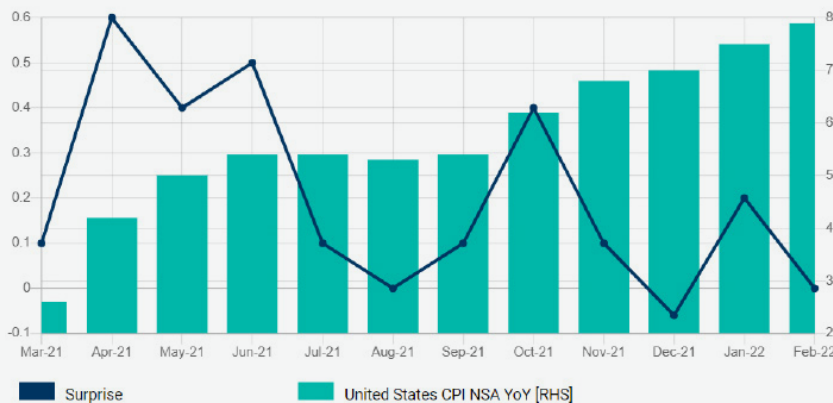
22 out of 54

large economies have raised rates in the last two years.

Exhibit 1.0.2

Inflationary Shocks Broaden and Accelerate

The Shock of War Expands Supply/Demand Mismatches



As of 31 March 2022

This chart illustrates monthly year-on-year changes to consumer price indices (CPI) for the US with associated surprises to consensus estimates at the time of the report.

Source: Lazard, FactSet

Just as central banks ushered in the lower-for-longer era and everything that went with it, they are now announcing its end. Many emerging markets central banks began to raise interest rates last year to fight rising inflation, and the developed markets are starting to follow suit. Of the 54 large economies tracked by the Council on Foreign Relations, some 22 had raised rates since 2020 as of early May 2022. In turn, a rising rate environment has put the spotlight on equity valuations and raised the chances of low or negative returns in many bond sectors this year and next.

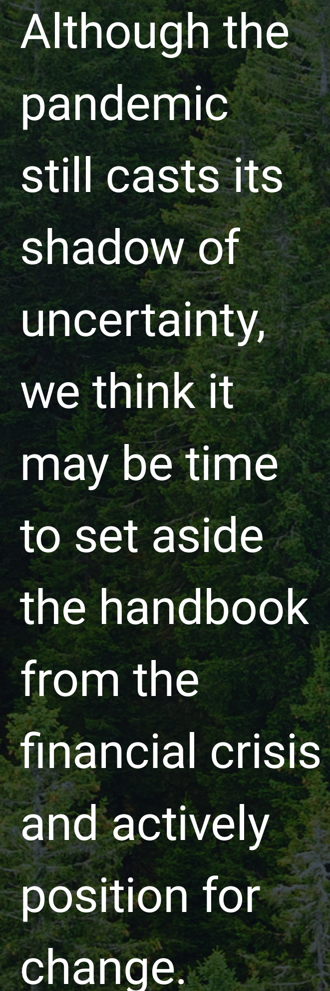
In the equity markets, US stocks have been the outperformers since 2008, led by a small group of high-growth technology companies. However, rising rates historically have tended to hurt growth companies, because, by definition, much of their profit lies in the future, and investors must apply higher discount rates to those future earnings. Higher rates and tighter financial conditions call into question the dominance of certain types of US growth stocks and raise questions about the path forward for the US stock market overall.

Bond investors, meanwhile, face much higher volatility as rates rise. Yields have jumped in anticipation of central bank rate increases, but structural trends are exerting pressure in the other direction as well, especially on longer-term yields, which makes continued volatility likely in the bond markets. That, in turn, will likely limit return potential in traditional fixed income.

Where Are We Going?

Growth, inflation, volatility, and monetary policy are all currently changing course. This suggests to us more than the usual kind of cyclical rotation; rather, we see a high likelihood for regime changes—leading to a set of new conditions that will characterize the years ahead. Although the pandemic still casts its shadow of uncertainty, we think it may be time to set aside the handbook from the financial crisis and actively position for change.

The pieces that follow explain possible changes playing out in the equity and bond markets and ways for investors to prepare for them.



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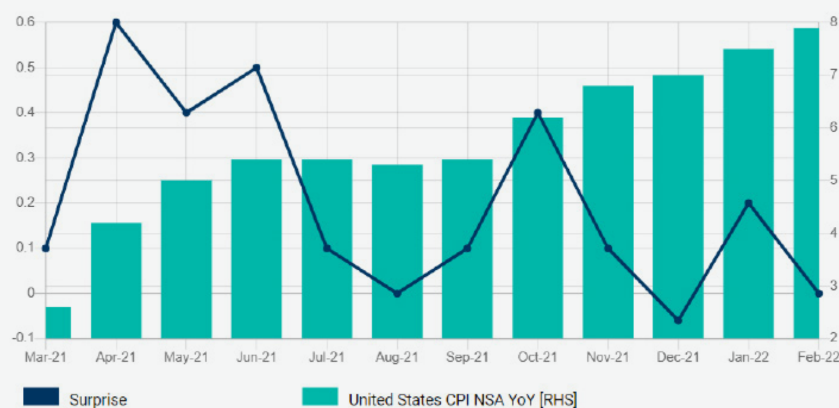
The Collapse of the Momentum Growth Trade

After relentless multi-year outperformance, growth stocks around the world have finally seen sustained and significant underperformance over the last six months. The end of the decade-long bull run for growth had been predicted many times over, but in our view, what finally set the end in motion were the downstream impacts of persistent inflationary pressures.

The Inflation Catalyst

When we roll the clock back 12 months, the predominant narrative in the market was that rising inflationary pressures would ultimately subside in the latter half of 2021 as supply constraints thought to be caused largely by COVID-19 righted themselves. However, that didn't happen. Mismatches between supply and demand persisted, exacerbating inflationary pressures. Since the middle of 2021, inflation readings have often substantially exceeded expectations, while year-on-year inflation prints have still yet to reach a peak (Exhibit 1.1.1).

Exhibit 1.1.1
Inflationary Shocks Broaden and Accelerate



As of 31 March 2022
This chart illustrates monthly year-on-year changes to consumer price indices (CPI) indices for the US with associated surprises to consensus estimates at the time of the report.
Source: Lazard, FactSet

As the end of the year approached, the market began to wake up to the fact that inflation trends were getting worse, not better. That led to dramatic shifts in expectations for interest rate increases over the coming 12–24 months. While interest rates increased across all maturities of government bond yields, the most dramatic moves were at the short end, with yield curves flattening as investors feared that aggressive rate hikes will ultimately lead to a sharp slowdown in growth.

The movement in yields in the lead-up to and advent of the Russian invasion of Ukraine has been of particular note. Yields dropped sharply at first as investors processed the shock of the invasion and instinctively moved into safe-haven assets. However, it was only a matter of weeks before yields reached new highs as oil-and-gas prices soared and investors feared that war would put even more upward pressure on inflation.

Style Shock

Rising rates have traditionally been bad for growth, and the current moment is no exception. Growth stocks are companies that anticipate the majority of their earnings are likely to come well into the future. As such, a key component of how the market values them is based on the assumed risk-free rate, which is used to discount future (and hopefully larger) cash flows. If the risk-free rate increases substantially, so does the discount rate, which in turn has an outsized impact on the value of the equity value of growth companies.

The growth complex began to weaken in November 2021, which was also about when it started to dawn on markets that inflation wasn't subsiding as hoped. Growth has substantially underperformed value ever since, with January in particular going down in the record books as one of the sharpest monthly style rotations of the last few decades. Only once in the last 50 years has the MSCI Value Index outpaced the MSCI Growth Index by more than it did in January 2022. However, there is a good reason for that: Growth stocks were the victim of their own success. The dramatic outperformance of the growth complex was due in large part to central banks gifting markets with more than a decade of zero interest rate policy. Markets became overly enamored of story stocks, or those with a compelling narrative about future growth, total addressable markets, and disruption. In other words, growth couldn't have fallen so far in January 2022 if it had not already risen so high in the years that led up to it.

However, it is instructive to assess the growth vs. value dynamic on an equal-weighted basis as well. The MSCI style indices are created based on market capitalization and thus weighted with significant sector biases. In particular, large technology stocks such as Meta, Alphabet, Amazon, Netflix, and the like are overrepresented. Using an equal-weighted approach, we ranked stocks based on three growth metrics: sales growth, backward-looking earnings growth, and forward-looking earnings growth. Even when one strips out the overwhelming size of the big tech companies, it's very clear how the downturn in high-growth stocks unfolded from November and accelerated come the turn of the year (Exhibit 1.1.2).

However, not all growth stocks are created equal, and some pockets of growth have performed significantly worse than others during the downturn. The difference between the stocks that held their value and those that fell the farthest? Quality. Digging into the details of high-growth companies reveals a plethora of fundamentally weak operators, offering up only losses today for investors with the promise of "jam" (or profits)

Exhibit 1.1.2

Sustained Growth Sell-Off Began in November 2021

Index (100=30 September 2020)

As of 31 March 2022

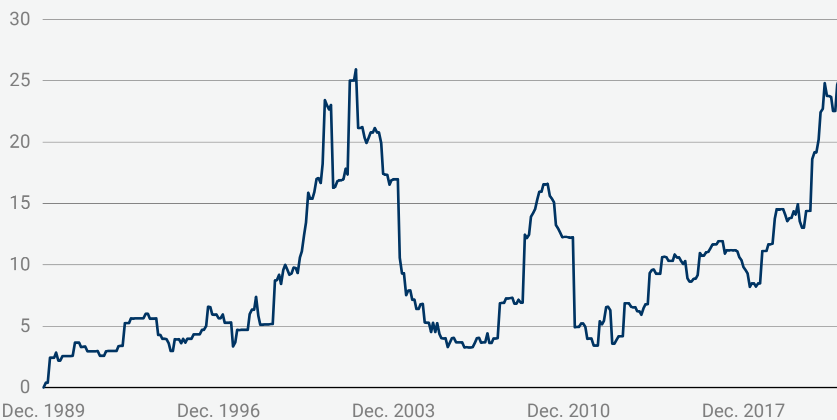
This chart reflects the performance of high-growth stocks versus the equal-weighted market return, daily, indexed to 30 September 2020. High-growth stocks are the top 20% of stocks ranked according to an equal-weighted combination of 5-year sales growth, 3-year backward-looking earnings growth, and 3-year forward-looking earnings growth.

Source: Lazard, FactSet, S&P Global BMI

Exhibit 1.1.3

Fundamentals for Growth Stocks Remain Weak

High Sales Growth Stocks with Negative Earnings (%)



As of 31 March 2022

This chart reflects the percentage of companies in the top quintile of the Global S&P PMI universe, as ranked by 5 years sales growth, that have negative earnings.

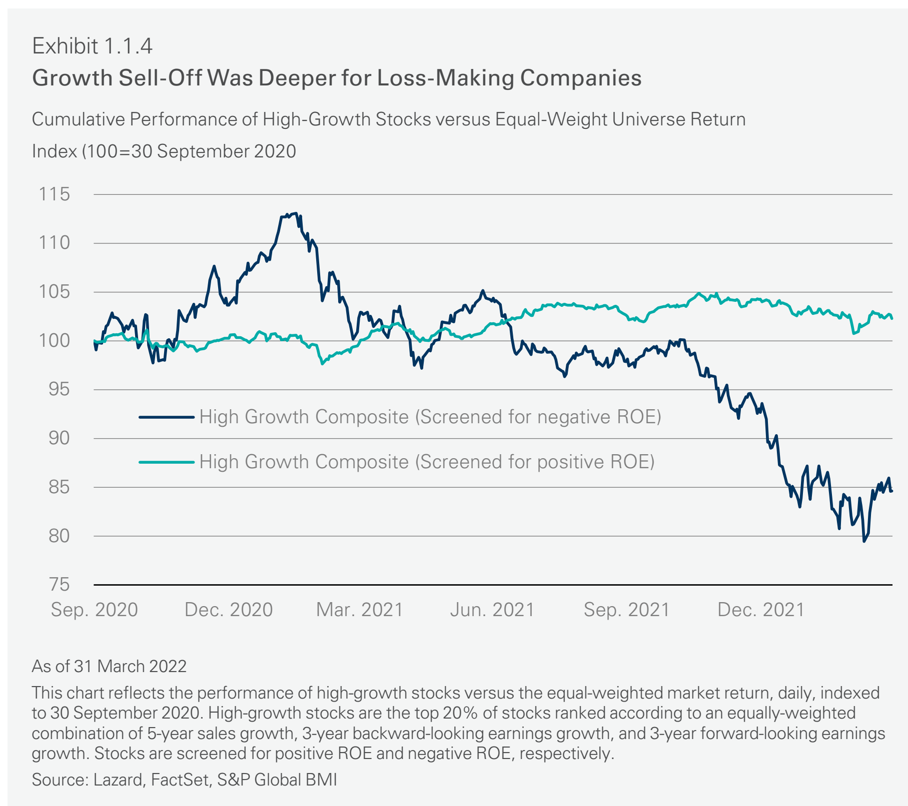
Source: Lazard, FactSet, S&P Global BMI

tomorrow (Exhibit 1.1.3). As investors grew nervous about higher discount rates eating into future earnings, however, tomorrow's profits looked significantly less appealing than today's.

We can tease out this quality distinction in several different ways. First, we can simply compare the performance of growth stocks with a positive return on equity and those with a negative return on equity. It is clear that high-growth stocks with a positive return on equity have generally performed significantly better than negative ROE stocks since September 2020, well before the growth complex as a whole started to falter (Exhibit 1.1.4). We interpret this to mean that the market finally lost patience with a growing number of companies that simply failed to, as Jerry Maguire once demanded, show investors the money.

Exhibit 1.1.4

Growth Sell-Off Was Deeper for Loss-Making Companies



As of 31 March 2022

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Source: Lazard, FactSet, S&P Global BMI

But it's not just how the financial statements look at a given point in time, it's how they are changing. In a market that has lost patience, investors want to see forward momentum—a sign that at least a company is getting closer to generating free cash flow. When we traced this variable, the distinction was both present and quite stark (Exhibit 1.1.5). In this chart, we distinguish between a positive change in free cash flow, even if overall levels remain negative, and a deterioration in year-on-year free cash flow. The bottom line is that investors have been discerning enough to spare businesses that are financially improving.

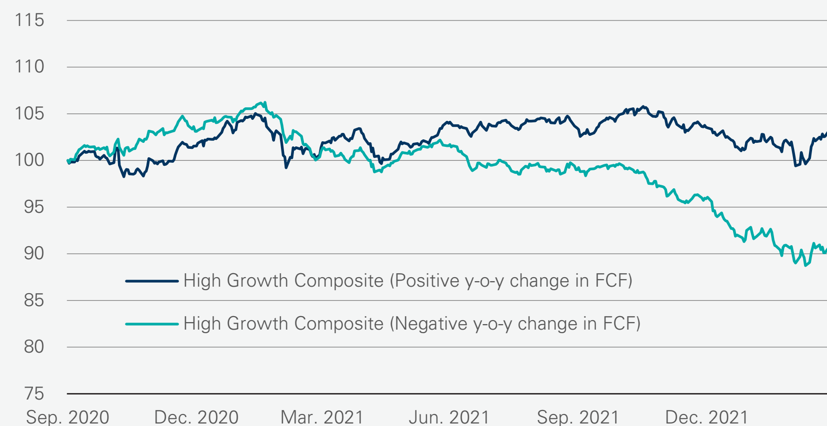
Lastly, investors have become much more discerning about certainty and how much they can count on future returns for high-growth business. If analysts are more closely aligned on the future outlook for a given growth business, then the market has been far less punishing. If analysts,

Exhibit 1.1.5

Growth Sell-Off Was Deeper for Companies with Weakening Cash Flow

Cumulative Performance of High-Growth Stocks versus Equal-Weight Universe Return

Index (100=30 September 2020)



As of 31 March 2022

This chart reflects the performance of high-growth stocks versus the equally- weighted market return, daily, indexed to 30 September 2020. High-growth stocks are the top 20% of stocks ranked according to an equally-weighted combination of 5-year sales growth, 3-year backward-looking earnings growth, and 3-year forward-looking earnings growth. Stocks are screened for positive ROE and negative ROE, respectively.

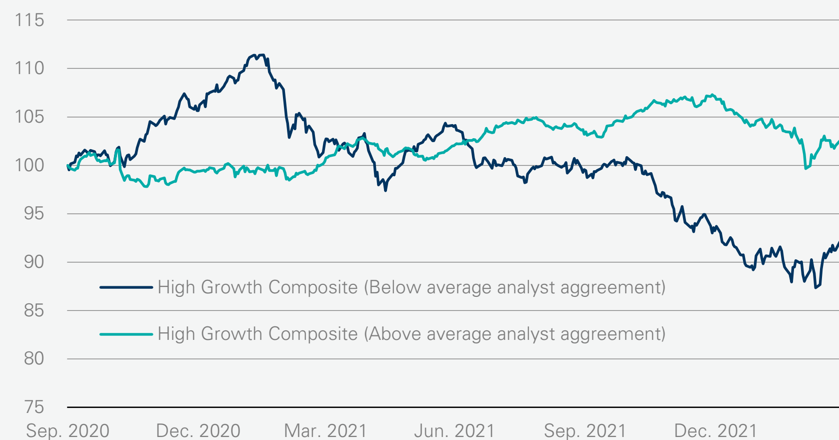
Source: Lazard, FactSet, S&P Global BMI

Exhibit 1.1.6

Growth Sell-Off Was Deeper for Stocks with Perception of More Uncertain Future

Cumulative Performance Of High-Growth Stocks Versus Equal Weight Universe Return

Index (100=30 September 2020)



As of 31 March 2022

This chart reflects the performance of high-growth stocks versus the equally-weighted market return, daily, indexed to 30 September 2020. High-growth stocks are the top 20% of stocks ranked according to an equally-weighted combination of 5-year sales growth, 3-year backward-looking earnings growth, and 3-year forward-looking earnings growth. Stocks are screened for above- and below-average analyst EPS estimate dispersion.

Source: Lazard, FactSet, S&P Global BMI

collectively, simply have no idea what the future holds for a given business, investors have beat a hasty retreat. We can proxy this predictability, or uncertainty, by distinguishing stocks by the dispersion of analysts' earnings per share (EPS) forecasts. The greater the dispersion, the greater the uncertainty for the outlook for a given stock (Exhibit 1.1.6).

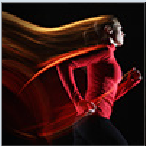
Summary

The growth complex has been exhibiting signs of froth for some time, and we have long believed that an adjustment is overdue, but delayed by an exceptionally long period of exceptionally low interest rates. These low rates have distorted how investors determine the valuation of long-term cash flows, which are highly uncertain. However, it has been interesting to see that the market has drawn some clear distinctions among different types of growth stocks. Those that are profitable, have stronger fundamentals, and enjoy more certainty from the analyst community about the future of their returns have held up significantly better. In short, it seems that the market still values more secure, more sustainable growth. As we go forward into a rising-rate environment amid sustained inflation, we believe that both growth and core investors will be much less impacted by the ongoing and steep underperformance of growth stocks if they focus their search on companies that seem more likely to sustain their growth over a long period of time.

Explore How to Capitalize on This Trend

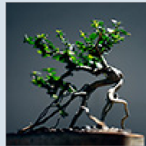
QUALITY

Despite outperforming both value and growth stocks for nearly two decades, quality stocks get much less attention from investors. What's more, our teams believe the market gets the definition of a quality company wrong by undervaluing the importance of sustaining high levels of financial productivity. Our quality-focused strategies place particular emphasis on finding Compounders, or companies whose returns materially exceed their cost of capital year after year, through volatile markets and rallies.



Lazard International Quality Growth

The International Quality Growth strategy invests solely in high quality non-US companies that are able to reinvest a significant portion of their cash flows back into their businesses at similarly attractive rates of return.



Lazard Global Quality Growth

The Global Quality Growth strategy invests solely in high quality companies that are able to reinvest a significant portion of their cash flows back into their businesses at similarly attractive rates of return.

Lazard Global Equity Select

The Lazard Global Equity Select strategy analyzes companies around the world to identify and invest in fundamentally attractive stocks, on and off the beaten path.

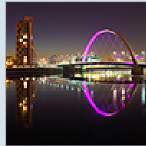
Explore How to Capitalize on This Trend

VALUE

As interest rates rise and the yield curve steepens, value investing has captured investors' attention again. At Lazard, we have a long history of identifying financially sound, attractively priced stocks and a number of ways to capitalize on our expertise.

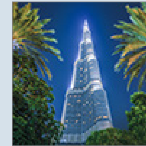
Lazard International Equity Select

Lazard International Equity Select subscribes to a robust relative value investment process, employing bottom-up stock selection in an effort to identify companies with strong financial productivity, as measured by return on equity, that trade at attractive valuations. The strategy typically invests in securities of non-US companies, including those from emerging markets.



Lazard International Equity Advantage

Following a proprietary quantitative core investment approach, the International Equity Advantage portfolio management team seeks to balance exposure to value, growth, sentiment, and quality factors and seeks to ensure sector, country, and market capitalization exposures are similar to those of the benchmark. These measures can help ensure that excess returns are driven by bottom-up stock-picking and that portfolios can potentially be successful without reliance on favorable macroeconomic trends.



Lazard Global Equity Franchise

Our research shows that economic franchises have a history of consistent returns and lower volatility than the market and have historically defended well in periods when the market was down. Lazard Global Equity Franchise looks to invest in these economic franchises, which they consider to be companies that possess a combination of predictable earnings and large competitive advantages.

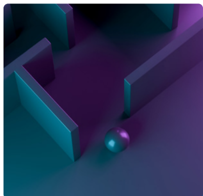
Taking on Volatility: Solutions in Fixed Income

By The Lazard Global Core Fixed Income Team

It may be hard to imagine a more challenging backdrop for fixed income investors: rising inflation, Federal Reserve rate hikes, shutdowns and slowing growth in China—and now the war in Ukraine. This potent combination has ignited volatility and driven returns for broad fixed income market indices into negative territory.

Longer-term structural changes are behind several of the challenges investors are facing, in our view. Layered on top of these, the war in Ukraine has introduced risks that we believe are also unlikely to be short-lived. This suggests to us that volatility is here for a long stay.

While volatility is a source of risk, it can also be a source of opportunity. Rather than shying away from it, fixed income investors can potentially benefit from addressing volatility head on. In this unusual environment, we believe investors may want to move out of a passive mindset and consider investments beyond “plain vanilla” bonds. By being creative, being active, and diversifying globally, investors can find fixed income solutions that may set up portfolios for the longer term with attractive return potential.



Rather than shying away from volatility, fixed income investors can potentially benefit from addressing it head on.

How We Got Here

Even before Russia’s invasion of Ukraine in late February, fixed income investors were contending with several longer-term concerns.

First and foremost, the Fed has embarked on the biggest policy shift in more than a decade—from a highly accommodative stance in a low-inflation environment to tightening financial conditions in a battle against very high and rising inflation, and all after two years of unprecedented stimulus. Fed tightening is likely to shine a spotlight on credit risk and have ripple effects around the world. These would be amplified if the European Central Bank (ECB) follows with rate increases later this year, as many bond investors currently expect.

In anticipation of several Fed rate increases, short-term US Treasury bond yields have risen significantly since late 2021, but other structural forces are likely to exert pressure in the opposite direction. For example, demand for long-term bonds has been strong during the pandemic due to their perceived “safe haven” status and may well increase. We expect to see strong demand from overseas

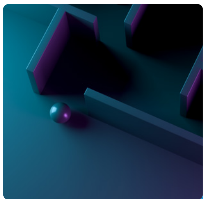
102.4%

Funding level of US corporate pension plans at the end of February

Source: Milliman 100 Pension Funding Index

investors seeking higher yields than those in their home markets; and many US corporate pension funds, which have recently become fully funded thanks to rising discount rates, are returning to longer-term bonds after years of overweighting equities to maximize returns. Also acting as a potential cap on long-term Treasury yields, the huge debt loads carried by the US government at about 130% of GDP—which results from massive fiscal stimulus during the COVID-19 pandemic—and the private sector at 235% would likely become unsustainable at much higher interest rates.

A risk is that inflation may remain relatively high due to structural changes stemming from the pandemic, adding the prospect of below-average returns in many fixed income sectors to the prospect of above-average volatility. Although we expect US inflation to moderate as supply and demand become better balanced in the second half of 2022, we believe it is unlikely to fall back to the Fed's 2% target. There are several reasons for this: increased onshoring in response to supply chain issues, upward wage pressure due to labor shortages, and strong US home prices. Combining these factors, we forecast that over the next two years US inflation may be structurally higher than 2%, perhaps by up to 100 basis points (bps). Also, the journey to lower inflation may not be quick. After inflation drops to around 5%, we expect its decline will slow because core inflation, which excludes food and energy costs, has been a driver of inflation recently and does not typically move as fast as headline inflation.



The journey to lower inflation may not be quick. After US inflation drops to around 5%, we expect its decline will slow.

The war in Ukraine has added fuel to near-term inflation and complexity to the inflation outlook. With sanctions on Russia and limited crop output from Ukraine, commodity prices and price volatility have soared from the levels of late February and appear likely to remain elevated for as long as the conflict lasts.

Taking a Different Approach in Fixed Income

Despite the challenges, we believe fixed income is still attractive as ballast, or an anchor, in an investment portfolio thanks to its historically low or negative correlations with equities. And many investors need to invest in fixed income to match their liabilities, meet regulatory requirements, or both.

Pushed by these crosscurrents, what can a fixed income investor do?

Get Creative: Hedged and Unhedged Convertible Bonds

By The Lazard Rathmore Team

Global convertible bonds aim to solve for rising rates, low yields, and increased uncertainty. With a low average duration of just over two years and the ability to monetize and benefit from market volatility, convertible bonds can mitigate interest rate risk while offering compelling return potential.

A convertible bond allows investors to "convert" into a certain number of the issuer's shares—essentially, the bond has an embedded call option. One of its unique characteristics is convexity: As part-equity, it has the potential for attractive gains when equity markets rise, and as part-bond, it can drop less than equity markets do when shares fall (Exhibit 1.2.1).

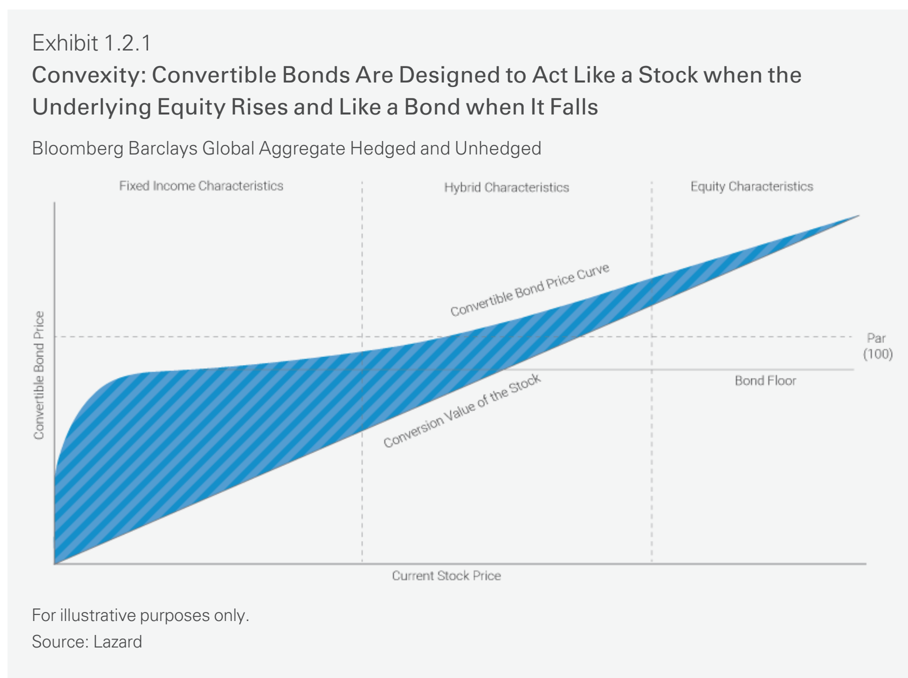


Exhibit 1.2.1
Convexity: Convertible Bonds Are Designed to Act Like a Stock when the Underlying Equity Rises and Like a Bond when It Falls

Bloomberg Barclays Global Aggregate Hedged and Unhedged

For illustrative purposes only.
Source: Lazard

For investors who would rather not bet on market direction at all, a hedged convertible bond strategy can offer a market-neutral alternative. Also known as convertible arbitrage, hedged convertibles have demonstrated a pattern of delivering compelling risk-adjusted returns over varying market cycles and have grown increasingly popular with investors in recent years due to their ability to potentially benefit from market volatility.

Within a convertible arbitrage strategy, typically a long convertible bond position is hedged with a short position in the equity of the same company. Position-level hedges are then actively traded as the equity underlying the convertible rises and falls in order to seek returns from market volatility. Position-level hedges can also serve to reduce the credit risk taken via the long convertible bond position. Thus, a hedged convertible bond strategy can offer investors enhanced return potential, with lower credit and duration risk compared with many traditional fixed income investments.

Go Active: Absolute Return Strategies

By The Lazard Coherence Credit Team

Changes in credit quality typically accompany a changing macro environment. By analyzing balance sheets, earnings, valuations, and credit trends, portfolio managers can aim to anticipate changes in the credit quality of bond issuers and sectors and take long and short credit positions in line with their forecasts. Correctly anticipating moves between investment grade and high yield ratings can be especially rewarding since the yield spread differences can be dramatic.

Absolute return credit strategies select issuers they believe have improving fundamentals and positive rating agency trajectories in sectors with macroeconomic tailwinds for long holdings. They seek the opposite characteristics for portfolio short positions. Thus, absolute return credit strategies can shine when downside risk increases and may be well suited to a rising rate and inflation environment.

Absolute return credit strategies can benefit from not only credit volatility but also increased credit differentiation as central banks raise interest rates and yield curves potentially steepen. Additionally, an absolute return credit strategy hedges substantially all interest rate risk, which aims to protect the portfolio from extended interest rate moves like those we are expecting in the coming months and perhaps years. In this environment, the strategy can complement long-only exposures investors may already have.

As an example, Exhibit 1.2.2 shows the potential opportunity we see in high yield credit moving forward. The spread difference between high yield public issues and private issues is currently trending around the 5-year average (with public credit issues lower due to their greater liquidity); this tells us that credit dispersion in high yield is still low. However, with considerable

Exhibit 1.2.2

Credit Dispersion: Public versus Private High Yield Companies

Category	Number of Public Co. Issuers	% of Public Co.	Number of Private Co. Issuers	% of Private Co.
High Yield	581	55%	473	45%
BB	285	70%	123	30%
B	283	55%	236	45%
CCC	84	33%	167	67%

Category	Public Co.	Private Co.	Spread Gap (Pub-Pri)	5-yr Avg. Difference
High Yield	339 bps	485 bps	-146 bps	-143 bps
BB	270 bps	306 bps	-36 bps	-39 bps
B	393 bps	444 bps	-52 bps	-53 bps
CCC	648 bps	854 bps	-206 bps	-201 bps

As of 20 April 2022
Source: JP Morgan Research

inflation and the Fed planning several rate hikes, we expect that relationship to widen throughout the ratings categories. Taking active positions can potentially capitalize on this opportunity.

Diversify Globally: Emerging Markets Corporate Bonds

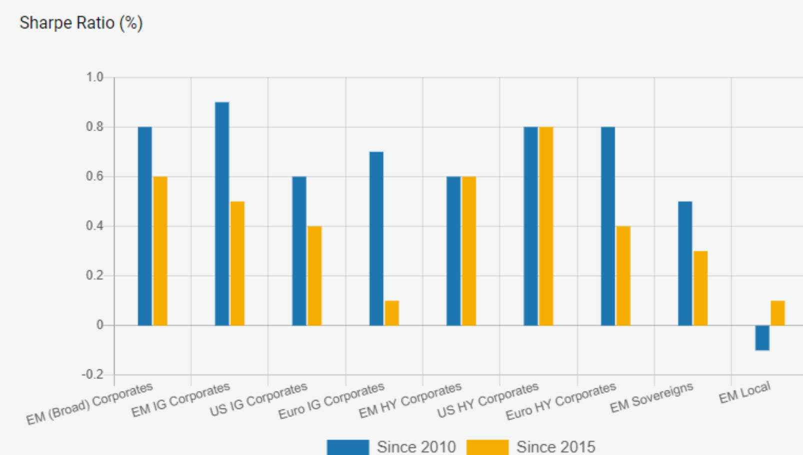
By The Lazard Emerging Markets Debt—Corporate Broad Team

When uncertainty and volatility rise and return potential drops, global diversification can be a solution, and we believe it is particularly timely today. Fundamentals for emerging markets corporate bonds are on solid footing, given companies' low leverage levels, strong liquidity profiles, and the ongoing recovery in corporate earnings. Emerging markets corporate bonds also have very little overlap with global investment grade and high yield corporate indices, which means an allocation can potentially provide true diversification, while also complementing investors' existing credit exposure.

The asset class has grown and matured rapidly over the past decade: Market capitalization has increased threefold to nearly $3 trillion, making the sector nearly 50% larger than developed markets high yield. Yet, we believe it remains underinvested. Dedicated investor assets tracking the main emerging markets corporate bond index total only around $150 billion.

Exhibit 1.2.3
Emerging Markets Corporates: Among the Highest Sharpe Ratios across Credit Markets

Bloomberg Barclays Global Aggregate Hedged and Unhedged



As of 31 March 2021
The performance quoted represents past performance. Past performance does not guarantee future results.
Source: Lazard, JP Morgan

The asset class warrants strong consideration for a strategic allocation based on its size and diversity alone, in our view, and we think several attributes bolster the case. First, emerging markets corporates can generally provide higher yields than other credit segments can without a sacrifice in

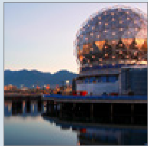
credit quality. Additionally, absolute returns over several market cycles have consistently been in the mid-to-high single digits. In fact, the asset class has not posted a negative return over a 5-year period, based on the JP Morgan Corporate Emerging Markets Bond Index Broad Diversified as of 31 March 2022. Finally, because the duration of emerging markets corporates is generally low—under five years—and their average rating is above investment grade, volatility tends to be low; as a result, emerging markets corporates have delivered some of the strongest risk-adjusted returns of any credit asset class (Exhibit 1.2.3).

Thinking Outside the Beta Box

Seeking to avoid volatility by fleeing or reducing fixed income could mean losing portfolio ballast at a time of long-term change and uncertainty—when it may be most needed.

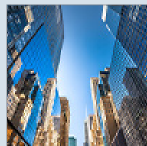
However, we think bond investors may want to consider responding to increased volatility with fixed income strategies that aim to benefit from it, seek to compensate investors for it, or target higher absolute returns.

Explore How to Capitalize on This Trend



Lazard Global Convertibles

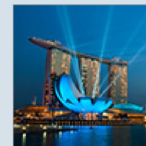
The Lazard Global Convertibles strategy employs a fundamental, bottom-up approach that utilizes rigorous qualitative and quantitative analysis to drive security selection, complemented by a top-down process that guides tactical positioning.



Lazard Coherence

The ability to take positions in long companies that have improving earnings, ESG scores, covenants, and credit ratings while remaining short the opposite will be required, in our view, to capture the rapidly increasing credit dispersion driven by rising interest rates and credit spreads.

The Lazard Coherence Credit strategy is an absolute return strategy that has long and short exposure to corporate issuers. Our unconstrained approach capitalizes on both improving and deteriorating changes in credit valuations and ratings trajectories.

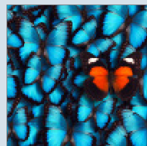


Lazard EMD Corporates

Emerging markets corporates have the potential to offer the highly sought-after combination of attractive yield coupled with low risk of credit impairment. Importantly, the higher spreads in emerging markets are not compensation for greater credit risk.

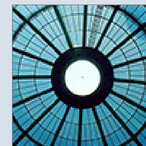
The Lazard Emerging Markets Debt—Corporate Broad strategy seeks to generate attractive risk-adjusted returns over a full market cycle by emphasizing capital preservation and capitalizing on inefficiencies across emerging markets corporate credit markets.

The hybrid nature of convertible securities can provide fixed income investors with the potential to monetize market volatility as an additional source of returns, while also hedging credit risk with the equity underlying the convertible.



Lazard Rathmore

The Lazard Rathmore strategy is a hedged convertibles strategy, best described as convertible arbitrage, where typically a long convertible bond position is hedged with a short stock position in the same company.



Lazard Enhanced Opportunities

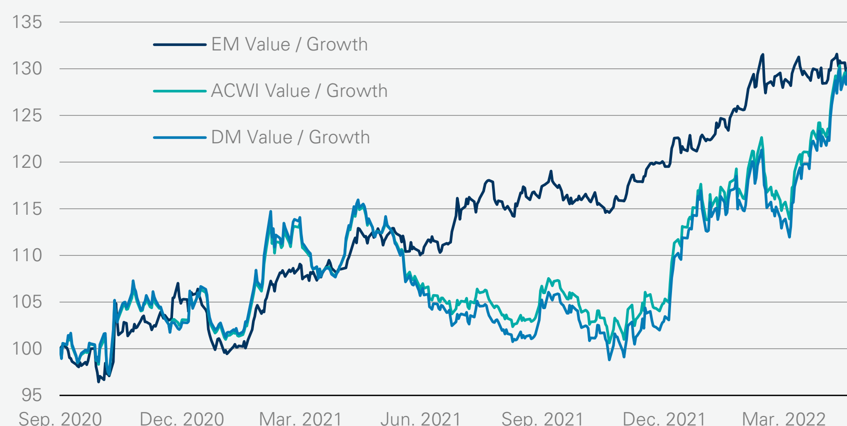
Lazard Enhanced Opportunities is an absolute return, hedged convertible bond strategy. The strategy employs position-level and portfolio-level hedges to reduce the chance for capital impairment, above and beyond that of a long-only convertible bond.

Are Fundamentals Back in Style in Emerging Markets?

By The Emerging Markets Equity Team

After more than a decade of underperforming emerging markets growth stocks, the developing world's value stocks are once again having a moment in the sun. As of early June, the MSCI Emerging Markets Value Index had outperformed the Emerging Markets Growth Index for almost seven consecutive quarters and by a total of some 30% since the fourth quarter of 2020 (Exhibit 1.3.1). The last time this happened, in 2001, value stocks outperformed growth stocks for nine years.

Exhibit 1.3.1
The Global Value Rally



As of 24 May 2022
Source: MSCI

It's difficult to say at this point whether we're on the cusp of another prolonged value cycle, but we are more interested in an apparent change in investor psychology that seems to be driving the current style rotation. Over the last several years, it wasn't only true that growth was beating value; it was that companies with no profits or low profits were beating highly profitable companies that were trading at reasonable valuations, a trend that didn't always make sense from a fundamental investor's perspective. We believe investors are thinking now about valuation, instead of focusing only on promises of future growth, in deciding what names to buy. If we are right, it's quite possible that reasonably priced and successful growth stocks could perform well in the near future and beyond, as could high quality value companies. The only way we see this psychological shift reversing in the immediate future is in the event of one of three fairly unlikely scenarios.

Value Drivers, Then and Now

Before considering whether the apparent turn away from the most expensive stocks is a passing fad or here to stay, it helps to put the present moment in context. As in 2001, the global equities market is coming out of a period of phenomenal performance for growth stocks, particularly those related to technology. During both the dot-com bubble and the post-financial crisis era, worrying about valuations seemed almost quaint. Interest rates and inflation were very low, quantitative easing and stimulus were very high, and the growth potential of the internet and other technologies seemed close to limitless.

While the dot-com bubble imploded on itself in pretty much the textbook way bubbles do, the post-global financial crisis era is a little more complicated. Rising interest rates are a challenge for companies that expect most of their profits to occur in the future, and the surge in demand for software, hardware, gadgets, and more eclectic items like stationary bikes abated as vaccines became widely available and societies around the world reopened. In emerging markets, growth stocks in China face a particular set of regulatory concerns that has made investors more cautious. (See "The Collapse of the Momentum Growth Trade" for a discussion of the global decline of high-momentum growth stocks and "Don't Count China Out Yet" for a discussion of Chinese technology companies.) Looking at it another way, the prices of certain growth stocks that were seen as resilient despite having little or nothing in the way of profit growth were bid up to what seem to be untenable levels, but now that conditions on the ground are changing, so is the market's assessment.

Another difference from the 2000s is the way emerging markets in particular benefited from a singular event in world history: China joined the World Trade Organization in 2001, quickly became the world's manufacturer, and created an extraordinary amount of wealth, which in turn fed a growing consumer economy. As the Chinese population grew wealthier and Chinese companies grew so sophisticated that they gave foreign rivals a run for their money, the country had an almost insatiable demand for natural resources and commodities. The need for concrete, industrial metals, and precious metals created a commodities supercycle during the 2000s and gave an enormous boost to the energy, materials, and industrials sectors that often comprise a large chunk of the value stock universe.

This time around, commodities prices are elevated partly because the Russian invasion of Ukraine significantly altered the global energy market and cut off the supply of wheat, rye, and industrial-grade neon, among other commodities, from both countries. But another piece of the puzzle has been the combination of the cumulative effect of low levels of capital spending by many energy and commodity companies that are trying to meet net-zero emissions standards and higher demand as economic activity has begun to normalize in many places. Expanding capacity for an oil business or a mining operation is not accomplished by the flick of a switch; it involves significant time and investment, meaning that these trends are not likely to reverse course in the short term. Elsewhere in traditional value industries, emerging markets led the world in raising interest rates to combat rising inflation, and

their banks have benefited from higher interest rates for longer. Looking forward, the rise of electric vehicles and batteries could be a potential source of future demand for metals such as lithium, cobalt, and nickel. Likewise, as developed nations and multinational corporations look to meet ambitious net-zero targets, they will need to invest in greener infrastructure projects, which should also create demand for materials.

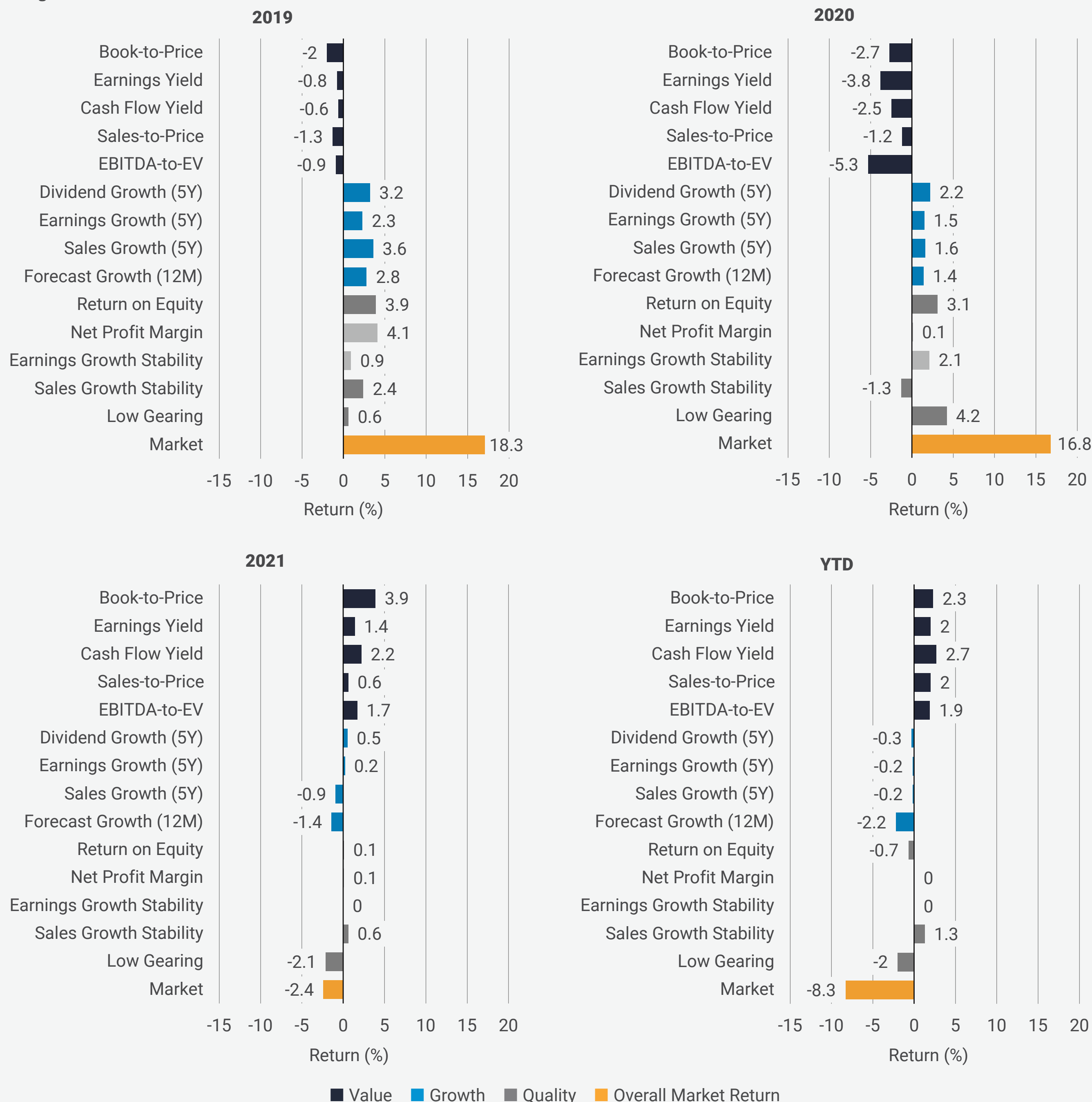
While the current rally stems partly from factors and events driving particular sectors and industries, it is the shift in investor sentiment—a return to the idea that both price and profitability matter—that we see as much more important. Viewing the market on a factor basis, companies with cheap valuations, or traditional value factors, performed poorly prior to 2021, but outperformed other factors, notably growth, and the broader market thereafter. In 2019 and 2020, if you ranked companies from top to bottom in terms of how cheap they were across a number of different measures, the cheapest half would have had negative returns. In 2021 and year-to-date 2022, the opposite has been true (Exhibit 1.3.2). We also note with interest that quality, as measured by factors like high return on equity, net profit margins, and earnings growth stability, has been more mixed year to date. This suggests to us that investors are starting to think about fundamentals again, but that their focus is still on the idea of value rather than relative value, or the search for the best possible quality at the best possible price. We believe that ultimately, investors will start to focus on both.

What Could Turn Investors Price-Agnostic Again

Many market watchers have viewed the current environment with skepticism, wondering whether stocks with attractive valuations can continue to perform well or if they will return to pursuing growth at any price. We think the trend has room to run, partly because investors are not acting fully rationally yet, in our view. Cheap stocks are still performing well, but high quality stocks are more of a mixed bag. We believe that when things settle down and investors start to weigh the price of different stocks with the potential for future growth, careful, nuanced, and price-aware stock-pickers have plenty of opportunity to outperform.

But we also find it helpful to ask what could possibly cause a reversal of the current reversal. In other words, is it possible that investors could begin to ignore fundamentals again? What would have to happen for that to occur? We envision three overlapping scenarios that could create these kinds of market conditions, and we don’t believe any of them are likely to happen anytime soon.

Exhibit 1.3.2
Changes in Factor Performance



As of 24 May 2022
Source: MSCI

Scenario 1: The war in Ukraine grinds to a halt, and Russian exports resume.

If Russian and Ukrainian exports of food and energy can resume, it would go a long way to bringing down global inflation levels, particularly in Europe and emerging markets countries that rely heavily on energy imports (including many Asian and Eastern European countries) and food imports. Slowing inflation would likely curb interest rate hikes and make it possible for investors to rekindle their growth-at-any-cost mentality. However, we think this is unlikely in the short term. First and foremost, the fighting continues unabated, and the odds of a diplomatic resolution at the moment seem remote. Even if somehow the fighting stopped, however, the next question would be whether and how soon Russia was allowed back as a participant in the global economy. If Russia wins by force, this is in our view almost certainly unthinkable in the next three to five years. Europe has committed to cutting off Russian oil if it arrives by ship, though it will still accept it by pipeline. Furthermore, the deterioration in the relationship between the United States and Russia makes it difficult to imagine the United States supporting the country's reentry to the global marketplace, which would be a necessary precondition to ending the restrictive sanctions on the country's exports and finances.

Scenario 2: The Fed signals it's done with hiking… and maybe even starts easing.

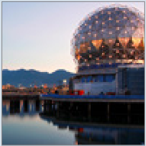
An end to the current hiking cycle, or even the beginning of an easing cycle, would be a very bad thing for reasonably valued stocks and a very good thing for growth stocks. That's particularly true if the American central bank acts because global growth is stalling. Emerging markets stocks, and particularly value stocks, which tend to be more cyclical, are highly sensitive to global growth. As interest rates stabilize or fall, investors will automatically apply a smaller discount rate to growth stocks' future cash flows, which would make them look more attractive again. However, we tend to think that current predictions for global growth may be too dour given our expectations for corporate and government investment spending, a potential peaking of inflation over the next six months, and China's reopening from its most recent coronavirus lockdowns. On the spending front, we think it is particularly important to note that many multinational companies are spending money now to shore up supply chains, automate certain aspects of production, and either onshoring or reshoring production with the goal of reducing future supply chains of the sort that have derailed production and shipping in the pandemic years. Governments, too, are spending. The Indian government, for example, has pledged to increase capital spending by more than a third in the 2023 fiscal year including spending $100 billion on infrastructure projects such as rail networks and rural housing to boost the economy.

Scenario 3: Chinese President Xi Jinping publicly champions internet companies and pledges no more surprise regulation.

The wave of strict regulations handed down on technology and other companies in China over the past two years has alarmed investors. Chinese technology and communications companies are a major (though shrinking) component of both the MSCI Emerging Markets Index and global indices. Should they recover, it could reinforce the sense that growth-at-any-cost isn't a bad approach to the market. The idea that took hold in the pandemic—that expensive technology stocks are (perversely) a "safe" investment regardless of their profitability because consumers are loathe to give up things like streaming video and video games, even in tough times—may prove difficult to dislodge in the market's psyche.

Any one of these scenarios, or one that we cannot yet envision, could happen sometime in the future. But for the time being, it is difficult for us to foresee one of them coming to pass anytime soon. For that reason, we also find it difficult to imagine a sharp reversal to a return to the days of shrugging off fundamentals. In other words, we don't think the return to a preference for attractively valued stocks has run its course. Investors were willing to overlook low profitability and sky-high valuations for a long time, but it defies logic to think that mentality could continue forever. In fact, because investors are so laser-focused on price rather than quality, we see room for fundamental stock selection to create value above index returns.

Explore How to Capitalize on This Trend



Lazard Emerging Markets Equity

After a long period of seeming to ignore fundamental considerations, investors appear interested in measures such as valuations and profits again.

Lazard Emerging Markets Equity is a relative value strategy that looks for well-run, profitable companies that appear mispriced relative to their fundamentals. Valuation dislocations occur for reasons including, but not limited to, misunderstood business models or near-term political and economic concerns.

Lazard Emerging Markets Equity Select

As investors have been paying more attention to valuations and fundamentals, a strategy that concentrates on the highest-conviction ideas in a universe of strong, attractively priced companies may be a compelling option.

Lazard Emerging Markets Equity Select strategy seeks to generate strong relative returns over a long-term time horizon by investing in companies with strong financial productivity at attractive valuations.

Getting Real about Inflation

By The Lazard Real Assets Team

The classic balanced portfolio of equities and bonds has been through difficult terrain lately, thanks to rising inflation, rising interest rates, and falling growth expectations. Assets that many investors hope will play a defensive role in times of uncertainty—namely, bonds—have failed to do so, even as assets that have traditionally performed well in better times—stocks—have suffered. Yet, one asset class has bucked the trend: real assets, which include commodities, infrastructure, and real estate, traditionally thought of as inflation hedges.

Much is uncertain about the outlook. Will central banks be able to control inflation? Will their efforts cause a recession? Has the COVID-19 pandemic led to structural changes in the economy and in the trajectory of inflation and interest rates? As these questions have weighed on investors, real assets have provided a much-needed source of diversification.

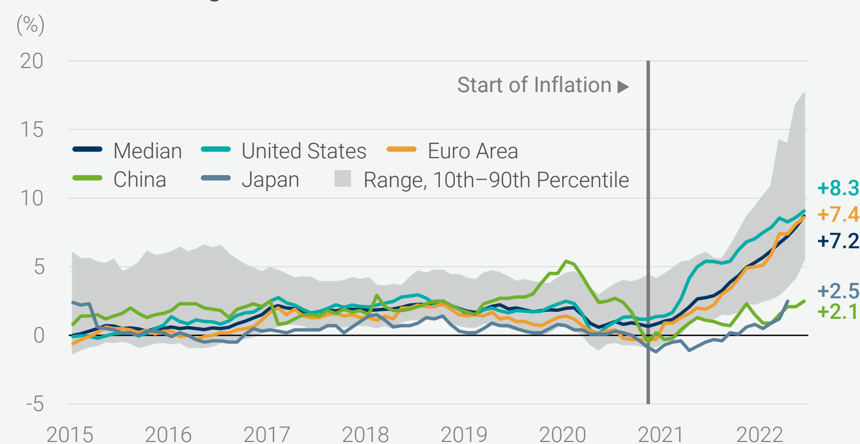
Inflation Surges Globally

Inflation has risen dramatically since late 2020, and this rise has been pervasive (Exhibit 1.4.1), hitting decades-long highs in many countries: in the United States its highest level since the early 1980s; in Japan and the United Kingdom, since the early 1990s; in the euro area, since its founding. Globally, the International Monetary Fund (IMF) expects consumer price inflation (CPI) to reach levels last seen in the 1990s.

Exhibit 1.4.1

Inflation Has Surged

Year-on-Year Change in Headline Consumer Price Inflation across 46 Countries



As of June 2022

Data covers the 46 countries in the OECD database, however reporting periods vary. Consumer price indices follow national conventions and are not harmonized for cross-country comparison.

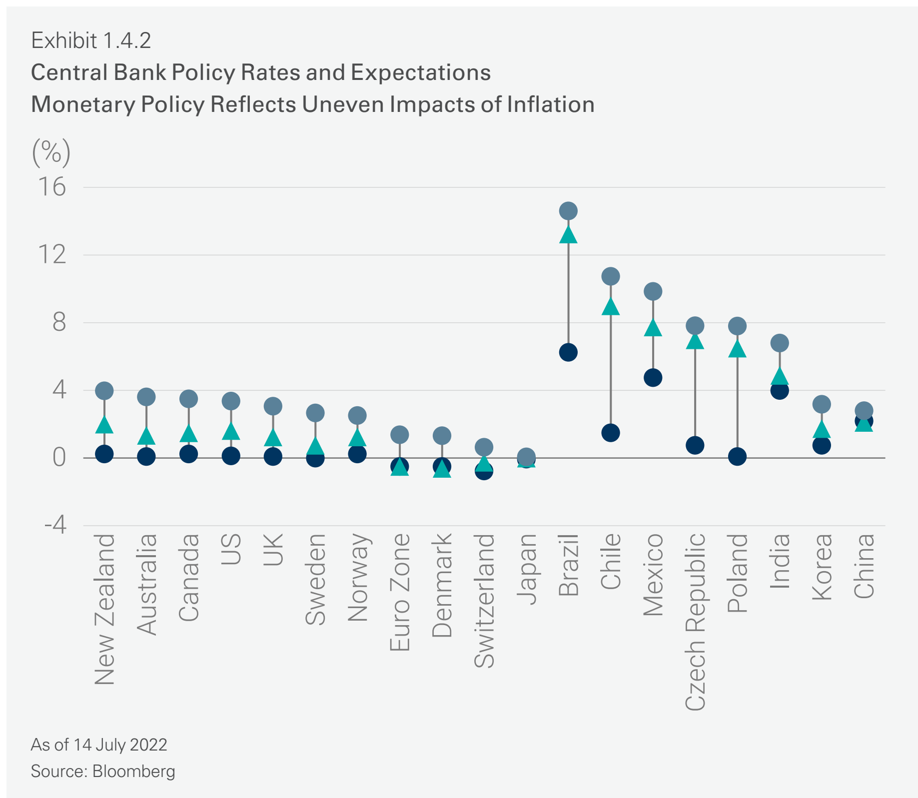
Source: Haver Analytics, National Sources, OECD

A variety of factors have contributed to this surge, including a dramatic increase in commodity prices, constraints on supply and changing consumption patterns due to the pandemic, and cyclical pressures from the broader economic recovery—aided by generous policy support. Outbreaks of COVID-19 over the past two years have triggered shutdowns that held up both manufacturing and the flow of goods. At the same time, demand for physical goods soared among locked-down households, putting additional pressure on challenged supply chains and eventually on prices. As the global economy has gradually reopened, people have resumed traveling, eating out, and seeking entertainment, putting increasing pressure on services that suffered earlier in the pandemic. In the United States, demand for labor has exceeded supply, putting upward pressure on wages, particularly in reopening industries.

Looking ahead, there are clear risks that could exacerbate already-tight conditions. Russia's invasion of Ukraine threatens to constrain the global supply of a number of important commodities, including wheat, natural gas, and oil. And the pandemic continues to threaten further disruptions to production and supply chains, particularly in China, where authorities remain committed to "zero COVID" despite the emergence of highly infectious new variants of COVID-19.

In response to rising inflation, central banks have raised interest rates and tightened financial conditions as it became clear that they could no longer afford to patiently wait for pandemic-related factors to subside (Exhibit 1.4.2). In a number of emerging markets, policymakers came to this conclusion

Exhibit 1.4.2
Central Bank Policy Rates and Expectations
Monetary Policy Reflects Uneven Impacts of Inflation



As of 14 July 2022
Source: Bloomberg

sooner and began raising interest rates in 2021. Many of their developed markets peers have pivoted to less accommodative policy since, including the US Federal Reserve in late 2021 and the European Central Bank in 2022.

In theory, inflationary pressure linked to the strength of the economic recovery ought to subside as higher interest rates and tighter financial conditions slow economic activity. But high commodity prices and other pandemic-related pressures may prove harder to tame, raising concerns both that central banks may cause a recession—on purpose or by accident—and that expectations for higher future inflation could become embedded, leading to an environment of slow growth and high inflation that is difficult to dislodge.

Another key uncertainty about the outlook is whether structural changes in the economy, some accelerated by the pandemic and others longer-running, may have more permanently changed the economic and market environment. For example, stretched global supply chains and new geopolitical realities are leading many multinational corporations to reconsider their outsourcing of manufacturing to low-cost areas and their reliance on just-in-time manufacturing in favor of "reshoring" and greater redundancy in production. Furthermore, while the macroeconomic impacts are difficult to untangle, climate change may put upward pressure on inflation and interest rates because it will require massive investment in the coming years to reduce greenhouse gas emissions, to build greater resilience to its many impacts, and to respond to climate disasters that are increasing in their severity and frequency.

What Works when a Balanced Portfolio Doesn't?

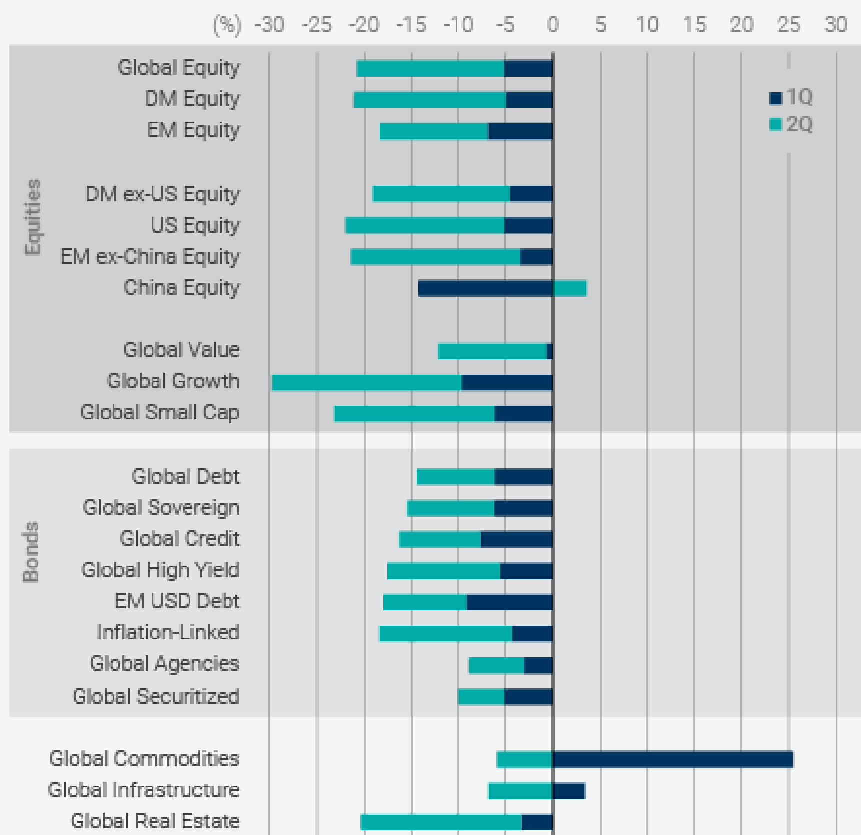
High inflation, rising interest rates, and falling growth expectations have proven to be a particularly difficult recipe for balanced portfolios, as both equities and bonds have suffered (Exhibit 1.4.3).

One asset class has stood out during this period: real assets—which derive their value from something tangible in the real world, such as real estate, commodities, or infrastructure. As equities and bonds have struggled, real assets have outperformed, as one would expect based on history (Exhibit 1.4.4). Investors can invest in commodities directly, through the futures market or via commodities-linked equities; similarly, they can invest directly in real estate or infrastructure, or they can seek exposure to companies that reap the revenue streams from these underlying assets, such as REITs or utilities.

All three broad categories—real estate, infrastructure, and commodities—are well suited to inflationary periods (Exhibit 1.4.5) but have differing characteristics that can make one more or less attractive than the others depending on the economic and market environment. For example, commodities might be most attractive in an environment of accelerating economic growth and rising demand for production and investment, while infrastructure tends to have more stable revenue streams that might be more defensive in an environment of slowing growth. Real estate might be most attractive in an environment of more stable growth, in which property values are rising but interest rates are not.

Exhibit 1.4.3

Investment Environment: Bad for Bonds, Bad for Equities



As of 30 June 2022

Source: Bloomberg

Exhibit 1.4.4

Real Assets vs. Inflation: Annual Returns

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	10-Yr
				12.3			27.1		27.1	
30.0	19.3	22.1		11.8	15.5		23.8		23.4	11.3
10.8	3.4	15.1	1.1	4.9	15.0		7.7		19.7	9.6
CPI 1.7	CPI 1.5	CPI 0.8	CPI 0.7	CPI 2.1	CPI 2.1	CPI 1.9	CPI 2.3	CPI 1.4	CPI 7.0	CPI 2.2
-1.1	-9.5	-17.0	-5.6		1.7	0.5		-2.7		-2.9
			-24.7			-6.3		-3.1		
						-11.2		-8.1		

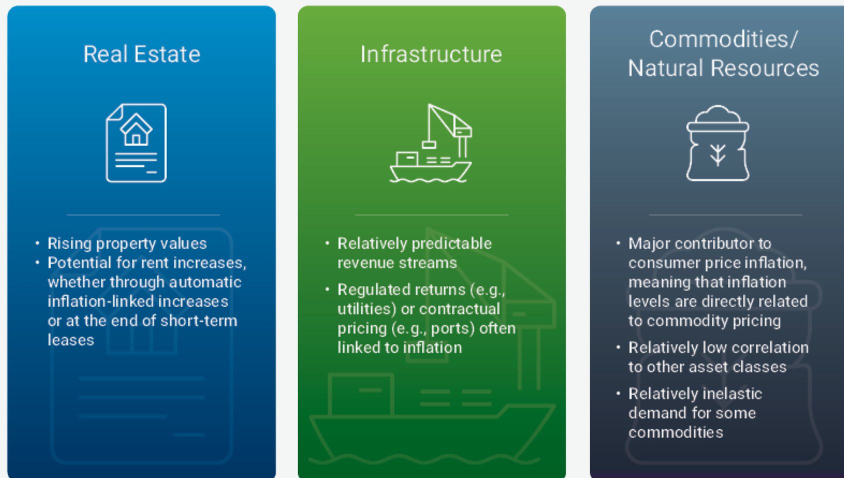
■ CPI (%) ■ Real Estate (%) ■ Infrastructure (%) ■ Commodities (%)

As of December 2021

Real Estate = MSCI ACWI IMI Core Real Estate Index. Infrastructure = MSCI World Infrastructure Index USD Hedge. Commodities = Bloomberg Commodity Index TR.

Source: Bloomberg, Haver Analytics (chart credit Callan Associates)

Exhibit 1.4.5
The Link between Inflation and Real Assets



Source: Lazard

The Way Forward

We are in an especially difficult period for investors, as both equities and bonds have sold off in response to high inflation, rising interest rates, and falling growth expectations. Real assets like commodities, real estate, and infrastructure have outperformed during this period and provided valuable hedges against uncertainty. It may be that central banks will quickly bring inflation to heel, and that they will be able to do so without triggering a recession: a rare "soft landing." However, after so many unexpected and unusual developments over the past two years and with so many challenges ahead for the global economy, we think there is a compelling case for real assets as a diversifying component of a well-balanced portfolio and a safeguard against the unexpected.

One asset class has stood out during this period: real assets—which derive their value from something tangible in the real world, such as real estate, commodities, or infrastructure.

What about Equities?

By The Lazard Thematic Inflation Opportunities Team

Equities have a key inherent inflation-fighting characteristic—companies' revenues and earnings tend to rise over time with inflation. But equities can also struggle in an inflationary environment, notably from higher implied discount rates and hence lower valuation multiples. The question for investors is, can a subset of equities benefit if we are entering a new environment of higher structural inflation? We believe so.

The key, in our view, is to identify companies that are aligned with the specific structural forces driving this inflationary period. These include underlying conditions of high debt levels and shifting demographics, as well as important policy changes related to inequality, deglobalization, sustainability, and technology regulation. Investors can then consider themes which capture one or more of these shifts and identify industries and companies that will benefit.

In today's inflationary environment, we see six investment themes with attractive return potential: consumer price capture, intangible assets, certain industrials, housing and finance, scarce resources, and energy policy.

A small set of consumer companies can benefit from rising prices, notably those whose revenues are aligned with nominal levels of GDP and consumer spending. Other consumer companies have decades of brand equity behind them—a scarcity that can serve as an "intangible real asset" over the long run. Premium alcoholic and luxury brands are good examples.

Certain industrial companies can potentially gain from inflation by virtue of their operating models. The ability to pass through cost increases, sometimes contractually, becomes increasingly valuable in an inflationary environment. Large fixed-cost bases can provide positive operating leverage to the bottom line.

Within housing, a structural shortage of middle-tier US properties may also act as an inflation hedge, and associated equities such as banks may be beneficiaries of both rising property prices and higher interest rates.

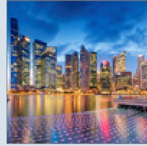
Finally, if sustainability is ultimately an inflationary driver, it makes sense to us to invest in companies that are poised to benefit. These include companies aligned with a potential surge in capital spending associated with the energy transition, as well as indirect beneficiaries further down the supply chain.

We believe that a portfolio of global equities built specifically for this potentially structural inflationary period can play a differentiated and valuable role in a portfolio alongside traditional real assets.

Explore How to Capitalize on This Trend

Lazard Real Assets

The Lazard Real Assets strategy aims to provide a multi-faceted approach to different inflationary forces while seeking to generate income and capital appreciation. The strategy invests in liquid real assets, including real estate investment trusts (REITs), listed infrastructure companies, commodity futures, companies affected by commodity prices and broader inflation trends, and global inflation-linked bonds.



Lazard Thematic Inflation Opportunities

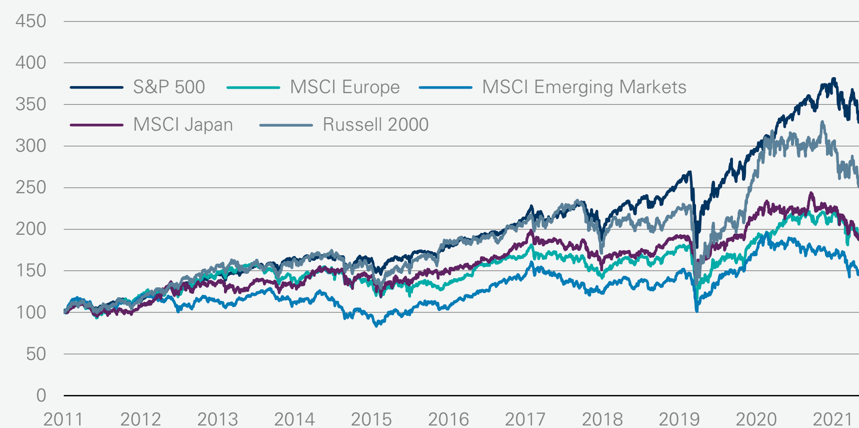
The Lazard Thematic Inflation Opportunities strategy invests in companies that stand to benefit from the underlying drivers of inflation over the long term. Rather than focusing on specific industries, the strategy looks at businesses in a broad range of sectors with exposure to one or more of the following themes: consumer price capture, intangible assets, certain industrials, housing and finance, scarce resources, and energy policy.

Can US Stocks Continue to Outperform?

By The US Equity Platform Teams

Pundits keep saying the decade-plus run of outperformance for US stocks simply must run out of steam at some point—and they keep being wrong. If you had bought the S&P 500 at the beginning of 2012, you'd have enjoyed a total return of 229% through the end of May 2022, compared to 51%, 93%, and 93% for the MSCI Emerging Markets Index, MSCI Europe Index, and MSCI EAFE Index, respectively (Exhibit 1.5.1). The Russell 2000 also outperformed these other indices with a gain since 2012 of 152%.

Exhibit 1.5.1
Total Return by Market since 2012



As of 31 May 2021
Source: MSCI, Russell, S&P

To be clear, we're not arguing against diversifying portfolios or arguing for the idea that US shares will continue to perform at the same level they have in recent years. On the contrary, we believe both that diversification is important and that the appreciation investors enjoyed in a broad array of asset classes over the last decade is highly unlikely to be repeated over the next decade.

We are arguing, however, that US equities can and very likely will continue to post strong performance compared to their global counterparts and alternatives (bonds) over the next several years. We recognize the risks facing the economy and markets including the war in Ukraine, elevated inflation, and the pivot from extraordinarily loose monetary policy to sharply tighter financial conditions. The next few years are likely to be challenging for the United States and its developed markets peers. Despite these risks, we believe the United States remains better positioned to tackle these challenges than Europe, Japan, or even China. US households and corporations are entering this period in a position of unparalleled financial strength at an aggregate level as US household balance sheets are strong, and corporates have more cash

on hand than at any point in over 20 years. And the United States has some of the most consistently profitable companies in the world. Undoubtedly, tighter financial conditions will take some of the wind out of these sails, but a changing inflation paradigm also creates opportunities for investors who have strong fundamental insights into future profitability to capitalize on a changing economic backdrop. We believe that at a time when shares, like all financial assets, appear expensive relative to historical metrics, security selection will be a critical driver of investment returns. The United States offers a superior hunting ground for identifying these opportunities, in our view.

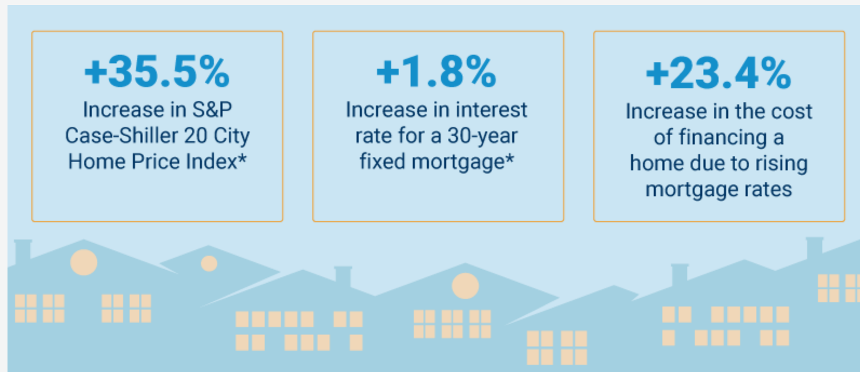
Assessing the Risks to the Economy and Markets

Our belief that US equities can continue to outperform rests on the foundation of unparalleled household balance sheet strength and the current benefit of a relatively large number of very high quality companies that should be able to capitalize on ongoing consumer demand. But before we address these positive characteristics, we must assess the elephants in the room: inflation and geopolitical risks.

Inflation tops our list of the most significant risks to economic growth and corporate profits. We believe a paradigm shift is underway in which US inflation is likely to remain stubbornly above Federal Reserve targets, necessitating tighter monetary policy. However, we also believe some commentators are exaggerating the risk of recession due to higher interest rates. The US economy functioned quite well for many years when 10-year US Treasury yields were 5% or higher. Importantly, the interest rate on a sizable majority of all existing consumer debt in the United States is locked in. Likewise, a large portion of corporate debt has been termed out for years at fixed rates, and many corporates are generating sizable cash flows that allow them to deleverage their balance sheets. While these facts mitigate our concerns about rate increases, they do not eliminate them. Our focus is on determining how long elevated inflation will persist and how elevated it will be.

Our focal points in answering these questions are the cost of shelter and wages. The cost of shelter, primarily through rent, is our highest concern as it is one of the stickiest expenses households must bear. Given that a typical lease is for one-or two-years, a sizable increase in rent can trigger sustained changes in consumer purchasing behavior and wage demands. During the pandemic, unsurprisingly, rent increases (as measured by actual rentals and surveys of what homeowners would be willing to pay to rent their homes, known as owner equivalent rent) were well below normal. However, as the economy recovered, rental rates have surged nationally. The cost of buying a new home taking into account higher debt financing costs has increased 67% in the last 25 months (Exhibit 1.5.2). With the sharp increase in mortgage rates, we would expect to see new home sales fall sharply in the

Exhibit 1.5.2
The Rising Cost of Home Ownership



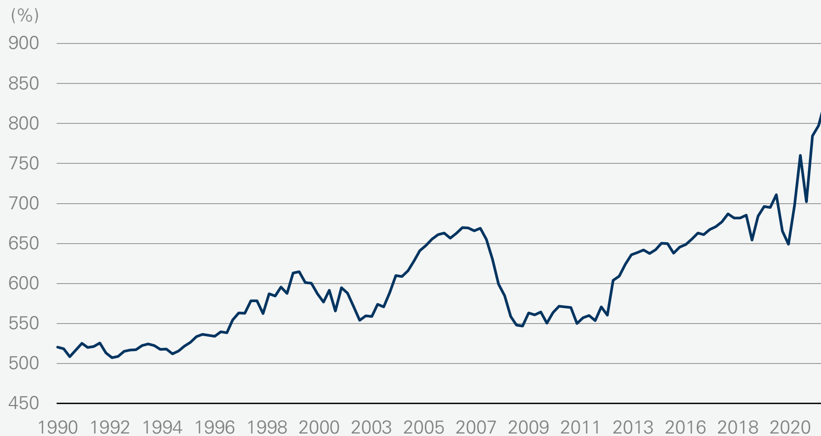
As of 30 April 2022
*Period covers January 2020 to February 2022
Source: FactSet, S&P

months ahead as the sticker shock begins to impact demand. Surging home ownership costs adds to the risk of further rent increases, as renters have very little negotiating leverage with landlords.

Given that labor makes up 50%–55% of the cost of goods sold in the United States, wage and benefit costs are critical variables in driving inflation. Our primary concern is that inflationary pressures have broadened sufficiently to drive workers to demand higher wage increases that then will lead to further price increases for goods and services. However, we believe the Fed's primary objective at this point is dampening wage demands and a range of other price increases by curtailing aggregate demand, and we remain confident that the Fed will succeed in taming inflation expectations by aggressively tightening conditions in 2022. The tightening is already largely priced in by financial markets, and we expect to see inflation slow significantly to levels approximating 3%–3.5% from rates in excess of 8% early in 2022. We believe inflation will persist materially above the Fed's 2% target due to several structural changes in the economy including decreased globalization (which had historically been deflationary), increased redundancy in supply chains after the challenges of the post-pandemic recovery, and rising costs related to adaptation to and mitigation of climate change. While 3%–3.5% inflation is not alarming, it is double the rate of the decade before the pandemic, when core CPI averaged 1.7% per annum.

US household finances have never been better equipped to handle higher interest rates. In aggregate, US households entered 2022 with net worth equal to 826% of disposable personal income. This figure compares to 711% at the end of 2019 and a previous peak of 649% in early 2007 at the peak of the US housing bubble (Exhibit 1.5.3). If we examine debt servicing costs relative to disposable income, we also find that the US consumer entered 2022 near the best levels in history. Recognizing that there are distributional considerations regarding household wealth, it's clear that surging asset

Exhibit 1.5.3
Household and Nonprofit Organization Net Worth as a Proportion of Disposable Personal Income



As of 31 December 2021
Source: Federal Reserve

prices and pandemic stimulus gave American consumers a larger financial cushion to mitigate the impact of an economic slowdown across the income and wealth spectrum.

In addition to inflation, geopolitical risk has also unexpectedly reared its head in 2022 by way of Russia's invasion of Ukraine and the resulting global surge in commodity prices. The United States is somewhat more insulated from this particular crisis than other geographies, however, as it has achieved energy independence, unlike Europe, which remains highly dependent on Russia. While US consumers are paying higher fuel prices, the impact on the European economy and many other commodity-importing countries around the world has been more severe. There are no questions in the United States regarding adequacy of supply through the winter as there are in Europe, for example. This does not mean the United States is immune to the risk of further escalation of the Ukraine conflict, but the US economy is more resilient than most of its peers.

What Does This Mean for Investors?

Whether the US economy slows, goes into recession, or stabilizes at pre-pandemic growth rates, investors in US equities are spoiled with choices. One key reason the US equity market has performed so well relative to peers is that there are a disproportionate number of the world's most productive companies based in the United States. When we rank global companies based on returns on capital, US companies consistently stand out. To be more specific, even though US stocks only comprise about 40% of the stocks in the MSCI World Index, they represent some 60% of the stocks that

rank in the top 30% for returns on capital. Put a different way, 45% of US stocks in the MSCI World Index deliver returns in the top 30% of companies in the Index (Exhibit 1.5.4). This compares to only 20% of non-US stocks that deliver returns in the top 30%. Our empirical analysis indicates that the level and trajectory of a company's return on capital is a strong determinant of relative performance over time. The consistent outsized representation of US companies among the generators of the highest returns on capital suggests to us that US stocks can continue to outperform non-US peers with lower returns.

Exhibit 1.5.4
How the US Stacks Up in Global Returns

	No. of Compounders	Total Stocks	% of Local Market Stocks That Are Compounders	% of Total Global Compounders
United States	280	622	45%	61%
Non-US	180	909	20%	39%
Total	460	1,531	30%	

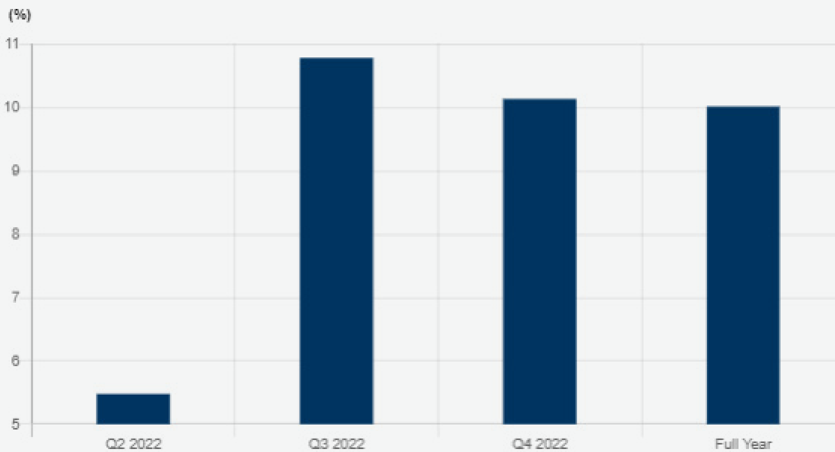
As of 29 April 2022

A Compounder for the purposes of this example is defined as a stock that delivers returns in the top 30% of the MSCI World Index. The data is based on expected forward 12-month returns on invested capital, except for financial stocks, which is based on return on equity.

Source: Lazard, MSCI, FactSet

At a time when inflation fears are prominent, the quality of US companies is critical. One would expect that the highest quality companies are better able to preserve their margins by passing through cost increases to customers. Thus far, that has largely proved true, as households have excess accumulated savings and pent-up demand for goods and services that allows them to sustain purchases despite higher prices. The key question regarding the outlook for US companies is which will come first: relief from rising cost pressures due to slowing inflation or a drop in demand due to rising prices and higher interest rates. Given how high profit margins are, the risk of short-term margin compression is real and global in scope. Hence, it will be important to examine each company individually to understand pricing power. Importantly, consensus earnings per share (EPS) expectations are undemanding at only 10% growth this year for S&P 500 firms with much of that growth expected to come in the back half of the year (Exhibit 1.5.5). In our view, there is room for upside to these expectations.

Exhibit 1.5.5
Consensus EPS Growth Forecasts



As of 2 May 2022
Source: Lazard, FactSet

Concentrating on Concentration

The latest argument against US stocks continuing their run is that they have, as a group, gotten expensive, and the performance of the asset class has become increasingly dependent on a small number of technology stocks. The sell-off in US equities in early 2022 combined with ongoing increases in earnings has undermined the expensive argument on an absolute basis, but on a relative basis, US equities remain more expensive than other regions. As it relates to concentration, Apple, Microsoft, Amazon, Tesla, and Alphabet make up nearly 22% of the S&P 500. (The United States is not alone in this predicament. The five largest stocks in the MSCI Emerging Markets Index comprise nearly 19% of that index.) (Exhibit 1.5.6) US stocks as a group are also quite richly valued. The price-to-equity (P/E) ratio of the S&P 500 is 20.5x. However, as indicated above, the United States generates materially higher returns on investment compared to other regions (Exhibit 1.5.7).

The problem is some of the most popular alternatives to US stocks are even more expensive. One way to think about relative valuation of equities versus fixed income is to compare equity valuations to the implied multiple paid for the lowest tier of investment grade corporate bonds. The valuations bond yields imply now are higher (20.4x) than the actual S&P 500 valuation of 17.5x. To put that number into some context, it helps to look back at the last time stocks were trading at multiples identical to current levels. In 2019, bonds were much more expensive, with implied valuations of 26.1x, while in 2004, they were much cheaper at 15.7x. In essence, investors can avail themselves of the equity in high quality US companies, with much more upside potential, at a discount to bonds. (Exhibit 1.5.8).

Exhibit 1.5.6
Top 5 Stocks in EM and US Benchmarks

S&P 500	Weight (%)	MSCI EM Index	Weight (%)
Apple Inc	7.00	TSMC	6.56
Microsoft Corp	5.96	Tencent Holdings Ltd	4.03
Alphabet Inc	3.79	Samsung Electronics Co Ltd	3.79
Amazon Inc	3.11	Alibaba Group Holding Ltd	2.88
Tesla Inc	2.09	Reliance Industries	1.51
Total	21.95	Total	18.67

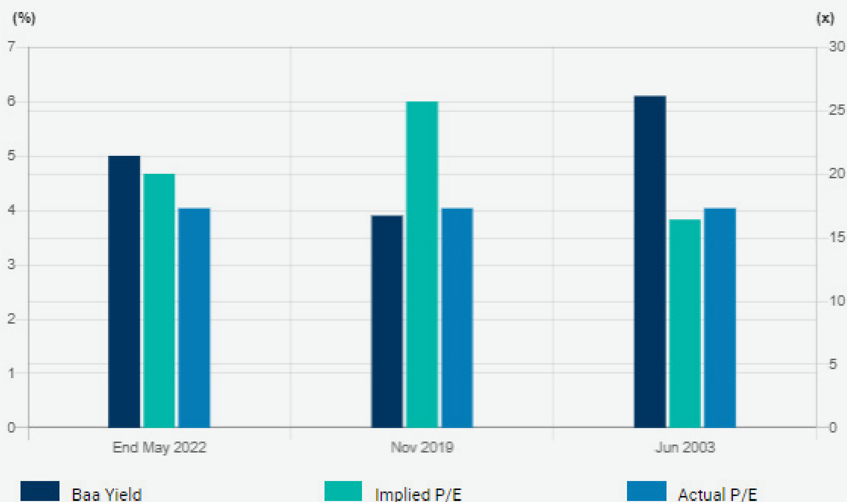
As of 29 April 2022
Source: MSCI, S&P

Exhibit 1.5.7
Valuations and Returns by Region

	P/E	ROE	P/E NTM	P/E FY1
S&P 500	20.5	20.5	18.0	18.5
MSCI Europe	15.5	12.6	12.9	13.1
MSCI Emerging Markets	13.5	13.0	11.6	12.0

As of 2 May 2022
Source: MSCI, S&P

Exhibit 1.5.8
US Stocks Aren’t the Only Expensive Assets



As of 31 May 2022
Source: Lazard, Credit Suisse, FactSet, Moody’s, Refinitiv, S&P

Selecting which stocks are likely to be winners while avoiding the losers is a challenging task that requires a comprehensive understanding of the company's past, and even more importantly, its potential future. Many investing discussions focus too much on surface-level metrics such as valuation without sufficient understanding of the level and trajectory of returns.

To us, investing is similar in many ways to buying tickets on StubHub. On the ticketing website, you can filter your search using "Lowest Price" or "Best Seats." There are certainly incredible bargains under "Lowest Price"—$16 for a Final Four basketball ticket, for example. Trouble is, you may find that your view is blocked by a pole. Weak business models, threats of disruption, and a lack of competitive edge mean many of the cheapest stocks can't hope to achieve anything but a short-lived bounce, in our view. Moreover, this bounce might already be in the rearview mirror as the Fed tightens financial conditions to slow economic demand.

Conversely, you can pay $28,500 for the best seat in the house, but a boring blowout of a game might call the value of the experience into question. Speculative growth stocks (the "Best Seats") have tended to falter historically when interest rates rise, as much of their forecast profit lies in the distant future, and higher interest rates mean investors must apply higher discount rates to those future earnings. They have traded down substantially in recent months but still appear vulnerable to higher discount rates and slower growth in many cases. "Best Value" is likely the right choice when searching for tickets, and likewise, we believe that the best approach to investing is to assess valuation relative to a company's returns.

In our view, a focus on quality companies—particularly those that seem most likely to be able to sustain and even increase their current level of returns—can answer concerns about both growth and value. Companies that have been able to achieve, maintain, and increase high levels of financial productivity—essentially, those that have been able to generate a lot of cash and manage it in a way that sets them up to generate a lot more cash—may hold up relatively well in a volatile environment. We believe the key to finding such companies is to identify businesses with strong competitive advantages, whether a formidable lead in intellectual property, a very strong brand that the company goes out of its way to protect, or a strong user network with high switching costs. In our view, the United States will continue to benefit from having many such companies.

Getting Away from the Crowds Is Still Possible in US Small Caps

The prospect of rising interest rates makes investing in small cap stocks challenging, but the asset class also has some advantages for those who know how to put them to good use. Relatively small companies are not as well covered by professional analysts as those in the large cap index, meaning that significant disparities between valuations of individual stocks and their potential for future growth and profit can arise. Perhaps as a result of this inherent inefficiency, small cap managers have historically tended to produce more alpha than large cap managers (Exhibit 1.5.A).[1]

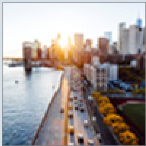
Large caps have outperformed small caps by a wide margin over the last 12 years—the Russell 2000 was up 281% in April versus roughly 415% for both the Russell 1000 and S&P 500—but a sharp sell-off in small caps over the past year has created even larger discounts relative to large caps. In a world with elevated geopolitical risks and diverging economic trajectories, US small cap might also provide protection from the storm. Approximately 21% of revenue generated by constituents of the Russell 2000 is derived from operations outside of the United States, compared to over 40% for the S&P 500 Index members. Given the relative strength of the US economy compared to other developed markets, one could argue that a purer play on US growth is even more desirable and could deserve a premium valuation rather than a discount. Active managers with unique systems to track and exploit the inefficiencies of the small cap market may be able to find attractive bargains in a period of rising volatility.

Exhibit 1.5.A

	Last 20 Years		Last 15 Years		Last 10 Years	
	Median ER	# of Managers	Median ER	# of Managers	Median ER	# of Managers
Large	0.68	71	0.29	105	-0.43	144
Mid	0.93	14	0.8	25	0.51	31
Small	2.26	46	1.89	65	1.48	90

As of 31 December 2021
Source: eVestment

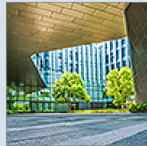
Explore How to Capitalize on this Trend



Lazard US Equity Concentrated

A differentiated way of diversifying

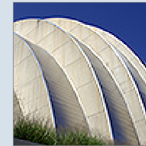
The Lazard US Equity Concentrated team's approach to risk is like that of a holding company's. The team builds a collection of 20 to 25 well-run companies whose business models are driven by distinct cash flow streams that are uncorrelated to one another. In this way, the strategy aims to maximize exposure to attractive companies while minimizing its exposure to exogenous risks.



Lazard US Equity Focus

Outperform the market by being different from it

Through our research, we have identified a market inefficiency in which companies that either sustain higher levels or improve lower levels of financial productivity may generate sizable excess returns. For these reasons, we believe it is possible to produce consistent alpha by identifying attractively valued Compounders (companies that can sustain high levels of financial productivity for longer than the market expects) and Improvers (companies that can significantly improve their financial productivity). In this concentrated strategy, we focus our fundamental research on our highest conviction ideas.



Lazard US Small-Mid Cap Equity

Two style boxes are better than one

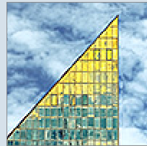
A small-mid cap portfolio can provide many of the attractive growth attributes and diversification benefits of small caps but with greater flexibility, breadth of opportunities, and some of the stability characteristics associated with larger firms. Relative to small caps, the risk-return and liquidity profiles of small-mid caps have been more attractive. As a result, we believe US small-mid cap equities can bring several potential benefits to investors and play a vital role in their portfolios.

Explore How to Capitalize on This Trend

Lazard US Systematic Small Cap Equity

Tailor-made for small cap investing

There are over 2,000 stocks in the US small cap space. With fewer research analysts and less research coverage than large cap, the market is ripe with opportunities. The Lazard US Systematic Small Cap Equity strategy is designed to capitalize on the inefficiencies of the small cap equity market by combining fundamental and quantitative techniques into a fully systematic process.



Lazard US Equity Select

Capitalizing on market misconceptions

Through our research, we have identified a market inefficiency in which companies that either sustain higher levels or improve lower levels of financial productivity may generate sizable excess returns. For these reasons, we believe it is possible to produce consistent alpha by identifying attractively valued Compounders (companies that can sustain high levels of financial productivity for longer than the market expects) and Improvers (companies that can significantly improve their financial productivity). The strategy is designed to provide broad exposure to the entire US market while remaining focused enough to benefit from positive stock selection.

Lazard US Equity Value

A style-pure value portfolio

With the cost of capital rising, the market has a renewed focus on valuation and fundamental investing. In all environments, Lazard US Equity Value focuses on investing in companies with compelling valuation relative to financial productivity. The strategy capitalizes on two market inefficiencies—Consensus Overhang (where the market puts undue focus on temporary challenges) and Underappreciated Opportunities (where the market lacks focus on potential, longer-term improvement drivers). Through strong stock selection, the strategy has compounded consistent excess returns while maintaining style purity.

Sustainability

Challenges and Opportunities

- At a time when climate change and energy security dominate the global discourse, most investors would agree that environmental, social, and governance (ESG) considerations play a critical role in investment decisions.
- However, it turns out that “if” is not the most important question when it comes to sustainable investing. It’s “how”.
- Investors have access to a slew of third-party sustainability data and ratings, and companies are increasingly vocal about touting their sustainability targets and credentials. Still, putting that information into its proper context and determining how it colors the overall investment picture is a complex, nuanced task. Disclosures are not standardized, making it difficult to compare companies to their peers.

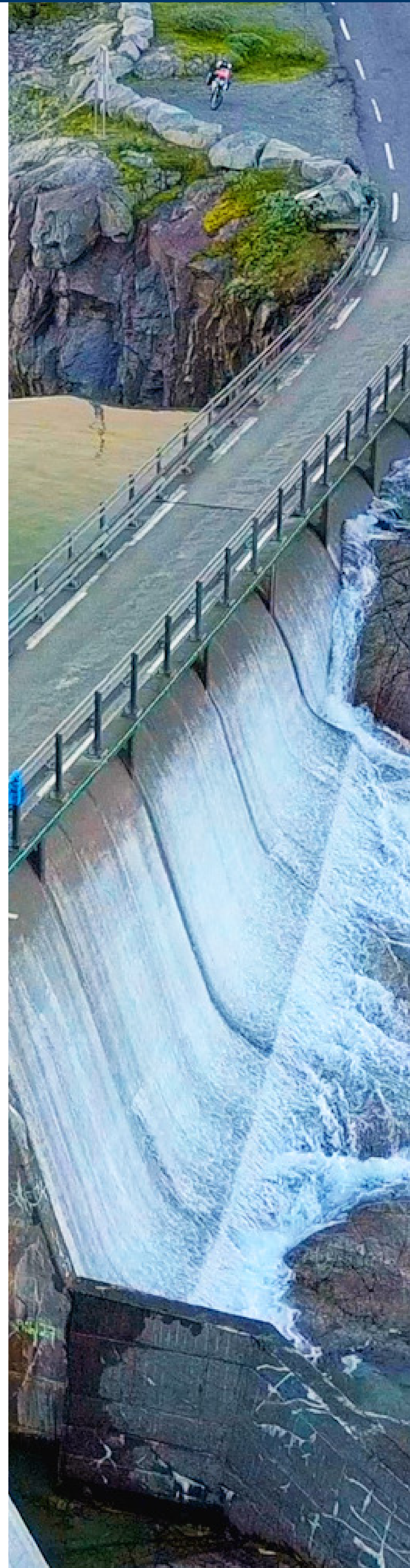
One of the most powerful concepts in economics and finance is that doing nothing is not the same as staying neutral. In fact, it comes with a price tag: opportunity cost, which means the forgone potential benefit of doing something. Over the past year, the opportunity cost of staying neutral on some of the most pressing global issues has become quite clear.

In the run-up to the COP26 climate conference in Glasgow, scores of companies announced net-zero emissions targets, pledging to reduce carbon emissions (and to offset whatever they could not eliminate) such that in total, the amount of greenhouse gases they added to the atmosphere was consistent with limiting global warming to 1.5° Celsius (Exhibit 2.0.1).

Exhibit 2.0.1
How Widespread Are Net-Zero Pledges?

Source: United Nations
As of 8 April 2022

Investors who failed to fully grasp what these targets would mean not only for cost structures, but also for how proactively a company was positioning for a climate-conscious future, would clearly be at a disadvantage. With the announcement of the Glasgow Financial Alliance for Net Zero, representing 450 global institutions and $130 trillion in assets under management, it was also quite clear that stewards of private capital are increasingly expected to use their power to have a positive influence on the planet.



Meanwhile, the war in Ukraine shone a spotlight on the security risks that can be associated with a global dependence on fossil fuels. Europe, in particular, encountered a poignant dilemma: In order to stand up to Russia, it had to face the prospect of losing access to Russia's oil and gas. Until new infrastructure can be built, asking residents to turn down their thermostats in the coming winter is among the serious options on the table. The war also showed what can happen when the global food supply is threatened. Soaring prices for wheat and other food commodities that Russia and Ukraine produce in abundance are nudging food prices higher everywhere, but particularly in some of the world's poorest places.

In an environment like this, the decisions companies and sovereign bond issuers make in regards to the fuels they use, their overall emissions, and the products and services they offer can have material consequences for the valuation applied by a diligent investor. Indeed, given the rise in commitments to sustainable investing funds, investors seem to realize that environmental issues, as well as social and governance issues, truly do present material risks and opportunities for their portfolios (Exhibit 2.0.2). But that diligent investor has an increasingly difficult job to do in sorting out the potential for future regulatory action, the costs and potential revenue streams associated with a company's future plans, and even separating serious planning from hype.

While we have focused so far on the global risks of climate change, and specifically, the use of fossil fuels, there are many other ESG issues that present material risks to investment portfolios. Overuse of scarce natural resources such as water can threaten a business model just as surely as an ecosystem or community, for example, while compensating employees well can put companies at a competitive advantage in attracting talent and reducing turnover.

Exhibit 2.0.2

Global Sustainable Investing Assets

Snapshot of Global Sustainable Investing Assets ($, b)

Region	2016	2018	2020
Europe	12,040	14,075	12,017
United States	8,723	11,995	17,081
Canada	1,086	1,699	2,423
Australasia	516	734	906
Japan	474	2,180	2,874
Total	**22,839**	**30,683**	**35,301**

Global sustainable investment at

$35.3 trillion

Snapshot of Global Assets Under Management ($, b)

	2016	2018	2020
Total AUM of Regions	81,948	91,828	98,416
Total Sustainable Investments Only AUM	22,872	30,683	35,301
% Sustainable Investments	28.0	33.4	35.9
Increase of Sustainable Investments over Prior Period (%)		**5.5%**	**3.0%**

35.9%

of total assets under management are sustainable investments

Source: Global Sustainable Investment Alliance
As of 19 July 2021

Doing nothing is not the same as staying neutral … The opportunity cost of staying neutral on some of the most pressing global issues has become quite clear.

Though the list of potential risks and opportunities from ESG factors is endless, we choose to focus for now on the very timely issue of climate change, specifically energy and the use of fossil fuels. We start by examining in greater depth the current push for decarbonization, from how it can be achieved to what cutting emissions might mean for corporate valuations. It will also address why even amid a growing pile of available third-party metrics and ratings, deep, independent fundamental research can be an enormous asset in making sustainable investment decisions.

The Realities of Decarbonization Start to Sink In

By The Lazard Climate Action Team

Climate change is no longer an issue that lacks for either bold commitments or vast sums of capital. The Glasgow Financial Alliance for Net Zero alone—a group of financial institutions led by former central banker Mark Carney—has pledged an eye-catching $130 trillion of private sector capital to back the decarbonization effort. But pledges and money alone won't solve the climate crisis we face. Financial systems need new incentives to redirect capital toward companies and projects that help create solutions to the climate crisis, companies need to align their operations with net-zero goals, and consumer behavior must also adapt. The good news is, structural change is already happening at pace, and financial markets are beginning to price in the effects. Inputs to company valuations are diverse and continually evolving with new data disclosures. Interpreting this information requires specialist knowledge that can grapple with the nuances of the energy transition in order to identify market mispricing.

Pledges and money alone won't solve the climate crisis we face.

Regulatory Scrutiny Grows

The growing number of commitments and pledges corporations have made to reduce carbon emissions are set against the backdrop of increased regulatory scrutiny, particularly in the United States and Europe. This year, several countries are set to enhance expectations for corporate climate disclosures, with many aligning to the Taskforce on Climate-Related Financial Disclosures (TCFD). While most reporting is currently voluntary, the move toward mandatory disclosure—already the law of the land in the United Kingdom—seems inevitable. In the United States, the Securities and Exchange Commission (SEC) has drafted new climate disclosure rules that are expected to be finalized by the end of the year.

We believe that as it becomes widely expected and possibly even compulsory for companies to demonstrate their response to the risk and opportunities of climate change, they will proactively step up their disclosure efforts. As more information becomes available, we expect consumers and customers to hold companies to higher standards, providing a financial incentive to reduce emissions. Companies that anticipate this shift and act proactively are likely to be rewarded by investors over the long term. We believe companies should be authentic, not exaggerate their progress, and focus their climate strategy on issues that are most material to their business.

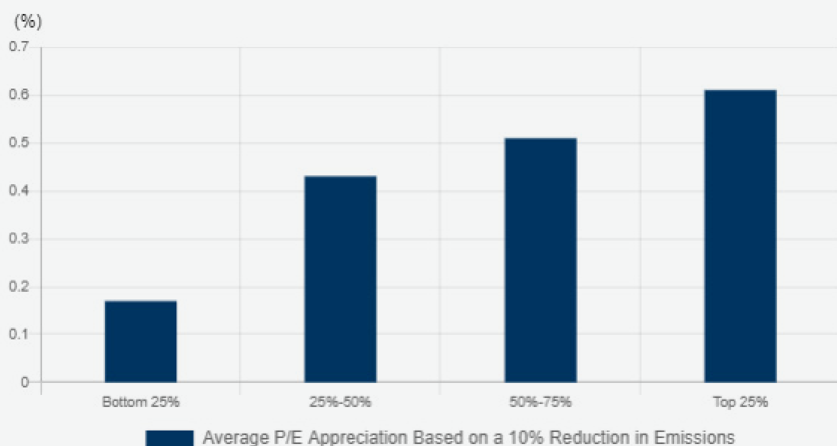
Companies Attempt to Turn Words into Action

Approximately one-fifth of the world's largest public companies have committed to net-zero targets, a number that we feel is sure to rise. As these companies move from target-setting to integrating climate action into their corporate strategies, they will have to prioritize the decarbonization of their operations, products, and services, which will involve material investment and capital expenditure over the coming years. In comparison, the cost of inaction could be far greater over the long term as companies could effectively lose their license to operate should they ignore the negative environmental externalities they create.

Investors will need to hold companies to account and ensure corporate strategies contain enough detail to ascertain whether the company is on an achievable pathway to decarbonization by 2050 or sooner. But they will also need to adjust the way they think about companies to weigh the expenditures and other choices a company has to make to mitigate climate risk, or the potential impact of emissions regulations, carbon pricing, and shifting market sentiment on company valuations. That's already starting to happen: When controlling for other variables, these factors are leading to larger discounts or premiums in some sectors, geographies, and market-cap sizes than in others.

For instance, although the sensitivity to changes in the level of emissions varies in terms of how they are expressed in price-to-earnings (P/E) ratios, sectors with higher emissions are generally rewarded with bigger valuation lifts from emission reductions. After tracking nearly 17,000 companies for four years (2016–2020), the Lazard Climate Center found that a 10% reduction in

Exhibit 2.1.1
Change in P/E by Emissions Quartile



As of 31 December 2020
Represents median P/E ratio for companies globally within the given emissions quartile as of 31 December 2020
Source: Lazard

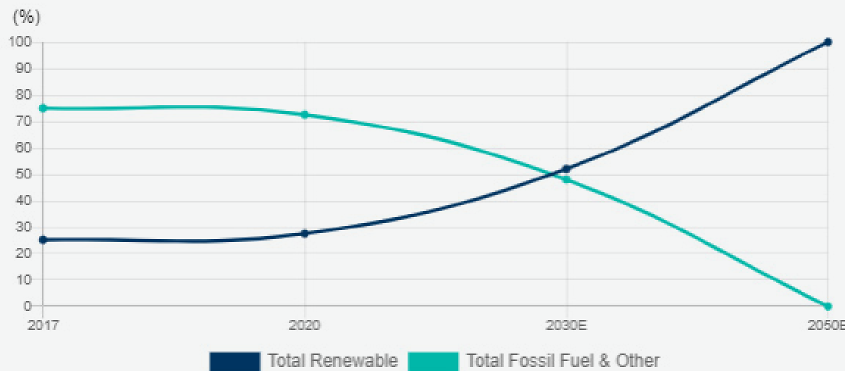
emissions among the top quartile of highest-emitting companies globally was rewarded with a 0.6% appreciation in average price-to-earnings (Exhibit 2.1.1). (For further explanation on assumptions and other insights, please review the Lazard Climate Center's findings). Accurately assessing the impact of the energy transition on companies' profitability will require enhanced, sophisticated techniques that extend beyond traditional financial analysis to correctly price physical and transition climate risks.

How Can We Get There?

Power generation is rapidly shifting to renewable sources thanks to incentives from world governments that have their own targets to meet (Exhibit 2.1.2). Research from the International Energy Agency (IEA) shows that renewable electricity capacity grew at the fastest rate in over two decades in 2020 and is set to continue to expand at a rapid pace post pandemic. Lazard's Levelized Cost of Energy (LCOE) Analysis of unsubsidized renewable energy costs indicates significant historical cost declines for utility-scale renewable energy generation technologies driven by, among other factors, decreasing capital costs, improving technologies, and increased competition.

Exhibit 2.1.2

A Model of the Shift to Net Zero in Total Global Electricity Generation by Power Type



As of 31 December 2019

Source: Lazard, IEA

In the near term, a combination of energy generation sources that complement wind and solar will be needed, at least until long-duration energy storage solutions are developed and scaled. This in part explains the European Union's decision in February to include nuclear energy in its taxonomy of environmentally sustainable activities. Meanwhile, some fossil fuel companies are pivoting to invest in carbon capture solutions and hydrogen technologies, which should help facilitate the transition.

Exhibit 2.1.3
Renewable Energy Costs Have Fallen Faster than Other Energy Sources

	Price Change (2009–2021)
Solar PV-Crystalline	-90%
Wind	-72%
Gas Peaker	-37%
Gas-Combined Cycle	-27%
Solar Thermal Tower	-16%
Coal	-3%
Geothermal	-1%
Nuclear	36%

As of 31 October 2021
Reflects the average of the high and low levelized cost of energy (LCOE) for each respective technology in each respective year. Percentages represent the total decrease in the average LCOE since Lazard's LCOE— Version 3.0.
Source: Lazard estimates

The conflict in Ukraine, and Russia's isolation as a result, will likely have an unprecedented impact on world energy markets. Continued price volatility, supply disruptions, and further conflict could very well change the calculus for a low carbon future. We are already seeing governments in Europe accelerate their plans for a renewable transition, but on the other hand, there are also calls to ramp up fossil fuel production to avoid an energy crisis in the short term. The net impact of the crisis is not yet clear, but has certainly laid bare the multifaceted nature of the risks of continuing to rely on fossil fuels.

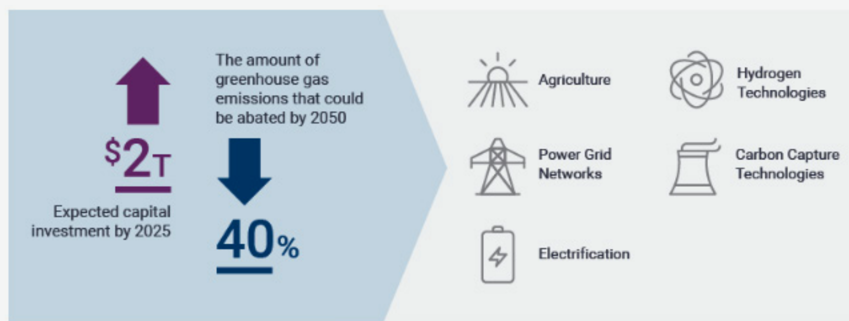
We believe understanding how heavy emitters plan to become greener is just as important as considering which nascent technologies could scale and compete in the marketplace. Investors would be remiss, in our view, to look for investment opportunities only among companies that already have relatively low emissions. After all, low emission portfolios only seek to reduce risk while potentially ignoring opportunities created by climate change, such as investing in companies that provide climate solutions. Investors must also weigh the impact of engagement to change corporate behavior, rather than merely divesting heavy-emitting assets and reinvesting in cleaner ones, which does not in itself reduce real-world emissions.

Investors Are Watching and Responding

The race to net-zero emissions begins in earnest now, led by efforts to decarbonize. An inevitable and tighter policy response that weakens society's dependency on fossil fuels across regions, countries, and industries will have implications for the long-term profitability of individual companies in 2022 and beyond. Whether those implications are positive or negative depends on what companies do now to prepare themselves for a carbon-conscious future. Over time, we believe the global commitment

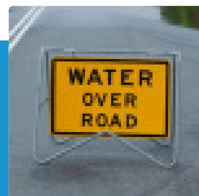
to reach net-zero emissions should support the financial productivity of companies that create solutions for climate change or pivot to greener activities as both government regulators and the market increasingly reward and incentivize these behaviors. This could impact companies involved in areas such as electrification, agriculture, power grid networks, and hydrogen and carbon capture technologies, for example, as well as companies that are exposed to these themes through their respective value chains (Exhibit 2.1.4). Annual investment across these five areas is expected to draw $2 trillion of capital annually by 2025 and abate 40% of greenhouse gas emissions by 2050.

Exhibit 2.1.4
Potential Climate Mitigation Beneficiaries



As of October 2021
Source: Lazard, McKinsey

Over the longer term, companies' efforts through the energy transition are likely, in our view, to be reflected in their cost of capital and valuations. Investors who are able to unpack companies' underlying climate-related financial exposure stand to benefit from this decades-long structural shift, while investing their capital where it is best put to work. On a macro level, the push for decarbonization is starting to unlock innovation, new channels for job creation, and fresh sources of economic growth.



There is no road map for the journey investors are embarking on. A passive approach overlooks both the nuance of decarbonization decisions investors and companies will be forced to make and how quickly the landscape is changing.

There is no road map for the journey investors are embarking on. We believe a passive approach overlooks both the nuance of decarbonization decisions investors and companies will be forced to make and how quickly the landscape is changing on everything from consumer awareness of climate trends to government regulation. Deep knowledge of industry trends, competitive dynamics, and the regulatory backdrop are required, and direct access to company managements to challenge and interrogate decarbonization plans will be critical to navigating the energy transition.

Explore How to Capitalize on this Trend

Lazard Sustainable Agriculture

Agriculture is one of the main sources of global greenhouse gas emissions but also faces a direct threat from the extreme, volatile weather patterns that climate change is expected to exacerbate.

The Lazard Sustainable Agriculture strategy is designed to capitalize on the trends powered by the fundamental need for future food production. As the global population continues to grow and climate change challenges production, there is a growing awareness of the urgent need for efficient agricultural practices while mitigating environmental impacts.

The Value of Independent ESG Research

By The Lazard US Equity Team

In the lead-up to the COP26 climate meeting in Glasgow in November 2021, a parade of companies announced new net-zero emissions targets. More than 20% of the 2,000 largest companies in the world now have such commitments. For all investors, but particularly those who put sustainability at the forefront of their missions, these new goals should have raised quite a few important questions.

- How serious are companies about achieving those goals?
- What have they already done to demonstrate they are committed to climate action?
- Even if the goals are sincere, are they realistic?
- How can investors hold companies accountable for making progress?
- How might the companies' targets and plans to achieve them affect their businesses? In the short term, there are capital expenditures, revenues, and profit margins to consider. In the long run, the calculation changes to the long-term costs and benefits of specific actions. Are companies mitigating the risks they face from climate change appropriately? Are they going a step further and positioning themselves to take direct advantage of the shift to a cleaner world with new products and services?

The answers to these questions, like many others that come up when integrating ESG factors into an investment analysis, can't be bought. Third-party providers in our view do not offer enough depth, transparency, or specificity in their ratings and projections to assess how a net-zero plan affects a company's long-term financial productivity. The only way to achieve that is with painstaking fundamental research that marries an understanding of greenhouse gas emissions and specific knowledge about individual sectors and industries. This kind of research demands significant time and effort, but in our experience it can provide an investment edge, help build relationships with management teams, and ultimately lead to more effective engagements.

ESG Research Can't Be Bought

Third-party research can help build a baseline or take a quick survey of some key variables—historical emissions and carbon intensity are good examples. But analyzing future targets and emissions is another story: While some providers do make quantitative estimates, we often find the modeling lacks proper granularity. It can also be difficult to ascertain the methodology behind the forecasts and what assumptions are baked into the numbers (Exhibit 2.2.1).

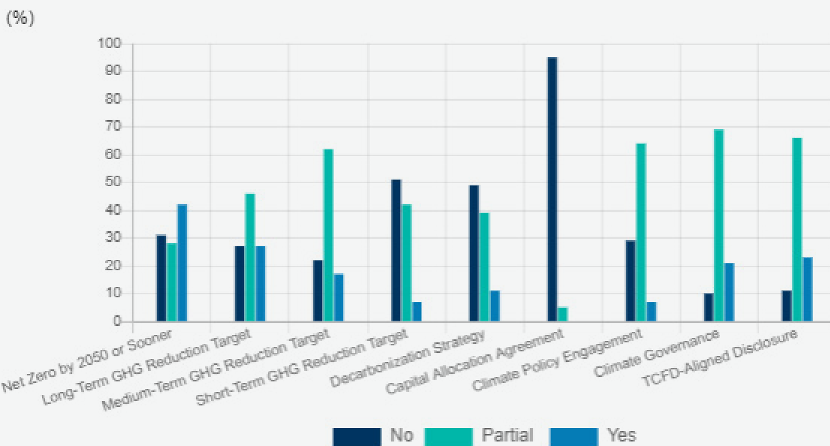
We also note that the estimates and scores given to companies sometimes fail to account for the fact that different industries (and even different companies within the same industry) have different compositions of emissions and have varying degrees of ability to influence or alter them. For example, in some industries, necessary decarbonization technology simply does not exist at scale or may not be economical yet.

Exhibit 2.2.1
Comparing Apples to Oranges

As of 2 May 2022
Source: Science-Based Targets initiative

In trying to assess net-zero commitments, we found another data problem: The targets themselves were difficult to compare because companies have taken a wide variety of approaches, just as they have on all aspects of climate target-setting and disclosures (Exhibit 2.2.2). Some companies have set science-based targets, while others have not.[1] Companies also set targets based on different timelines (historical baseline or target year) and may also disclose progress on them inconsistently. But perhaps most importantly for investors, achieving net zero poses different challenges, costs, and potential opportunities for companies in different sectors and industries. A logistics company's biggest emissions challenge and cost is managing its fleet and fuel use, for example, while a professional services firm must concentrate

Exhibit 2.2.2
2022 Company Disclosure Assessment Results by Indicator



As of 2 May 2022
Source: Science Based Targets initiative

most on office electricity use and business travel. On the positive side, that same professional services firm may have an opportunity to develop a specialty advisory business guiding companies on reducing their emissions.

There are many approaches investors can take to incorporate ESG into their investment processes, but we share our approach to pass along some valuable lessons about how helpful deep fundamental research can be. To iron out the inconsistencies and make up for the information gaps in third-party and other information, we set out to do a quantitative and qualitative analysis of companies in our relevant portfolios,[2] their potential pathways to decarbonization, and how those pathways could impact the company's ability to produce high, stable returns over time, which we call financial productivity.

Assessing Net Zero

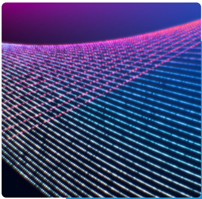
We started out by setting parameters. After reading copious amounts of information on evaluating corporate net-zero plans from organizations like the Portfolio Alignment Team of the Task Force on Climate-Related Disclosures (TCFD), the Institutional Investors Group on Climate Change (IIGCC), and the Science-Based Targets initiative (SBTi), we created an analytical framework to assess how comprehensive, ambitious, and feasible corporate net-zero plans were.

From there, we did a thorough bottom-up analysis of all the publicly available information about every company in our portfolios. We produced both a qualitative analysis of climate-related risks and opportunities and an emissions forecast model based on each company's historical emissions, unique targets, and pathways to decarbonization. Finally, we put together a portfolio-level emissions model that we believe allowed us to see how carbon emissions would change over time if the companies executed on their plans. That, in turn, clarified potential pathways for us as investors to not only potentially reduce our carbon footprint but also determine where we should prioritize engagement with management teams.

Deepening Understanding through Engagement

Doing our homework has made a big difference in the quality of our engagements, which in turn has helped us build more nuanced understandings of corporate cultures, management teams, and how a company is positioning to avoid the risks and capture the opportunities presented by a decarbonizing world.

An example on the opportunity side: We came to believe that the market is undervaluing the portfolio of sustainable solutions that a large industrial company we own is developing. The management team estimates that

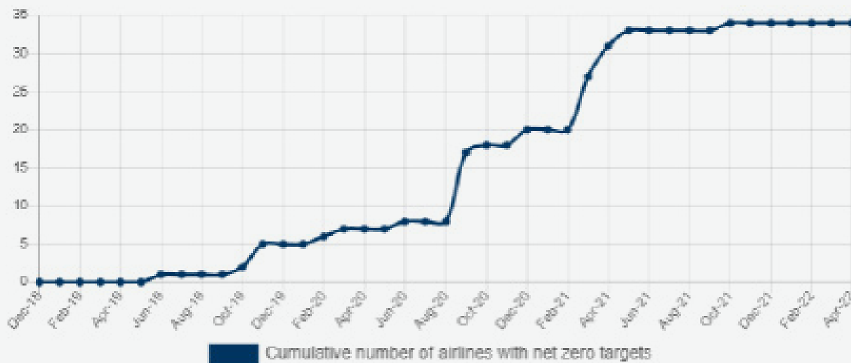


> Doing our homework has made a big difference in the quality of our engagements, which in turn has helped us build more nuanced understandings of how a company is positioning against the risks and opportunities of a decarbonizing world.

business opportunities in sustainable aviation fuel, hydrogen, energy storage, and plastics recycling each has an addressable market of between $1 billion–$3 billion.

When we met with top executives at the company, we shared our analysis of its decarbonization plans and emphasized the opportunity we feel exists for its sustainable products portfolio. That led to more meetings that gave us a much closer look at the company's sustainability commitments, investments, and future product offerings. We met with the firm's ESG Council and the chief executive officer of a sustainable aviation fuel company that the large industrial company has invested in and partnered with. The large industrial company has a refining process that could enable the scaled-up production of sustainable aviation fuel, which currently represents less than 1% of the traditional jet fuel market. We believe that number is set to increase significantly as one-third of global airlines have set targets around procurement and usage of sustainable aviation fuel by 2030 (Exhibits 2.2.3 and 2.2.4).

Exhibit 2.2.3
Cumulative Number of Airlines with Net-Zero Targets



As of 1 February 2022
Source: BloombergNEF

Exhibit 2.2.4

A Closer Look at the Role of Sustainable Aviation Fuel in Airline Emissions Targets

Airlines	SAF Target	Target Date	2019 Fuel Consumption (MMg)	SAF at Target (MMg)	Percent of Total Fuel Consumption
Alaska Air Group	0.1	2030	862	86	9.98%
Alia The Royal Jordanian Airlines	0.1	2030			
American Airlines Group	0.1	2030	4157	416	10.01%
Cathay Pacific Airways	0.1	2030	1541	154	9.99%
Delta Air Lines	0.1	2030	4214	421	9.99%
Deutsche Post	0.3	2030	629	189	30.05%
FedEx Corp	0.3	2030	1280	384	30.00%
Finnair Oyj	0.1	2030	1132	113	9.98%
International Airlines Group	0.1	2030	2549	255	10.00%
Japan Airlines Group	0.1	2030	971	97	9.99%
JetBlue Airways	0.1	2030	885	89	10.06%
Lufthansa Group	5%-10%	2030	2709	203	7.49%
Malaysia Airlines	0.1	2030			
Norwegian Air Shuttle AS	16%-28%	2030	506	111	21.94%
Qantas Airways Limited	0.1	2030	1291	129	9.99%
Royal Air Maroc	0.1	2030			
Ryanair	0.13	2030	1244	162	13.02%
Scandinavian Airlines System	0.17	2030	1511	257	17.01%

As of 4 April 2022

Mention of these securities should not be considered a recommendation or solicitation to purchase or sell the securities. It should not be assumed that any investment in these securities was, or will prove to be, profitable, or that the investment decisions we make in the future will be profitable or equal to the investment performance of securities referenced herein. There is no assurance that any securities referenced herein are currently held in the portfolio or that securities sold have not been repurchased. The securities mentioned may not represent the entire portfolio.

Source: Bloomberg Finance LP, Company reports, JPMorgan estimates

Then there's the flip side of the coin: companies that are vulnerable in our view to specific risks from climate change. We were concerned with how a consultancy that we own had set very aggressive emissions targets, which include net-zero emissions by 2025 and powering offices with 100% renewable energy by 2023. However, the company still had significant emissions as of 2020 because its business model relies heavily on employee travel and it leases many of its buildings worldwide.

Instead of simply dismissing the targets as improperly set, we spent additional time with senior executives to better understand how the company planned to execute. In most cases, we have found that management teams are eager to hear our conclusions and open to feedback about their approach. Having heard our in-depth questions and analysis, investor relations connected us with senior leaders at the firm, including the leaders in charge of the sustainability programs internally, who report directly to the CEO.

We came to understand that the firm would rely heavily on carbon offsets[3] to achieve its goals. The efficacy of carbon offsets and credits has been controversial, but we were impressed that the company seems to be putting serious effort into purchasing high quality credits that actually reduce real-world emissions and have co-benefits. Likewise, we took note of what seem to be sincere efforts to scale back non-essential travel, partnering with airlines to fund sustainable aviation fuel purchases, and not signing new leases without specifics around renewable energy procurement. We also noted that not following its own plans would be a serious business risk for the company, since a growing part of its business involves advising other corporations on their sustainability efforts. Overall, our interactions painted a picture of a strong commitment from the top down to reduce emissions and helped us build a rapport with the management team that should be helpful for future engagements.

Some companies face a much more concrete threat to their future financial productivity. A waste disposal company we own is one of the heaviest polluters in our portfolio and faces serious regulatory risks including environmental fines and rising monitoring costs. However, we learned that the company is turning risks into opportunities in some cases. The company generates more than $140 million in revenue by converting the methane gas in its landfills into power or renewable natural gas, some of which is sold back to electricity generators, natural gas utilities, or used directly in the firm's collection fleet vehicles. The firm also has publicly acknowledged that it is investing in sustainable practices for business reasons, rather than moral ones, including investing $550 million to expand its network of renewable natural gas plants and $525 million to accelerate investment in technology automation in their recycling business to meet expected demand from consumer companies.

A company that wants to do more but can't is different than one that can do more but won't.

Finally, our research has added nuance to our understanding of the challenges companies sometimes face in setting and meeting targets. In trying to understand why a large food distributor that we owned hasn't set more ambitious goals on electrifying its fleet of trucks, we learned that its commercial partners were not able to scale quickly enough. There was not a reliable enough way to source a large quantity of electric trucks and tractors to replace the traditional diesel engines in its commercial transportation fleet, which is the largest contributor of its Scope 1 and 2 emissions.[4] The company did a successful pilot in 2021 and is gearing up to deploy its first group of electric vehicles in 2023. A company that wants to do more but can't is different than one that can do more but won't.

The Value of Research

Executives share information and listen to concerns differently when you come prepared with an understanding of the core ESG issues of their particular business and how those affect their potential to generate high returns into the future. It helps to understand how a company's efforts measure up to those of their peers and to have an informed conversation about the viability and impact of targets.

The benefit is hardly a one-way street. We might live in an increasingly quantitative world of scores, metrics, and rankings, but numbers don't sum to a clear story. Even as disclosure requirements tighten and companies release more information, we think deep relationships and honest conversations with executives provide a more nuanced and useful understanding of how serious a company is about ESG and what that portends for its future.

Footnotes

1. The Science Based Targets initiative (SBTi) drives ambitious climate action in the private sector by validating corporate science-based emissions reduction targets.
2. This analysis applies to the US Equity Select, US Equity Focus, and US Sustainable Equity strategies.
3. Funding programs that reduce or remove emissions of carbon dioxide or other greenhouse gases, such as reforestation efforts among other methods, in order to compensate for a company's residual emissions.
4. Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company.

Explore How to Capitalize on This Trend

Gathering information on a company's ESG practices has historically been a tricky business with a hodgepodge of available data and varying degrees of corporate transparency. At Lazard, we believe the value of independent research cannot be overstated.

Lazard US Sustainable Equity

Lazard US Sustainable Equity seeks to benefit from the structural shift toward sustainability by investing in enterprises that prosper while preserving human and natural capital. The team looks for companies that will thrive in a more sustainable future while they adhere to their long-term investment philosophy that emphasizes financial productivity relative to valuation.

Lazard Global Sustainable Equity

Lazard Global Sustainable Equity invests in responsibly managed companies that are supporting the shift to a greener, healthier, safer and fairer world. By integrating sustainability at the heart of the team's investment process, they aim to deliver competitive returns while contributing towards a more sustainable future.

Thematic Investing

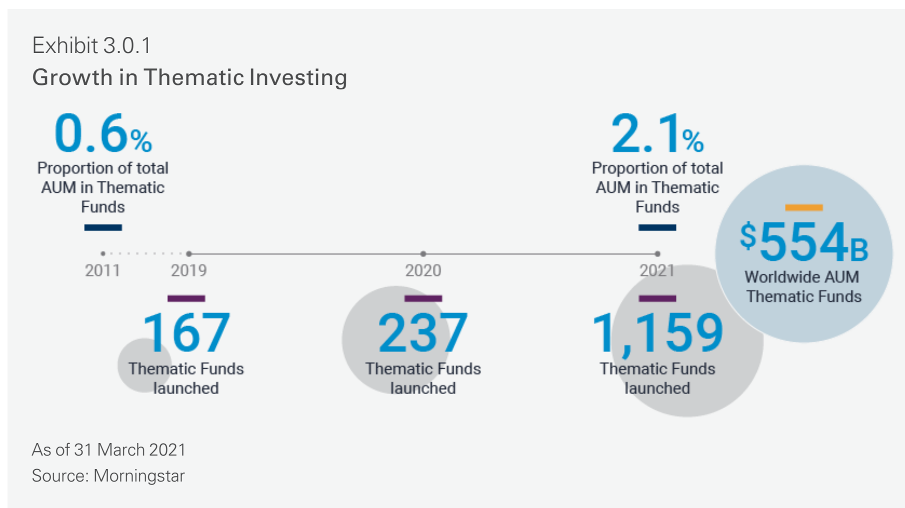
A Focus on the Forces That May Reshape the World

- The markets of 2032 are likely to be as different from those of 2022 as the world of 2012 was to today.
- But how can investors seek to position themselves for what comes next?
- For many the answer is to approach markets in a new way through thematic investing.

Nine years ago, the well-known Harvard psychologist Daniel Gilbert and other scientists published a paper that posited something called the end-of-history illusion. Their research showed that people tended to underestimate how much they would change over the next decade, while acknowledging how profoundly their preferences, values, and even personalities had changed over the past 10 years. Assuming that history ends in the current moment can have all kinds of consequences: spending money on things you will no longer value in the future, for example, or failing to save enough money for retirement or emergencies. As the authors of the paper put it, “People may believe that who they are today is pretty much who they will be tomorrow, despite the fact that it isn’t who they were yesterday.”

A growing chorus of investors are wary of making similar mistakes in financial markets: in other words, failing to adequately account for the potential for profound structural change that makes markets look much different tomorrow than they do today. For these investors, one potential answer is to invest in the idea of change itself. Thematic investing, or investing in long-term shifts that show promise to alter current market trends and assumptions, has expanded rapidly over the last 10 years (Exhibit 3.0.1).

Exhibit 3.0.1
Growth in Thematic Investing



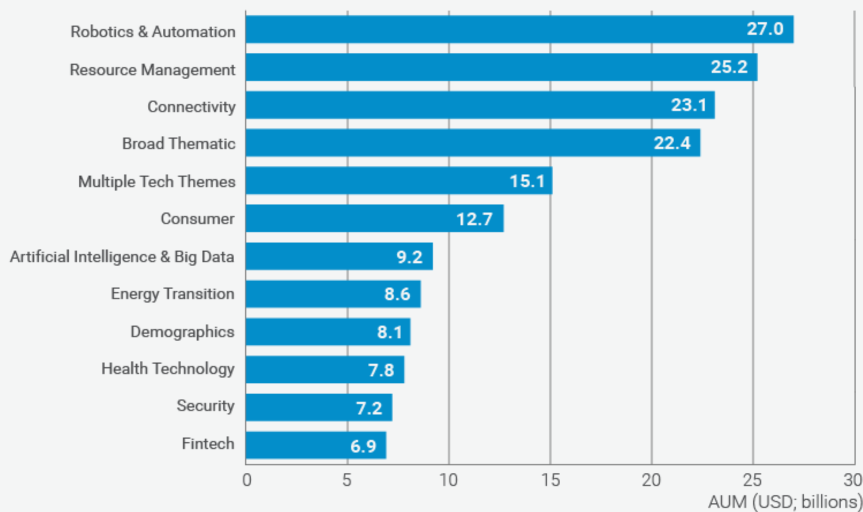
As of 31 March 2021
Source: Morningstar

Of the themes that have attracted investors’ interest of late, sustainability is at the top of the list, according to Morningstar. As we will discuss more fully in the Sustainability section, there seems to be good reason for that.

World leaders are setting more ambitious carbon emissions targets and placing an increasing focus on biodiversity; companies and investment firms are being pressed to make aggressive emissions reductions of their own; and consumers and the general public are more sensitive than they once were to corporate missteps that harm the environment or harm employees, customers, and the communities in which they operate. It seems quite likely that in the future those that took early and decisive steps to become more resilient to the risks of climate change and other environmental changes may reap rewards while those that were slow to act or ignored the problem face greater risks that in turn could negatively affect valuations and results.

Outside of sustainability, themes that are broadly related to technology are the center of most investor interest (Exhibit 3.0.2). Robotics, automation,

Exhibit 3.0.2
Outside ESG, Tech-Related Themes Command Investors' Interest



Data as of 31 December 2019
Source: Morningstar

connectivity, artificial intelligence, big data, digital health, and fintech are all areas that many people seem to believe comprise the next wave of technological revolution. Connectivity promises to make possible an internet of things that generates huge amounts of data, which can in turn be processed by companies that have an edge in data analysis software and artificial intelligence. Computers that are smarter and faster thinkers than human beings promise to unearth patterns and insights that humans may have missed. Meanwhile, watching the emergence of increasingly smart and agile robots in the midst of the greatest global labor shortage in recent memory makes it easy to imagine where the potential is in robotics and automation. Finally, digital health and fintech represent two industries that we believe stand to be substantially changed by many of these trends.

"People may believe that who they are today is pretty much who they will be tomorrow, despite the fact that it isn't who they were yesterday."

Jordi Quoidbach, Daniel T. Gilbert, and Timothy D. Wilson in Science magazine, 2013

Thematic investments can and do serve a variety of purposes in a diversified investment portfolio, but what they have in common is a specific point of view on one or multiple major changes that seem to be building to a crescendo. They are focused on the future and not on the present. Single-theme strategies are often used to diversify other holdings or get more concentrated exposure to a long-term trend. As we argue in "Investing in the Outlier Era," multi-theme strategies are in our view worthy of adoption as an overall framework for analyzing the financial markets. The more commonly accepted framework, indexing to benchmarks, anchors strategies firmly in the past, as we have previously written. Benchmarks are weighted by market capitalization, which in turn encapsulate past and current performance. Our Global Thematic Equity team does not believe either is a good indicator of future returns and therefore form a poor reference point for building a portfolio.

In the pieces that follow, our investment teams explore several different aspects of thematic investing: They are independent from one another, and their views vary, but each offers a valuable perspective on this fast-growing part of the marketplace.

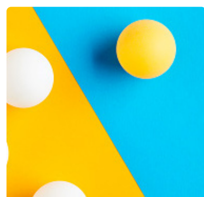
Investing in the Outlier Era

By The Lazard Global Thematic Equity Team

If the last two years have taught us anything, it's that once-in-100-year occurrences are now routine. The world has lived through a pandemic and endured record heat and wildfires; the global economy has had to cope with chronic disinflation and soaring inflation; equity and credit markets have come close to collapse and rebounded to dizzying heights. Anticipating the near future has never seemed more difficult, and yet, those who had been thinking about the forces that would shape the distant future may have found themselves surprisingly well prepared.

Sidestepping the Left Tail

While many businesses have faltered in this onslaught of outliers, many have thrived and managed to enhance earnings. Some owe their success to the resilience of their business model, some to the strength of a balance sheet that enabled them to consolidate their dominance by buying up competitors weakened by unforeseen events, still others to the appeal of a well-established, deeply entrenched brand. Though the strategic sources of their success may vary, the firms that are emerging from the pandemic in better shape than ever share common advantages. They possess the positioning, resources, and vision to benefit from the sudden and dramatic changes overtaking the global economy.



The firms that are emerging from the pandemic in better shape than ever share common advantages. They possess the positioning, resources, and vision to benefit from the sudden and dramatic changes overtaking the global economy.

The beneficiaries of structural change measure their time horizons in decades, well beyond the conventional three-to-five years. The deep focus on long-term dominance may help make companies more resilient to so-called left-tail episodes—and even profit from them. If anything, left-tail episodes like the pandemic should drive home to investors, as they have to skilled management teams, the long-term value of correctly identifying the themes that define and determine structural change. Indeed, we believe the vast discontinuities of the past two years make a solid argument that thematic investing is not merely a useful diversifier to a core portfolio but a solid foundation for one.

Three Companies That Turned Adversity to Advantage

Amazon's business model, formidable enough before the pandemic, became truly imposing as a result of it. Its investments in a pervasive internet presence and a warehouse-to-front-door supply chain, which made it a convenience before, made it indispensable over the pandemic's course. The model, which called for deep relationships with suppliers and a flexible shipping network on the back end, gave Amazon a further edge. As the lockdowns eased and the global supply chain seized up, it became the only source of many goods. The huge acceleration in infrastructure necessitated by the pandemic will also likely form the foundation of a significant new business line for Amazon over coming years, as its logistics network is offered to third parties, competing with the likes of FedEx and UPS. Meanwhile, the company's investment in its cloud offering, Amazon Web Services, gave the company exposure to another structural change that the pandemic greatly accelerated: the upgrading of corporate technology infrastructure. The lockdowns forced companies onto the cloud, providing employees working remotely fast, reliable access to secure servers through services like AWS or Microsoft's Azure. Thematic investors could no more easily predict the exact course of these events than anyone else, but the outcome—the rise of e-commerce, driven by empowered consumers, as well as digitization and the eventual necessity of cloud solutions—was something they had long anticipated.

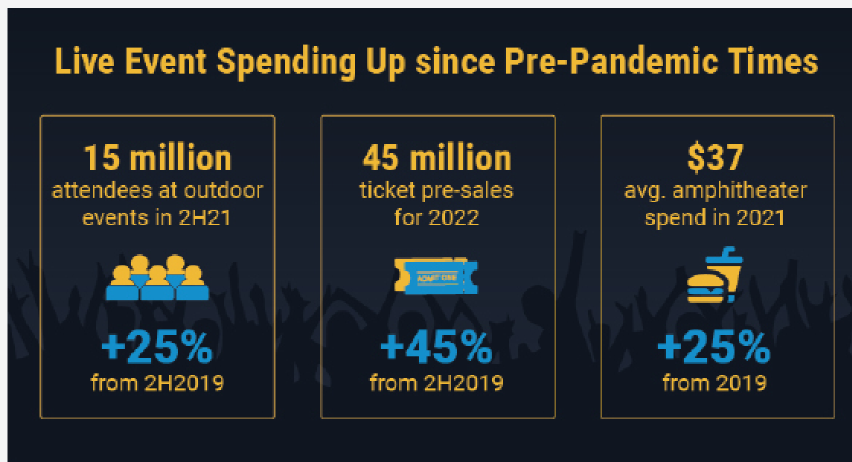
> We've always said that when confronted with the choice between optimizing for short-term profits versus what's best for customers over the long term, we will choose the latter—and you can see that during every phase of this pandemic.
>
> —Andy Jassy, President and CEO of Amazon

Live Nation Entertainment, the longtime leader in arena entertainment, demonstrates vertical integration's long-run value in a different dimension. Well before the pandemic Live Nation adopted the strategy through its ownership of Ticketmaster, the leading ticketing agent in the United States, and performance venues, event streaming services, and a film, television, and documentary production division. The strategy posed a formidable barrier to competition going into the lockdowns—few would-be disruptors would have the resources to construct competitive arenas—and with its dominance came the financial resources not simply to survive the lockdowns but to acquire weakened competitors at bargain prices. Live Nation has thus consolidated its leadership and positioned itself as the pandemic

eases to reap the benefits of pent-up demand for live spectacle from streaming-saturated fans and star performers, for whom arena performance has become the primary source of revenue (Exhibit 3.1.1).

> Never have the tailwinds to our business been so strong, and I believe this is just the start of what will be the strongest multi-year period for the concert industry.
>
> — Michael Rapino, President and CEO of Live Nation

Exhibit 3.1.1
Benefiting from the Return of Live Events



As of 23 February 2022
Data comes from company's fourth-quarter 2021 earnings call.
Source: Live Nation

Nike prospered in the pandemic by leveraging the power of its global brand. It has taken advantage of its scale and image to enhance both in a virtuous circle. Going into the lockdowns as a household name in athletic and leisure apparel, it was ideally positioned to take advantage of the COVID-19 work-from-home dress code. Its scale conferred on it preferred customer status among contract manufacturers hard-pressed by lockdown restrictions and supply shortages to meet surging demand. That in turn has made it possible for Nike to continuously update its apparel offerings, a competitive necessity in the field of fashion. It has also made Nike's products relatively available in a time of scarcity, both in its retail outlets and, especially important in a time of lockdown, on its website. In addition, Nike's shift to a direct-to-consumer distribution strategy, via company-owned physical stores and e-commerce channels,

generates superior margins and further reinforces digital ties with its consumer base. Once again, the rise of the empowered digital consumer was a development students of structural change had long been tracking.

> The fundamental shift in consumer behavior toward digital plays to our increasing digital advantage.
>
> —John Donahoe, President and CEO of Nike

Change Is the New Permanent

The examples of three firms that did not merely weather the pandemic but emerged from it stronger are not meant to suggest that either these companies or those who invested in them were better at contingency planning or accurately guessing what was going to happen, neither of which can account for every situation and both of which depend on luck. Rather, the examples underscore the value of painstaking analysis of observable trends as they unfold and assembling the trends into investable themes, which are narratives that describe future states.

Thematic analysis does not yield specific predictions of winners and losers, much less timelines. It does not specifically plan for contingencies—pandemics, geopolitical and environmental crises, disruptive technologies, and the like—it implicitly accounts for them. Indeed, themes cannot and do not predict the catalysts for structural change to accelerate; they simply express a conviction that certain changes will occur.

A Final Market Lesson for Thematic Investors

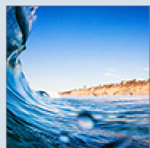
In addition to the power of structural business models, the pandemic period has also delivered a firm lesson to thematic investors that structural change cannot be the sole focus regardless of market valuation. The stocks of companies such as Amazon, Live Nation, and Nike have prospered throughout the pandemic because their valuations have remained reasonable. In contrast, many favored “thematic” stocks leapt to sky-high valuations during the first year of COVID, only to return to earth as it became apparent that returns had been over-extrapolated and risks underestimated. True thematic investing must take valuations into account, avoiding names that market sentiment has misaligned with a theme’s long-term prospects and targeting instead the most reasonably discounted themes and the most reasonably discounted stocks within those themes.

Current events will not derail powerful investment themes. Indeed, what we have seen in the recent past is that we live in a world of accelerating structural change. Well-run companies with thematic tailwinds can

utilize turbulent periods to emerge from crises even stronger. A properly constructed multi-theme strategy with a robust valuation discipline can benefit from this acceleration of structural change as well as help investors navigate turbulent markets.

True thematic investing must take valuations into account, avoiding names that market sentiment has misaligned with a theme's long-term prospects and targeting instead the most reasonably discounted themes and the most reasonably discounted stocks within those themes.

Explore How to Capitalize on This Trend



Lazard Global Thematic Equity

Thematic investing places structural change at the heart of a long-term equity portfolio and, in our view, can enhance returns, mitigate risks, and enable sustainability integration.

Lazard Global Thematic Equity is designed to benefit from structural change in industries and companies anywhere in the world. The strategy integrates a Sustainability Framework for assessing multiple aspects of business risk, including ESG inputs.

Digital Revolution: Driving Opportunities in Healthcare

By The Lazard Digital Health Team

Digitization has fundamentally transformed the way we live. Even after decades of digital revolution, however, there are still places where analog reigns. One of those areas, healthcare, is quickly becoming the newest front line in the digitization race.

Healthcare has lagged industries such as communications, financial services, and consumer products in digital progress, historically weighed down by an intense regulatory environment and an inherently conservative mindset. But things are changing. Physicians' offices and patients have online management systems for medical records, appointments, and communications; telemedicine has improved access to healthcare; biopharmaceutical companies like Moderna and Pfizer have produced quick-to-market, life-saving vaccines; and gene editing technology holds out hope for curing debilitating diseases—all thanks to data and digitization (Exhibit 3.2.1).

Exhibit 3.2.1
Areas of Opportunity in the Digital Health Revolution

Digital Health

As healthcare is revolutionized by data and technology, there is the potential for better patient outcomes and a more seamless experience for people along the spectrum of healthcare touchpoints. That brings new investment opportunities as well, and these tend to fall along the intersections of three key themes: technology, healthcare, and the consumer.

Computational Drug Discovery
Computers find new drugs instead of scientists

Gene Editing
New techniques allow scientists to alter DNA

Synthetic Biology
Cells from every living creature can be reprogrammed to manufacture therapeutic antibodies or any other protein

Liquid Biopsies
Advanced screening of blood and other bodily fluids can lead to early disease detection

Telemedicine
Remote diagnosis and treatment can reduce friction points in traditional medical care

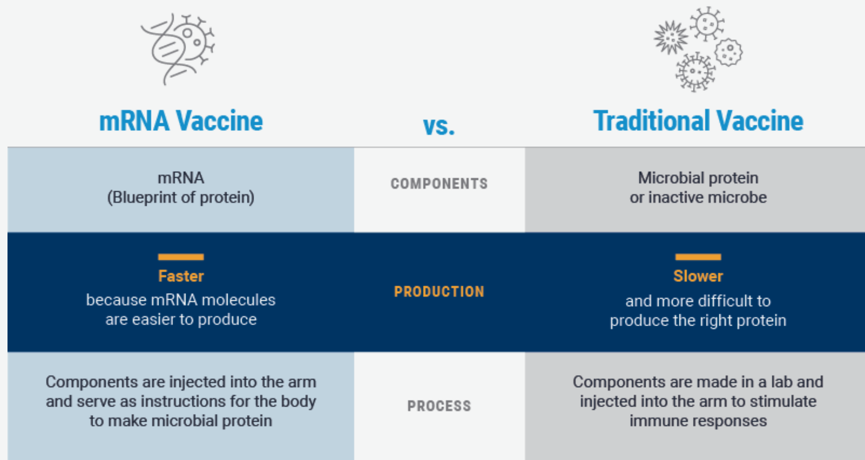
Wearable
Advanced sensors and increasing consumer engagement increase measurement of health-related data such as physical activity and certain vital statistics

Connected Fitness
Greater access to data provides consumers with an enhanced experience

Source: Lazard

The mRNA vaccines for COVID-19 are a topical example of where we are and where we could be going (Exhibit 3.2.2). Sequencing the human genome in 2003 paved the way for both better techniques and a greater understanding of what DNA base pairs actually encode. In 2019, Chinese researchers

Exhibit 3.2.2
How Does an mRNA Vaccine Compare to a Traditional Vaccine?



mRNA Vaccine	vs.	Traditional Vaccine
mRNA (Blueprint of protein)	COMPONENTS	Microbial protein or inactive microbe
Faster because mRNA molecules are easier to produce	PRODUCTION	**Slower** and more difficult to produce the right protein
Components are injected into the arm and serve as instructions for the body to make microbial protein	PROCESS	Components are made in a lab and injected into the arm to stimulate immune responses

Source: Vanderbilt University

quickly sequenced the novel coronavirus and posted the results on a popular global site by January 2020, meaning that mRNA vaccine developers did not need to have the physical virus in their labs to get to work. Decades of mRNA vaccine research had already enabled mRNA bioplatforms, tools that allow scientists to quickly redeploy biological information to new use cases. Some have compared bioplatforms to factories where basic functions can be adapted to create a number of different products. Armed with a genetic code and a factory, researchers built a specific prophylactic and were testing in two months. While not perfect, the vaccines have helped keep health systems from collapsing in the West.

The promise of digital medicine is to create a healthcare system that is: (1) more democratized, where access to information and expertise can be shared and applied from anywhere, (2) more personalized, with therapeutics targeted to an individual's genetic needs, (3) more prevention-oriented, with early intervention strategies that may be less invasive and have better outcomes, and (4) more decentralized, with wearable technologies and other smart objects creating an abundant amount of data that can both add to academic understanding of disease and flag issues for individuals. The hope is that it all adds up not only to longer and healthier lives, but for disruptive innovation that creates a long-term investment opportunity on par with the semiconductor revolution.

Here are some areas where we think investors should pay close attention:

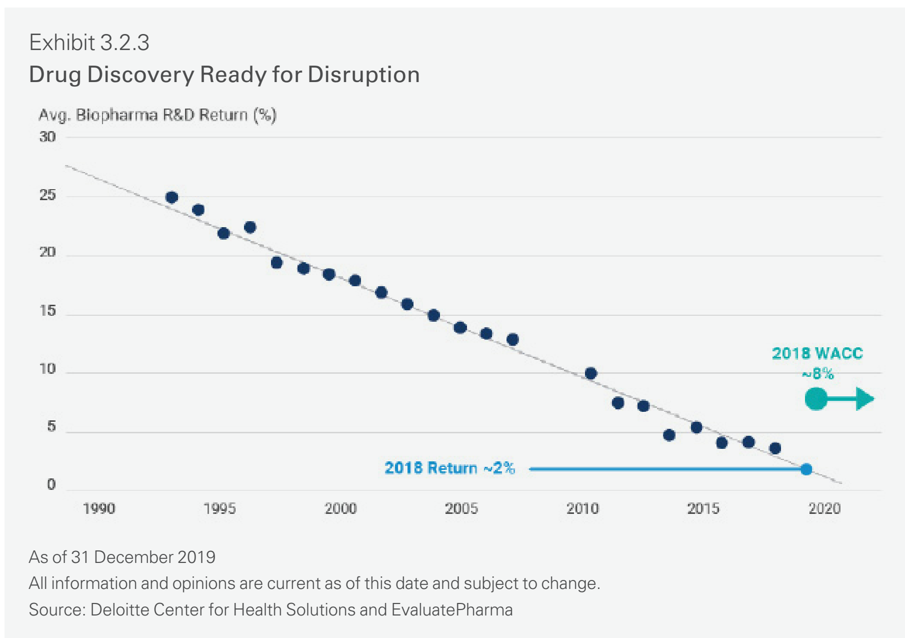
Health Big Data

Data powers digital applications, teaching algorithms so they can discover patterns that may be beyond human comprehension. The large, complex data sets that artificial intelligence, machine learning, and computational biology

require will likely come from genetic and medical/chemical databases, smart devices and wearables, the Internet of Things, and even the government, which is making a large swath of healthcare data from clinical trials and public insurance programs available to stakeholders.

Drug discovery is one likely place for big data disruption (Exhibit 3.2.3). Instead of painstaking trial-and-error to find compounds that protect against or treat diseases safely and effectively, computational biology allows researchers to test potential winners much the way an aerospace engineer might simulate a flight. This promises a higher "hit rate" and cuts down the lengthy time frame and eye-popping cost of bringing a drug to market. We believe the consequences for traditional pharmaceutical companies that do not adapt will be enormous.

Exhibit 3.2.3
Drug Discovery Ready for Disruption



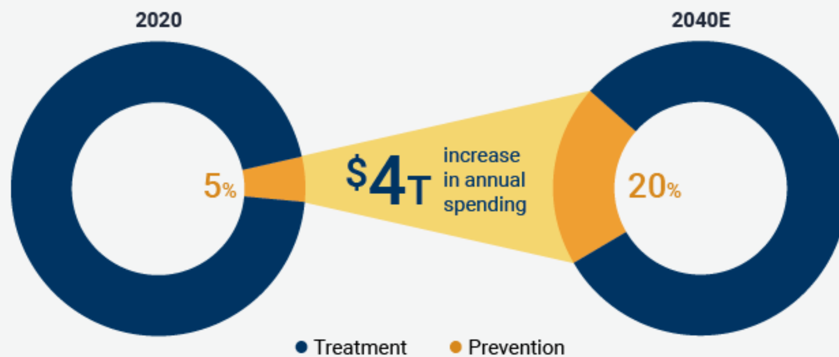
As of 31 December 2019
All information and opinions are current as of this date and subject to change.
Source: Deloitte Center for Health Solutions and EvaluatePharma

Health data is also becoming consumerized, which could lead to interesting results. For example, Apple launched a study to determine whether it could trace cardiac arrhythmias in Apple Watch wearers and quickly signed up hundreds of thousands of users.

Advanced Diagnostics

Preventing illness before it starts is easier, cheaper, less painful, and often more effective than late-stage treatment of disease. Yet, only 5% of global healthcare spending each year goes toward prevention, with the remainder spent on treatment (Exhibit 3.2.4). Developments in next-generation diagnostics, non-invasive testing, and early intervention enabled by new technologies will likely drive a dramatic shift toward preventive care and early diagnosis that in turn leads to earlier and potentially less invasive or even non-invasive treatment.

Exhibit 3.2.4
Overtreated and Underdiagnosed: From Treatment to Prevention



As of 31 October 2021

Source: US Centers for Medicare & Medicaid Services, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control & Prevention, OECD

Non-invasive liquid biopsies, which search for the molecular profile of a tumor without collecting tumor tissue, are one example of the prevention-focused future. This type of sampling supports earlier tumor detection, particularly for patients with early signs of cancer or at high risk of developing it. The biopsies lend themselves to repeat testing, are designed to both identify and type tumors and monitor genetic changes over time, and can detect minimal residual disease.

We think a prevention-first paradigm shift has the potential to create a multi-trillion-dollar spending opportunity for disruptors globally, including pharmaceutical upstarts, insurance companies, and even tech firms.

Targeted Therapies

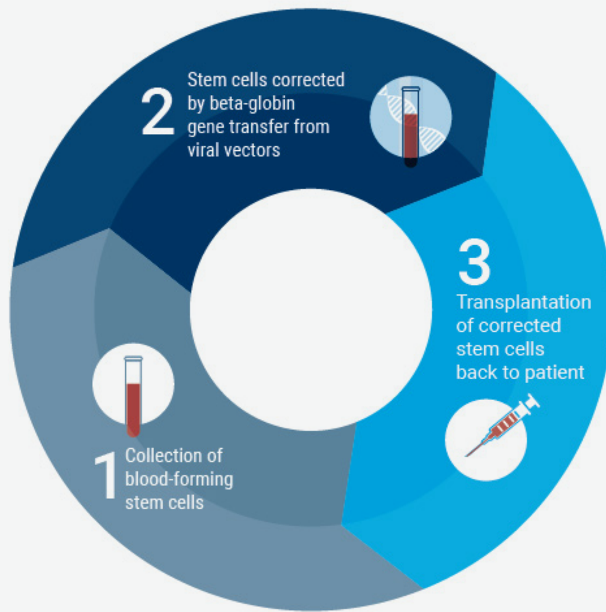
Personalized medicine, which uses a person's genetic or biomarker information to inform health and treatment decisions, is expected to grow by leaps and bounds. Personalized medicine applications have included things like tailoring drug prescriptions to specific individuals and empowering researchers to directly modify DNA.

We have also seen recent progress in immunotherapies such as CAR-T therapy, which holds the promise of a possible cure, or "sustained remission," for leukemia via chimeric antigen receptors. Scientists use a virus to modify a patient's own immune cells, giving the cells the ability to recognize and kill the source of the cancer.[1] Another tool, CRISPR, allows researchers to edit strings of DNA and modify gene functions, potentially correcting defects and treating disease like sickle cell anemia (Exhibit 3.2.5).

As companies that are engineering these targeted therapies and building new drug modalities take center stage, discoveries in areas such as gene editing, biologics, cell therapies, and digital therapeutics are well positioned to change the pharmaceutical landscape. We expect clinical trials to embrace

real-world data and genomic differences across disease and populations. And we expect the development of product pipelines for next-generation therapeutics and new chemical modalities to become more difficult and complex as they mature, while also more effective and successful. This should bolster the rise of new industrial champions and enable strategic thinkers, expanding the playing field of unique investment opportunities.

Exhibit 3.2.5
Gene Therapy for Sickle Cell Disease



Source: National Institutes of Health

Enhanced Aging

Most current demographic models expect human life expectancy to plateau, but we believe advances in synthetic biology, regenerative medicine, cancer vaccines, and gene editing, among other areas, will extend longevity and create a healthier, more active population. Even slight increases in longevity spread across the billions of people in the world add up to hundreds of millions of additional years lived and hundreds of millions of additional years of consumption. This also has the potential to create strong demand for large categories of products and services linked to managing chronic diseases and enabling healthy and more active lifestyles for an aging population.

583 Million

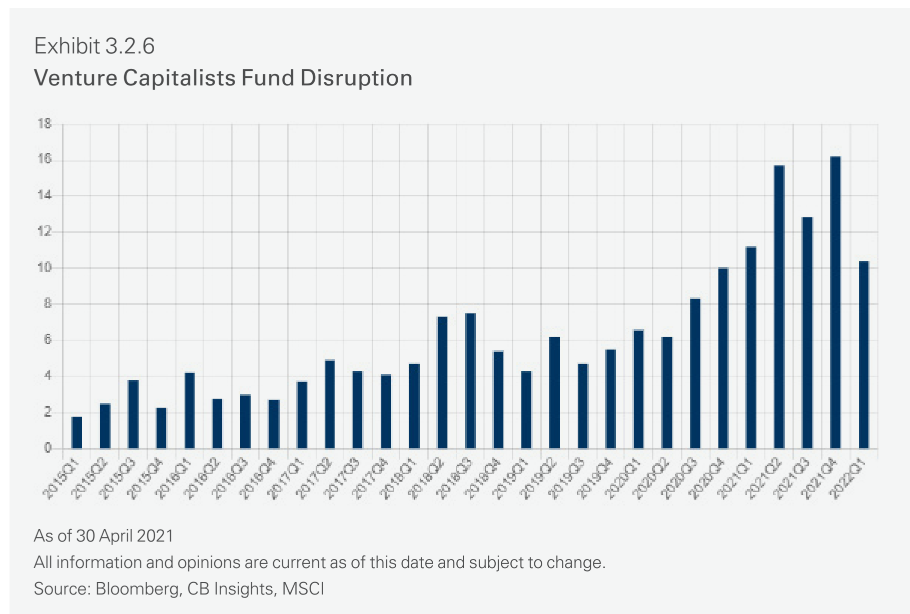
The potential additional years lived in the United States by 2100[2]

Taking Advantage of Industry Disruption

Digital innovation is happening at the intersection of healthcare, technology, and the consumer sectors. What were once considered barriers to entry in healthcare—size, market power, and costs—are less imposing given digitization and access to information. This new environment stands to level the playing field for innovators, while also challenging legacy players to reinvent.

And there is no shortage of new opportunities as investors, including venture capitalists, continue to fund the digital revolution (Exhibit 3.2.6). In 2021, venture capital companies raised a record $57 billion across nearly 3,000 deals in digital healthcare.

Exhibit 3.2.6
Venture Capitalists Fund Disruption



As of 30 April 2021
All information and opinions are current as of this date and subject to change.
Source: Bloomberg, CB Insights, MSCI

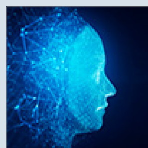
We believe getting in on the ground floor of what could be a multi-year megatrend will take moving away from a traditional healthcare investment approach toward one that leverages human experience, data, and data science to select the best opportunities across sectors and industries. This active process should be driven by bottom-up analysis of investment ideas that revolve around fundamentally diversified catalysts, milestones, and drivers, reducing correlation among stocks compared to a traditional healthcare index.

While there could be potential setbacks to this positive momentum (clinical trial failures, a variable cadence to progress, new regulations, consumer adoptions challenges, and privacy issues), digital advances in healthcare will continue to move forward. Over the next decade, we expect opportunities and advances to benefit investors and patients alike.

Footnotes

1. Howard, C and Hassan, J. CNN, 2 February 2022. T-cell Immunotherapy Tied to 10-year Remission
2. Based on 2.5 years average longevity upside for US population 54 years and under as of 2018

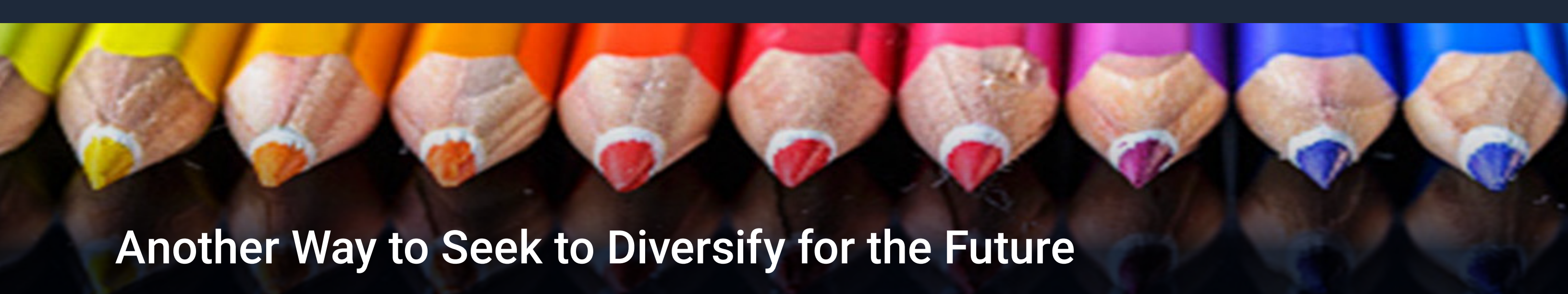
Explore How to Capitalize on This Trend



Digital Health

Innovation is happening at the intersection of the technology, healthcare, and consumer sectors. A traditional healthcare investment approach may not be suitable to a sector that is being disrupted.

Lazard Digital Health seeks to exploit the opportunity presented by the digital healthcare revolution.



Another Way to Seek to Diversify for the Future

By The Lazard Dynamic Portfolio Solutions Team

One way to think about diversification is as a balancing act: spreading out risk among different sectors, regions, market capitalizations, asset classes, or some combination of all of these. But once that's done, another twist of diversification is then possible: incorporating exposure to specific asset classes to take advantage of how markets will develop in the future, within a balanced portfolio. These niche asset classes, or investment themes, can encompass technological and societal forces that have the potential to reshape markets over time, as well as the companies associated with those trends that stand to change fundamental aspects of the economy and business.

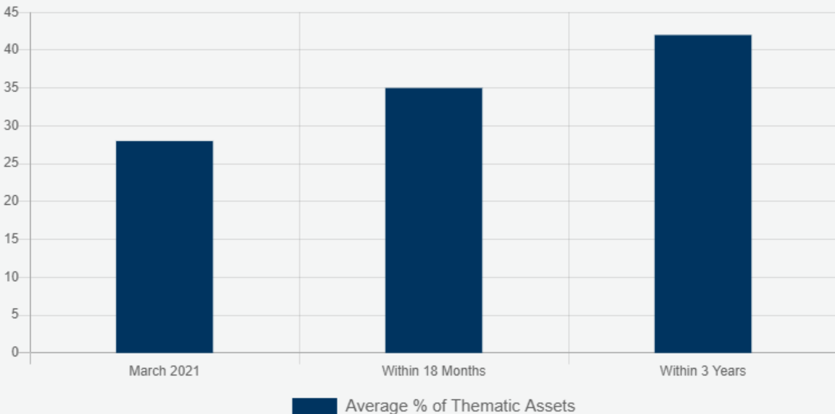
More and more investors are turning to such thematic strategies. According to FactSet,[1] assets under management in exchange-traded funds have grown 45% per year, on average, for the last three years. That pace is set to continue. When the data provider surveyed investors in March 2021, it found that 28% of respondents' portfolios were in thematic strategies and that the respondents expected that figure to grow to 42% within three years (Exhibit 3.3.1).

45%

Three-year growth rate of assets under management in thematic strategies

Creating a thematic exposure used to be a laborious and convoluted process, requiring an enormous amount of time and resources, thereby limiting the practice to only the largest fund houses. However, the growing amount of data that is available to investors and, more importantly, the technology and skills to properly analyze and apply that data, is making it possible to develop targeted, differentiated thematic portfolios far more efficiently. Machine-learning techniques make it possible to crunch through mountains of quantitative and qualitative information to determine the parameters of a theme and develop an investment output for it. Advanced

Exhibit 3.3.1
Average Thematic Assets in Respondent Portfolios

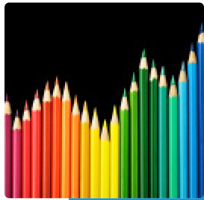


As of March 2021
Source: FactSet, Forbes Insights, Morningstar

data analytics can sift through a large, unconstrained investment universe, ranking an output of a machine-learning process to divine a comprehensive set of companies exposed to the theme. In this way, portfolio construction is unconstrained by potential biases inherent in a traditional process, leading to the inclusion of securities that may previously not have been considered for a given thematic strategy. This in turn can lead to less-correlated returns from more orthodox equity and fixed income approaches.

Start with an Idea

In investing as in life, sometimes we don't know what we don't know—and that's where data comes in. Without advanced data analytics techniques, building a thematic portfolio would generally involve ticking through the sectors likely to have companies that are exposed to that theme, and buying the most attractive companies. Someone interested in the field of sustainable agriculture, for example, might look primarily at obvious carbon sinks such as forestry companies, environmentally sensitive fertilizer manufacturers, or suppliers of precision agricultural equipment.

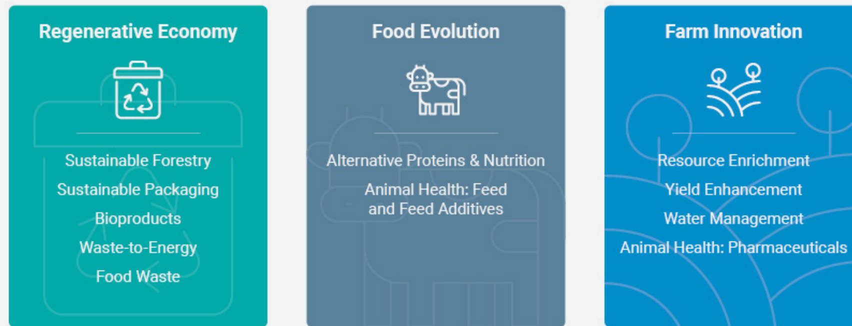


In investing as in life, sometimes we don't know what we don't know—and that's where data comes in.

However, we think this kind of selection process has the potential to miss some important opportunities. With human guidance to select input source material, natural language processing and other methods can "teach" machines what there is to know about a particular subject quickly. Given a minimum quantity and quality of inputs to have sufficient depth, the machine can then develop a working lexicon of language that is unique or important to a particular theme or discipline. Company filings, earnings call transcripts, newspaper articles, and even which companies specific research analysts tend to cover can elicit a broad first sketch of companies, ranging from those that are directly exposed to the theme down to those that are more tangentially impacted by it.

Many times, the interconnected web of companies that a machine-generated investment universe yields includes some surprises: sticking with our sustainable agriculture example, after assessing the output from the machine-learning exercise, a broader set of investment opportunities can be identified that are aligned with the theme, including companies focused on enhancing productivity, new forms of food packaging, and catering for evolving dietary requirements (Exhibit 3.3.2).

Exhibit 3.3.2
Capturing a Less Constrained Thematic Opportunity Set



Source: Lazard

By the same token, sometimes the web leaves out important nodes and connecting threads. That's why, after the machines have done their work, it is essential to run their results by human research analysts who can spot false positives in the output as well as potential omissions. We also look to fundamental input to provide color and context about the companies and their efforts in the fields we are interested in: management teams, valuations, growth outlooks, etc. Naturally, expert portfolio-builders are also a critical part of the composition and weighting of a final, concentrated investment product.

Big Data

To be clear, the feeder data itself—that is, the information used to train artificial intelligence applications—need not be proprietary or unique to be useful. Data is coming to market at tremendous speeds, particularly in the area of ESG, where many investors are eager to add increasingly narrow thematic exposures. The formats include classic ratings databases and other quantitative metrics, but also increasingly unstructured data, from social media posts to satellite images, which are often hot topics of conversation among market-watchers. In the end, however, we feel many of these data sets will quickly become commoditized, available either for free (e.g., from government agencies) or to anyone willing to pay for them. Specialist data provision for a given thematic or segment can add real value to portfolio construction for these niche investment vehicles.

The real data advantage comes from fundamental research analysts with deep industry expertise and connections. As much as we value the role of technology, often there is no substitute for human beings who have sat across the table from chief executives and grilled them about their business strategy, or researched a particular technology or trend that evolved over the course of many years. Fundamental research is still in our view a necessary component of building a portfolio and actively managing it in order to account for shifts in strategy, breakthroughs at rival firms that force companies to pivot or

> **Passively managed thematic strategies may have access to data, but they do not have the kind of human discretion and ability to assess future prospects, a skill that is essential to build portfolios with conviction, or include the optimal companies.**

double down on a theme, etc. Passively managed thematic strategies may have access to all the feeder data, but they do not have the kind of human discretion and ability to assess future prospects, a skill that is essential to build portfolios with conviction or include the optimal companies. This is especially true of innovation themes, where some of the best investments could be trading on valuations that would be excluded from quantitative screens or consist of recent IPOs that are not yet part of the indices or data sets used for systematic analysis.

Targeted thematic funds need not be used exclusively as diversifiers or ways to get exposure to disruptive trends. We have seen clients use focused thematic strategies to provide a liquid portfolio of publicly traded assets to offset private, illiquid assets with the same area of investment focus. Such a portfolio can be used as a liquidity sleeve for the private exposure; or conversely the private investments can add volatility-dampeners to portfolios when secondary markets experience drawdowns.

The ability to design hyperspecific exposures to fit investment themes or fill particular clients' needs is an exciting new frontier in portfolio construction and management. Diversification will always involve the spread of risk. But in our view, to fully access the potential upside in the market's future growth opportunities via a truly holistic portfolio, the additional flexibility that targeted, thematic exposures can offer is critical.

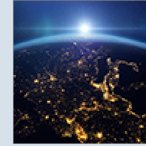
Explore How to Capitalize on This Trend

Lazard Sustainable Agriculture

The Lazard Sustainable Agriculture strategy is designed to capitalize on the trends powered by the fundamental need for future food production. As the global population continues to grow and climate change challenges production, there is a growing awareness of the urgent need for efficient agricultural practices while mitigating environmental impacts.

Lazard Global Robotics & Automation

The Lazard Global Robotics & Automation strategy is a focused, all-capitalization strategy that seeks long-term capital appreciation by investing in companies that have significant exposure to the most relevant robotics and automation market segments. Companies in the investable universe offer products and services throughout the robotics and automation value chain that aim to increase the productivity of processes and businesses.



Lazard Demographic Opportunities

Consumer spending behavior is changing. As people live longer, retirees and young professionals are increasingly driving discretionary spending. We find that this structural change has been both predictable and measurable. The Lazard Demographic Opportunities strategy aims to capitalize on this evolution in consumer spending by investing in companies in the segments we believe are most likely to benefit from it.

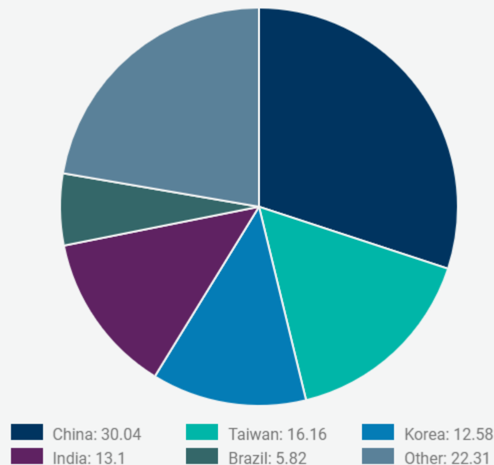
The China Conundrum

How Compatible Is China's Communism with Its Capitalism?

- Investors have long been attracted to China's huge economy, its fast growth, and increasingly, the high level of its innovation.
- But recently, government crackdowns, COVID-19 lockdowns, and rising geopolitical tensions have tested investors' mettle in the country.
- Is China still home to some of the world's most exciting growth opportunities? Or have investors ignored both risks in China and opportunities elsewhere?

Before the United States-China trade war erupted, the question of whether China's politics were compatible with its business model didn't seem so urgent. China had gone from a developing country to something at once more complex and more interesting to investors: A country where the middle class was ballooning, and a small group of people were getting not just rich but conspicuously rich. A country where technology companies didn't just borrow ideas from Western pioneers—they improved upon them and sometimes leapfrogged them. A country that was no longer the world's hub for low-value manufacturing but a place that manufactured high-value, sophisticated items and aspired to transcend even that to become a services-centered economy focused on a growing domestic consumer class. A country that played an increasingly large role in global politics both through multilateral organizations and soft power through loans and infrastructure development in other emerging markets.

Exhibit 4.0.1
MSCI Emerging Markets Index by Country
China Accounts for Nearly One-Third of EM Equities Benchmark



As of 31 March 2022
Source: MSCI

However, the Chinese government spent much of the last year-and-a-half cracking down on the very fast-growing technology firms and internet platform companies that dazzled Western investors as well as some of their super-rich founders. It also allowed one of the country's biggest property developers, Evergrande, to default on its bonds. These developments led many investors to wonder whether China is open for business in the same way it used to be.

The strategic tension between the United States and China is also bleeding more and more into business. Perhaps the best example is the race for primacy in strategic technologies, including semiconductors. The United States went so far as to block American companies from selling technology to Chinese chipmakers, most notably Huawei. The United States also added state-connected Chinese companies to the Entity List, which precludes Americans from trading in their securities, and threatened to delist Chinese firms that do not comply with US audit requirements. For its part, China has added additional layers of scrutiny to companies that seek to go public overseas. It has also redoubled efforts to form and empower Communist Party organizations inside companies operating in China, including foreign companies, creating questions about both information sharing and the Party's influence over strategic decisions.

$39 Billion

China's spending to date supporting the domestic semiconductor industry

Source: Semiconductor Industry Association as of 13 July 2021

The questions about the Party's role in the economy comes amid concerns about an economic slowdown. The country is still pursuing a zero COVID policy complete with strict lockdowns, which will likely impact economic growth and potentially global supply problems. In the longer term, the questions investors have are really about the viability of investment in Chinese stocks and bonds. This, of course, is a complex question, and investors have a wide range of opinions—that's as true within our walls as without.

Two of our independent investors have contributed a unique perspective on how the current moment affects China's future and the future of portfolios with exposure to either China or emerging markets.

The strategic tension between the United States and China is also bleeding more and more into business. Perhaps the best example is the race for primacy in strategic technologies, including semiconductors.

Don't Count China Out Yet

By The Lazard Developing Markets Equity Team

Investors in Chinese equities have had to do some soul searching over the last two years in the face of the government's sweeping, multi-industry regulatory crackdown, a zero COVID-19 policy that has led to strict lockdowns and supply chain disruptions, and rising geopolitical tension, both in terms of a long-term tension primarily with the United States over trade relations and the country's support of Russia after it invaded Ukraine. Of all of these, the regulatory crackdown may have been the most unsettling issue for long-term investors. Some have concluded that it was time to hit the brakes—that the government's control over the market and its power to disrupt entire industries was too great, and its commitment to allowing capitalism under communism too tenuous.

We came to a very different conclusion. In our view, the regulations that have come out over the last 18 months were not intended to quash capitalism or entrepreneurialism. While investors were shocked that the government went after the major internet platforms, which are some of the most successful companies in China, we note that the government has placed other kinds of technology at the heart of its strategic plans. Given that advanced economies are grappling with the same issues that motivated many of the new regulations, we also question whether history will judge China's moves as truly drastic or merely early.

In our view, there are very few markets that offer the size, sophistication, and growth potential that the Chinese equity markets do. We are convinced that investing in China offers access to some of the most innovative companies in the world today and the potential for early exposure to the most innovative and successful companies of tomorrow. The next set of winners is likely to be different than the last set, but China isn't done building world-leading companies, in our view. In addition, we think there are encouraging signs that the government is looking to change course in an effort to promote growth and home-grown businesses. Rather than running for the exits, we are looking for new potential points of entry.

The next set of winners is likely to be different than the last, but China isn't done building world-leading companies, in our view.

What Hasn't Changed Is More Important Than What Has

In our view, most people do not invest in China because they assume that the government will never surprise businesses with new regulations. Quite the contrary: China's leaders have attempted to rein in behaviors that they

consider detrimental to society many times in the past. In 2018, the regulator completely halted new game approvals as the government reconsidered the framework for content, age restrictions, and engagement. New regulations emerged by the end of that year, forcing companies to adapt to new requirements. Past crackdowns certainly had a short-term impact on specific industries and companies, but they did not stifle either growth or innovation in the long term.

People invest in China because it has huge, liquid markets to match its huge, broad economy; the world's largest population, which is in turn undergoing the fastest expansion of the middle class in history;[1] and a robust technology ecosystem that spans social media, e-commerce, artificial intelligence, electric vehicles, and semiconductor manufacturing (Exhibit 4.1.1). China appears to be in the midst of a long-term shift that could shake the world, given the size of its economy. The structure of the Chinese economy is essentially the inverse of the United States: 25% services and 75% manufacturing. China's government wants to balance that ratio in order to become less dependent on global exports of low-value manufactured goods and infrastructure investment and more reliant on the spending of its increasingly wealthy consumer class. In addition to balancing the ratio, China would like to move up the value curve in manufacturing, especially in the semiconductor segment, toward higher value-added products that require the use of domestic intellectual property and away from lower value-added component assembly.

Exhibit 4.1.1

As of (i) 2020, (ii) 31 May 2021, (iii) 31 October 2020
Source: Brookings Institution, CEIC, World Bank

That implies the need for dynamic, fast-growing companies that cater to the Chinese market. None of that has changed since the most recent bout of regulation.

Are China's Concerns So Different from Any Western Democracy?

The recent regulations made many China investors nervous that the government was stifling the all-important internet industry. China's information technology and internet-related companies make up 15% of the MSCI Emerging Markets Index. However, we note that the government came down hardest on areas it did not consider to be furthering the goal of common prosperity. Setting strict limits on children's weekly usage, for example, showed that the government didn't look kindly on the video gaming sector.

In other cases, the government took aim at monopoly behavior that did not serve consumers' interest, so-called walled gardens being a notable example. Internet platforms in China actively prevented price discovery and blocking rival payment systems. A customer searching for something on Baidu couldn't see what was available on Alibaba and for how much, and a customer that wants to use Alipay to buy something on Tencent-owned WeChat is out of luck, for example. As a result of the rules, companies are taking action that will ultimately benefit consumers without, we believe, killing their business models: WeChat is breaking down barriers that will allow chats to display links to rival shopping services such as Alibaba-owned Tmall and is starting to accept Alipay, for example.

We think regulatory action in China may have peaked in certain areas, such as e-commerce. Even in gaming, an area that the government has made very clear it does not consider to be a productive pursuit for society, has seen some leniency. In April, Chinese authorities granted 45 new video game licenses for the first time in nine months. Though the numbers were small by pre-crackdown standards, they are high enough to make us believe that the government's tight grip on specific parts of specific industries is relaxing. Vice Premier Liu He also calmed many investors' nerves with comments in March pledging to support the economy in general and calling for "standard, transparent, and predictable regulation" of what are known as internet platform companies. The vice premier also implied that the current wave of regulation should wrap up as soon as possible and called for any regulation to support companies and ensure they are competitive with overseas rivals.

That being said, regulating tech companies is not a specifically Chinese dilemma. We would not be surprised to see additional regulation of social media companies or other tech behemoths in the United States or Europe, either. Chinese officials and state-influenced newspapers are certainly not alone in their assessment that social media and video games can have detrimental effects on people, especially young people. Both European and American lawmakers have likewise insisted that the major tech platforms have monopoly-like power, and some powerful officials have even said they should be broken up.

Perhaps more than the actual content of the regulations, investors worried about Xi Jinping's common prosperity rhetoric and calls for wealthy entrepreneurs and successful companies to "give back" to favored causes to better society. If it turns out that the Chinese government intends to stop

In His Own Words...President Xi Explains "Common Prosperity"

While we should allow some people to get rich first, it should be emphasized that those who become rich first [shall] lead and assist those who are not yet rich. We shall focus on encouraging industriousness, legal business operations, and those leaders of wealth acquisition who dare to pioneer. Getting rich by underhanded means shall not be supported, and those who break the law and violate regulations must be dealt with according to the law.

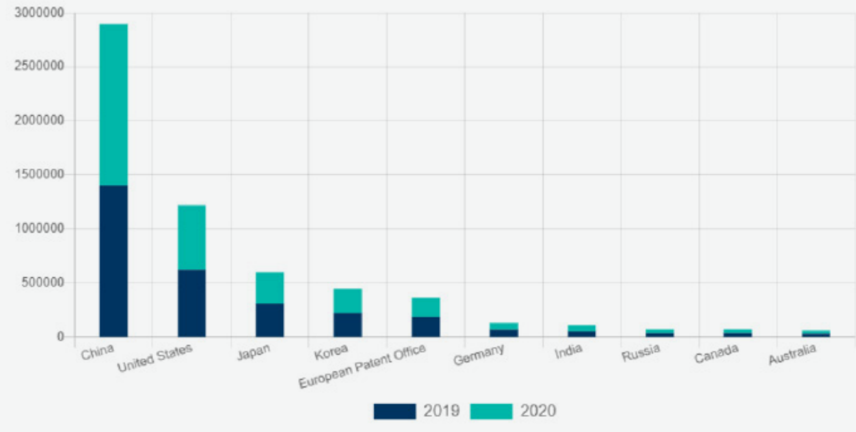
companies from growing past a certain point, we naturally believe that is cause for major concern. But it doesn't sound like that's what's happening to us. President Xi Jinping said in a major speech: "While we should allow some people to get rich first, it should be emphasized that those who become rich first [shall] lead and assist those who are not yet rich. We shall focus on encouraging industriousness, legal business operations, and those leaders of wealth acquisition who dare to pioneer. Getting rich by underhanded means shall not be supported, and those who break the law and violate regulations must be dealt with according to the law." None of this would sound out of place in a speech by a left-leaning candidate in a Western democracy.

What Could Come Next?

While we do not find the regulations as they stand so far as alarming as many investors seem to, we do believe that the opportunities of the future are in more strategic corners of the technology world. Xi has been very clear that technology is strategically important to China, and China is very good at innovation. Chinese scientists file for the most patents in the world, and the number of patents actually being enforced, while still lower than in the United States, grew faster in China than anywhere else in the world (Exhibits 4.1.2 and 4.1.3).[2] China also has more university graduates than any other country in the world including in STEM fields.

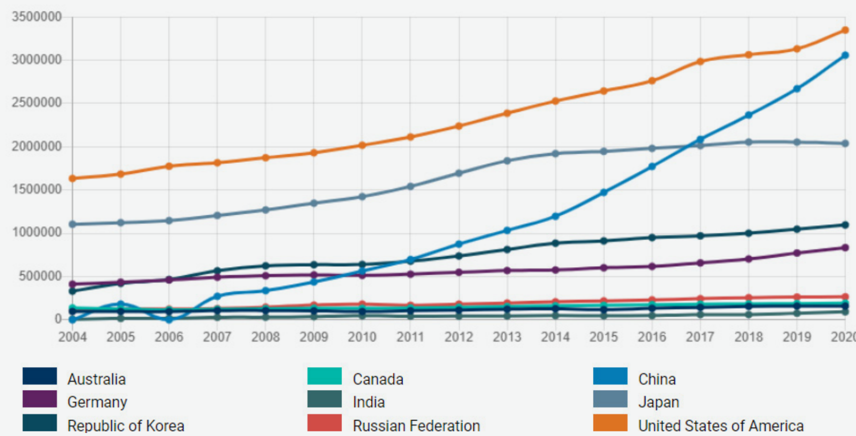
Xi publicly set a goal of leading the world in AI by the year 2030, for example, and there is broad agreement among scientists and military officials that if China has not already achieved that objective, it is a strong contender for the title in the future. According to Stanford University's 2021 Artificial Intelligence Index, Chinese computer scientists have produced more research papers cited in AI journals than either European or American scientists for several years now, and Chinese papers were more widely cited (a measure of quality) than American ones for the first time in 2020.[3] Internet companies such as ByteDance, Alibaba, and Tencent have formidable amounts of customer data they can use to train algorithms, and these companies and others, including promising start-ups, receive considerable support from government-sponsored academic research and data feeds.

Exhibit 4.1.2
Patent Applications for the World's Top 10 Patent Offices



As of 31 December 2020
Source: Brookings Institution, CEIC, World Bank

Exhibit 4.1.3
The US Leads Patents in Force by Country, but China Is Catching Up



As of 8 November 2021
Source: WIPO

China has also been very decisive in its move to embrace and encourage green technology. The country is by far the world's leading manufacturer of wind turbines and solar photovoltaics for solar energy panels. Electric vehicles are another exciting arena for investors to consider: China contains three-fourths of the world's raw materials for lithium-ion batteries.[4] Thanks in part to generous government support, China currently has more electric vehicles than anywhere else in the world, and leading companies are aggressively pushing products into Europe.

We foresee many of the headwinds that have made China a difficult place in which to invest lessening in the coming months. The country has pursued a zero COVID policy for much of the pandemic, which has led to slower growth. After the recent surge in COVID restrictions, the government may soon relax some of its policies, which would likely benefit the economy. We also think we are past what we call the peak of surprise in terms of further regulation: There may be more, but we don't expect it to either surprise the market or make certain industries uninvestable.

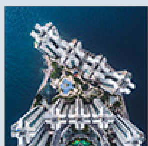
70%

Amount of graphite, a key material in producing lithium-ion batteries, that comes from China[5]

Footnotes

1. Kharas, Homi and Meagan Dooley. "China's Influence on the Global Middle Class," Brookings Institution. October 2020. Accessed 10 January 2022.
2. "World Intellectual Property Indicators Report: Worldwide Trademark Filing Soars in 2020 Despite Global Pandemic." World Intellectual Property Organization. Originally published 8 November 2021, Accessed January 10, 2022.
3. "Artificial Intelligence Index Report 2021," Stanford Institute for Human-Centered Artificial Intelligence. Chapter 1, page 4, 7, 14.
4. "China EV, battery makers grapple with graphite squeeze," Reuters. Originally published 15 December 2021, Accessed 7 January 2022.
5. Ladislaw, Sarah and Nikolas Tsafos. "Beijing Is Winning the Clean Energy Race," Foreign Policy. Originally published 2 October 2020, Accessed 10 January 2022.

Explore How to Capitalize on This Trend



Lazard Developing Markets Equity

China offers access to some of the most innovative companies in the world today and the potential for early exposure to the most innovative and successful companies of tomorrow.

Lazard Developing Markets Equity seeks out emerging markets companies at the forefront of innovation and development. The companies we seek have disruptive business models, above-average earnings growth, and potential that is not, in our view, fully reflected in valuations.

The Opportunities Investors May Be Overlooking in Xi's China

By The Lazard Bottom Billion Team

"Common prosperity" has become the new mantra of the Chinese government over the past year. A barrage of regulations has supported the cause, targeting high-growth business segments from technology and gaming to education, healthcare, and real estate. Even wealthy individuals—typically successful entrepreneurs in China's digital economy—have received directives from the government to pay fines, make charitable contributions, or both.

Investors are understandably concerned about the impact of the new regulations on well-known successful companies, such as tech giants Alibaba and Tencent. China's regulatory actions in 2021 resulted in market value losses of more than US$1 trillion and pose risks to the earnings outlooks for many of these companies. However, it is equally important for investors to examine the other side of the coin: the potential opportunities. In our view, China's drive for common prosperity boosts the prospects for lower income groups in particular, which may allow the country to achieve more sustainable growth and create new investment opportunities over the long term.

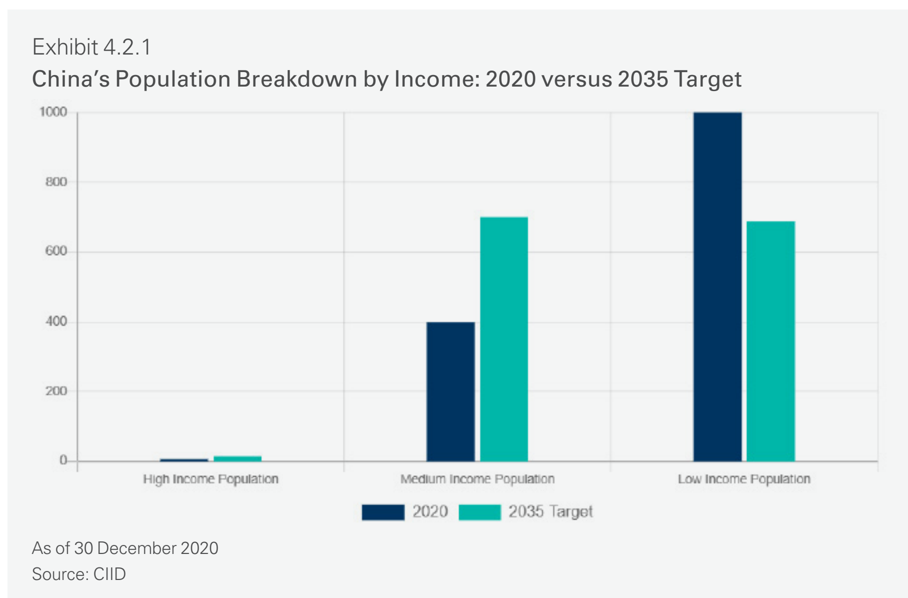
Investors are understandably concerned about the impact of the new regulations on well-known successful companies … However, it is equally important to examine the other side of the coin: the potential opportunities.

Spreading the Wealth

To understand China's motivations, it helps to put the latest regulations and reforms in context. Since China began the current era of reform in 1978 under Deng Xiaoping, its economy has grown into the second-largest in the world, and extreme poverty plunged from 66% in 1990 to 0.3% in 2019, according to the World Bank. Four decades of strong growth, however, created some unanticipated structural issues including rising income inequality. Despite China's success in eliminating much extreme poverty, almost 70% of the population remains in the low income tier, making less than ¥1,500 (US$233) per month. Only 8.5 million people qualify as high income, earning more than ¥360,000 (US$55,842) per year, while 400 million people fall in the middle.

Chinese leaders have been more than aware of this disparity and are taking steps to reduce it. In May 2020, China's Premier Li Keqiang spoke of the country's new target of having 700 million people in the middle class by 2035. It is an ambitious goal, essentially moving 300 million people—almost the entire population of the United States—into the middle class over 15 years (Exhibit 4.2.1).

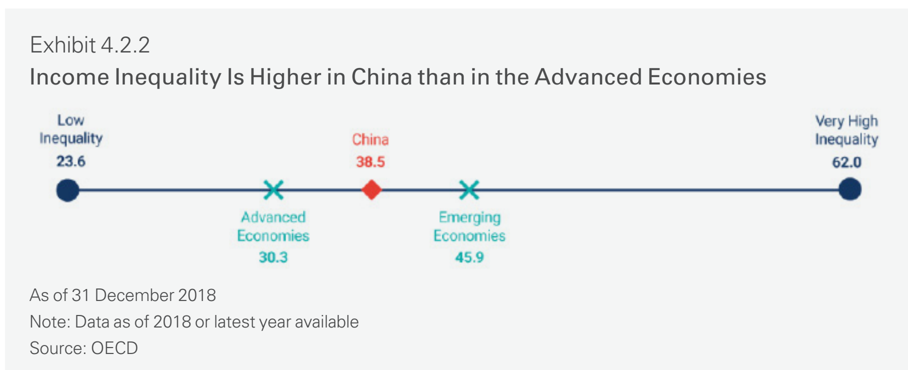
Exhibit 4.2.1
China's Population Breakdown by Income: 2020 versus 2035 Target



As of 30 December 2020
Source: CIID

Income inequality is significantly higher in China than in the advanced economies, a clear incentive for the country to try to "catch up" (Exhibit 4.2.2). But reducing income inequality also dovetails with a larger goal: Expanding the middle class is a crucial stop on the long road to becoming a developed economy. Now the world's biggest exporter, China needs to diversify and develop domestic demand to avoid what the World Bank calls the "middle-income trap"—when an emerging economy fails to develop new export markets and grow its own domestic economy. In other words, it ceases to innovate and gets caught in a cycle of slow growth that is hard to escape. In fact, dozens of emerging economies have been caught in this trap over the years, with notable exceptions including Hong Kong and Japan.

Exhibit 4.2.2
Income Inequality Is Higher in China than in the Advanced Economies



As of 31 December 2018
Note: Data as of 2018 or latest year available
Source: OECD

Regulation: The Opportunities

China's ambitious goal requires dramatic action, as investors have witnessed over the past year. Much of the regulation and reform has aimed to spread the wealth or at least level the playing field.

Recent education-related regulation, for example, decimated the for-profit after-school tutoring industry in large part because the high cost was hurting middle class families. Combined with high housing prices, it was even credited with keeping birth rates down; although China scrapped its one child policy in 2016, raising more than one child was simply too expensive for many families. Taking tutoring out of the mix lifts a burden for the middle class and helps level the playing field for students from lower income families.

Other regulations have aimed to eliminate "monopolistic" practices; for example, large e-commerce platforms can no longer set rules that effectively prohibit their sellers from also using other platforms. While a risk to some large tech companies' near-term profits, these rules increase the long-term prospects for small- and medium-sized companies in China.

Meanwhile, changes in the healthcare industry aim to reduce prices for healthcare devices and prescription drugs, making healthcare more affordable and again, opening the competitive landscape to high quality, innovative companies.

> **Income inequality is significantly higher in China than in the advanced economies, a clear incentive for the country to try to "catch up" … But reducing income inequality also dovetails with a larger goal: expanding the middle class …**

When we look at China's regulatory changes through the lens of opportunity, we try to extrapolate the implications and then identify the specific sectors and companies that may benefit from them. Currently, we see compelling opportunities in three segments: consumer products, healthcare, and technology.

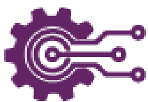
Consumer Products

Overall, we believe consumption in China should increase significantly in the years ahead. China's savings rate is around 40% of GDP, according to the latest figures from the World Bank, which is the highest globally. The key reasons for this high rate are the lack of a safety net and high property prices. As regulation and reform can improve the safety net, we think Chinese consumers will gain the confidence to increase spending. A consumption-based economic growth model requires much less leverage than the investment model that has prevailed over the past few decades in China, which should make it more sustainable. In addition, more affordable housing prices should release households' financial resources into fast-growing product categories including dairy, fast food, insurance, home appliances, media, and cosmetics.

Healthcare

The government has sought to reduce healthcare pricing to make it more affordable. It has addressed the high cost of medical devices, for example, by introducing group bidding and removing high distribution costs that had been passed on to end-consumers. Historically, each of China's 30,000 hospitals had to bid directly with distributors for medical devices, but now a volume-based procurement scheme run by the Healthcare Security Administration allows for large-scale purchases across all hospitals through a bidding process. We think medical device companies with quality products stand to benefit from higher volumes as hospitals work together and high distribution costs (which added nearly 300% to the ex-factory price for some products) have been eliminated.

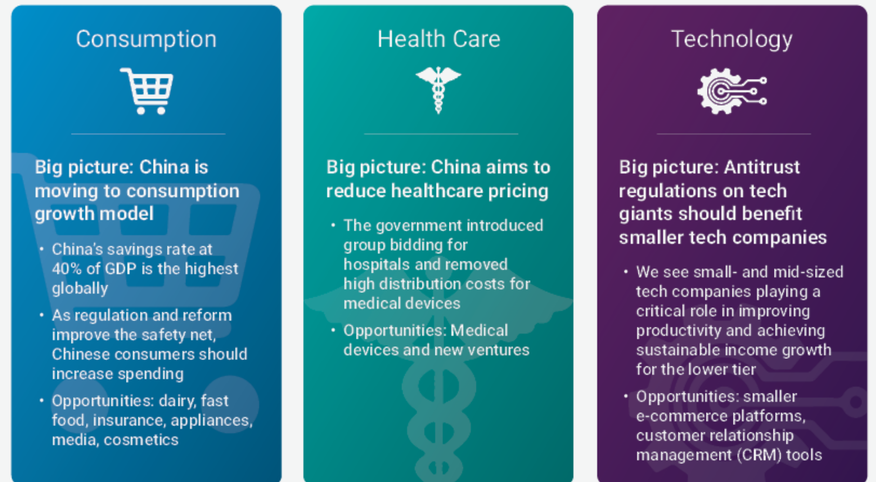
Technology



The antitrust regulations levied on the technology giants will almost certainly benefit smaller technology companies. Although we are still in the early days of change, now that large e-commerce platforms can no longer restrict their merchants from using other platforms, we have already seen a significant increase in new merchants at a smaller e-commerce platform focused on lower-tier-city customers. More broadly, we do not think that innovation is being stifled by technology regulation; rather, we see technology playing a critical role in improving productivity and achieving sustainable income growth for those at the base of the pyramid. For example, small- and medium-sized merchants, who lack customer acquisition capabilities, had to pay high fees to the large, monopolistic e-commerce platforms. With the regulatory changes, these merchants will have greater control and more options of whom to partner with. We also

believe customer relationship management (CRM) tools that help these merchants acquire customers directly, thereby saving on marketing and other customer acquisition costs, are a potential growth area.

Exhibit 4.2.3
Opportunities as China Builds Its Middle Class



As of 31 December 2021
Source: Lazard

Focusing on China's Transformation

Concerns about the latest regulatory spree go beyond the world of investments. Has the government stepped too far into individuals' lives and businesses' decision-making? Will there be push back within China to the reforms? Ultimately, is China still pro-growth?

While we will continue to monitor the actions of this government, we remain convinced that China's drive toward common prosperity, or spreading the wealth, is pro-growth. China's successes of the past 30–40 years stemmed from its market-based economy. Some recent measures may seem swift and harsh, but the underlying goal of Xi and his administration is to expand the income pie for the population, thus building the middle class and creating more sustainable growth for the economy over the long term. By focusing on this transformation, we believe investors can uncover compelling opportunities in China over the next decade.

Explore How to Capitalize on This Trend

Lazard Bottom Billion

China's new regulatory policies have the potential to bring millions of people out of poverty and into the vast middle class.

The Lazard Bottom Billion strategy focuses on shifts like these, aiming to invest in companies that serve the world's poorest people as their incomes rise from a very low base.

Published on 19 September 2022

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The MSCI Emerging Markets Index is a free-float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. The MSCI Emerging Markets Index consists of emerging markets country indices including: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.

The Russell 1000 Index is a stock market index that tracks the highest-ranking 1,000 stocks in the Russell 3000 Index, which represent about 93% of the total market capitalization of that index.

The Russell 2000 Index is designed to represent the "small cap" market of US equity securities, composed of approximately 2,000 of the smallest securities in the Russell 3000 Index. The Russell 3000 Index is a market-capitalization-weighted equity index maintained by FTSE Russell that provides exposure to the entire US stock market. The index tracks the performance of the 3,000 largest US-traded stocks, which represent approximately 98% of all US-incorporated equity securities.

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The MSCI Europe Index is a free-float-adjusted market capitalization index that is designed to measure equity market performance in the developed markets countries of Europe.

The indices are unmanaged and has no fees. One cannot invest directly in an index.

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