



2022 BEST IDEAS

REVIVAL INSTINCTS

Opportunities for long-term investors to thrive

For professional investors only.
All investments involve risk,
including possible loss of capital.

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INTRODUCTION

TRANSITORY, OR ENDURING?

For institutional investors, it's hard to escape that question. And while it immediately brings to mind the debate over inflation, the reality is that there is no shortage of other vital issues facing investors that can be viewed as either short-term hurdles to be cleared or structural concerns that will prove to be long-lasting. Tough questions, and none of the answers are especially easy.

- **Will the Fed and central banks around the world pivot to a more balanced monetary policy?** It's a near certainty (at least in the US), barring some unforeseen circumstance that dents the economic recovery. The good news is that investors should be well prepared for a such a move. And over the longer term, key secular trends such as the aging population and debt overhang should manage to keep a lid on rates, reinforcing the ongoing "hunt for yield" and the allure of private markets.
- **Is ESG for real this time around?** Yes, with a caveat. Talk has indeed turned into action, and there's a significant appetite for managing portfolios' climate risks and opportunities. But the "greenwashers" are still out there. Better ESG data, and more access to that data, should help.
- **What's the role of COVID-19 going forward?** As the recent scare surrounding new variants has taught us, we'll be learning on the fly. But the momentum for a return to some form of normalcy seems to be building, with the financial services industry coming together in fundamentally new ways, with an eye towards maintaining recent levels of productivity and flexibility.

These issues and an array of others play a role in shaping our latest installment of PGIM's Annual Best Ideas report. Yes, the investment horizon remains riddled with potential pitfalls, but the step-up in growth we've experienced as vaccinations have become more ubiquitous should stick around for a while. Cities will once

again become the place to be. Opportunities in emerging markets, renewable energy and across the tech universe should be ample.

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Despite lingering risks, we remain confident that the ongoing economic revival has staying power, offering long-term investors opportunities to thrive.

Either way, our focus will be on the long-term trends and undercurrents that can lead to unique and untapped investment opportunities for our clients. The quarters ahead will surely bring surges and stalls across key economic data, from retail sales and job creation to inflation. And the resulting swings in investor sentiment will no doubt contribute to more volatile days like those we saw in 2021. But despite the lingering risks, we remain confident that the ongoing economic revival has staying power, offering long-term investors in a host of public and private asset classes the opportunity to thrive.

JENNISON ASSOCIATES

UNCOVERING TECH-DRIVEN GROWTH IN A CROWDED MARKET

In a world of scarcer growth and rising competition, the future potentially belongs to companies that understand the transformative power of technology and successfully integrate it within their core business models. This was demonstrated and accelerated by the COVID-19 lockdowns of 2020, and the outperformance of technology and technology-related companies is a powerful reminder that the tech opportunity is no longer confined to hardware, software, and the internet giants.

The tech-driven growth is far from over, in our view, but it may evolve. We see a wide frontier ahead for new market leaders to emerge. This stands in sharp contrast to the broader market, which has shown a declining share of companies posting strong revenue growth, both in the United States and abroad. A little more than a decade ago, one out of two companies in the MSCI ACWI Index was growing sales at 15% or more annually. Today, it's one in five.

Amid rapid technology change and adoption, our research points to three catalysts for earnings and revenue growth in the United States and globally:

1. Direct-to-consumer business models

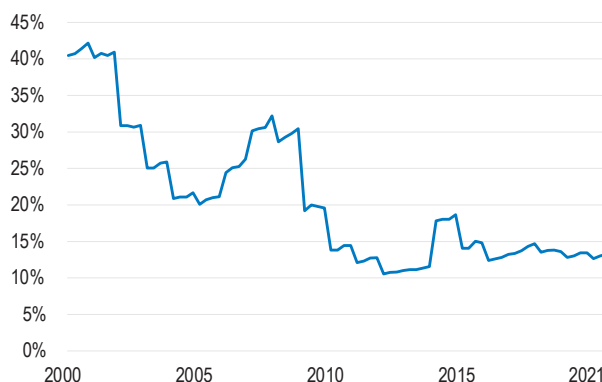
Direct-to-consumer (DTC) business models are based on the growth of e-commerce and are becoming essential for certain types of companies to develop relationships with consumers and bypass intermediaries (and avoid the exorbitant fees or investments they require). They enable companies to build customer loyalty through superior personal service and expand their target markets, projecting their marketing and sales presence across borders without requiring new physical storefronts. The DTC model is fundamentally changing the competitive landscape in several industries, from retail, to entertainment, to electric vehicles.

2. Technology enablers

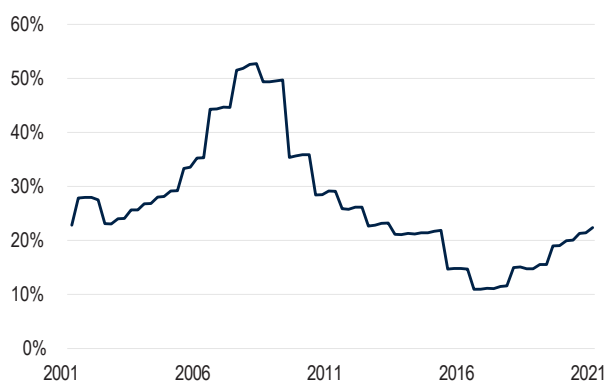
The success of DTC companies is heavily dependent on other parts of the tech ecosystem. Tech enablers provide the behind-the-scenes infrastructure and expertise that supports e-commerce businesses. For example, certain tech enablers offer a single platform for companies to process payments around the world, greatly simplifying the merchant's e-commerce operations. Tailwinds for

Growth Has Become Scarcer

Percentage of S&P 500 companies with average annual sales growth over 15% on a five-year basis¹



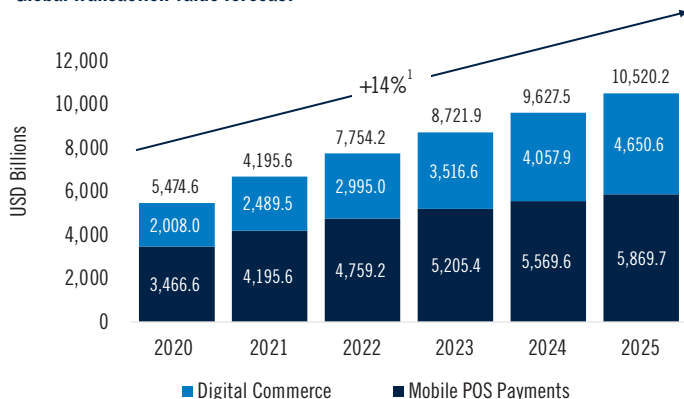
Percentage of MSCI ACWI companies with average annual sales growth over 15% on a five-year basis¹



¹ Five-year sales growth recorded on a quarterly basis
As of June 30, 2021
Source: FactSet

Digital Payments Expected To Expand Globally

Global transaction value forecast



¹ Compound annual growth rate
As of December 31, 2020
Source: Statista

these service providers appear to be strong: The transaction value for global digital payments was \$5.4 trillion in 2020 and is expected to double by 2025.ⁱ Across the world, the long-term shift from cash to electronic credit and debit transactions will likely continue, with annual growth rates of electronic credit and debit transactions over the next five years expected to exceed 15% in the United States and Europe and 10% in China.ⁱⁱ

Tech enablers can offer one-stop service for businesses seeking to establish online storefronts, gain insights from customer data, and address evolving challenges such as security threats. This makes it easier for companies and entrepreneurs to quickly set up online while maintaining a direct brand relationship with customers — as opposed to an indirect relationship selling products through a third-party website.

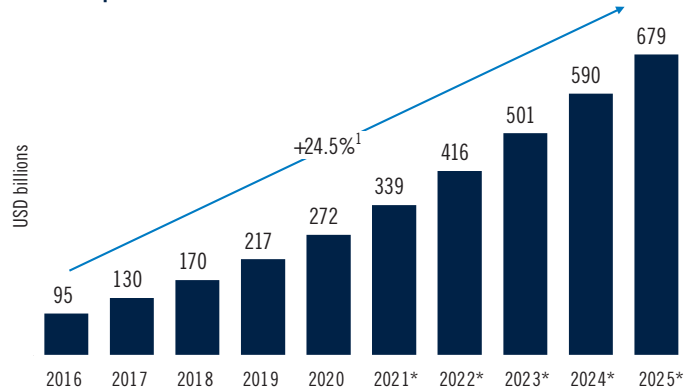
Technology enablers offer opportunities to incumbents, but also to innovators and disruptors, which are building the scaffolding that businesses need in order to stay competitive and achieve scale. This trend is closely related to our third theme...

3. Digital transformation of the enterprise

The emergence of cloud services represents a paradigm shift in technology comparable to the advent of the internet. For many years now, companies have been able to increasingly move their services and processes onto the cloud, raising their efficiency and allowing them to focus on their product or service. Globally, public

Building Castles In The Cloud

Worldwide public cloud revenue



¹ Compound annual growth rate
*Forecast
As of December 31, 2020
Source: Statista

cloud revenue is projected to grow at an average annualized rate of nearly 25% to reach \$679 billion in 2025. Cloud migration has also driven demand for both software — the programming companies need to run their operations — and hardware — the servers needed to host and process software and data.

This theme is, in some ways, the latest iteration of a long-standing trend in technology: US capital spending patterns reveal an ongoing shift towards next-economy industries at the expense of old-economy industries. The growth of a business's investment often directly corresponds to the business's ability to exploit opportunities and raise its overall growth rate. Even among the scalable platforms, capex spending is higher than the overall market. This investment in technology infrastructure is a core driver of future revenue and earnings growth.

Who will benefit from technology disruption?

We are in a new world of technology-driven change. Across industries, companies are evolving to asset-light balance sheets, leading to higher margins and more sustainable profitability. Compared to asset-heavy models, benefits can include higher return on assets, lower profit volatility, greater flexibility, and higher scale-driven cost savings. For investors, we believe this represents an extraordinary opportunity to gain exposure to long-term growth and technology-driven trends.

Visit [Jennison Associates](#) to learn more.

ⁱ Researchandmarkets.com, June 7, 2021
ⁱⁱ Statista, as of January 2021

FINDING VALUE IN VOLATILITY

As 2021 came to a close, the US Treasury market experienced a particularly volatile period, especially relative to the broader stability of the credit markets. Policy-sensitive rates across developed markets rapidly repriced at the end of October amid relentless inflation pressure, causing broad shifts in market positioning. Concerns about new variants of COVID-19 similarly whipsawed the markets late in the year.

The magnitude of the Treasury market volatility was historically significant, and the breakdown in the price relationship of normally highly correlated bonds drove dislocations in fixed-income relative value to extremes witnessed only during acute systemic crises, such as the Global Financial Crisis of 2008 and the early days of the pandemic.

The forced unwinds of leveraged investors has created unprecedented dislocations in various parts of the Treasury market and resulted in attractive relative-value opportunities, including in 10- and 20-year bonds.

The richening of (very) old 10-year bonds

The US Treasury regularly issues new government bonds monthly or quarterly, depending on the maturity. In normal market conditions, investors have a defined preference for the most recently issued bonds, known as on-the-run securities. The premium investors are willing to pay for such securities relative to other bonds of similar maturity is known as the “liquidity premium.” One way to measure the liquidity premium is to calculate the spread of the on-the-run security against an interest rate derivative and compare that to those of similar securities.

Since on-the-run bonds tend to be more liquid and offer lower transaction costs, the liquidity premium normally rises and asset swap spreads widen during periods of stress. For example, in March 2020, the asset-swap spread between old off-the-run 10-year Treasuries issued in 2019 and on-the-run seven-year notes rapidly widened, creating a 5-sigma event.

In late 2021, we witnessed an unprecedented counter-reaction. Forced unwinds of leveraged positions drove the asset swap spread

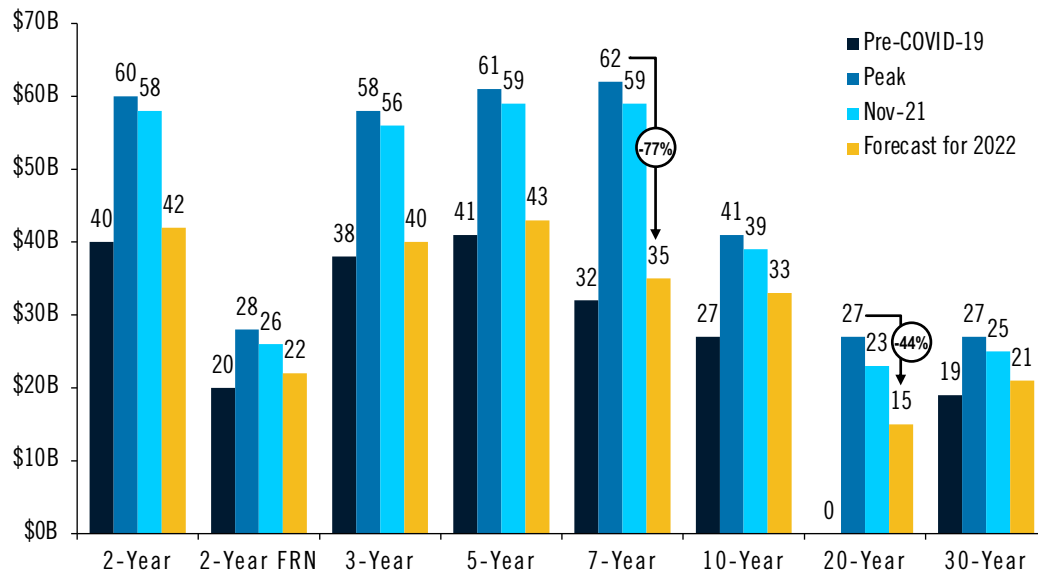
to quickly compress, leading to a significant richening of off-the-run securities. We believe many macro funds were forced to purchase these eight-year notes — which were already trading rich — in order to cover short steepener positions, contributing to the relative-value anomaly in this localized segment of the curve. The extreme liquidity premium quickly reverted in March 2020, and we believe mean reversion will again prevail as the value of the off-the-run notes cheapens over time.

The cheapening of 20-year bonds

Cross currents at the long end of the Treasury curve also created sizable relative-value opportunities. Since its re-introduction in May 2020, the 20-year bond has traded poorly relative to similar maturities. One way to gauge the relative undervaluation of the 20-year bond is to compare it with Treasury futures of similar maturity. Recent disruptions in the market and large liquidations of the 20-year sector have further amplified the relative cheapness in the bond, creating a 4.4 standard-deviation move in late October. The U.S. government is acutely aware of the relative cheapness of the 20-year bond and has recently taken several steps to alleviate the supply-demand imbalance.

In 2020, to fund COVID-related fiscal stimulus, Treasury rapidly increased bond issuance and disproportionately increased supply in the 7- and 20-year sectors. The overwhelming supply outstripped demand and has led to the relative cheapness exhibited in those two securities since. The recent, rapid economic recovery alleviated Treasury’s need to issue as much debt. Consequently, Treasury officials cut issuance across all maturities and disproportionately reduced supply in the 7- and 20-year sectors (see chart), and further signaled the potential for more reductions in the upcoming quarters.

Seven and 20-Year 2022 Issuance Poised to Slide By 77% and 44% From Their Respective Peaks



Source: PGIM Fixed Income, U.S. Treasury Department as of November 2021. Forecasts made by PGIM FI. There is no guarantee that these forecasts will be achieved.

Furthermore, the Federal Reserve, which has been buying Treasuries as part of its quantitative easing program, announced an accelerated tapering of its purchases amid the ongoing economic recovery. The Fed announced that it would reduce purchases by \$20 billion a month, and it previously indicated that it would purchase fewer bonds in all maturities except the 20-year bucket. The Fed's continued sponsorship of the sector, combined with decreased supply, should alleviate the relative discount of the 20-year bond.

Finally, the Chicago Mercantile Exchange has also joined the effort to improve liquidity and recently unveiled prototypes for a potential futures contract tied to the 20-year bond. U.S. Treasury

futures tend to be among the most liquid instruments in the world, and a potential 20-year contract would help enhance investor demand.

At a time when investors confront historically tight credit spreads and stretched equity valuations, rare relative value is left waiting to be captured in the US Treasury market. The emergence of these market anomalies stems from the intermediation challenges faced by the Treasury market, but the normal relationships between these highly correlated bonds should stabilize with time, as they have in the past.

Visit [PGIM Fixed Income](#) to learn more.

THE GROWING ROLE OF ALTERNATIVE FUNDING FOR E&P COMPANIES

Investors in the energy sector are increasingly looking for investment opportunities providing yield, dividends, distributions, and return of capital. For those seeking the investment protection of a debt claim but with contractual yield in the low-teens and equity-linked performance upside, evolving market conditions are increasingly supportive of mezzanine debt and other “structured” capital as a relevant source of funding for middle-market upstream (i.e. exploration and production) companies.

Many of those upstream firms are increasingly focused on sustainable production, cash flow stability, and conservative use of leverage. Broad industry trends involving capital availability, coupled with shifting views on the pace of energy transition, conservation, and the evolution of demand has led the capital that historically funded those activities to re-evaluate where to re-deploy – and what form of capital minimizes volatility risk and maximizes investor returns.

Experienced institutional capital, which is well-positioned to navigate the growing priorities surrounding responsible investing and climate concerns given ESG-oriented standards act as key pre- and post-investment criteria, has begun to fill the funding gap with capital tailored to address the needs of an essential industry. In response, institutional interest in conventional energy continues to channel away from equity-led, capital-gains-oriented investments towards opportunities that demonstrate lower volatility of returns and losses and higher visibility of cash yield and investment return protection. It’s a trend that fits well within an industry itself that is maturing, reducing prioritization of year-over-year growth, and focusing on the sustainability of production and visibility of free cash flow.

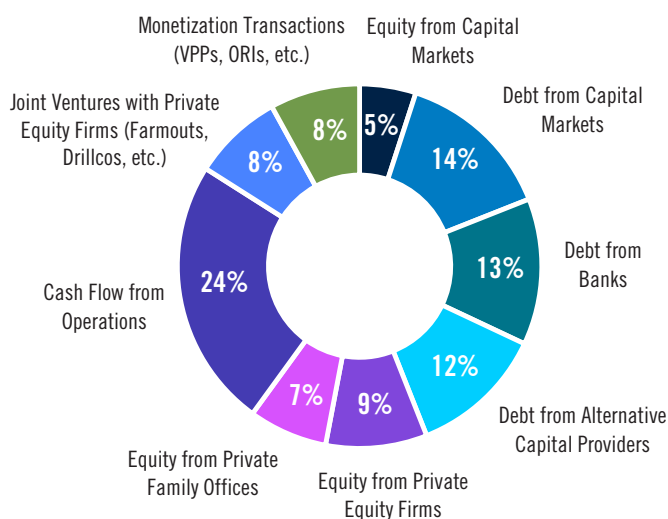
A short-term shift has gone secular

A fundamental shift in capital sources available for upstream energy companies to fund various business operations began several years ago. What began initially as a short-term response to sector volatility is quickly migrating towards a secular trend. Historically dominant funding sources – primarily commercial banks and public and private equity – have continued to withdraw from the

sector. The acceleration of this trend has served as a catalyst for a recalibration of asset values and investment return expectations and has opened the door for alternative sources of capital – importantly, institutional forms of capital – to fill a growing funding gap.

This shift has also created an opportunity for investors to consider different risk-return investment profiles within the industry and will likely be a trend that continues for some time. Recent surveys of domestic upstream independents highlight the increasingly

Where are Producers Planning to Source Capital from in the Next 12 Months?



Source: Haynes and Boone, LP. Respondents could select more than one option. Haynes and Boone, LP collected 444 responses. For illustrative purposes only.

important role that debt from alternative capital providers is now playing versus the traditional bank market.

As traditional senior debt lending participants exit the market, underwriting parameters and lending advance rates have also contracted and the role of junior capital (mezzanine/preferred equity) as an equity bridge has become more common. That's especially true for assets that are moving deeper into the lower-risk, but more capital-intensive, field development drilling phase.

The importance of junior capital

Junior capital as a form of financing is most often used to augment senior borrowing capacity in connection with the acquisition of a more mature proved developed producing (PDP) dominant asset package by junior operators or to accelerate development drilling efforts during advantageous price environments. Increasingly, equity owners are looking at this form of capital as a means of avoiding down-round common equity valuation events for short two-to-five-year term funding needs that exceed senior borrowing capacity. Private equity sponsors are also seeking additional junior capital options to fund their development pace as the M&A market is increasingly rewarding PDP-weighted asset valuations and fund sponsors are facing both investment life and fund portfolio concentration limits.

With contracting senior advance rates and fewer market participants, debt and equity roles across the entire capital stack are being recalibrated. Rather than simply adding more debt to operator balance sheets, junior/mezzanine investments are largely being asked to fill funding voids created by a bank lending market in retreat – but with greatly improved yield and cash-on-cash return expectations.

Properly utilized, junior capital serves as a bridge that allows operators to access capital viewed by senior lenders as sufficiently “equity-like” but is less dilutive than issuing additional common equity. This form of junior capital runs along a spectrum from senior subordinated unsecured to preferred equity.

The scale, well maturity, and capital deployment strategies for upstream assets to be financed ultimately dictate the form of capital most appropriate. Unlike common equity investments, upstream mezzanine is typically underwritten to allow for full repayment through existing free cash flow within a three- to five-year timeframe. This approach avoids reliance on an enterprise sale for ultimate repayment and also addresses institutional investor concerns regarding energy transition and its impacts on investment performance.

Visit [PGIM Private Capital](#) to learn more.



PGIM REAL ESTATE

CITIES ARE MAKING A COMEBACK

This time last year, many pundits were calling for the demise of city living, but fast forward to today and there are signs of improving performance in offices and centrally located apartment markets.

Initially there were concerns about major cities' resilience to the pandemic. As workplaces closed due to the impact of COVID-19, shifts toward flexible work arrangements and preferences among households for more space and amenities on offer in suburban areas threatened to put an end to life in the big city.

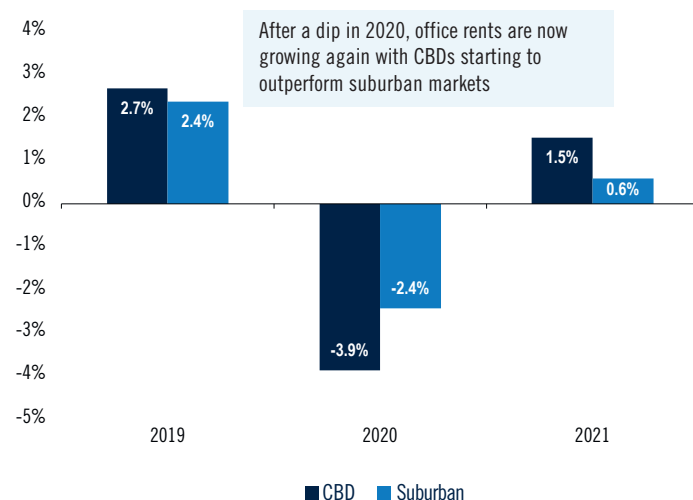
Such fears turned out to be short-lived. A sharp increase in hiring intentions globally is underpinning a positive outlook for employment growth in 2022, and space requirements are rising. Mainstream property types in central business district (CBD) areas are now reporting rising demand and seeing signs of improved rental growth.

As for the office recovery story, it's still in the early days. Demand remains subdued on an absolute basis, but it appears to have turned a corner on the backs of workplace re-openings and as a result of corporate tenants' starting to make previously delayed long-term location decisions. Rental growth has now turned positive in aggregate across global gateway markets (see exhibit), with rising competition for a small pool of available modern grade-A space driving rents higher in such markets as Munich, London, Paris, and Singapore.

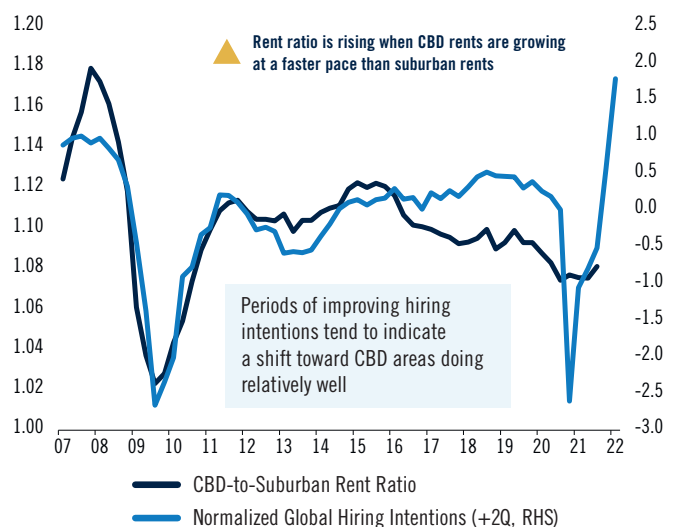
Unlike during 2020, when suburban markets held up better (our Best Ideas piece last year envisioned the resurgence of that market),

CBDs Starting to Outperform as Hiring Intentions Improve

Annual Office Rental Growth: Gateway Markets (%)



Rents in CBDs Relative to Suburban Areas (%)



Sources for both charts: CoStar, Cushman & Wakefield, JLL, PMA, Eurostat, Manpower, PGIM Real Estate. As of December 2021.

CBD areas are now outperforming other submarkets. And even though that is a nascent signal that emerged only in the third quarter of 2021, there are several reasons to expect the pattern to continue into 2022.

One reason is that CBD rents tend to rise more quickly than in suburban areas when hiring intentions are elevated — as they are in today's market — because businesses are compelled to use location as a way to help attract talent in a competitive labor market.

A second reason is that CBD markets simply tend to outperform in a recovery. During the past two recoveries, CBD rents grew at double the pace of suburban markets in the four years after reaching a trough. A drop in rents in the past couple of years has boosted affordability in previously expensive CBD locations, and slightly higher vacancy compared with pre-pandemic levels means improved choice, paving the way for rental growth during the expected demand upswing.

A similar pattern is playing out in major apartment markets, where household-location decisions are linked to employment prospects as well as such factors as amenities and accessibility — and, of course, whether workplaces are open or not. After a struggle in 2020, as workplaces have reopened and firms are hiring again,

apartment demand has rebounded sharply in major cities, and rents are rising at a rapid pace. The most notable increases are in London and U.S. cities such as Boston and Washington, D.C., that are regaining lost ground after a sharp correction in 2020.

The rebound comes with a challenge

While the pandemic is far from over, and concerns about higher inflation and rising market interest rates persist, the backdrop for real estate markets in 2022 is one of transition to a new phase of recovery and expansion. Leading indicators are pointing upward, and even though the gap between the best- and worst-performing parts of the market remains wide, most sectors and regions are set for improved investment performance in the year ahead.

That renewed optimism raises a new challenge for investors: deploying capital that has been raised. But city office, apartment and retail markets that suffered during the pandemic are starting to come back into favor, and capital is increasingly finding its way into higher-returning operational assets, wherein returns are linked to long-term trends such as digital transformation, aging populations, and environmental sustainability.

Visit [PGIM Real Estate](#) to learn more.

SOURCING ALPHA IN EMERGING MARKETS

Emerging markets (EM) are an intriguing segment of the global equity markets. While access to EM has improved, market inefficiencies persist, and the availability of reliable company information and data still trails that of the developed world. For information that is accessible, liquidity and trading limitations can introduce challenges for its exploitation, offering ongoing investment opportunities for skilled active investors. Emerging markets also provide opportunities across different countries and industries, which can vary significantly.

But the capture of this alpha isn't guaranteed; multiple sources of risk exist which can degrade return potential. For individual companies, bankruptcy, fraud, and significant financial loss come with higher likelihoods in emerging markets, while trading halts and bad data also prove headaches for quantitative-oriented investors. Compounding these stock-level risks are various macro-level issues — currency crises, geopolitics, trade disputes, elections, oil shocks — all of which can yield dramatic market outcomes.

For these reasons we've designed a framework that allows us to capitalize on alpha opportunities across securities, industries, and countries while balancing against adverse risk outcomes.

The lead role: Company fundamentals

The starting point for our framework is to recognize that fundamentals matter. Prices don't always reflect those fundamentals throughout time, however, which is where the investment opportunities arise. As markets move, different fundamentals become more significant measures for different types of companies. Consequently, we have found that different types of signals will be more effective at detecting those mispricings. The challenge is to determine which fundamentals are the most important for which types of companies.

The value of a company is made up of two parts: the value of its existing operations and expectations about its future growth prospects. To demonstrate how this helps us select the most

important information for specific company types, consider two companies: one slow growth and one fast growth.

For a slow-growth company, expectations about future growth prospects play a minor role in valuing the firm, as slower-growth companies have limited growth prospects. The value of the firm is driven by earnings generated from existing operations. Investors are sensitive to the price they pay for an earnings stream. Consequently, valuation-oriented signals are more effective at evaluating the future performance prospects of slower-growth companies.

For a faster-growth company, expectations about future growth prospects are the main driver of valuation, so we focus on information that gives us insights into those prospects. As a result, we find that growth signals are more effective at evaluating the future performance prospects of fast-growth companies. This framework allows for a more refined evaluation of each stock. It also helps increase the likelihood that we are evaluating a stock's performance potential through the correct lens. It allows us to unify both value and growth stock selection approaches within a single stock selection model, which produces a balanced core portfolio.

Adaptive stock selection models are especially important for investing in EM, where growth rates by country, sector, and security have changed dramatically over the last decade. Our research and investment experience have shown that this adaptive bottom-up stock selection framework is essential in capturing

inefficiencies within equities, and to driving consistent performance over the long term.

Top-down dynamics

Within emerging markets, a top-down investment approach can complement bottom-up stock selection. In fact, a major allure of EM has long been the return opportunities arising between countries and industries. The opportunities created by this dispersion can be significant. In recent years, top-down effects have had more pronounced influences on market behavior. Recent examples are being seen in the impact of the 2019 China/US trade war and the COVID-19 crisis, which brought about cascading consequences on countries and industries.

To reflect this changing dynamic, we recently introduced a top-down element to our investing framework. Advances in modeling techniques have also increased our confidence that top-down opportunities can be a source of added return rather than risk. In the past, we have been skeptical about the effectiveness of top-down investment approaches, but to counter these challenges, we leveraged a more refined, direct approach.

We model top-down insights at the combined country-industry group level. By taking this approach, we generate a much broader set of top-down insights, affording us diversification across our investment bets. This approach further allows us to more efficiently target attractive opportunities.

Modeling at the country-industry group level also helps us avoid having to combine separate country and industry group models. Our approach unifies country and industry top-down approaches, while increasing the viability of exploiting return dispersion between countries and industries. We then evaluate the attractiveness of each country-industry group, staying true to our philosophy and focusing on fundamentals, utilizing valuation and growth-related insights.

Through the introduction of explicit top-down factors, our unified framework provides consistent insights across all country-industry dimensions. This adds to our confidence that top-down insights will translate into viable sources of return.

Visit [PGIM Quantitative Solutions](#) to learn more.

IMPROVING RISK/RETURN THROUGH PRIVATE EQUITY SECONDARIES

Private equity has been an attractive asset class in recent decades because of the outperformance against its listed peers and the low-risk parameters when building a diversified portfolio. Many long-term investors, like pension funds, foundations, insurance companies and family offices, have invested a considerable amount of their overall assets into private equity.

Indeed, Montana Capital Partners' recently published Annual Investor Survey shows that half of all foundations and family offices have an allocation larger than 15% in private equity and more than 20% of all institutional investors do the same. About a third of institutional investors, and 87% of family offices and foundations, reported an allocation of more than 10% of their portfolio to the asset class, a trend that is expected to continue. In the last 12 months, 60% of the investors in our survey have increased their allocation to private equity.

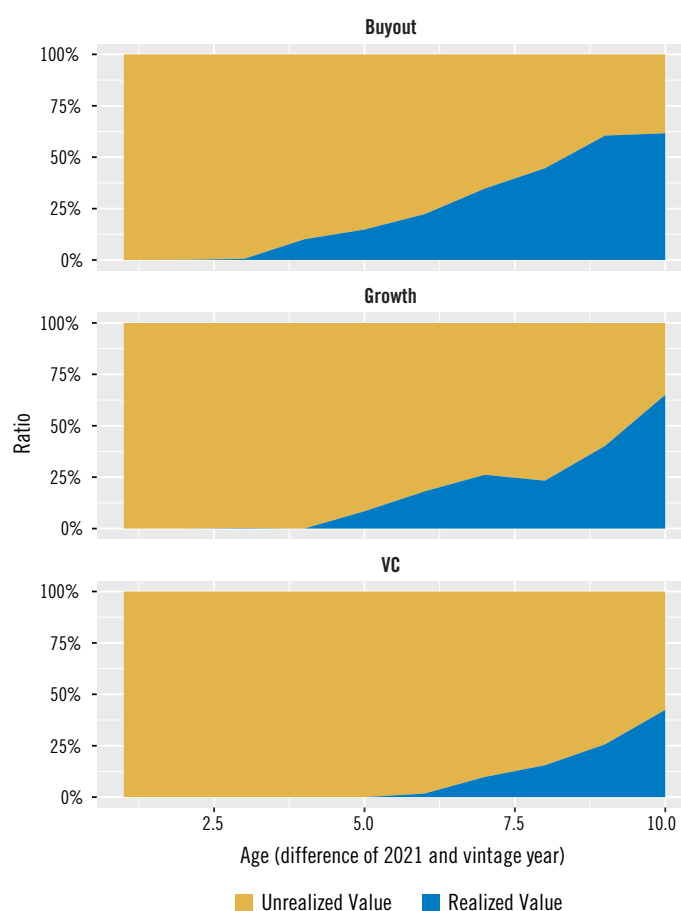
Part of the attraction comes from the early access to technology-driven companies that private equity offers. Venture capital and growth funds have been supporting entrepreneurs since the 1970's and have had especially good success in the US with investments in some of the largest and well-known technology companies in Silicon Valley.

Meanwhile, private equity secondaries remain one of the top three long-term strategic preferences of investors, ahead of some other well-established strategies. More than half of respondents to our survey dedicate at least 5% of their private equity allocation to secondaries strategies, primarily to mitigate the J-Curve and to improve the liquidity and risk-return profile of their portfolio.

The pandemic's impact

In the past couple of years, the impact of the COVID-19 pandemic has only served to accelerate the growing trend of technology investment. In a recent article, Private Equity International (PEI) analyzed the private equity market with data from CEPRES that showed that close to 50% of private equity deals in 2020 were tech deals. The share of technology-based deals increased significantly in

Distribution Timeline for Different Funds



Source: MCP internal analysis, based on Preqin data.

the early-stage as well as in the late-stage and buyout area for PE-related deals, highlighting how the private markets provide capital to firms through their full life cycle.

It's important to keep in mind that private equity is a long-term investment, and that's particularly true for VC investments. If an investor invests into a VC or growth fund, their capital will be deployed in relatively young companies which need time to develop their business ideas and grow revenues and profits with the support of private equity fund managers.

To illustrate this point, look closer into the split between the realized and unrealized funds in the chart above. First of all, private equity is a long-term asset class; investors shouldn't be calling their fund managers in the first few years to ask where their money is! However, a typical buyout fund starts to distribute back to investors after around three years, and pays back well over 50% after 10 years. Slightly behind are growth funds. Average VC funds, on the other hand, take more than five years until their first distribution and still have the majority of their multiples unrealized after 10 years.

These charts show nicely that the value creation in VC funds takes longer than in growth and buyout funds. For investors, it means

that they can expect distributions from buyout funds earlier than for VC funds, as they hold their companies longer until the exit.

Fortunately, a secondary market has developed that provides liquidity to investors who don't want to wait until the exits come. This market is particularly intriguing for investors in VC and growth funds or companies, as they are able to realize their full or partial investment to lock in their returns or de-risk their portfolio.

On the other side, investors that buy into such tech companies benefit from companies which are more developed with stable and highly growing revenue streams. Therefore, the success of the company's business strategy is already much more visible and the time until an exit is much shorter and provides early distributions.

Private equity will continue to be an important catalyst for technological change and be able to support companies disrupting old technologies. Investors in new companies take higher risks, which were compensated with attractive returns over the last decade. We expect this trend to continue. However, one issue is locking in those returns and getting liquidity, which is why we think the secondary market of private equity will profit from this paradigm shift.

Visit [Montana Capital Partners](#) to learn more.

A ROADMAP FOR GENERATING RETIREMENT INCOME

How to convert accumulated wealth over one's working years into a sustainable income stream once in retirement is a complex challenge for most Americans.

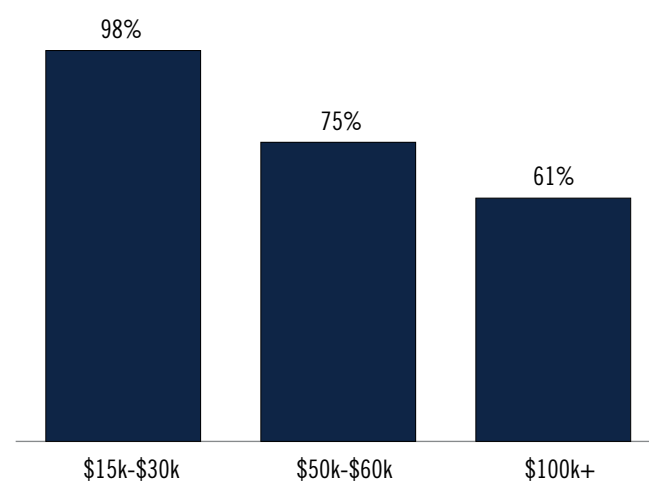
To address this difficult financial challenge, defined contribution (DC) plans should broaden their focus from savings accumulation to offering workers the tools and solutions necessary to convert DC plan savings into lifetime retirement income.

It won't be easy.

In fact, it will require a transformation of the DC industry, one in which DC plans evolve from savings vehicles to true retirement plans that help individuals generate income by managing the risks they face both during their working years and in retirement. The evolution will require outcomes-based retirement programs that deliver reliable, long-term income for retirees. To achieve this, we believe:

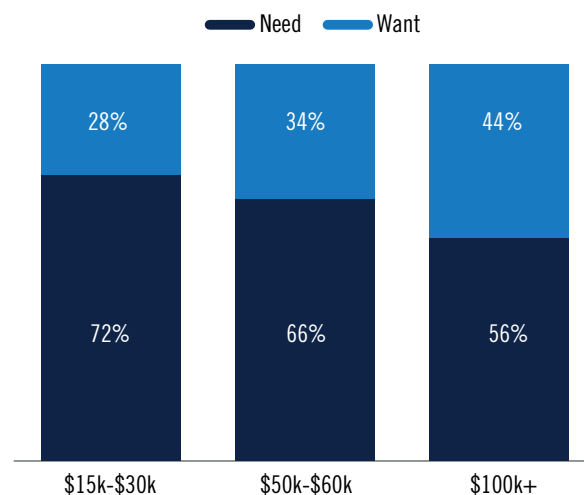
1. An investment methodology is needed that specifically solves for individuals' unique spend-down goals in retirement. Designing solutions that can effectively provide a stream of income in retirement demands a liability-oriented mindset. Just as institutional investors attempt to meet some form of a liability, participants in a DC plan are tasked with doing the same, although their "liabilities" are the expenses they will face throughout retirement. Applying a one-size-fits-all approach to an income replacement goal can fall short for many reasons, but one main drawback is that it doesn't address the different spending needs of individuals across the various income cohorts. In addition, by dividing expenses between "Needs" and "Wants" we are able to decompose the income replacement goal and recognize the differing relative importance between the two types of expenses – ultimately leading to a better defined liability. Based on our research, approximately 60% of DC plan participants indicated they need help on spending down their savings during retirement. To meet this need, it is necessary to have both an investment methodology and solutions that are specifically designed to provide the income necessary to meet each retiree's liabilities.

Income Replacement Goals Vary by Income Level



Source: University of Michigan Health and Retirement Study (HRS). After-tax spending in retirement as a percentage of pre-retirement gross income across the 2008-2016 HRS waves.

"Needs" Expenses Decrease as Income Increases



Source: Bureau of Labor Statistics (BLS) Consumer Expenditure Surveys. Needs and Wants expenses in retirement as a percentage of total retirement spending by gross income.

2. Additional asset classes should be incorporated in the asset allocation strategy to help retirees manage spend-down risks. Most DC plans do not offer access to asset classes that can provide more predictable sources of returns for a time horizon, or duration, on par with the years of drawing down during retirement. Investments such as inflation-linked bonds, high-yield bonds, commodities, real estate (public and/or private), and long-term bonds are not typically available on core menus. We believe the best way for plan sponsors to offer these additional exposures is through multi-asset class solutions that are designed specifically for decumulation. Alternatively, plan sponsors can offer them through a professional investment service, such as a retirement managed account program in which the asset allocation is set by an investment expert. Both paths address the most important issue, which is that participants and retirees require assistance in effectively allocating to extended asset classes and building efficient retirement portfolios.

3. Available guaranteed income sources should be considered as part of the asset allocation process and optimized to help retirees manage the core risk of outliving their savings. We believe a retirement income solution must provide guidance on when participants should consider claiming Social Security based on their unique financial situations. In addition, a solution should have the flexibility to include additional sources of guaranteed income and allocate to these sources based on the varying needs and desires of a participant, availability of products in or outside the DC plan, and the current interest rate/market environment. One option could be to incorporate a guaranteed income solution in a sophisticated fashion as part of the plan default, or qualified default investment alternative (QDIA).

4. An institutional investment approach that leverages the scale and fiduciary oversight offered by DC plans is critical to efficiently building wealth and delivering income. Given changes in capital markets, interest rate cycles, and inflation over time, taking a thoughtful and dynamic approach to investing, while incorporating diversifying, inflation-sensitive, and alternative asset classes that can contribute to more predictable sources of returns in retirement can improve outcomes for retirees. We find that generating 0.35% of net-of-fees alpha, whether through higher gross returns or lower fees, over a lifetime of saving and spending can translate into an additional six years of income in retirement for an individual.

5. Technology is central to delivering personalized advice and solutions by combining our first four retirement income beliefs to address each individual's particular situation.

We believe technology will play a central role in bringing personalized retirement advice and customized solutions to individual retirees within DC plans. The most efficient way to incorporate individuals' unique liabilities, differing sources of income, and spending needs in a personalized manner is to leverage tomorrow's best thinking about behavioral finance and technology. Specifically, we believe that advancements in technology, data, and analytics will allow the creation of more personal experiences at scale across channels and buying stages based on the participant's needs and aspirations.

Combining these tools in a comprehensive retirement income solution can transform DC plans from simply savings plans into retirement plans that are positioned to deliver the lifetime income retirees seek.

Visit [PGIM DC Solutions](#) to learn more.

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