

The Realization A new world. A new normal. A tectonic shift.

April 2012

IN BRIEF

- History shows that secular changes in the investment environment force dramatic changes in asset allocations.
- Low bond yields, along with outsized equity market volatility and modest equity returns, have brought us to a new asset allocation "tipping point."
- Global real assets—real estate, infrastructure, transport and natural resource assets that can provide higher income than bonds and superior risk adjusted returns to equities—will increase in size and importance in investor portfolios.
- In the next decade we believe real assets will move from an alternative to a mainstream asset class. Portfolio allocations could rise from roughly 5%-10% today to as much as 25% in the next decade.
- Investors are at various stages of what we call the Realization, a structural shift toward higher real asset allocations.
- Those investors who recognize, embrace and act on this Realization in their portfolio allocations are likely to have better investment outcomes than those who do not.

The traditional mix of equities and bonds has long held unchallenged sway within pension fund and private investor portfolios, with fixed income offering yield and lower volatility and equities delivering earnings-driven capital appreciation. Recent shifts in allocation have largely been tactical (i.e., cyclical) moves between the two or, more recently, a gradually increasing strategic (i.e., structural) tilt to alternatives, including real estate, infrastructure and private equity.



But a convergence of slowly emerging trends and rapidly changing realities has given rise to concern over the ability of equities and bonds to realize the absolute and/or risk-adjusted investment performance necessary to cover liabilities for pension funds or meet wealth creation targets for other investors. Fixed income sectors are generally offering yields that are at or close to historic lows just as debate rages over whether stimulus will ultimately push inflation up from its current levels. The March 2012 yield-to-worst for the U.S. Barclays Aggregate Bond Index was 2.2%-and future returns are not likely to exceed the coupon by much, if at all. Equities have lagged over the most recent ten years, with an annualized total return of 2.9% (as of December 2011). Uncomfortably elevated volatility implies a decline in the prospects for attractive risk-adjusted returns as expectations for the U.S. economy have plunged-during the most recent decade (2000-2009) GDP growth averaged just 1.7% per year.¹

The tectonic shift in standard asset allocation

A new normal? A new world of uncertainty, heightened volatility and slower growth? Perhaps, but investors are beginning to search out and invest strategically in alternatives that can deliver when the Big Two traditionals, bonds and equities, cannot. "Real assets" is one category that is fast gaining acceptance as an essential portfolio component, a third traditional alongside equities and fixed income. Real assets encompass a wide variety of tangible investments that give investors "optionality" in a world of uncertainty—the ability, that is, to serve as a stable source of income in weak markets and to participate in the capital appreciation associated with strong markets.

Global real assets' typical performance bridges the gap between fixed income and equity. First, they generate yields that are competitive with other fixed income alternatives. Their stable bond-like payment structure can serve as a reliable base for stable mid- to long-term total returns by contributing to price appreciation in up markets and offsetting losses when values decline. Second, as a higher yielding, non-bond complement to fixed income, real assets also offer the potential for equity-like

WHAT ARE GLOBAL REAL ASSETS?

Real assets are characterized typically by investments in tangible "hard" assets that provide a blend of stable income, equity-like upside potential, inflation hedging, lower volatility and, in general, low correlations to the two current "traditionals"-equities and fixed income. For the purposes of this paper, we focus the bulk of our discussion on global real assets that include investments in real estate (including REITs), infrastructure and shipping, as well as commodities and related investments such as timber land, farm land and natural resources. However, we acknowledge that many investors consider real assets to include any investment that is designed to provide a "real return" and frequently achieve higher allocations to the overall real assets category by including financial instruments such as TIPS, inflationmanaged bonds and other inflation-sensitive investments. These instruments can certainly be considered within the scope of real assets and can be helpful in achieving a globally diversified real assets allocation.

upside and the ability to respond positively to healthy, growthinduced inflation. While bonds pay out a regular fixed coupon until they reach maturity, real asset payouts can grow in line with cash flow growth. Global real asset investments also provide geographic diversification, and, perhaps most importantly, they come, in most cases, with total return targets that range from competitive—8%-11% (net of fees) for core (less risky) strategies—to compelling—14%-20% (net of fees) for more opportunistic strategies.

A select group of investors, including some high-profile public plans, has already grasped global real assets' potential. This Realization has tilted their current allocations toward real assets, which now approach 15%-25% of their overall funds. These investors are at the vanguard of what, we believe, is a rare, structural shift in pension fund/investor allocations to a new mix in which global real assets will migrate from being an "alternative" to being a "traditional," playing an equally critical role in asset allocation as today's traditionals of fixed income and equities.

¹ J.P. Morgan's long-term assumption for real GDP is 2.25%.

The Realization: it has happened before

Is there a precedent for the kind of strategic and long-lasting reallocation of investor funds we believe is under way? It turns out there is, and it was a shift that was prompted, like our "Realization," by a combination of macroeconomic trends and evolving investor requirements.

To find the precedent, we looked back to macroeconomic and market trends starting in the first half of the 1900s, using long-term data on allocations we were able to get for two large public pension funds in California and Texas to identify what was likely a secular investor response to a large macroeconomic transformation. In the first half of the 1900s, the Big Two traditional pension investments, bonds and stocks, really didn't amount to much more than the Big Onebonds. Not until the late 1960s and 1970s and the passage of the landmark Employee Retirement Income Security Act did pension fund allocations come to the Realization that morphed portfolios from their 80%-100% fixed income fixation to 30/70 (stocks/bonds) and, eventually, the current standard of 60/40.

Growth case confirmed

Exhibit 1 charts the three-year annualized U.S. real GDP growth from the end of 1929 through 1975. It suggests two key takeaways. First, growth before the 1950s and 1960s was extremely volatile. In fact, from 1930-1950, U.S. real GDP growth was almost four times as volatile as real GDP growth since 1950. Large swings up and down could result in decades

Making the growth case: the decades following World War II established a pattern of high and steady GDP growth

EXHIBIT 1: U.S. GDP GROWTH RATES, 1930-1974



Source: Bureau of Economic Analysis, J.P. Morgan Asset Management.

of poor or exceedingly high average growth (as seen in the orange line tracing average annualized real GDP growth by decade). Of course, this would not have instilled confidence in investors. Growth-oriented investments, like equities, languished, while fixed income, particularly "risk-free" government bonds, attracted investor funds.

The second takeaway is that the 1950s and 1960s delivered two decades of relatively stable and sustained economic expansion. While the negative experience of the 1930s and 1940s would have taken time to loosen its hold over investor psychology, particularly for relatively conservative pension fund boards, the 1950s and 1960s would have laid the foundation for what we call the growth case. With less macroeconomic volatility and more dependable economic and market fundamentals, the case for moving from "risk-free" to riskier investments with higher inherent return potential would finally make risk-adjusted sense.

Inflection point in inflation

As the case for growth was gaining steadily greater acceptance, an element of risk loomed over risk-free fixed income assets. Midway through the second "growth decade," the first signs of an inflection point in inflation should have become apparent, sending up warning signals for investors and pension funds that were invested predominantly in fixed income. U.S. inflation, as measured by the consumer price index (CPI) had, like U.S. GDP, been very volatile but very low from 1930 through to 1965, about 1.7% per year (**Exhibit 2**). Interestingly,

Will the genie stay in the bottle? Since 1985 inflation has subsided and stabilized

EXHIBIT 2: CHANGE IN U.S. CPI AND ANNUALIZED VOLATILITY, 1930-2011



Source: Shiller, U.S. Bureau of Labor Statistics, J.P. Morgan Asset Management. Data as of December 2011.

Trading income for growth: as the stock market perked up the 1950s, investors accepted lower dividend yields





Source: Shiller, Bloomberg, Standard & Poors, J.P. Morgan Asset Management.

bond yields (**Exhibit 3**) had not reacted very much over that period, averaging about 3.0%. Investors had few alternatives the growth case for stocks was not yet validated—and the economy's volatility would have contributed, perhaps, to a flight to the safety of fixed income. Starting at the end of 1965, however, CPI began what turned out to be an almost two-decade-long period of elevated inflation, running 6.3% annually. By 1970, year-on-year inflation had moved from 1.0% to 6.2%, and in 1975, it spiked to 11.8%.

Looking for alternatives

Investors started looking for alternatives. Exhibit 3 illustrates a second trend occurring against the fading prospects for fixed income. Point 1 in Exhibit 3 shows that from 1900 to 1950, based on the best estimates available, equity dividend yields were attractive, trading consistently above the yields for 10-year U.S. Treasuries. Given a backdrop of extreme macroeconomic and market volatility, investors would logically have demanded that more of their total return come from dividends than the more ephemeral and volatile price appreciation component. Then around 1955 (point 2), as sustained real GDP growth was building the case for stocks, equity investors began to accept lower dividend yields. Since the data do not indicate steep cuts in dividend payouts, we can assume the lower yields were largely the result of market action, as investors, however thin the market may have been, were adjusting their views. They started to rely more heavily on growth (appreciation) and to demand less in terms of yield to anchor total return. The change is stark and is evidence that the growth case for the equity asset class was developing.

Additionally, **point 3** highlights that long-term annualized volatility for equities was coming off very sustained highs, driven by market downturns in the 1930s and 1940s. Around 1960, the equity market was entering a period of more muted volatility. The level of risk associated with equity returns was diminishing, becoming more acceptable and improving the prospects for attractive risk-adjusted returns, not just absolute returns. This was taking place just as fixed income was beginning to suffer. Yields rose from annual averages of just under 3% in the 1950s to more than 14% in 1982 (**point 4**), resulting in negative or low single-digit annual returns for 10-year Treasuries and exerting a drag on even diversified bond portfolios.

Investors respond: the first Realization

Exhibit 4, next page, tracks the allocation history of the two representative pension fund investors for which we were able to get longer-term allocation data and gives an overview of the macroeconomic and market realities that were prevalent pre-Realization. From its inception in 1913, this large public pension plan was essentially invested 100% in fixed income by state law through 1970. After a tumultuous period in the markets starting in the 1930s and stretching through World War II, the fund found itself 25% underfunded. While the plan was faced with a monumental task of value creation, the fixed income market was clearly under attack. (Investors then would not have known whether inflation would subside, let alone when.) The equities market, meanwhile, was making an increasingly attractive case for growth and improved risk-adjusted returns.

Inflection 1 in Exhibit 4 summarizes the situation. In 1970 the irresistible force of capital appreciation overcame the immovable object of regulation. Proposition 6 was passed by the state of California allowing public pensions to invest in equities and real estate-a perfect example of the restrictions of officially decreed investment policy running headlong into macroeconomic and market realities. The plan we used for this analysis initiated a small investment in equities and over the next 20 years increased its allocation to over 50%. We were able to find allocation data from Teacher Retirement System of Texas annual reports back to 1965. In 1965, it too was largely invested in fixed income but had a nominal position of about 17% in corporate stock. Like our California public pension plan, Texas Teachers spent the next several decades building its equity position, hitting 30% in common and preferred stock by 1975an investment of about \$820 million versus only \$145 million in 1965. Sometime between 1990 and 1995, the equities allocation exceeded 50% of its total portfolio.

Realization diagrammed: rising then falling interest rates traced the secular shift to equities. Would a bottoming out of interest rates and inflation portend a second secular shift?





Source: Company reports and annual reports, J.P. Morgan Asset Management. Data as of December 31, 2011.

The Realization: the stage is set again

The Reaching Inflection 2 box in Exhibit 4 characterizes the convergence of trends and realities that could be setting the stage for a similar strategic and persistent re-allocation as investors are forced by circumstances to search out alternatives to equities and bonds. Contrary to the sustained real GDP expansion of the 1950s and 1960s that established the growth case for equities, investors today face diminished prospects. Exhibit 5 extends the time frame for Exhibit 1, showing a clear step down in U.S. GDP growth. The annualized post-1940s averages peaked in the 1960s and have come down dramatically to 1.7% a year for the ten years between 2000 and 2009. Year-on-year changes in the CPI, as shown in Exhibit 2 previously, have fallen since 1985. The average annualized increase has been about 2.9%, higher than the early 1900s but much more stable. This means inflation has remained controlled for over a quarter of a century-a long, long time.

Where to go next? Investors may have to push beyond equities for returns with GDP growth at current low levels

EXHIBIT 5: U.S. GDP GROWTH RATES, 1930-2011



Source: Bureau of Economic Analysis, J.P. Morgan Asset Management.

Long-term bargain? Despite recent setbacks, equity prospects remain uncertain while bond yields are not attractive

EXHIBIT 6: S&P 500 ROLLING 10-YEAR ANNUALIZED EARNINGS YIELDS VS. 10-YEAR U.S. TREASURY YIELDS, 1900-2011



Source: Shiller, Bloomberg, Standard & Poors, J.P. Morgan Asset Management. Earnings yield is simply the converse (1/PE) of the one-year price earnings ratio from Shiller. Note: 10-year Treasury yields are annual averages except for the last point, which is actual December 2011 (USGG10YR). Data as of December 2011.

Prospective returns for both equities and bonds are understandably under scrutiny and are a source of concern for investors-particularly those with longer-term horizons, like pension funds. Exhibit 6 shows 10-year Treasury yields over time and adds earnings yields for the broader equity market based on trailing one-year real earnings.² Ten-year Treasury yields are at historic lows, hitting 1.9% at the end of 2011. Earnings yields for equities are more attractive if compared to current risk-free rates or to rolling 10-year average earnings yields. However, as Exhibit 6 makes clear, comparisons to the longer-term average from 1900 show that equities are not historically cheap. While there is debate on whether the longterm average here for equities is pertinent, this historical analysis combined with recent market volatility injects uncertainty just as investors are actively reconsidering the case for equities (Exhibit 7). To sum up: there are a lot of "ifs," there is uncertainty, and there is questioning by investors on matters that heretofore were taken for granted.

Fixed income may avoid significant price declines in the medium term if real GDP stays low, keeping the lid on inflation and interest rates under control. Of course, given that CPI growth sits Nerve wracking: equity volatility has spiked above 2003-2007 EXHIBIT 7: NUMBER OF DAYS WITH S&P INTRADAY TRADING RANGE GREATER THAN 2%



Source: Bloomberg, Standard & Poor's, J.P. Morgan Asset Management. Use the price index (SPX). Data as of December 2011.

near historic lows, continuing flat CPI growth is, arguably, a best-case scenario. In this "good" scenario, fixed income returns would be roughly equivalent to the current yield on existing issues or the coupon on new issues, which at current levels may not be sufficient for many investors. The alternative, of course, would be rising inflation and interest rates, resulting in returns less than the coupon or even negative returns for bond holders who have to sell into a declining market.

In the other major bucket, equities could post impressive longer-term absolute and risk-adjusted returns, if real GDP growth returns to above-trend levels and volatility subsides in a sustained fashion. But prospects for a break-out in growth for the mature and leveraged developed economies are, unfortunately, measured at best. Volatility levels are difficult to predict and remain a source of concern. Given still-elevated volatility and fresh memories of market losses during the Great Recession of 2008 and early 2009, investors will want compelling valuations from equity to support reasonable riskadjusted returns. It is uncertain at this point whether the valuations will be compelling enough.

² The earnings yield is simply 1 divided by the P/E ratio, so is comparable to real estate capitalization rates, i.e., higher is cheaper and lower is more expensive.

The Realization: global real assets offer a solution

The real assets category offers investors "optionality" in a world of uncertainty. We will show that it has a foot in both sides of the typical 60/40 portfolio, spanning performance between the two. Real assets possess an attractive mix of attributes: bondlike income, relatively stable and historically robust absolute returns, the potential for capturing equity's upside with lower volatility, global exposure and inflation protection.

Yield and stable total returns

Many of the investments we include in real assets generate yields that are competitive with other fixed income alternatives and exhibit long-term stability. In **Exhibit 8** we show yields for representative bond and real asset sector investments, using target income returns (net of fees) for J.P. Morgan strategies where benchmark yields are not available. Even at low points of the target ranges, yields in the 5%-7% net of fees are competitive with lower-risk bond yields. Furthermore, like bond payments, real asset yields tend to be quite stable since they are derived from underlying long-term contractual agreements on high quality assets, whether real estate leases or long-term concession agreements for infrastructure assets. The stable

Real yields outpace borrowed interest: real asset yields today are well above those available in fixed income and equities EXHIBIT 8: CURRENT RANGE OF YIELDS, REAL ASSETS* VS. FIXED INCOME



Source: Barclays Capital, MSCI, NCREIF, Bloomberg, J.P. Morgan Asset Management. Data as of December 2011.

Income boost in slumping markets: steady yields in real estate and REITs support total return when prices decline





Source: NCREIF, FTSE EPRA NAREIT, IPD, Barclays, MSCI, J.P. Morgan Investment Management. Period covered is from December 31, 1989 (inception of U.K. real estate index) through to December 2011. Use rolling 5-year trailing price and income returns, annualized. Use the MSCI World Total Return Index for Global Equities, the Barclays Global Aggregate Bond Index to represent Global Bonds, the NFI-ODCE Index (levered) for U.S. private real estate, the IPD U.K. All-Property Index for U.K. private real estate, the FTSE EPRA NAREIT Equity REITS Index for U.S. REITS and the FTSE EPRA NAREIT Developed Index for Global REITs. All series are in USD except the IPD index (Great British Pound). Note the bond income return includes the impact of paydown.

yields serve as a reliable base for medium- to long-term total returns, complementing price appreciation in up markets and offsetting falling prices in down markets.

An example of this is shown in **Exhibit 9**. We calculated rolling five-year annualized price and income returns for U.S. and U.K. private real estate and U.S. and global REITs and compared them to equities and bonds. On average, over periods when annualized five-year price returns are negative (thus at the worst of times), the income returns for both private real estate and real estate investment trusts (REITs), have been high enough to offset the losses and generate positive total returns, just like bonds. By contrast, investors in the MSCI World Index, as a proxy for equities, would have experienced net losses as the dividend yield could not overcome price declines.

All weather assets

Unlike bonds, which pay out a fixed coupon over the term of the bond itself, real asset payouts can grow in line with cash flow growth. During economic recoveries, the expectations (and reality) of higher inflation and interest rates can put pressure on bond prices. Bonds do, of course, have one tool for resisting price declines—tightening spreads over the riskfree rate—but that's where the toolkit ends. In contrast, real

^{*} Yield to worst as of December 2011 for U.S. Bonds (Barclays Aggregate Bond Index), Global Bonds (Global Aggregate Bond Index), BBB bond (Barclays Corporate Bond Index-8221) and High Yield bonds (Barclays Corporate High Yield Bond Index-12).

Cash flow mountain vs. inflation hill: infrastructure cash flows have outpaced inflation

EXHIBIT 10: INDICES OF ANNUAL CASH FLOWS FOR U.S. AND EU-15 INFRASTRUCTURE AGAINST AVERAGE HIGH INCOME OECD CPI GROWTH, 1986-2010



Source: J.P. Morgan Asset Management GRA Research.

assets not only can benefit from spread tightening, but also offer the prospect of cash flow growth to offset inflationinduced increases in discount rates and the cost of debt. **Exhibit 10** presents one example. It shows the aggregated annual EBITDA for 237 infrastructure assets over the period from 1986-2010. The cash flow is relatively stable, supported by monopolistic market positions and long-term contracts that lock in revenue and may also include periodic rate increases often linked to inflation. It easily outpaced inflation over the time period, providing not only a strong inflation-hedging capability, but a proven real growth component as well.

In **Exhibit 11** we display the results of a simple but noteworthy analysis. It demonstrates that real asset sectors can deliver better returns than bonds in higher growth environments, given the link of their cash flow to GDP, while proving more defensive than equities in lower growth periods. Since 1978, in years when U.S. real GDP growth exceeded 4%, real asset sectors have done well, often trailing equities, in all cases exceeding average returns for U.S. bonds. In years where growth was less than 2%, bonds performed best on average, but the real asset sectors once again held their own with every one of them outperforming the S&P 500. This is a clear manifestation of the "optionality," or ability to deliver a blend of the best from both equities and bonds that we discussed above.

All-weather investment: real asset yields have buoyed returns in weak markets and delivered equity-like upside in recoveries EXHIBIT 11: ONE-YEAR TOTAL INDEX RETURNS



Source: Barclays Capital, Standard & Poors, NAREIT, NCREIF, Clarksons, Drewery, J.P. Morgan Asset Management. As of December 2011.

The unlevered NCREIF Property Index represents private real estate, Barclays Aggregate Bond Index for U.S. bonds, J.P. Morgan estimates for infrastructure, the S&P 500 total return index for stocks, and the NAREIT Equity REIT Total Return Index for U.S. REITs. Annual return history from 1991 to 2011 was used for maritime and infrastructure, and for the period from 1978 to 2011 for private real estate, U.S. Bonds, S&P 500, and U.S. REITs. The analysis was also done for all sectors used in this analysis, though not shown here, starting in EoY1990 to determine any impact from using the single starting point, but the ranking of sector performance did not change.

* The maritime return series is a proprietary return series created using market sources for asset values, charter rates and operating expenses over the last 20 years.

Inflation sensitivity

Before entering into any conversation on inflation hedging, it is important to acknowledge: (1) this is a complex topic with many "ifs, ands and buts," and (2) there are few, if any, perfect inflation hedges that currently also support attractive risk-adjusted returns. While TIPS and specific sectors of the commodities markets have proven inflation hedging capability, the former suffer from expected real returns close to zero and the latter are often highly volatile. A powerful argument in favor of real assets is that they can contribute meaningfully to a portfolio's ability to counter inflation while not sacrificing return or significantly increasing risk.

The inflation sensitivity of real assets should also be relatively persistent as that capability is generally supported by structural elements, such as clauses in leases and contracts that allow for increases in annual rent (in the case of property) or rates (in the case of infrastructure) linked to inflation. Increases in prices of inputs (e.g., commodities) for the assets themselves suggest value appreciation. These built-in increases not only hedge near-term inflation but over time, support value appreciation, whether in property, bulk carriers or infrastructure. Exhibit 10 has already demonstrated the inflation-hedging capability of infrastructure, perhaps the most consistent inflation sensitive arrow in the real assets quiver. **Exhibit 12** charts historical annual private real estate and regulated utilities (infrastructure) returns versus CPI changes over the only period since the early 1900s of sustained, elevated volatility: 1970-1985. This period, it could be argued, is the ultimate testing ground for a sector's inflation-hedging capability. Infrastructure and real estate did very well, while commodities (represented by the S&P GSCI Commodities Index) and the equities in the S&P 500 did not. Investment grade corporate bonds managed to exceed inflation by the end of period, driven by yields that were elevated enough at the time to help offset any losses. This is a result that is not likely this time around given low current yields.³

Inflation hedged: real asset returns finished well ahead of a bloated CPI during the economy's last sustained bout of inflation EXHIBIT 12: NOMINAL RETURN AND INFLATION INDICES, 1970-1985



Source: Bloomberg, Barclays Capital, Standard & Poors, NCREIF, Global Financial Data, J.P. Morgan Asset Management GRA Research. The Corporate Debt series is the Barclays Investment Grade Corporate Bond Index from 1974, with Global Financial Data (index provider) corporate bond return data used for 1969-1971. The U.S. real estate series is the NFI-ODCE Index from 1978 through 1985, and supplemented by actual returns from J.P. Morgan's Strategic Property Fund (an open-ended core real estate commingled fund) for the period from 1969-1977. The regulated utility returns are actual return on equity statistics reported in annual rate decisions by state regulators for specific regulated assets. J.P. Morgan GRA Research compiled those and calculated the annual averages.

Attractive "equity-like" total return potential...

With many pension funds either underfunded or concerned about earning enough on investments to maintain funded status as in the late 1960s and 1970s, the total return potential offered by the real assets sector is perhaps the most appealing aspect of the case. During the first Realization, plans sought out stocks for their "equity-like" returns (a term that now flows off the tongue, but before the first Realization, one that no one would have known) to improve their funded status. Now, following the Great Recession of 2008, everything ultimately became "cheap" at some point, although appraised investments like property and infrastructure, may have lagged the publicly traded markets on the way down. On the way back up, many real estate sectors also have lagged, the result being total return targets for real asset strategies range from competitive to compelling (**Exhibit 13**).

Time to get "real"? Real assets, beaten down in the last cycle, hold significant total return potential today

EXHIBIT 13: LONG-TERM RETURN TARGETS



Source: Barclays Capital, MSCI, Standard & Poors, Bloomberg, J.P. Morgan Asset Management. Data as of December 2011.

Levered real estate discount rates (7.47%) come from actual acquisition appraisal IRRs and are levered at both 35% and 50% LTV using whole loan mortgages calculated by adding spreads surveyed from our third-party lenders (211 basis points as of December 2011) to the current 10-year Treasury. Note: The formula of Bond OAS + 10-year Treasury Yield (USGG10YR Bloomberg ticker) is treated as the discount rate for each bond index, but actual discount rates, especially for high yield and BBB bonds (8221), may be lower due to expected defaults. U.S. stock discount rates are derived from dividend discount rate models of J.P. Morgan Asset Management stock analysts. All real assets yields are proprietary target ranges. Averages for those ranges are set and updated by J.P. Morgan investment teams for the representative strategies.

There are good reasons for this valuation gap. In the property sector, investors bit deeply into the "core" of the market, investing in funds that acquire low leverage, high quality properties in order to "de-risk" real estate portfolios that suffered during the downturn. Consequently, while core now offers returns that with leverage still meet the oft-quoted 8% internal rate of return (IRR) hurdle for pension funds and compare favorably to equities and bonds, the excess return

³ It should be noted that for property, the cycle does matter. In the period shown, particularly the late 1970s, there was little construction, so landlords were able to raise rents, increase property cash flow and support total returns that beat inflation. However, in the early 1990s, with exceedingly high levels of supply undermining landlord pricing power, private real estate failed to meet inflation.

The Realization

potential in riskier property investing strategies, like value add and opportunistic, is compelling, whether U.S. or globally focused. Maritime is another area in which a remarkable convergence of both historically significant oversupply and temporarily weakened demand from developed nations depressed rates and vessel values to significant lows and set the stage for elevated future total return prospects. The maritime segment carries 90% of the world's trade, giving investors exposure to global economic drivers and a current income return on long-life assets.

There also may be mispricing where underinvestment has sectors trading at valuations that are set to experience a secular repricing. OECD infrastructure is one example. Regulated utilities in electricity, natural gas and water and wastewater services, along with contracted electricity generation assets, are some of the lowest risk infrastructure sectors. Demand is relatively inelastic and rates are often set by local governments. The cash flows are consequently remarkably stable (Exhibit 10). Recent appraisals have these assets trading at IRR levels in the 9%-14% range. At the same time, a high quality office property in the U.S. might trade in the 6.5%-7.5% range, and, in fact, we estimate that unleveraged IRRs for the overall core market are roughly 7.0%-7.5%. While there will always be much debate over the appropriate pricing for any given investment, the approximate 3%-4% gap between lower risk infrastructure assets and commercial property is hard to justify.

...and lower volatility

As noted previously, a key challenge for the equity market is its heightened volatility and its implications for risk-adjusted returns. While investors may continue to be attracted to the equities given its expected premium to the risk-free rate of return, elevated volatility will negatively impact any forecast for portfolio performance based on risk-adjusted return estimates. Real assets may offer a compromise: attractive return prospects along with lower volatility (Exhibit 13). **Exhibit 14A** compares quarterly returns for a 60/40 global equity/bond portfolio since 1995 versus an equally weighted basket of real asset subsectors. The reduction in the severity of quarter-toquarter swings is apparent at a glance. Also noteworthy is the fact that the real asset series had negative returns in only 12% of the quarters versus almost 40% for the 60/40 portfolio (**Exhibit 14B**). Fewer potholes: diversified real assets have had more consistent quarterly returns than the typical 60/40 global index portfolio EXHIBIT 14A: QUARTERLY RETURNS



Source: Bloomberg, NCREIF, JP Morgan GRA Research, Jones Lang LaSalle, DTZ Research. 60%/40% portfolio reflects 60% MSCI World and 40% Barclays Global Aggregate Bond Index. Data as of March 2011.

The above information is provided for illustrative purposes only. Results shown are not meant to be representative of actual investment results. Past performance is not indicative of future results.

Note: The equal-weighted real assets portfolio is comprised of U.S. core-plus real estate, European real estate (value-added), and emerging market real estate (China) from 1Q1995 through to 1Q2011. From that date (1Q2001) through March 2011, OECD Infrastructure is also added to the equally-weighted portfolio of Real Assets due to data constraints related to the OECD Infrastructure sector (quarterly data is not available prior to March 2011). Allocation percentages are static. The return series for each of these real asset sectors is either third-party indices or proprietary series created by J.P. Morgan Asset Management using third-party index information as the base. Adjustments are primarily related to the application of leverage to the returns. The infrastructure return series is derived from the aggregation of appraisal-based returns from actual stabilized infrastructure assets.

EXHIBIT 14B: % OF TIME WITH A NEGATIVE RETURN

	60/40 global	Equally weighted private real assets
Q1 2001–Q1 2011	37%	12%

Source: Bloomberg, NCREIF, JP Morgan GRA Research, Jones Lang LaSalle, DTZ Research. The 60%/40% portfolio reflects 60% MSCI World and 40% Barclays Global Aggregate Bond Index. The study is carried out over the period shown to demonstrate results for the equally-weighted real assets portfolio described above in the footnote of 14A that includes OECD infrastructure.

All over the lot: distinct real asset subsector characteristics enable investors to allocate to specific objectives EXHIBIT 15: REAL ASSET DIVERSIFICATION CHECKLIST

	Diversification to equities	Income-driven returns	Appreciation- driven returns	Inflation sensitivity	Relative liquidity	Lower volatility returns
DEVELOPED MARKETS REAL ESTATE						
U.S. Core/Core Plus Real Estate	\checkmark	√		\checkmark	V	\checkmark
U.S./European Value Added Real Estate	V		V	V	V	
U.S., International and Global REITs		√		V	V	
U.S. Opportunistic Real Estate	V		V	V		
EMERGING MARKETS REAL ESTATE						
China Real Estate	V		V	V		
India Real Estate	V		V	V		
INFRASTRUCTURE						
OECD Infrastructure	V	√		V	V	√
Asian Infrastructure	V		V	V		√
SHIPPING						
Global Maritime	√	√	\checkmark	√		
OTHER REAL ASSETS						
Commodities	V		V	√	V	
TIPS	√	٧		V	V	√

Source: J.P. Morgan Asset Management.

The result: real assets together are a powerful diversifier

Considering investments in real assets as a single allocation with multiple sleeves is arguably an optimal approach for several reasons. First, while real asset subsectors have similar profiles, they function at differing levels of intensity (Exhibit 15). Thus, while most offer income as a component of total return, some offer more income as a share of the total return over time—and even those offering similar levels may offer more or less stable income streams. Utilizing all of the subtypes in any allocation exercise allows investors the flexibility to structure their real asset allocation to meet targets that may lean toward income for one investor, inflation hedging for another and capital appreciation for a third. Double dip diversifier: real assets correlate weakly to one another as well as to other asset classes, giving portfolios an added layer of diversification

EXHIBIT 16: 20-YEAR CORRELATION MATRIX, U.S. DOLLAR-DENOMINATED RETURNS

1991-20	010	I	II	Ш	IV	V	VI	VII	VIII	IX	Х	XI	XII	XIII	XIV	XV	XVI
I	Global equities	1.0															
	Global fixed income	0.2	1.0					Low	(Negativ	e) ┥						High (+1	.0)
	U.S. core	0.1	-0.2	1.0													
IV	U.S. core-plus RE	0.1	-0.2	1.0	1.0												
V	U.S. value-added RE	0.2	-0.2	1.0	1.0	1.0											
VI	U.S. opportunistic RE	0.3	-0.2	0.9	0.9	0.9	1.0										
VII	Europe core RE	0.3	0.2	0.5	0.6	0.5	0.7	1.0									
VIII	Europe value-added RE	0.4	0.1	0.7	0.7	0.6	0.7	1.0	1.0								
IX	Global REITs	0.7	0.2	0.0	0.1	0.1	0.2	0.3	0.3	1.0							
Х	India RE	0.4	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.0						
XI	China RE	0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.2	-0.2	0.4	0.5	1.0					
XII	Global maritime	0.4	0.1	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.3	1.0				
XIII	Timberland	0.1	0.0	0.1	0.1	0.1	0.0	-0.3	-0.3	-0.1	0.4	0.4	0.0	1.0			
XIV	Farmland	0.0	-0.2	0.4	0.4	0.4	0.5	0.2	0.3	0.1	0.2	0.2	0.3	0.3	1.0		
XV	OECD infrastructure	0.1	0.6	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.0	-0.4	0.2	-0.1	-0.3	1.0	
XVI	Asian infrastructure	0.3	0.3	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	0.7	0.3	0.7	0.2	0.4	0.0	0.2	1.0

Source: MSCI, Barclays Capital, NCREIF ODCE, NCREIF Townsend, NCREIF Timberland, NCREIF Farmland, DTZ Research, FTSE, EPRA NAREIT, RBI, Propequity, Jones Lang LaSalle, Clarksons, Bloomberg, J.P. Morgan GRA Research estimates.

Unleveraged series were leveraged to reflect how institutional investors typically access the representative asset classes. Past performance is not indicative of future results. The above table is for illustrative purposes only.

Second, while sharing many attributes, the long-term returns for these different real asset subtypes are lowly correlated generally speaking (**Exhibit 16**). That means even as their low correlations to other asset classes diversify the total portfolio, they also enhance the overall contribution of the real asset bucket through low **intra**-sector correlations—diversification benefits within diversification benefits. Thirdly, multiple real asset subsectors allow investors a full range of global options—investors do not, by any means, give up global diversification by moving to real assets. In fact, a global real asset allocation can diversify portfolios in an exceptionally direct and powerful way since it consists of investments whose cash flow and appreciation potential tie directly to the performance of separate and largely autonomous local economies. Adding it all up, global real assets can boost returns and reduce volatility, thus improving risk-adjusted returns profiles for investor portfolios. The varied menu of real asset subsectors adds a level of flexibility and capability in terms of income, appreciation and inflation hedging. **Exhibit 17**, next page, is an analysis using 20 years of return data (1991-2010). It demonstrates the efficacy of a real asset allocation in enhancing a simplified 60/40 Big Two portfolio. It also lends support to our assertion that an allocation of over 20% can make sense as the return per risk unit continued to improve even at a 25% allocation to real assets. The more the better: adding diversified real assets to a portfolio would have boosted risk-adjusted returns over the last 20 years EXHIBIT 17: RISK-ADJUSTED INDEX RETURNS, 1991-2010



Note: Real assets include private real asset strategies. Annual data from 1991-2010. The portfolios assume annual re-balancing. The "+ OECD infrastructure" execution assumes a 50/50 split between U.S. core RE and OECD infrastructure. The "+Europe value add RE + China RE" assumes to be a 60/40 split between core and non-core strategies in the following amounts: 30% U.S. core RE, 30% OECD infrastructure, 20% Europe value add RE, 20% China RE.

Source: Bloomberg, NCREIF, DTZ, JLL, JP Morgan GRA Research. U.S. equities are represented by S&P 500 returns and U.S. bonds by Barclays U.S. Aggregate. U.S. core RE figures derived from NCREIF ODCE; OECD infrastructure from a J.P. Morgan Asset Management-GRA modeled portfolio series of mature infrastructure assets; European value add RE from a modeled series using DTZ pan-European data; and China RE from office and residential returns in Shanghai and Hong Kong from Jones Lang LaSalle. Past performance is not indicative of future results. The above table is for illustrative purposes only.

A well-developed, growing and global opportunity

There have long been estimates of the size of the global property market, with one source, DTZ, having it at close to \$14 trillion of invested property, with a total of investable property (i.e., not in the hands of owners that do not typically sell, such as governments, therefore available for investment by institutional and other private investors) that is almost 1.5 times larger. Adding other subtypes, such as infrastructure, maritime and commodities, serves to increase the size of the opportunity-a critical consideration when the Realization begins to drive significant funds toward the real assets category. J.P. Morgan estimates that the invested stock shown in **Exhibit 18** grows the pool to over \$23 trillion when other sectors are added to the property totals. The investable total (available for investment, thus subject to future investor penetration) may be much larger if the investable-to-invested ratio for property is any indication.

More importantly, growth in the investable stock is coming. While the property stock is fairly well established in the developed economies, we believe that no one would argue with the assertion that Asia country markets, particularly China and India, will add millions of square feet of new space over the next few decades as their populations move to urban centers and become more affluent.

Big pool, many streams

EXHIBIT 18: REAL ASSETS INVESTED UNIVERSE, 2011



Source: DTZ, RREEF, Mercer, Barclays Capital, FTSE EPRA NAREIT Developed, UBS Investment Research, J.P. Morgan Asset Management.

REIT totals include both equity and debt estimates. UBS Investment Research REIT coverage by global regions estimates debt totals. These are added to equity market capitalization from FTSE EPRA NAREIT's Global Index as of December 2011, a representative index but not inclusive of all property companies. Middle East and Africa are included in Europe. Infrastructure total is an estimate from J.P. Morgan's Asset Management investment team. Additionally, infrastructure is clearly an underinvested real asset subtype, given the potential size of its investable base if public ownership of the sector were to continue to decline (thus increasing private ownership). For instance, if investor penetration of investable stock for infrastructure were the same as that for property, it is very hard to believe that a sector that covers roads, airports, ports, electricity, natural gas and water distribution facilities, wastewater plants, electricity generation plants and more would result in an invested market less than one-half the total of that for commercial property (excluding housing stock). Any meaningful increase in investor penetration, compounded by the potential for an increase in investable stock if governments continue to privatize would have significant impact on the size of the infrastructure investment opportunity. Moreover, the global infrastructure stock figures to grow strongly over the next several decades. In fact, across all three major global regions, estimates of required capital to develop, repair or modernize infrastructure reach into the trillions:

- A European Commission estimate in 2009 suggested that Europe might require as much as €3.3 trillion in investment from 2010 to 2020.
- The American Society of Civil Engineers estimated that the U.S. would need \$2.2 trillion between 2010 and 2015 to modernize its crumbling infrastructure.
- In developing Asia various estimates have India, Thailand, the Philippines and Indonesia needing \$1.17 trillion between 2015 and 2022. China spent \$500 billion on infrastructure in 2010 alone. With a low ranking of its infrastructure assets in terms of quality (in the forty-eighth percentile—out of 139 countries—versus Germany in the ninety-fourth percentile and the U.S. in the eighty-third), there is surely more investment to come.⁴

Given these enormous sums at a time when most developed governments are budget constrained, it is fair to assume that private investors will have increasing opportunities to penetrate this market.

The Realization: the shift has begun and early movers should benefit

Early movers should benefit

So the shift is coming, but does it really pay to be an early mover? It's a fair question and one we can answer by looking at two examples.

First, looking back at the first Realization, marked by the shift from fixed income to equities, a simple but we think appropriate way to measure the benefits for the early movers is to compare the index performance of two equity diversified model portfolios to bonds. Equity allocations before 1970 were small, moving to 30% or so during the 1980s. The 60% allocation to equities came to be the standard only over time. In **Exhibit 19** we calculate the value of \$100 invested at the end of each calendar year (end of year 1964 equates to 1965 on the chart) if that investment was held through the end of 2011. We do three portfolios, one in fixed income (Barclays Aggregate from 1976 and a 10-year Treasury total return series previously), one 30% in stocks and one 60% in stocks. Clearly, getting in early would have created the most value for a hypothetical pension fund. The early movers in 1965

The early bird gets the return: Shifting to equities in 1965 would have earned a significant early-mover premium

EXHIBIT 19: VALUE OF \$100 AT THE END OF 2011 IF INVESTED AT THE START OF EACH HOLDING PERIOD SHOWN



Source: Shiller, Standard & Poors, Bloomberg, Global Financial Data, Barclays Capital, J.P. Morgan Asset Management. Note: The large cap equity return series is S&P total return from 1988-2011, the price index adjusted for dividends (subcategory of SPX on Bloomberg) from 1927-1988 and Shiller price index prior to 1927. The bond index uses Global Financial Data's treasury total return index prior to January 1976 and Barclays Aggregate Bond Index through to 2011. The 30/70 and 60/40 allocations are static and returns weighted to create return indices for comparison purposes. The results shown are the cumulative value of \$100 if invested at the beginning of the first year in the period and held through to December 2011.

⁴ Source: World Economic Forum, "The Global Competitiveness Report, 2010-2011."

generated the most absolute value creation. Their returns handily beat those of bonds and the less aggressive 30/70 portfolio. In fact, between 1965 and 2011, a 60/40 allocation would have grown at nearly twice the rate of a pure bond allocation. 60/40 investors in 1975, given their entry point right after a market crash, would have achieved 2.2 times the growth of a fixed income-only investment. Admittedly, getting in early also benefits from a longer period of accumulation, but **only if** the asset class in which the early movers invested outperforms over time. In this case, equities did, even despite some rocky years between 1965 and 1975.

Our example is admittedly a much simplified one, but it does indicate the "penalty" paid for gradual implemention during a period of Realization versus joining the ranks of the early movers. Investors generally took more than a decade to fully implement shifts from fixed income to a blend of bonds and equities. Spotting a major structural shift in investment opportunity, like the Realization, and reallocating both early and aggressively to take full advantage is only achieved by a select and rare group of bold and forward-thinking investors.

A second example relates to pension fund allocations to real estate, a precursor to the current shift into real assets. As Exhibit 20A shows, with the advent of the NCREIF private real estate index in 1978, investors were able to get a view into commercial real estate investment as an asset class. With CPI and 10-year Treasuries volatile during the high inflation period between 1965 and 1985, plus the real estate-specific story of overbuilding in the 1980s, it is fair to say that it wasn't clear that the case for real estate, sensitive as its values can be to rising debt costs, was a good one until the early 1990s. With inflation subsiding and both interest rates and 10-year Treasury yields dropping from the heights of the early 1980s, a potential mispricing was evident in a spread between capitalization rates and risk-free rates that reached +440 basis points in the 3Q1993 after trading at a negative spread of -560 basis points in mid-1984. The case for cap rate compression, and outsized value gains, was supported by market fundamentals, as bottoming real estate prices set the stage for outsized gains. Assuming that investors identified the case (and many did), and got in at the end of 1994 (a fitting entry point as the mantra at the time was to "survive to '95"), the early mover would have handily outperformed a fixed income allocation by 49% (Exhibit 20B).

Early movers into private real estate investment, a precursor to the full-blown Realization, also generated more wealth if sourcing from fixed income

EXHIBIT 20A: PRIVATE REAL ESTATE CAP RATES (NPI), TREASURY YIELDS AND CHANGE IN CPI, 1982-2011



EXHIBIT 20B: GROWTH OF \$100 INVESTED IN PRIVATE REAL ESTATE (NPI) AND BARCLAYS AGGREGATE, 1995-2011



Source: U.S. Bureau of Labor Statistics, NCREIF, Bloomberg (USGG10YR), J.P. Morgan Asset Management. Data as of December 2011.

And there are early movers already

We identified several large-scale plan sponsors that have reduced equity and fixed income exposures to add to real asset and alternative allocations that now make up roughly 20% or more of their portfolios. One sponsor, call it U.S. Plan Sponsor A, managed \$107.7 billion as of August 2011. It has been aggressive in diversifying its allocation away from the traditionals. Its equity and fixed income allocations began falling in the late 2000s as positions in other categories grew or were initiated. As of August 2011, equities made up about 51% of its portfolio and traditional fixed income only about 14% as part of the stable value category, which includes hedge funds. This plan has aggressively grown allocations to a real return category that now makes up 19% of the overall portfolio (Exhibits 21A and 21B, next page). Another plan sponsor of similar size and profile (\$152.2 billion as of February 2012) had an allocation to equities of almost 70% in 1999, while fixed income had dropped to 25%. As of February 2012, those exposures had fallen to 53% and 19%, respectively. What took the place of the Big Two was a healthy allocation to alternatives, including real estate, private equity and inflationsensitive investments.

This shift among high-profile plans is a global phenomenon. Canadian pension plans have been among the most, if not the most, aggressive in diversifying their portfolios to alternatives, including real assets. A top public employee plan in Canada, with net C\$104.7 billion in AUM as of December 2010, embraced the real assets category and was the top performing plan among 330 peers over the last ten years as of December 2011.⁵ In 2010, it had 23.1% of its invested capital in real assets and commodities (**Exhibit 21C**). Its real asset allocation included real estate, infrastructure and timberland. Equities and fixed income, while still substantial portions of the portfolio, were down to 34.9% and 33.7%, respectively. In Asia, one of the world's leading sovereign wealth funds is a noted early mover on real assets. As of 1Q2011, it had 26.8% invested in real estate, infrastructure, natural resources, absolute return strategies and private equity, with the property and private equity/infrastructure categories making up 20.6% of that total (**Exhibit 21D**). Fixed income, excluding inflationlinked bonds, makes up, coincidentally, only 20.6% of the total portfolio.

Another innovative investment management marketplace, Australia, is known for its well-developed superannuation (retirement) program, which mandated compulsory contributions in 1991 at 3% of wages with stepped increases designed to bring that contribution to 9%. This program has contributed to a healthy asset management industry. Funds under Management (FUM) were approximately A\$1.4 trillion in June 2010 and forecast to grow 11.7% per year to reach A\$4.6 trillion in 2021.⁶ A prominent trade superannuation fund in Australia, managing approximately \$17 billion in June 2011 for more than 660,000 beneficiaries, had about 93% of its members invested in its growth option. That option, as shown in Exhibit 21E had roughly 65% of its allocation in equities and fixed income, with the remainder in property (14.1%) and alternative assets (22.9%). Interestingly, only 5.3% was in the "fixed interest" category, implying that while just under 58% of FUM remained allocated to equities (similar to the traditional 60%), the funds for the allocation of 35% to real assets and other alternatives came from the fixed income bucket. according to the plan's 2010-2011 annual report.

⁵ The Economist, March 3, 2012, page 86.

⁶ Source: Fund Management in Australia Market Entry Report, Volume 1, Number 01, by Rainmaker Information.

Paths to real returns

EXHIBIT 21A: U.S. PENSION PLAN A-\$107.7 BILLION AUM, AUGUST 2011



Source: Company reports and annual reports, J.P. Morgan Asset Management. Data as of August 2011.

Note: Ex-cash. The absolute return category includes private equity and hedge funds per our harmonization with other examples.

EXHIBIT 21C: CANADIAN PENSION PLAN-C\$104.7 BILLION AUM, **DECEMBER 31, 2010**



Source: Company annual report, J.P. Morgan Asset Management. Data for the year ended December 31, 2010.

Note: Ex-cash. Inflation-linked is labeled "real-rate" products. Absolute return is its own category for this entity and includes hedge funds.

EXHIBIT 21E: AUSTRALIAN PENSION PLAN-A\$17 BILLION FUM, **JUNE 2011**



Source: Company annual report, J.P. Morgan Asset Management. Data as of June 2011.

Note: Ex-cash. No further detail was provided on the breakdown of alternative assets.



Source: Company reports and annual reports, J.P. Morgan Asset Management. Data as of February 2012.

Fixed income

19.1%

Note: Ex-cash. The absolute return category is solely private equity. Inflationlinked is categorized as absolute return by this entity, but we have split it out to harmonize with other examples. Inflation-linked may include infrastructure.

EXHIBIT 21D: ASIAN SOVEREIGN WEALTH FUND-\$200 BILLION AUM, 102011



Source: Company data as of 1Q2011.

Note: Ex-cash. The real assets category includes a joint private equity and infrastructure category of 10%. Absolute return, at 3.1%, is its own category for this fund.

The Realization Pyramid

While some investors have already made the commitment, it is relatively early in this structural shift. Evolution typically moves in stages, and the current move by investors to accepting real assets and similar absolute return investments as a third traditional alongside equities and bonds is certainly no exception. As noted previously, some investors have already embraced real assets as a significant allocation unto itself. As shown in **Exhibit 22**, they would be placed in the Enlightened category of what we call the Realization Pyramid. This is still a small group, and most other plans are still in earlier stages, with the Experimental and Engaged groups still claiming the lion's share of assets.

So the evolution is in its early stages. We created a database of more than 2,500 institutional investors—including public and corporate pensions, endowments and foundations in the U.S.—using the U.S. Standard & Poor's Money Manager Database, supplemented by our own survey of public statements for a sample of European and Asian pension plans and sovereign wealth funds. The total fund assets managed by these investors is approximately \$7.8 trillion.⁷ We then analyzed the plan allocations to real asset categories and categorized the assets under management along the pyramid based on our definition of what qualifies an investor for each stage, from Traditional up to Enlightened. It is clear that while the real assets category is well-defined and accepted by a select few and often high-profile investors, we are still very early in the shift from the Big Two to the Big Three. Only 7% of plans (180 plans, \$2.3 trillion in funds) from our database are in the Enlightened and Diversified stages, and only 58 plans have reached the Enlightened stage. Over 2,000 plans, representing \$5.3 trillion of funds, are still in the Engaged and Experimental stages.

It is remarkable that a total of just under 400 plans (with assets of \$223 billion) are still throwing in their lot with only the Big Two traditionals. It is important to note, however, that while the Diversified and Engaged plans represent about 40% of plans, they hold just under 70% of AUM, an indication that larger institutional investors are actively moving into real assets. In fact, the plans cited in this paper as examples are generally in the \$100 billion+ category and have allocations that would put them near the top of the Diversified range of 15%-25%. On the other hand, the plans still in the Traditional



EXHIBIT 22: REALIZATION PYRAMID

Source: Standard & Poors U.S. Money Market Directory, company reports, J.P. Morgan Asset Management.

⁷ We limited this analysis to those in the following distinct, non-overlapping fund classifications from the databases utilized: defined benefit plans (open, closed and frozen), pension funds, hybrid DB/DC plans, sovereign wealth funds, endowments, foundation fund, investment pool fund, other retirement funds and other tax-exempt funds. Also included are a select list of plans from Europe and Asia. Additionally, among the classifications used to categorize assets by the database, we included the commodities, infrastructure, real assets (distinct from other classifications), real estate, timberland, natural resources and REITs in our aggregation of real asset allocations.

and Experimental stages tend to be smaller (14% of plans but representing only 3% of AUM in Traditional and 43% of plans but only 19% of AUM in the Experimental stage).

What could allocations look like as this structural shift to a Big Three world progresses? Using the database, it is easy to calculate the value of new real asset AUM when allocations move up. In fact, if all plans had 20% allocations to real assets (or more if the current allocation is more than 20%), \$714 billion could move into the real assets market. The implication, of course, is that \$714 billion searching after the best assets will continue to put upward pressure on values as well as the size of the global invested market. Sectors that seem expensive now may just get more expensive and potentially mispriced sectors would see their valuation gap with other investments at similar risk profiles.

The conclusion: where is your plan?

Today, as investors find themselves questioning whether equities and bonds will deliver absolute and/or risk-adjusted returns that meet expectations, they are increasingly searching out alternatives to the Big Two. "Real assets" is a category that is fast coming into its own as a foundation asset class (a third traditional), encompassing a wide variety of tangible, "hard" investments that offer a compelling mix of yield, equity-like upside and inflation sensitivity. And a select group of investors is at the vanguard of what, we believe, is a rare structural shift in pension fund/investor allocations to a new mix where real assets will migrate from being an "alternative" to being a "traditional," playing as critical a role in asset allocation as fixed income and equities. Early movers should continue to be rewarded in the midst of an (r)evolution in asset allocation that is still in its early stages.

The Realization

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