2016 / 2017

Hamilton Lane®

Market Overview

Never make predictions, especially about the future

- Casey Stengel

Right around this time every year, market overviews covering any number of industries begin to proliferate like fungus in a damp basement. They cover our desks and flood our inboxes and blacken our computer space. We can speculate as to the various reasons why they're written, not the least of which may be because some modern-day scrivener is being paid by the word. But, why would anyone take the time to read these things? We have a few theories….

» No one actually reads them. They're like dark matter in the universe; we all know it's there, but no one has ever seen it.

» The attachment was opened by mistake, but the recipient figured it couldn't hurt to take a look.

» The reader is attempting to confirm his/her own genius. "See, they agree with me; they must be smart also." Or, conversely, "Those idiots, they don't know what they're talking about."

» Somebody's job mandates that they read them – and possibly even report the summary take-aways to senior management.

» Someone is desperately in search of original thoughts and ideas.

» Someone is genuinely curious about what's going on in the alternatives universe.

We understand that people read, or don't read, ours for a variety of good, bad and goofy reasons. We write our annual Market Overview because interpreting and analyzing our data in depth helps us figure out what is going on in the world of alternatives investing and what might be coming around the corner. What we hope sets our overview apart – and better yet encourages even those people who don't usually read these things to take a look – is a blend of data and attitude.

The ***data*** matters. We can't stress this enough. It simply isn't available elsewhere in the abundance or accuracy you will find in the pages that follow. Love it, ignore it, disagree with it, but we've assembled it in detail and in a variety of unique ways. Think we're missing something? Give us a call and tell us how we should assemble it differently. In fact, many of the ways we sliced and diced it this year, as well as in years past, have come from our readers suggesting we take a fresh look. That's what this exercise is all about: reasonably smart people trying to figure out the best way to think about the alternative investments space.

Along with the data, the ***attitude*** matters. We take the data seriously, but also how it's presented, the predictions we make and the conclusions we reach. We understand that there is no one answer and there's never one right perspective. We believe in ours, but never to the point of irrationally assuming it's the only path. So, unlike a lot of annual overviews floating around out there, you won't see a lot of congratulating ourselves (well, there are one or two places, but only because we really deserve it), nor will we endeavor to enumerate all of the wonderful ways that Hamilton Lane can transform your life, or at the very least, your investment strategy. Instead, what you'll find is a lot of information worth chewing on, some of which might make you laugh and some of which will hopefully make you pause and even wonder.

That's where we'll all know this Market Overview was worth writing – and worth reading.

MARKET OVERVIEW:

A comprehensive look at past, current and future trends regarding a particular economy or investment segment

One of the uncomfortable truths about so many of the market overviews that are produced every year is that they aren't really market overviews at all, at least not according to any generally accepted definition of such things. Instead, they are often thinly veiled advertisements for whichever firm has authored the overview. (Oh, come on, don't act so surprised; you know it's true.) It wouldn't require much cross-checking to figure out that the insights and advice being offered are, beyond all reasonable coincidence and circumstance, exactly aligned with the firm's current offerings or in direct support of its current investment bias.

Imagine that.

Yet, even as we chastise others for their blatant self-promotion, we will begin this year's overview with a shameless plug of our own. We're justifying it, however, by noting that it does have direct bearing on the content that follows.

{Caution: shameless Hamilton Lane plug to follow}

As in prior years, this overview contains a significant amount of data. We think this is unique in the world of alternative assets where the terms "reliable" and "data" have long functioned in a kind of matter/anti-matter relationship. The vast majority of the data and analytics that appear in the pages to come are derived from the Hamilton Lane Fund Investment Database; they are based on fully quality-tested cash flows and represent, in our opinion, the largest and most accurate data set in the industry. The statistics are pretty impressive[1]:

- $3 trillion in fund commitments
- 38 vintage years
- 1,100+ unique fund managers
- 2,800+ funds
- 40,000+ portfolio companies

These figures do not encompass Hamilton Lane's recommended funds alone. (How could they? We've only been around for 25 years.) When we assume responsibility over a client's existing alternatives portfolio (which we do fairly often), all of that client's existing fund data is entered into our database following an extensive reconciliation process. That's the data that provides the backbone of this overview, and it's the accuracy of this data on which you can rely. You may disagree with the conclusions we draw from that dataset, but rest assured that they aren't derived from any self-reported fact set or random fund cohort rife

[1] As of June 30, 2016

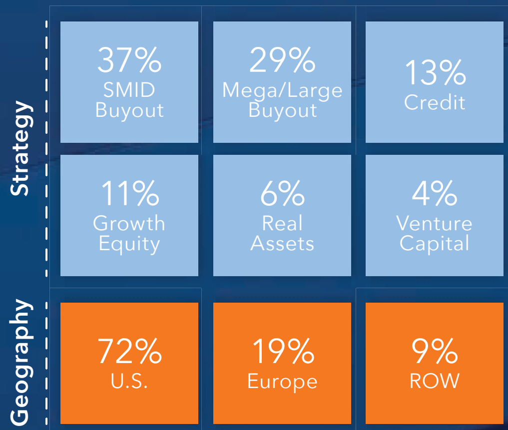
with sub-$100 million, non-institutional groupings of general partners. Rather, our database is truly representative of the funds in which you invest and the funds that comprise institutional portfolios around the world.

It is your portfolio.

Also in keeping with tradition, we have interspersed throughout this overview various pieces of opinion and insight on a number of different industry topics courtesy of more than 75 general partners from all over the world. Make no mistake; these are not your average GPs. They are among the best fund managers in the world, and they represent nearly one trillion dollars in capital raised.

600+
Funds Managed by GPs in the Survey

$950B+
Raised by GPs in the Survey



We know what you're thinking: "I bet they're only the largest managers." To be sure, those large managers are represented. Why shouldn't they be? They're smart and represent a big part of where the market is going. (That's both because they raise the largest share of capital and because, as spenders of that larger share, they set the market trends.) But, the largest managers are only about one quarter of those we polled. Instead, we've managed to capture and convey the views of managers from all parts of the world and all parts of the alternative landscape: buyout, venture, credit and real assets.

Much like our claims about Hamilton Lane's own dataset, this is truly insightful GP polling data on which you can rely.

{The Shameless Plug portion of this introduction has concluded.}

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STATE OF THE PRIVATE EQUITY MARKETS

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British Prime Minister Benjamin Disraeli has been credited with saying, "There are three kinds of lies: lies, damned lies and statistics." The private markets industry has spent years simply following lies and damned lies, since there has existed so little in the way of reliable statistics.

The first part of this overview will feature a substantial set of statistics around what has taken place throughout the history of the private markets, particularly over the last few years. We will draw some conclusions and inferences; we will also raise questions and highlight areas of future development that should be considered, but about which the outcome, at least from today's perspective, is simply unknowable.

Statistics don't need to be lies. Instead, they should be data points that can help inform unique decisions about the markets in which you want to invest. Those are the statistics we've endeavored to present in this section, and throughout this market overview.

FUNDRAISING

The number of PPMs that Hamilton Lane receives each year presents one of the simpler measurements of overall fundraising activity, and 2016 is on track to break the record set just last year (Chart 1).

Now, a record number of PPMs could reflect any number of developments: more funds in more diverse geographies; increased specialization of fund choices; greater spread of alternatives across areas such as real assets and credit; etc. It also may signal an impending top in the private equity market. (At least, that's the talk that's been churning in the rumor mill, but we'll cover that later.)

Let's take a look at whether fundraising has kept pace with the sheer volume of PPMs created (Chart 2).

Interesting, isn't it? With PPMs reaching new highs, one would reasonably anticipate that fundraising would experience a commensurate rise to record levels, but that doesn't appear to be the case. Instead, fundraising is hovering close to 2006 levels despite capital markets experiencing record highs. This warrants taking a closer look at the fundraising figures.

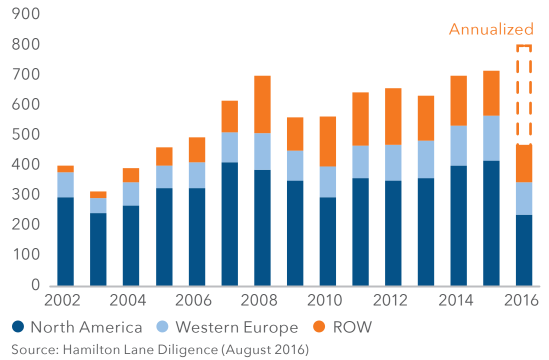
Hamilton Lane has been discussing "shadow fundraising" for years – and we're not alone in paying close attention to this phenomenon. The term refers to capital that is invested in alternatives, but not captured in traditional fundraising statistics. It can include everything from separate accounts, to co-investment capital directly committed by LPs, to secondary interests purchased directly by LPs rather than through a secondary fund. As you can see in Chart 3, more of all of the above activities exists than ever before, and we believe that our numbers, while closer to telling the full story, are nevertheless still underestimating the reality. Viewed in the aggregate, fundraising – defined as the combination of capital committed to funds and "just-in-time" capital[2] available for investment in alternatives – is at or nearing record levels.

Unintended Consequences?

» The notion of "just-in-time" capital available from LPs to invest is new in our asset class. What implications might this have on capital availability in market downturns? Also, as LPs become accustomed to paying fees on this capital only when it's used, how much pressure does that put on fees on committed capital used in more traditional fund structures?

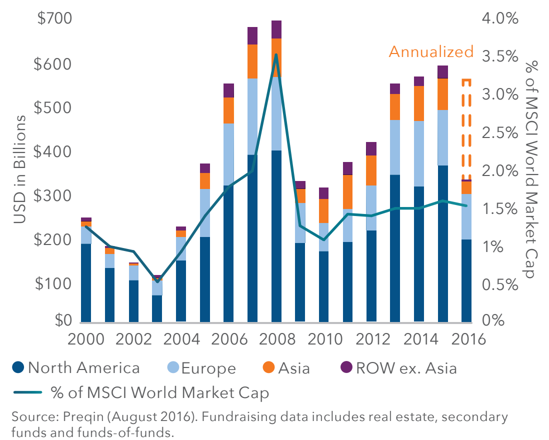
» Larger amounts invested in specific deals raise different risk profiles in LP portfolios. How will LPs react during the next downturn when losses and write-downs occur and they realize they aren't "sheltered" by the overall fund holdings that could effectively dull the impact of one or two large losses in a portfolio?

Chart 1: PPMs Received by Hamilton Lane



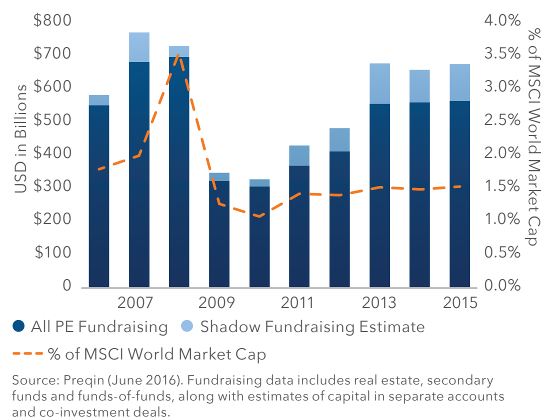
Source: Hamilton Lane Diligence (August 2016)

Chart 2: Global Private Equity Fundraising



Source: Preqin (August 2016). Fundraising data includes real estate, secondary funds and funds-of-funds.

Chart 3: Global Private Equity and Shadow Capital Fundraising

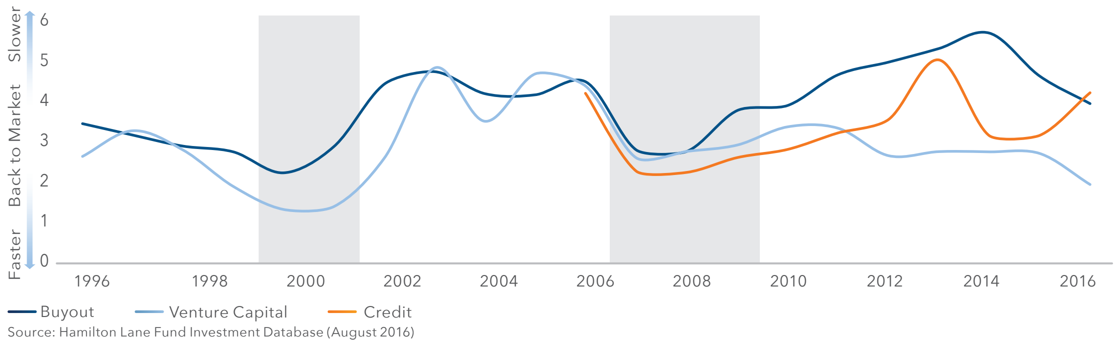


Source: Preqin (June 2016). Fundraising data includes real estate, secondary funds and funds-of-funds, along with estimates of capital in separate accounts and co-investment deals.

[2] "Just-in-time" capital: Capital provided by LPs outside of the traditional private equity fund structure that is immediately deployed into a specific deal.

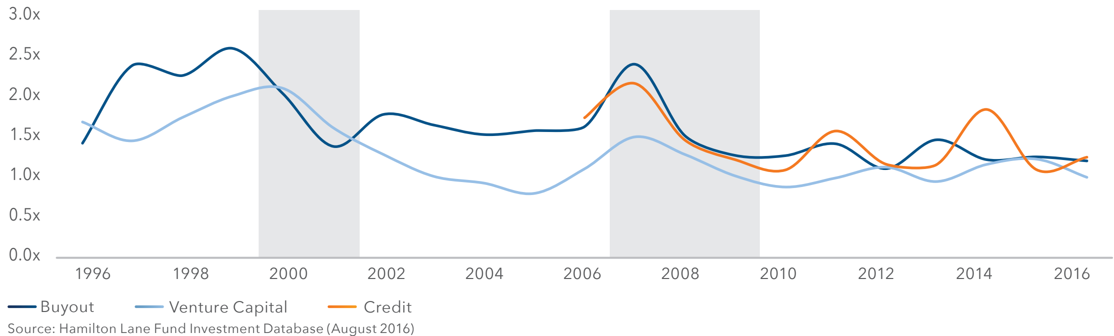
GPs today are in no rush to spend money simply for the sake of putting capital to work

Chart 4: Time Between Funds by Strategy
Median Time to Next Fund (Years)



Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 5: Fund Size Step-Up by Strategy
Median Multiple of Previous Fund Size



Source: Hamilton Lane Fund Investment Database (August 2016)

Those of you familiar with prior overviews may remember that we favor a few indicators that help us assess whether or not we should worry about fundraising levels. Let's turn our attention to those now.

Charts 4 and 5 offer two leading gauges of froth and greed in the private markets. The first looks at the time between fundraises, assessing how quickly GPs are spending money and LPs are pushing money back at them. The more condensed this period becomes, the more likely it signals a market top. The second indicator tells us how much larger funds are becoming in subsequent fundraises. The theory here is that the greater the increase, the more froth that exists in the market.

As you can see, neither indicator is anywhere close to levels that would suggest a market top. Although the time between fundraises has shortened somewhat, this was coming off incredibly high levels in recent years and is still well above the market tops experienced during the dot-com bubble or the Global Financial Crisis. This is important and not to be overlooked; GPs today are in no rush to spend money simply for the sake of putting capital to work.

Additionally, the step up in fund size is not increasing much. For the most part, LPs seem to have learned the following lesson from 2007: Huge funds don't necessarily create huge returns. Whether or not that's ultimately the right lesson is a longer-term issue. For now, LPs simply aren't in the mood to allow massive increases in fund size and GPs don't appear to be pushing the issue, even when they can. Of course, the ability to "flex up" on investments being made by using the just-in-time capital reduces the need for the massive fund increase, at least when markets are bullish and capital is readily available.

PERFORMANCE

Over the last few years, one fairly simple factor has continued to drive the popularity of alternative assets, particularly private equity: superior returns.

Private equity's absolute performance has remained strong over the last decade (Chart 6). Its relative outperformance has declined somewhat, but only compared to one benchmark: U.S. equities. That's a remarkable statement in its own right; private equity's performance has only lagged against the single best-performing asset class on Earth in recent periods. For those investors with a global equity portfolio comprised of both PE and public equities, the PE portfolio has handily outperformed.

Here's another interesting piece of data: An investor's portfolio doesn't have to be a perennial top-quartile performer to enjoy outperformance in this asset class.

Using a global benchmark, the MSCI World PME, even the pooled PE returns outperform the public markets in every mature vintage year (Chart 7).

Hey, this asset class really works!

The only instances of private equity's underperformance occur in the five-year period from 2006 to 2011 and compared to the best-performing public index around: the S&P 500. (And, we're willing to wager that, as the vintages mature, PE will regain its historical place as the better performing investment.)

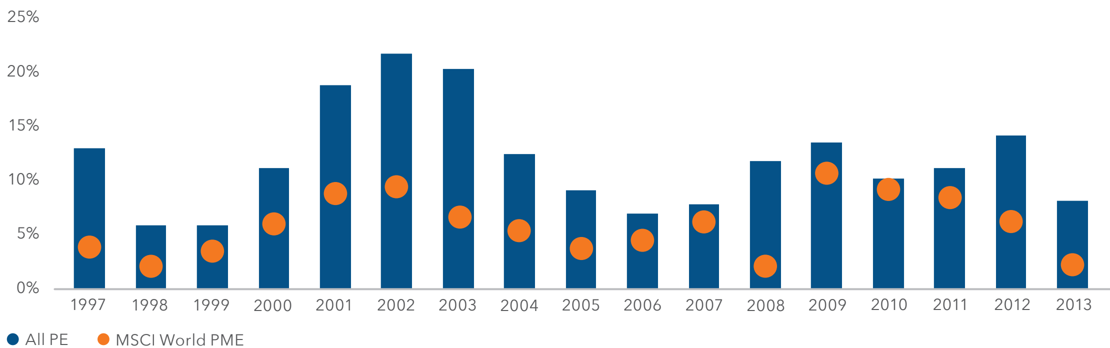
A look at the underlying figures shows still more interesting detail. The largest segment of the private equity universe, U.S. buyout, also happens to occupy the sweet spot of return and volatility (Chart 8). In fact, its numbers are what reduces the collective volatility of the entire asset class. Surprised? So were we. But that's what real data can do to an assumed investment premise. Chart 8 also reveals that segments of perceived higher risk and higher reward, such as emerging markets and growth strategies, have not, at least in the aggregate, delivered on the higher return part of the equation.

Chart 6: 10-Year Asset Class Risk-Adjusted Performance as of 3/31/2016

Asset Class	Annualized Total Return	Annualized Volatility	Sharpe Ratio
Private Equity	9.8%	14.4%	0.47
Domestic Equities	6.9%	16.9%	0.23
High-Yield Bonds	6.6%	11.5%	0.31
REITs	6.5%	25.5%	0.14
High-Grade Bonds	6.4%	6.6%	0.52
Hedge Funds	3.4%	7.8%	0.05
Infrastructure	1.9%	17.5%	< 0
International Equities	1.8%	19.8%	< 0
Emerging Market Equities	0.6%	24.5%	< 0

Indices used: Hamilton Lane All Private Equity with volatility desmoothed; Russell 3000 Index; MSCI World ex US Index; MSCI Emerging Markets Index; Barclays Aggregate Bond Index; Credit Suisse High Yield Index; HFRI Composite Index; FTSE/NAREIT Equity REIT Index; S&P Global Infrastructure Index. Geometric mean returns in USD. Assumes risk free rate of 3.1%, representing the average yield of the ten-year treasury over the last ten years. (August 2016)

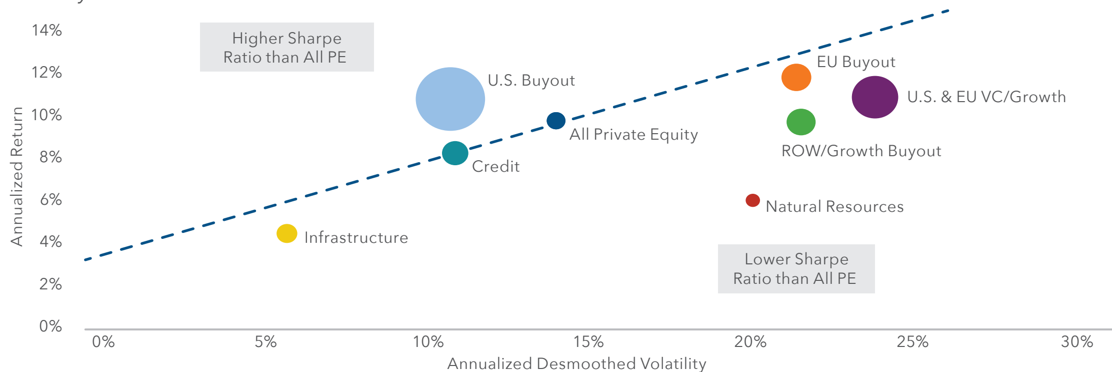
Chart 7: Private Equity Net IRR vs. PME
By Vintage Year



Source: Hamilton Lane Fund Investment Database, MSCI (July 2016)

>HEY, this asset class really works!

Chart 8: 10-Year PE Performance & Volatility by Strategy
Sized by NAV

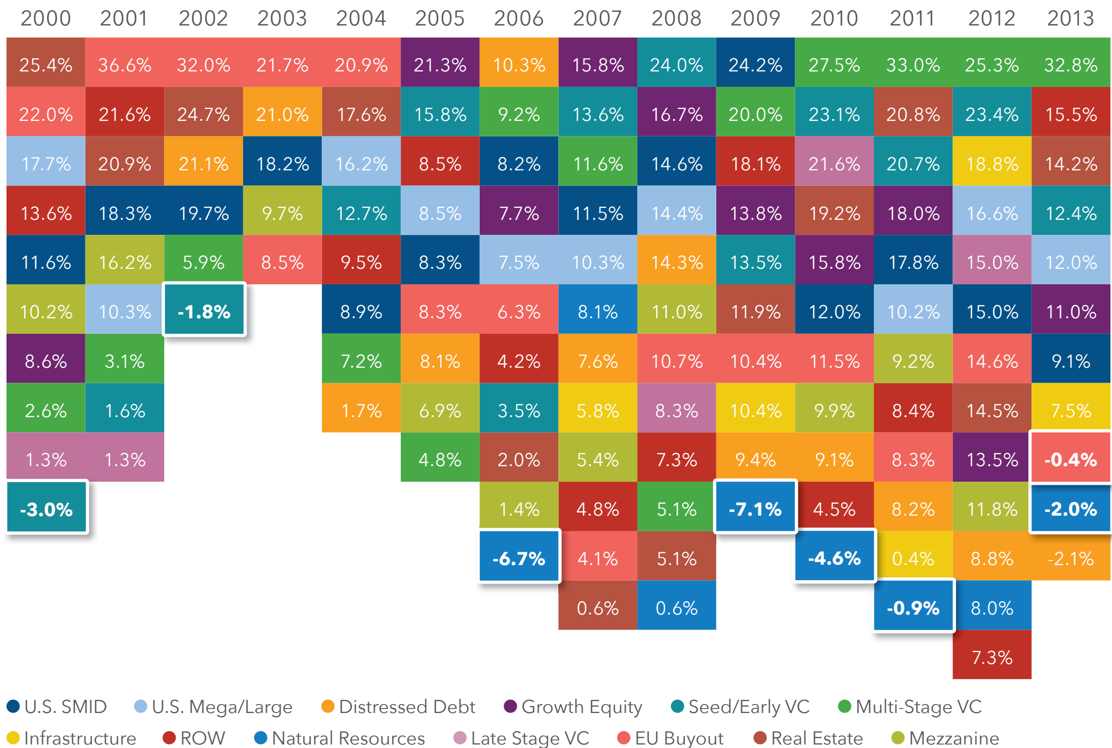


Source: Hamilton Lane Fund Investment Database. Real Assets excludes real estate. (August 2016)

Unintended Consequences?

- Investors in alternatives have long operated under the premise that only top-quartile performance justifies the fees and illiquidity that accompany the asset class. So, as LPs, how do we adjust to a world where that simply isn't true; where average PE may very well be good enough to outperform the public markets?
- The performance in Chart 6 indicates a lower volatility for PE than we've traditionally seen. We'll be arrogant for a moment and reiterate that we're confident our numbers are right. Most of the research showing higher volatility figures is not statistically based. It can't be, since few groups have access to accurate numbers. Thus, largely as a result of imperfect research, many portfolio construction models assume a higher volatility/higher risk model for PE than we believe is accurate or justified. That often equates to lower allocations to the asset class. What if the other pundits are simply wrong? What if investors suddenly realize that the assumed risk in their models, which has led to lower alternatives allocations, is actually faulty and gobs of return have been left lying on tables?

Chart 9: Pooled Returns by Vintage Year



Source: Hamilton Lane Fund Investment Database (August 2016)

We've featured Chart 9 every year we've done an overview, and we continue to find it impactful. The fact that it's pretty and colorful is really just a bonus.

This chart speaks volumes – both about alternatives overall and portfolio construction in the asset class.

» Risk is misunderstood in alternatives. Just take a look at each of the bottom performers; there simply isn't a high frequency of negative-return strategies, even in the most recent vintage years.

» Certain strategies demonstrate enormous variability in returns. Take EU buyout for example; it dominates the top of the chart from 2000 to 2004 and then takes up residence in the cellar from 2007 to more recent vintages. Multi-stage venture is a similar story of variability.

» Other strategies, such as U.S. small and mid-market and U.S. mega/large buyout, are like the proverbial slow and steady turtle that wins the race.

Portfolio construction in this asset class must be undertaken keeping both the turtles and the hares in the race toward great returns; the challenge lies in determining how best to combine them for optimum results.

No balanced discussion about performance in the alternatives space can occur without also discussing fees. Let us start by considering two seemingly paradoxical truths: First, private equity is a crazy expensive asset class; I mean really, crazy expensive compared to just about any other asset class. Second, even after all those fees, private equity still produces a stronger return on a net basis than any other asset class. Keep those two points in mind.

The gross dollar amounts in fees seem to be what gets everyone's attention (and associated venom) and have become the rallying point for those warning investors away from PE mainly because of the sheer expense. (Those on this side of the argument typically choose to ignore the reality that private equity investors have generated better returns than they otherwise could have.)

We look at the fee issue a little differently. To us, the more telling question is how much of the underlying gross transaction return is being kept by the general partner? As Chart 10 demonstrates, median gross PE returns are more than 10% greater than median public equity returns. Laid out so plainly, private equity looks like an incredibly, and intuitively, good way to invest. Yet, LPs are only receiving about 75% of those returns with the remainder primarily going to GPs. Is that too

much leakage? In part, that depends on your view. Many vehemently believe it's simply too much and there should be no further debate.

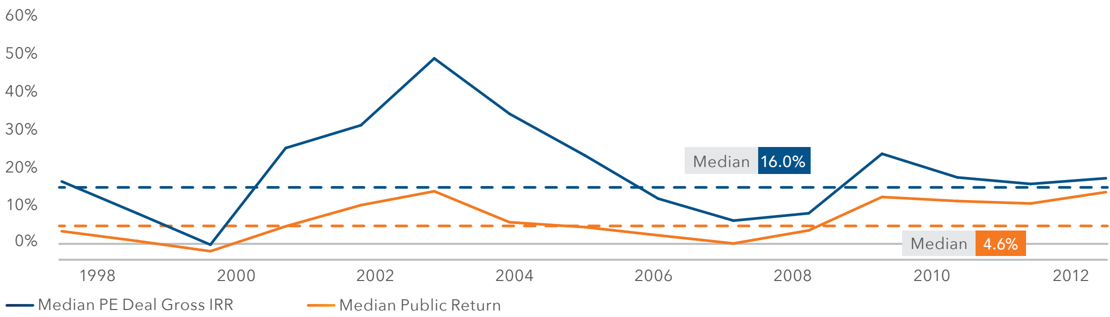
We agree it's a meaningful amount of return and is a function of one of two things: Either performing well in this asset class requires a very rare talent on the part of GPs and, therefore, the law of supply and demand dictates this level of expense; or private equity continues to be a relatively young asset class and its growth and maturity will lead to a gradual reduction in the fee load. We favor the latter theory. After all, it's a stretch to imagine that this asset class would continue to grow while also continuing to apportion 25% of the pie away from the LPs responsible for driving that growth.

Coming back to the broader topic of performance in the asset class, we're able to leverage our database to drill down a little deeper to assess individual deal returns.

> ...private equity is a crazy expensive asset class

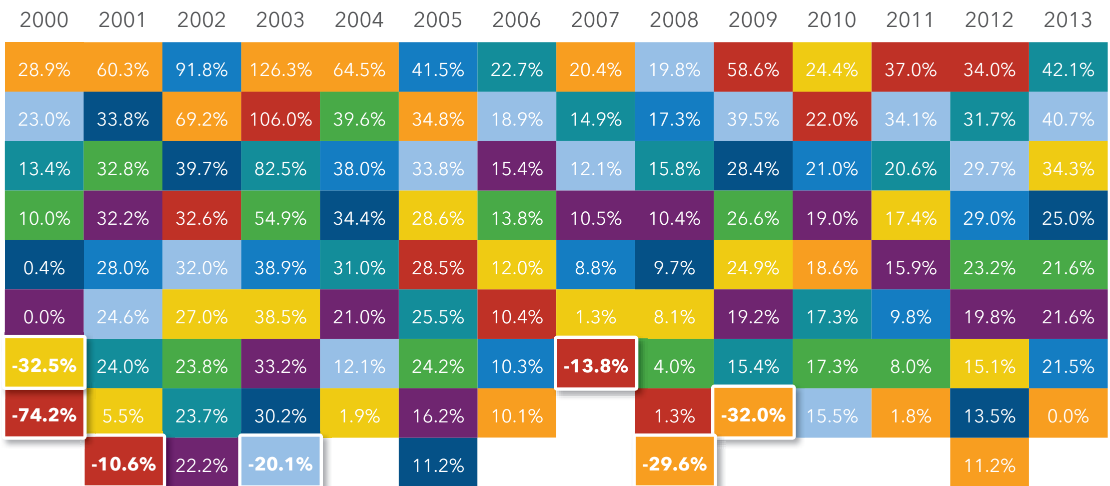
Not to be confused with the periodic table of fund-level returns, Chart 11 is the periodic table of sector-level returns. A few of the return trends parallel what we saw on the fund level: There are some sectors that demonstrate greater return volatility, such as telecom, energy and utilities; there are others that maintain a much steadier pace of returns, such as consumer staples (with the exception of 2003) and healthcare. Surprisingly, the instances of negative returns are quite few; and yet, where we do find them, the absolute figures are rather sobering. For investors with large components of direct and co-investment deals, these factors are crucial considerations when constructing portfolios.

Chart 10: Gross PE Deal IRR vs. Public Markets
By Deal Year



Source: Hamilton Lane Fund Investment Database (August 2016). Public return uses MSCI World TR USD Index and assumes single purchase and exit event.

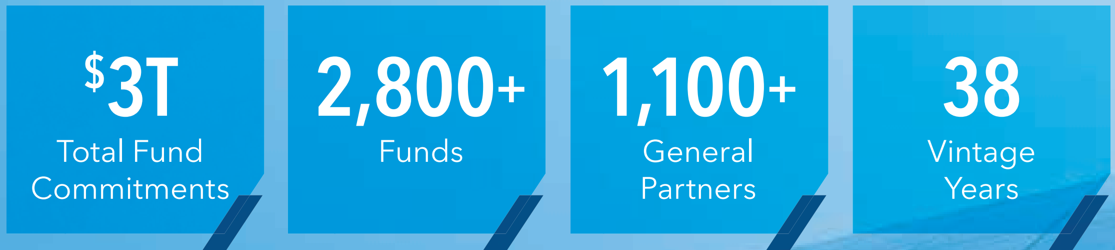
Chart 11: Sector Median Gross IRR by Deal Year



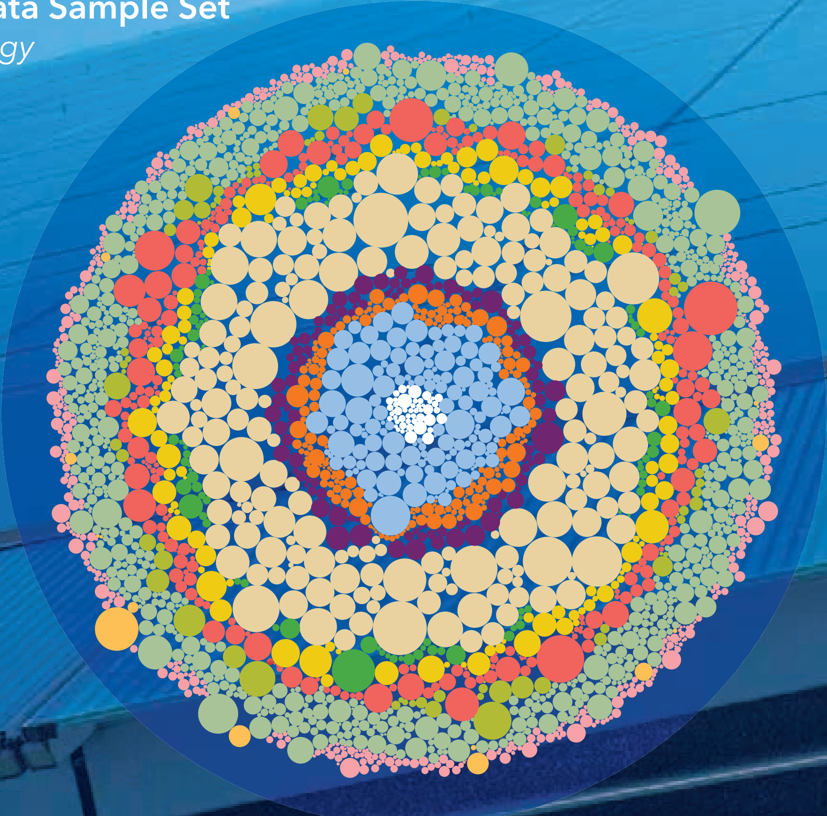
Source: Hamilton Lane Fund Investment Database (August 2016)

In an asset class where reliable data is scarce, Hamilton Lane's Fund Investment Database and analytic tools provide a unique advantage

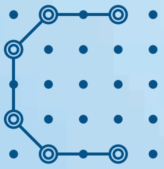
Hamilton Lane's Fund Data



Fund Data Sample Set
By Strategy



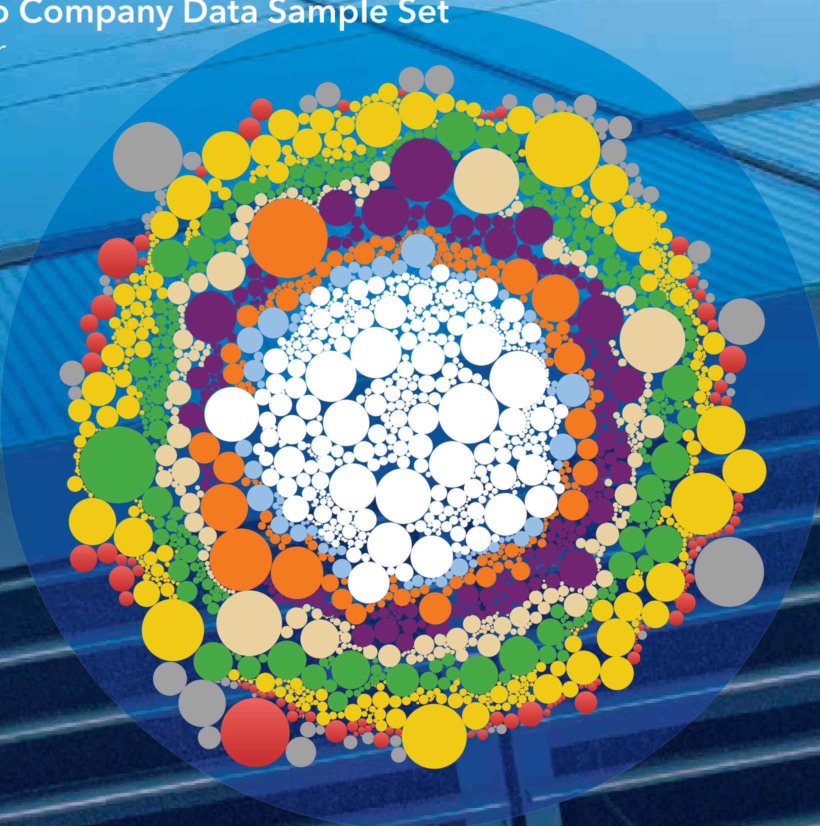
- Co/Direct Investment Funds
- Distressed Debt
- Funds-of-Funds
- Growth Equity
- Mega/Large Buyout
- Mezzanine
- Real Assets
- Real Estate
- Real Estate FoF
- Secondary FoF
- SMID Buyout
- Special Situations
- Venture Capital



Hamilton Lane's Company-Level Data

7,000+	450	125+	36
Deals	Funds	General Partners	Years of Data

Portfolio Company Data Sample Set
By Sector



INVESTMENT ACTIVITY

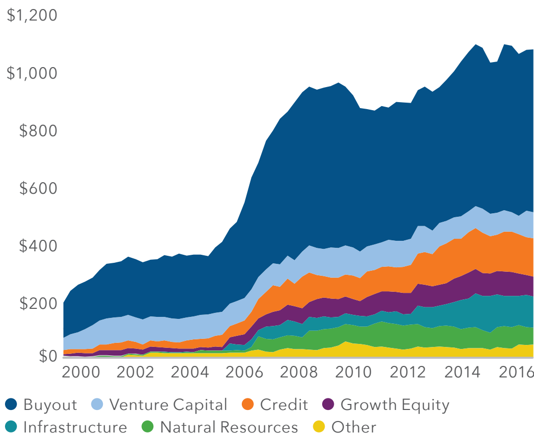
What are general partners doing with all that money being raised? We mentioned earlier that they aren't spending it rapidly, so, as you might guess, there is plenty of capital in the alternative space waiting to be invested.

If GPs and LPs represent your primary source of information about the asset class, then you might be surprised to note that the capital overhang has actually come down a bit (Chart 12). Calculating the age of the unfunded capital, it has generally held steady at about three years across buyout, credit and venture strategies over the last three to four years. While the age of the unfunded capital is an important factor to keep in mind, we believe the more revealing metric is the time it takes to deploy the overhang at the current investment pace.

The capital overhang within credit and buyout strategies appears to be at roughly average levels and not looking excessive relative to today's investment pace (Chart 13). While the idea that there's too much capital floating around in the alternatives space has become a commonly held truth among market participants, the data suggests a more boring reality: There is simply an average amount of capital available to be deployed. What's notable in this environment is not the amount of capital overhang, but the fact that the volume of GPs are calling capital to be put to work is slowing down (Chart 14).

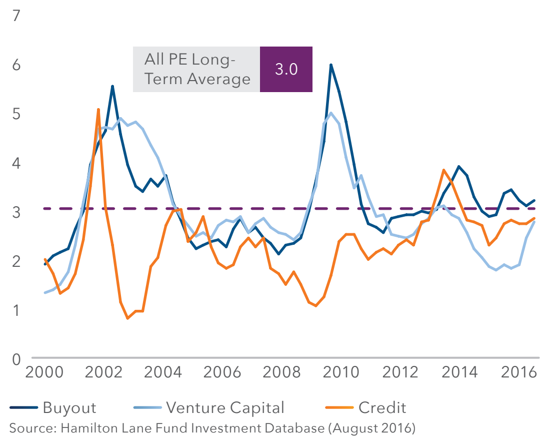
Following a few years of meaningful investing activity, we're seeing these levels trend closer toward average. Reduced investment activity likely signals an increase in the capital overhang, but again, not to any terribly abnormal levels.

Chart 12: Private Equity Dry Powder
USD in Billions



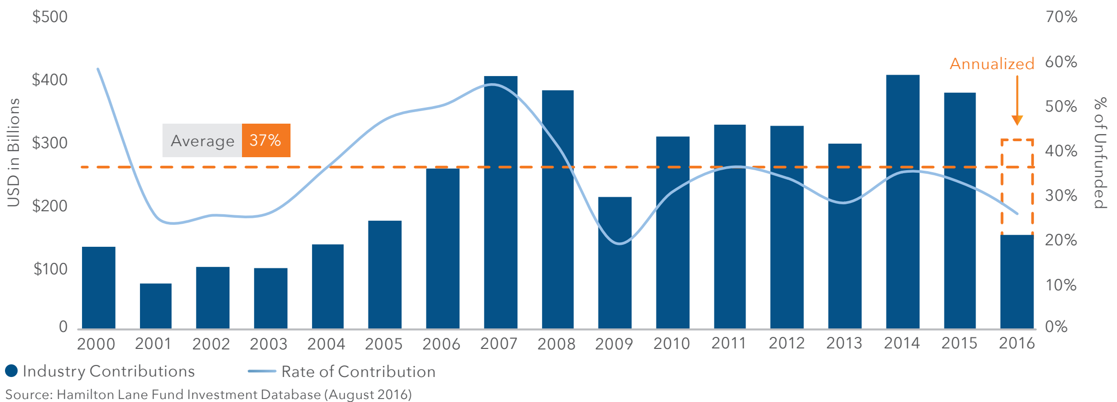
Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 13: Time to Deploy Capital Overhang
Years at LTM Pace



Source: Hamilton Lane Fund Investment Database (August 2016)

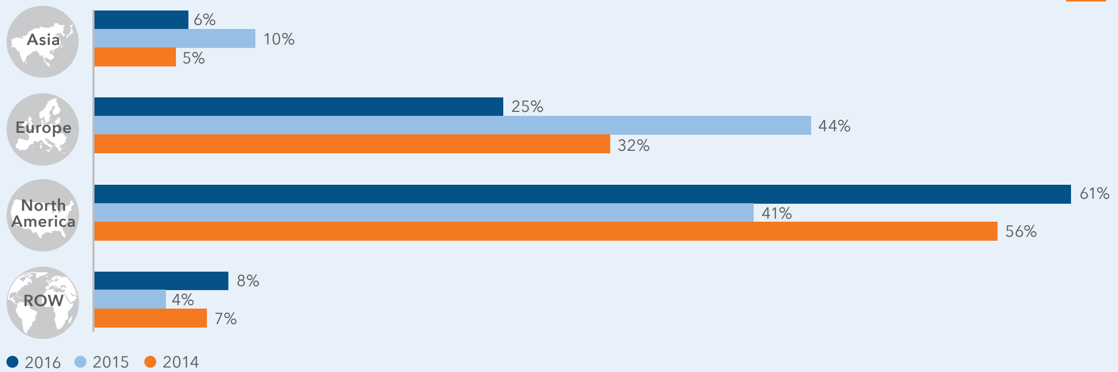
Chart 14: Annual PE Contributions



Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 15: Most Attractive Geographies

GP



Taking our first pulse of the GP sentiment data mentioned earlier, let's see where GPs most likely expect that overhang to be deployed (Chart 15).

We've asked this question for the last three years. As you can see, in today's environment, North America is the dominant choice. It's surprising how Europe has fallen out of favor, though perhaps less so in light of Brexit and some of the other issues the Continent is facing. Another reason may have to do with pricing.

Our guess is that few pieces of data we present in this overview will generate as much discussion and opinion as this next one. Assets are expensive. How expensive? In almost every area of the alternative universe, purchase price multiples are at record high levels (Chart 16). It is interesting that prices in North America have come down somewhat, but that is unlikely to become an ongoing trend.

Now, some will argue that persistently low interest rates actually make these prices less expensive (in relative terms), but we don't buy that theory. What we do buy are a few things:

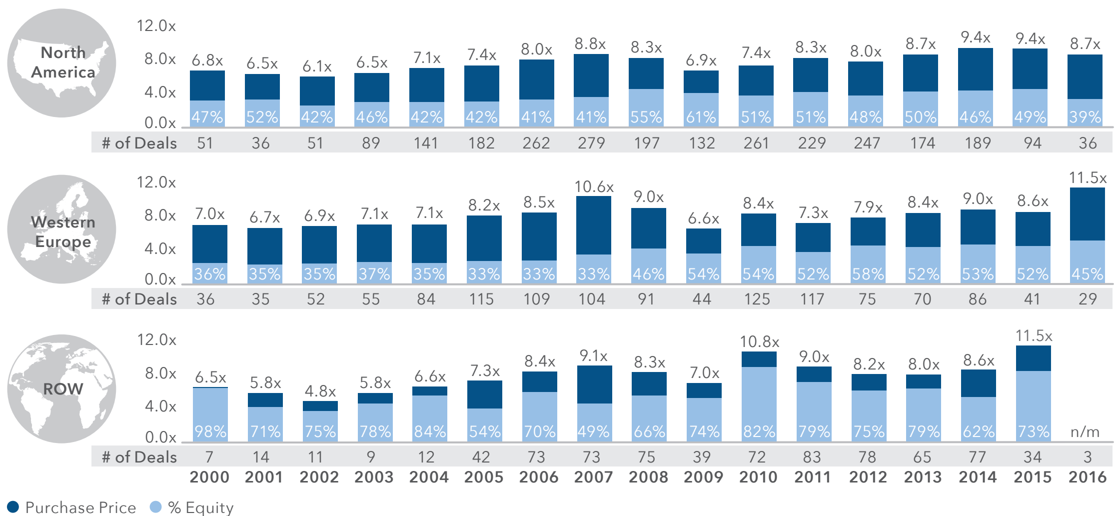
» Prices in alternatives reflect a world in which prices for everything, whether stocks or bonds, are expensive.

» To their credit, GPs have been reserved in their buying activity, in large part because paying steep prices presents a greater challenge to generating strong returns in the future.

» High prices alone don't signal a market top and aren't reason enough to dramatically shift investment strategy. (More on that later.)

Chart 16: Purchase Prices

EV/EBITDA and % Equity, Median by Deal Year



Source: Hamilton Lane Fund Investment Database (July 2016)

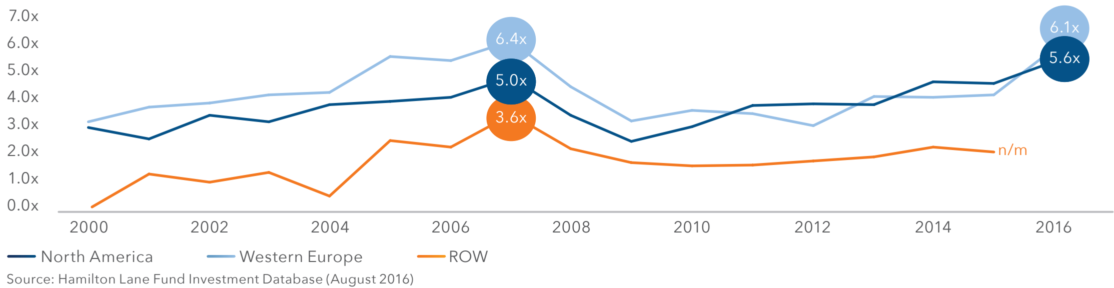
Other measures of investment activity paint a mixed picture. Leverage multiples in North America have risen to peak levels, and those in Europe are headed that way as well (Chart 17). We suspect these figures would be even higher if regulators around the globe weren't constraining bank lending into highly-levered transactions. Another, and we believe more important indicator, illustrates the degree of financial discipline and strength of PE portfolios.

Coverage ratios, a key measure of a company's financial resilience, are at levels usually seen at market bottoms, not tops (Chart 18). Prices may be expensive and leverage ratios relatively high, but the portfolio companies themselves are operating with significantly better financial resources and durability than in previous periods of steep prices and debt.

Our GP poll indicates that fund managers have been consistent in their exercise of discipline around pricing, with the overwhelming majority underwriting returns to similar standards as last year (Chart 19).

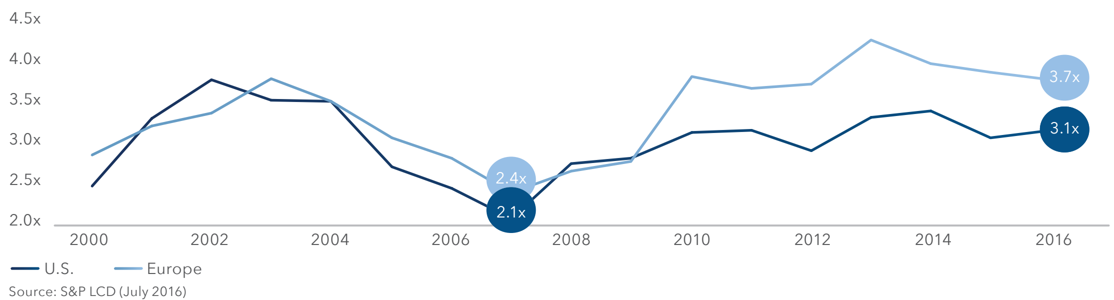
This is remarkable in a world of low interest rates, and we believe, reflects a continued wariness within the GP community about the future, coupled with a desire to maintain high standards. Most GPs would prefer to lose a few deals than face a loss following a high-priced acquisition if future growth projections prove inaccurate.

Chart 17: Leverage Multiples at Acquisition
Net Debt/EBITDA



Source: Hamilton Lane Fund Investment Database (August 2016)

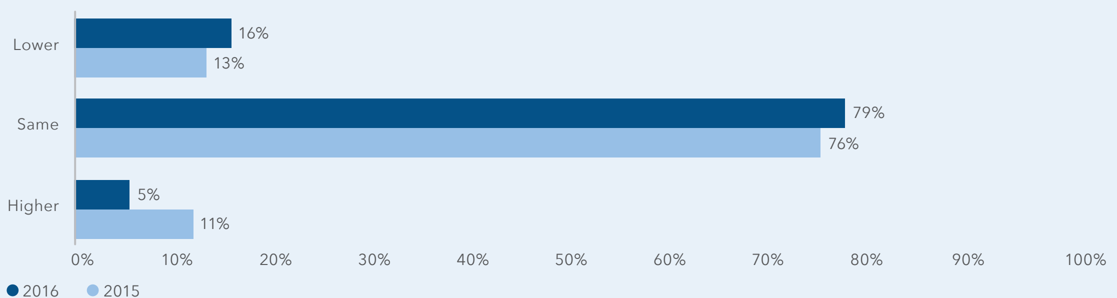
Chart 18: Coverage Ratios at Acquisition



Source: S&P LCD (July 2016)

Chart 19: My Underwriting on New Deals Is:

GP



> THE IDEA

that there's too much capital floating around has become a commonly held truth among market participants

LIQUIDITY

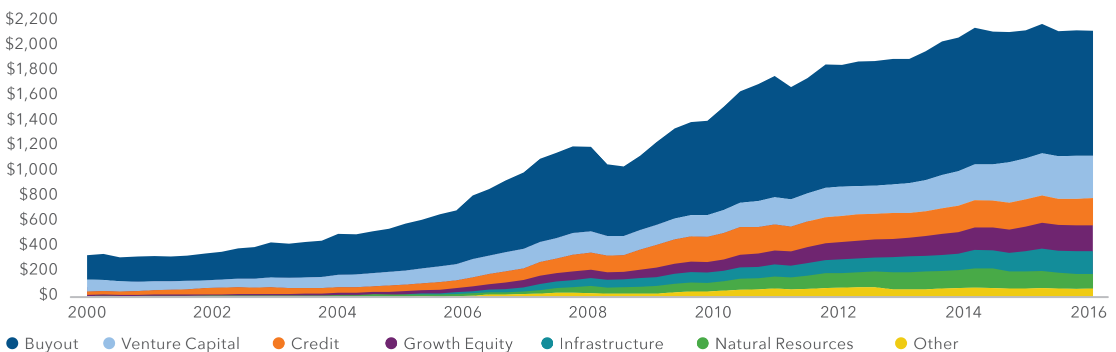
For most LPs, their existing private markets portfolio represents the largest part of their overall alternatives exposure.

Considering the more subdued pace of contributions we described earlier, it's somewhat surprising that the net asset value (NAV) in portfolios continues to surge (Chart 20). This holds true across all parts of the alternatives landscape with the exception of natural resources (less surprising given the decline in commodity prices). The average age of the NAV hasn't increased much, remaining around 6.5 years. On the more unexpected front, further analysis of our data reveals two interesting tidbits:

(1) the average age of venture and buyout NAV is the same, whereas the common expectation is that it would be vastly longer for venture, and

(2) the age of credit NAV has increased somewhat over the last few years.

Chart 20: Net Asset Value by Strategy
USD in Billions



Source: Hamilton Lane Fund Investment Database (August 2016)

What makes the NAV increase less troublesome is simply that, at the current exit pace, buyout and credit NAV's are slightly below the average liquidation pace and venture is only slightly above. If current exit environments persist, current NAV will be liquidated in a time frame consistent with the average for alternatives.

So, what about holding periods? Are they also hovering around average levels? Uh, not so much.

As they've done over the last few years, holding periods continue to remain north of the longer-term average for the asset class (Chart 21). In 2015, the median holding period was roughly 50% higher than that average.

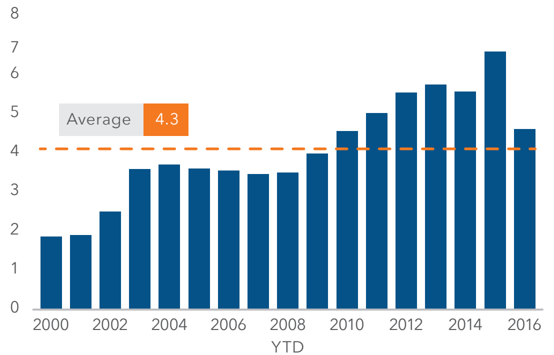
The picture appears even more dramatic when you look at the ages of the portfolio companies in each year of exit. More than 60% of portfolio companies exited in 2015 had been held for five or more years (Chart 22). Compare this to the average age of exits in years as recent as 2008, when most were held fewer than five years, or 2001, when the majority of exits were comprised of companies held less than three years.

Why do we care? Two main reasons: (1) the longer the hold period, the greater the risk of holding companies through another down cycle with uncertain results, and (2) IRRs are more likely to suffer, since it is unlikely that all of these companies are going to generate the higher returns expected from PE investments during such extended holding periods.

Let's next take a look at a favorite topic among LPs: distributions. The last few years have witnessed investors receiving back an enormous amount of capital.

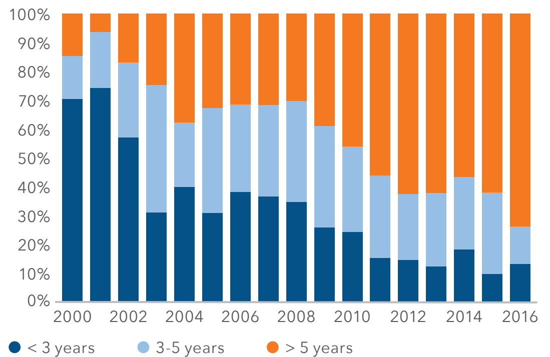
In fact, 2011 through 2015 saw figures that dwarfed prior peak distribution activity, and 2016 is likely to see continued high levels of capital returned, albeit slightly down compared to 2015 and nowhere near peak levels (Chart 23).

Chart 21: Median Holding Period in Years
By Year of Exit



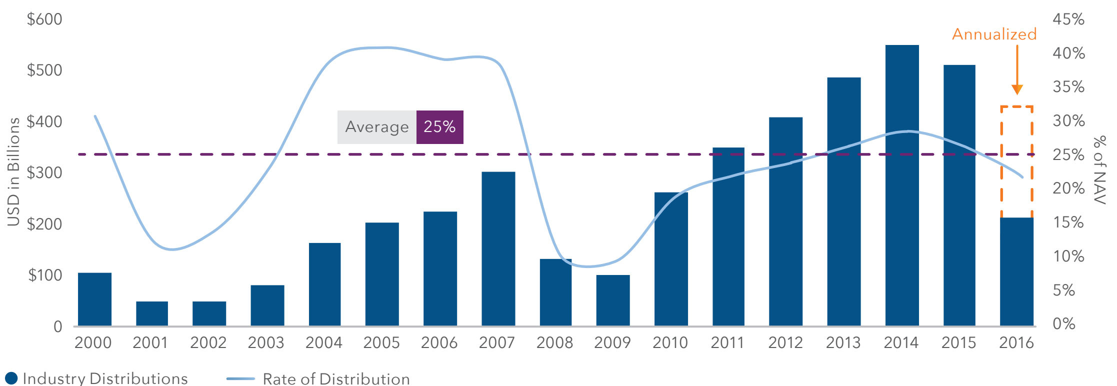
Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 22: Holding Period of Exited Deals
% of Deal Count by Year of Exit



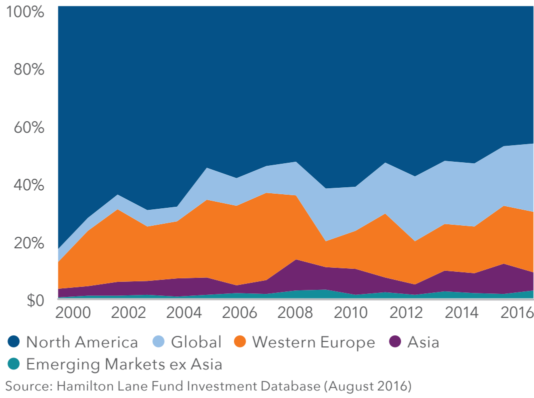
Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 23: Annual PE Distributions/Exits



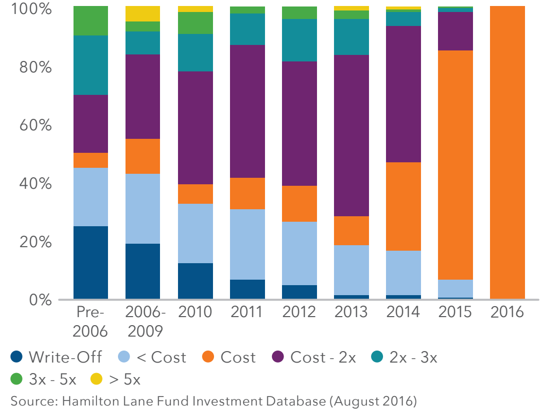
Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 24: PE Distributions by Geography
% of Industry Distributions



Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 25: Unrealized Deals by MOIC
% of Deals by Year of Investment



Source: Hamilton Lane Fund Investment Database (August 2016)

As Leon Black famously observed a couple of years ago, GPs should be selling "everything that's not nailed down." Today, it appears that a great deal more of the NAV has been nailed down.

Peeling back the onion on the geographic profile of distributions reveals some interesting results. The share of distributions hailing from North America continues to decline, whereas Europe, in particular, has generated a growing share of the total amount being returned to LPs (Chart 24).

So, what does the future hold for deals yet to be exited? Some would argue that all that is left might be junk that can't be sold. But a look at the actual underlying data reveals that is not the case (Chart 25). Instead, what remain are two large categories of deals:

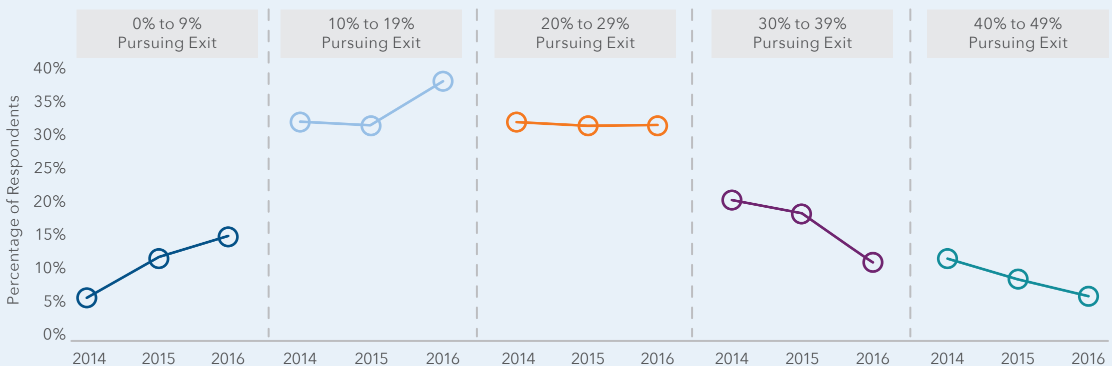
(1) Not surprisingly, a large number of newer deals are being held at cost, as seen on the far right.

(2) Perhaps more surprisingly, moving farther left on the chart, older vintages are comprised of a meaningful number of deals being held above cost; in many cases, at multiples above cost. There continues to be a great deal of accrued value embedded in these portfolios. That value may take longer to extract, and current exit avenues may be more challenging, but LP portfolios appear to be in very good condition.

What does the GP polling data indicate about exits?

No major surprise here. The number of portfolio companies actively pursuing exits is down, and the number of companies that aren't pursuing exits is up (Chart 26). Still, the figures are not so dramatic as to indicate a sharp contraction in distributions; we continue to see a steady stream of exit activity in the pipeline. That activity is probably closer to average, rather than record, levels; as such, the pace and volume of exits will ultimately depend heavily on the state of the capital markets.

Chart 26: Percentage of Portfolio Companies Actively Pursuing an Exit in Next 12 Months



WHERE ARE WE NOW?

Now, the moment you've all been waiting for: *The Great Reveal.*

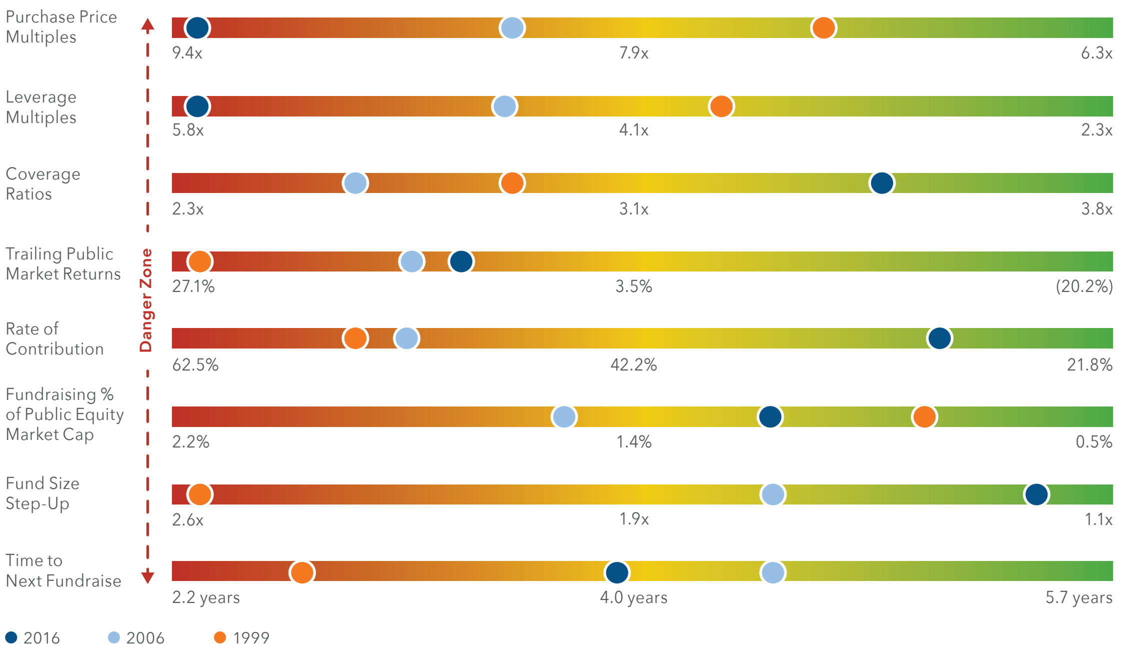
We've used the Hamilton Lane Sentiment Indicators for a number of years. What are they telling us today?

Well, for one thing, the indicators have become more polarized than they've been in recent years (Chart 27). Two indicators already discussed – purchase price and leverage multiples – are at record levels. Many investors believe that the only indicator that matters is the price multiple and that, at current levels, it's signaling a peak. We disagree. Instead, we interpret these indicators as saying that the private equity market is still mid-cycle. Don't believe us? Consider this interesting set of data points:

- At the 2000 market peak, the price multiple indicator would have been squarely in the green;
- At the 2006 peak, it would have been situated just to the left of neutral.

As a single indicator, price multiples have been notoriously unreliable harbingers of market peaks. What's been the most accurate single predictor? The rate of contributions, which remains far removed from the danger zone today.

Chart 27: Hamilton Lane Sentiment Indicators



Source: Hamilton Lane Fund Investment Database, Bloomberg, Preqin, S&P (August 2016)

>AT 16%, that average return is awfully good, particularly so in a low-yield world

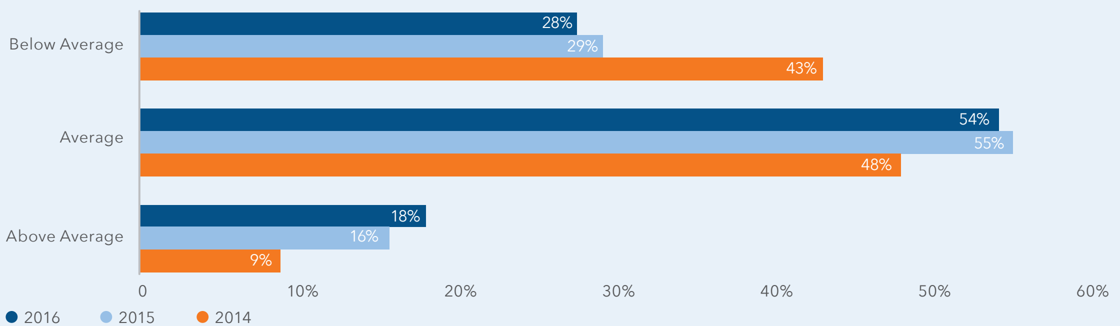
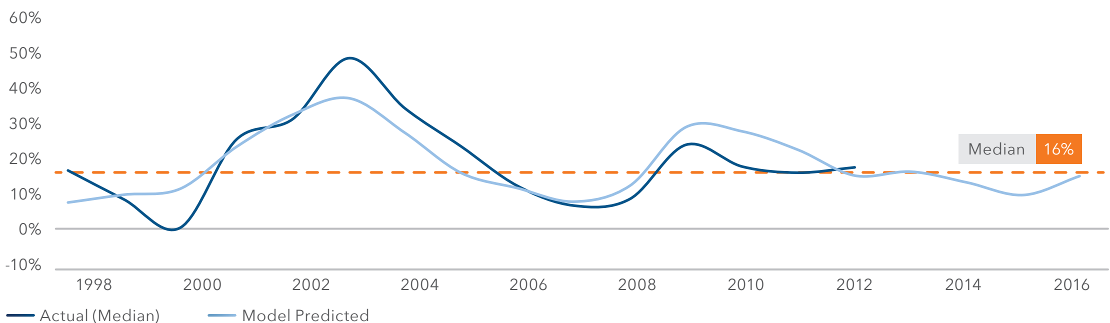


Chart 29: Deal Vintage Year IRR vs. Predictive Model

Provides Indication of Current Cycle's Returns Relative to Average Deal Returns



Source: Hamilton Lane Fund Investment Database (August 2016)

Turning once again to our GP polling data, we see that this group of fund managers agrees with the Hamilton Lane position that we are in decidedly average times (Chart 28). It is interesting to note that this collection of successful GPs was most inaccurate three years ago, believing at the time that the markets were close to a peak.

Looking at the HL Predictive Indicator, we're happy to report that our own proprietary model, which looks at returns at the deal level, has historically been good at anticipating the potential future direction of private equity returns (Chart 29).

While slightly improved from last year's expectations, our model's predicted returns continue to hover around the neutral mark, which is consistent with the GP sentiment that 2016 is shaping up to be an average return period for private equity deals. Of course, at 16%, that average return is awfully good, particularly so in a low-yield world.

It might not be the sexiest prognosis, but that's nevertheless where we believe we are in the cycle: boring, average and with nothing to indicate a dramatic change in that position.

THE **8** MOST IMPORTANT PRIVATE EQUITY INVESTMENT THEMES

SECTION
02

Populism & Globalization 21
Wages & Profits 21
Debt Investing 23
Healthcare Investing 25
Energy Investing 26
Alternative Alternatives 27
Unicorns 31
Fund Families 33

One of the great benefits – or curses, depending on your vantage point – of investing in alternatives is that investors' capital is locked in for an extended period of time. There is, of course, plenty of merit in the argument that investment choices are granular and company- or asset-specific. That's true. But it's also true that you can find the greatest spot in the world from which to fly your kite, but, if you try to do so during a storm, you aren't going to have much luck.

Not sure what we're talking about? What we simply mean to say is that having a sense of which way the winds are blowing – or, in this case, where the markets are headed – can help when making portfolio construction decisions.

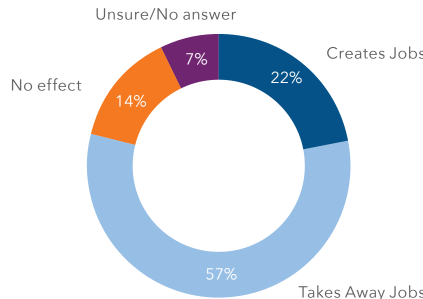
So, let's tackle some of the themes that we believe will strongly impact those decisions, beginning with one that has the power to impact all areas of the investing world.

POPULISM & GLOBALIZATION

It's difficult to ignore the rising wave of populist sentiment that's occurring around the globe, especially throughout the developed world. Particularly notable is the growing movement against globalization, whether expressed as a desire to reduce immigration or as an argument to abrogate or limit trade agreements in support of local employment (Chart 30).

The repercussions of this populist wave are not trivial: the vote for Brexit in the UK, the rise of the anti-trade, anti-"elite" candidates such as Donald Trump and Bernie Sanders in the U.S., or the dramatic increase in popularity of far-right parties in France. The list of outcomes is long, and we don't foresee the impacts of this movement being diminished any time soon. Recent articles have documented a noteworthy political development that has been transpiring over the last few years and that reverses a decades-long trend in the other direction: "Democracy" as a form of government is in decline relative to the rise of "authoritarian" forms of government.

Chart 30: American Opinion on Trade



Source: CBS News/New York Times Poll (July 2016)

Why does this matter to us as alternative investors? What elements of this populist wave do we need to keep in mind as we consider different investment sectors and construct our portfolios?

» Higher taxes seem more of a certainty as the anti-elite wave continues to move throughout developed economies.

» Greater regulatory oversight seems quite likely as populist sentiment targets industries that are perceived as not creating enough social good or harming overall economic health.

» Investment volatility will increase as various candidates and referendums win or lose. Populism tends to become viral around certain issues or people, and being caught on the wrong side of an investment in an illiquid asset class can be particularly dangerous.

» Investors are used to operating against a 30-year backdrop of increased globalization. Simply look at the development and diversification of private equity as an asset class, both from a GP and LP side. What if globalization were reversed? Should LPs be looking to invest more with local companies? Should we be careful of companies heavily dependent on export, particularly throughout the developed world?

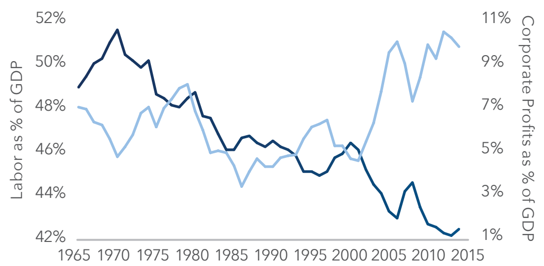
» Lower growth amid shifting policies is almost a certainty. Predictions appear in universal agreement that the UK will face a recession in the next 18 months as a result of Brexit. Was that foreseeable? What other populist 'events' are looming on the horizon?

Donning our fortune teller hat once more, we'll make a prediction as it relates to this issue: The next global economic downturn will not be caused by an economic event. Rather, it will be triggered by the aftereffect of a populist movement in some part of the developed world that succeeds in shifting some tax, or regulatory, or political regime dramatically.

WAGES & PROFITS

For the last few years, one of the key underpinnings of the public equity markets (and, by some extension, the alternatives markets) has been the persistently high share of GDP that corporate profits have maintained. Part of that growing percentage has come at the expense of labor earnings, which have continued to lose ground (Chart 31). This is due to a number of factors, one of which is certainly an increasingly global economy as well as the loss of negotiating leverage by labor in the developed world.

Chart 31: Labor and Corporate Profits



Source: St. Louis Federal Reserve (August 2016)

None of this is terribly surprising; just take a look at the U.S. manufacturing sector employment figures (Chart 32).

Manufacturing itself has increased throughout the U.S. while the number of U.S. manufacturing jobs has decreased dramatically. This is not a symptom of globalization, but rather the increasing use of robotics technology and the higher productivity that results. Combined with the high level of corporate profits, each one of these "displacement factors" – whether the ascension of robots used in manufacturing or an influx of foreign workers – feeds into the waves of populism discussed earlier.

This phenomenon of wage stagnation is not limited to the U.S., but can be seen across developed economies (Chart 33). In the developing world, wages have been rising steadily in some countries, notably China, more than others. This sets the stage for an interesting fork-in-the road:

» Will the push for higher wages in the developed world win as a result of higher costs in the emerging markets, reduced population growth/ smaller labor force and populist pressure to increase wages legislatively?

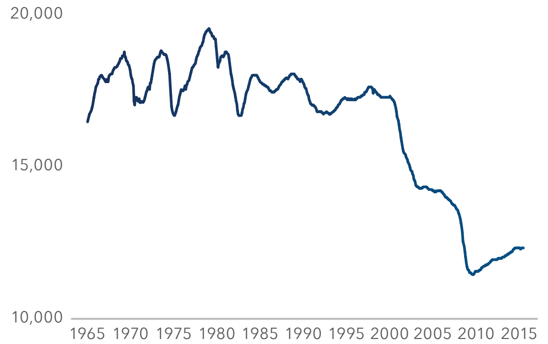
» Or, will wages continue to stagnate or fall further as a result of continued globalization, increased use of robotics and automation?

These are crucial questions for us to consider as private equity investors, especially since certain investment sectors demonstrate greater sensitivity to wage hikes than others.

Take a look at Chart 34 – any idea where you want to be? Can any investor be fully diversified, yet simultaneously agnostic as to the direction of wages and profits? Probably not; at least not if that investor is interested in generating returns. Will the shift be slow and gradual and allow for changes in portfolio direction? That's hard to say at this point, but we'll throw out a current scenario that's worth considering today. Given the opportunity to purchase a fast-food franchise in the U.S., would you do it? If wages are pressed up legislatively, your profit margins become dramatically compressed. Instead, if you successfully automate your workforce, your profit margins increase dramatically. But, would doing so cause a political and social backlash?

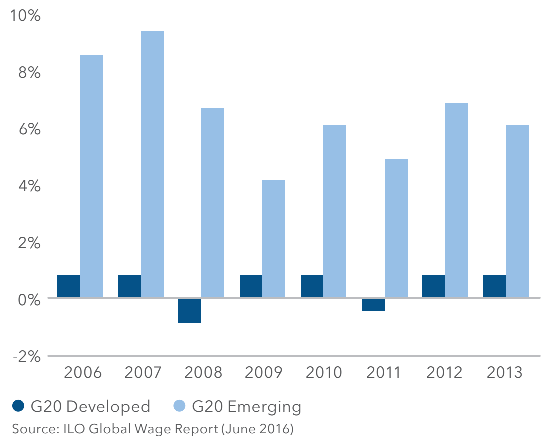
These are just a few of today's very real and very challenging questions as they relate to the workforce and wage dynamics of all developed economies.

Chart 32: Manufacturing Sector Employment
Total Number of Employees



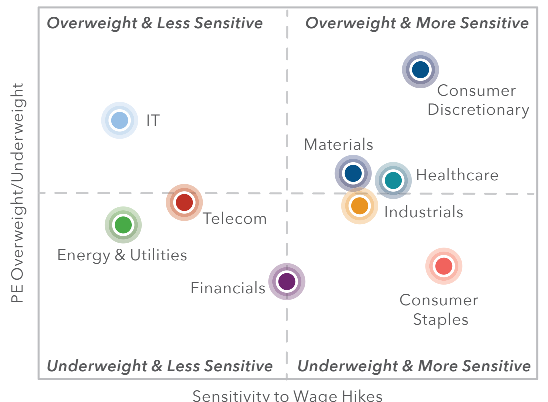
Source: St. Louis Federal Reserve (August 2016)

Chart 33: Annual Average Real Wage Growth in the G20
By Region



Source: ILO Global Wage Report (June 2016)

Chart 34: Sector Sensitivity to Wage Hikes



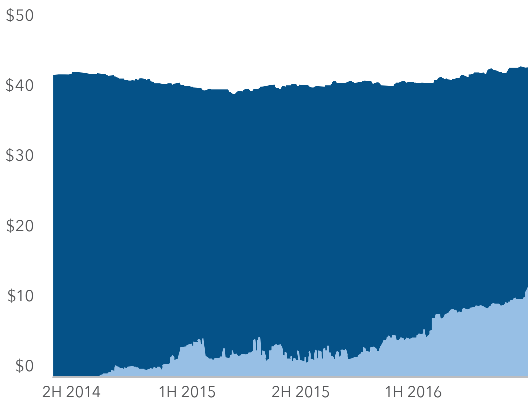
Source: Hamilton Lane Fund Investment Database, BLS, Hamilton Lane analysis (August 2016)

DEBT INVESTING

Now for another in a string of bold statements: No area of alternative investing will experience as much growth and transformation as debt investing.

Low interest rates are here with a vengeance and are showing no signs of a significant uptick. More than that, we've seen substantial growth of negative-yielding debt around the globe, particularly over the last year (Chart 35).

Chart 35: Growth of Negative-Yielding Debt Globally
USD in Trillions



Source: The Wall Street Journal / Bank of America Merrill Lynch (July 2016)

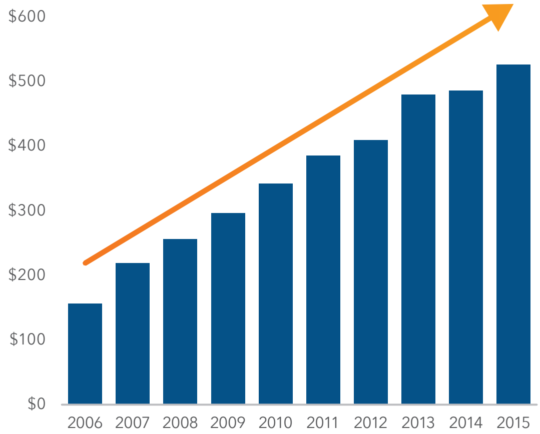
Who would have imagined this scenario five years ago? (Whichever of you raised your hand, put it down; we know you're lying.)

The search for yield, coupled with the departure of banks from a great deal of lending activity due to increased regulatory requirements, has led to a dramatic increase in private debt, much of it coming from the private equity world.

Private debt AUM has increased more than three-fold in less than ten years, primarily because the cycle of greater opportunities, higher returns and more capital raised continues (Chart 36).

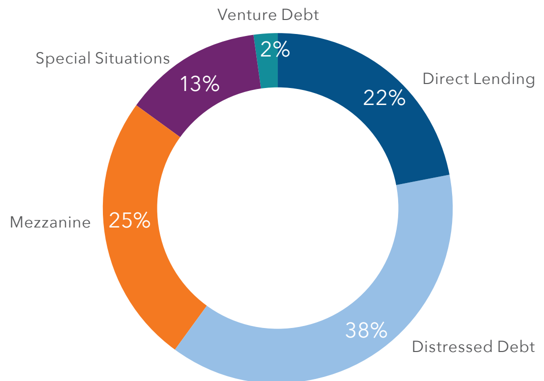
Ten years ago, alternatives debt investing was largely comprised of distressed debt and mezzanine; today, roughly one-quarter is direct lending (Chart 37). The former bailiwick of banks and finance companies, direct lending is now increasingly the arena of alternatives firms. Fueling this growth further has been LP interest in increasing their debt allocations, whether in their overall PE bucket or in a separate private debt bucket.

Chart 36: Private Debt AUM
USD in Billions



Source: Preqin Private Debt Online (December 2015)

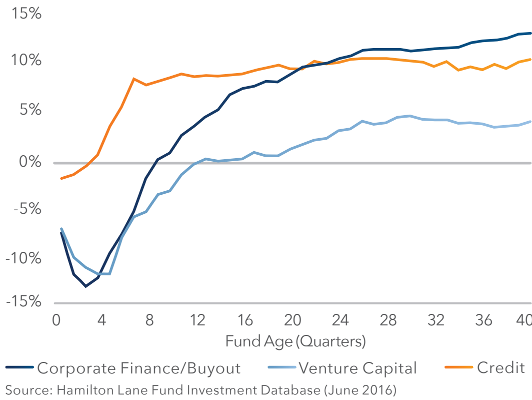
Chart 37: Private Debt Strategy Mix



Source: Preqin Private Debt Online (December 2015)

> Allocations to private debt are where allocations to private equity were fifteen years ago

Chart 38: Median IRR J-Curves by Strategy
Vintage Years 1974-2015



Source: Hamilton Lane Fund Investment Database (June 2016)

Investors are increasingly attracted to private debt as the strategy alleviates some of the challenges faced by investing in PE. That is, credit has the ability to mitigate the J-curve more quickly, resulting in a shorter time frame during which their portfolios are showing negative returns (Chart 38). We thought it also interesting to note that the longer-term returns from buyout and credit are not as significantly different as you might expect when assessing the risk/return expectation of each.

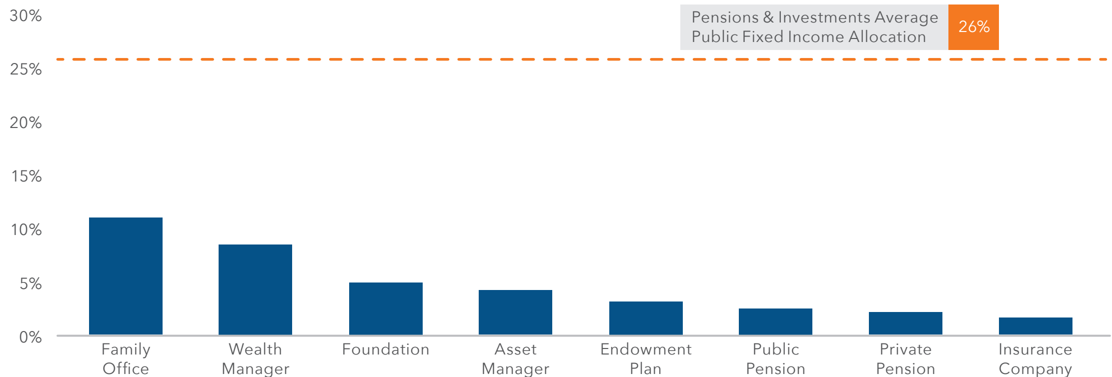
Allocations to private debt are where allocations to private equity were fifteen years ago (Chart 39).

Ready for another bold prediction? Allocations to private credit will become as large as or larger than allocations to private equity and real estate over the next five years. LPs will progressively reduce allocations to public debt and transfer those allocations to the illiquid portion of their bond portfolios. Private credit will be the fastest-growing segment of the alternatives landscape.

Unintended Consequences?

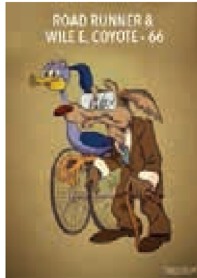
- Benchmarking private credit presents a challenge for many investors. Of course, many already have it as part of their PE allocation, but do debt and equity returns really belong together? How do the various components of the private credit area work using a single or numerous benchmarks?
- Historically, the bank lending market was characterized by tremendous cyclicality. Banks, and their investors, had become accustomed to that cyclicality; they also had the benefit of reserves against an expected level of losses. The alternatives universe is structured differently. Will private debt investing prove to be as cyclical? If so, will investors be comfortable with that level of volatility in their portfolios without a cushion?
- Bank regulation has largely been developed around the notion that institutions accepting public deposits must be regulated to protect that public. Alternative credit has no such regulation. However, if the private credit universe grows, will regulation find its way into the system? How will that impact ongoing growth, development and attractiveness of the sector?
- The PE industry has yet to establish best practices for working through the various potential conflicts that the rise of private credit could create. Investors have both equity and debt in many of the same investments, and that requires allocation procedures that are far more complicated than those in the equity arena alone. Will investors be willing to dedicate resources to that effort?
- Private credit separate accounts are quite common. LPs believe these structures allow for more nuanced risk/return profiles to be built into their debt portfolios. What does the proliferation of these separate accounts do to the GP-LP relationship? To the LP-LP relationship? What impact will it have on pricing the equity portion of alternative investments as the more common NAV pricing on a fast-growing segment of the alternatives landscape takes hold?

Chart 39: Average Current Allocation to Private Debt
By Investor Type as % of Total AUM



Source: Preqin Investor Interviews, Pensions & Investments (December 2015)

HEALTHCARE INVESTING



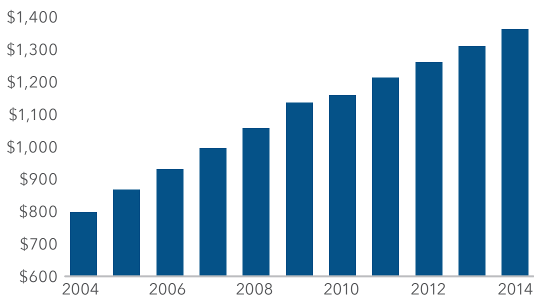
At this point, you've probably heard it so often that it's cliché. "Healthcare investing is the wave of the future," said every alternatives person who has ever walked through your door the last few years. Well, it may be cliché, but that doesn't make the underlying data any less compelling or something that shouldn't resonate with all of us.

Simply put, we're getting old.

Not only that, non-communicable diseases such as diabetes are on the rise. Communicable diseases are also expected to increase. Just look at the current situation with the Zika virus. None of these factors even touches upon the risk of pandemics, which many would argue is an inevitable occurrence; it's simply a question of time and magnitude.

In a more positive development, technological advances continue to be applied in new and novel ways across all segments of healthcare, which has been a historically inefficient and fragmented industry. Healthcare spending per capita increases annually almost irrespective of economic conditions (Chart 40).

Chart 40: Global Health Expenditure per Capita
In Constant 2011 USD



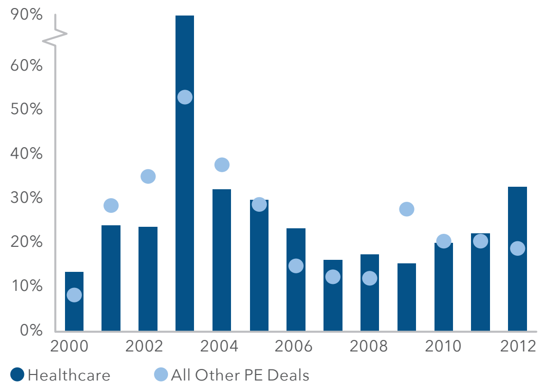
Source: World Bank (May 2016)

In this environment, the winners and losers seem somewhat easy to identify. Healthcare equipment, biotech, hospital operators and health service operators all seem like winning areas. It's probably more of a losing proposition for those involved with government health providers, healthcare consumers or private insurers. If pandemics or large communicable disease outbreaks occur, travel industries will be negatively impacted and private plane travel and telecom would represent potentially interesting places to be.

But, let's raise a red flag here.

Much of what we're talking about has actually been true for some time, as the steady rise in healthcare expenditures shows. So, if this isn't a new phenomenon and the underlying macro factors remain compelling, it would be easy to make the assumption that PE deals in healthcare typically outperform. Well let's take a look at the data to see how that assumption holds up (Chart 41).

Chart 41: Healthcare Gross Deal IRRs vs. All Other PE Deals



Source: Hamilton Lane Fund Investment Database (June 2016)

Bleh!

Looking at a group of vintage years for which we have meaningful data on healthcare deals, we see those deals don't demonstrate consistent outperformance relative to all other PE deals. In fact, only twice in our sample do we see healthcare outperform all other PE deals with any real conviction. What gives? It's similar to the investment thesis that maintains investing in country X is a surefire path to success because that country's growth rate is five times that of the U.S. or Europe, and growth trumps all other factors. Simply not true. Growth provides a great context, that's for sure. But, growth also attracts plenty of competition, which leads to prices being cut or any number of other scenarios that make the macro picture look very different from the micro picture. In addition, growth leads to high prices, which reduces the margin of error for any portfolio company.

We believe healthcare is a crucial growth area for private equity, but we don't buy the notion that it represents a reasonably safe and straightforward place to make money. We do, however, acknowledge that healthcare represents a place with a far greater delta of possible return than most other PE opportunities. More money *could* be made, but the risk profile will be far higher than what many investors currently believe. To those investors, we'd suggest caution against being seduced by the siren song of the sector's secular growth.

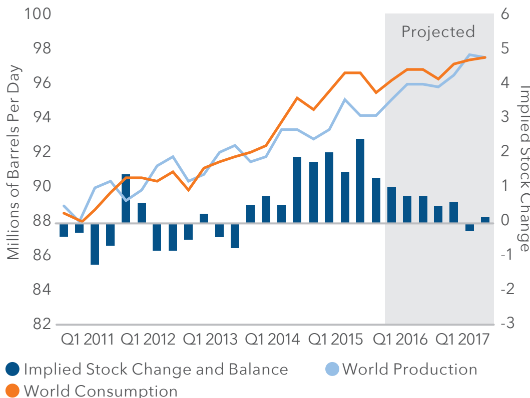
ENERGY INVESTING

Having prominently featured energy in our Market Overview for the past several years, did you really think we'd stop now? No chance. Besides, were we to describe a market that was large, variegated by numerous sectors that were all in need of capital, possessed some real barriers to entry, experienced volatility measured in years and encouraged private equity participation, you'd say that's a market to which you want some exposure, right?

Welcome to the wonderful world of energy.

The last few years have not been overly kind to energy prices. (We include this merely to prove that we are capable of understatement and do not engage in hyperbole at every opportunity.) Despite the assortment of stories floating around that the decline in oil prices can be attributed to weakening demand from China or flagging global growth, those simply aren't accurate claims (Chart 42).

Chart 42: World Liquid Fuels Production & Consumption Balance



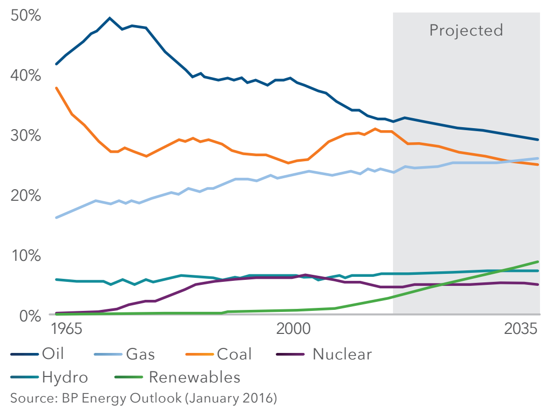
Source: IEA, Short-term Energy Outlook (May 2016)

What happened to oil prices was simply a matter of basic market dynamics: There was too much supply in a market where demand grows in a slow, consistent manner. Many a book has been authored chronicling the various reasons for the increased supply, including the U.S. shale revolution, OPEC's desire to maintain market share and/or various countries such as Russia having no choice but to sell all the oil they can at any price. Identifying all of the triggers doesn't matter much today. There was too much supply, and now, as Chart 42 indicates, the supply is soon to be in rough equilibrium with demand.

The price decline has resulted in the elimination of more capital investment than at any point in history. It's estimated that the "divestment" reduces future oil supply by at least three million barrels per day, and that's probably a low estimate. From an investment perspective, that provides an interesting backdrop. We have an industry, particularly in the U.S., which continues to struggle and sell off assets. Couple that with a commodity price that, while likely still volatile, has a future in which supply has been significantly reduced in an environment where demand continues to rise steadily. So, yes, we still like energy for alternatives portfolios.

What about renewables specifically?

Chart 43: Share of Primary Energy

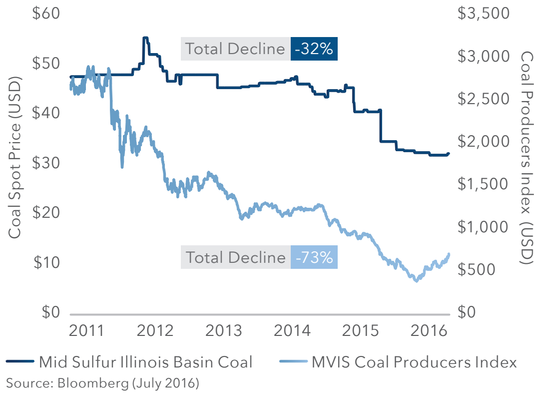


Source: BP Energy Outlook (January 2016)

While the segment continues to grow, it would be difficult, especially in the current framework, to make a case that renewables will supplant oil and gas as primary energy sources (Chart 43). As the overall demand for energy increases, we see gas continuing to represent a growing portion of energy sources, and demand for oil, despite taking a lower percentage share, growing in absolute terms. (A quick sidebar here to highlight that there are interesting studies about Norway's oil usage: Norway has in place one of the more aggressive programs to substitute electric cars for oil-powered vehicles. While the country has succeeded in increasing electric car usage dramatically, oil usage has barely budged.)

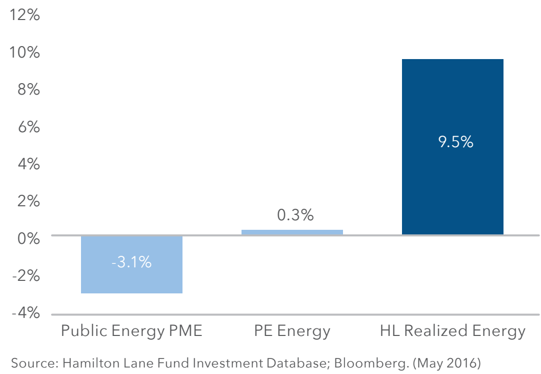
But, let's sound a note of caution. We are not climate change alarmists, but as we discussed previously, one of the great driving themes (no pun intended) is coming as a result of populist and political forces calling for and enacting sweeping change across industries. What if climate change becomes a louder rallying cry? What if movement away from fossil fuels becomes something more than protests against endowments for holding shares in those companies?

Chart 44: Spot Coal Price vs. Coal Producer Performance



Source: Bloomberg (July 2016)

Chart 45: PE Energy Returns vs. Public Markets
Vintage Years 2006-Present



Source: Hamilton Lane Fund Investment Database; Bloomberg. (May 2016)

Consider the term "stranded assets" as a way to describe oil and gas holdings in an environment where those assets cannot be used. Let's look at coal as the proverbial canary in the coal mine for what can happen to our fossil fuel energy investments.

Over the last five years, coal prices have "only" declined 32% (read: They've performed better than oil). Yet, coal stocks have declined a precipitous 73% (Chart 44). This is what happens to an industry perceived as being legislated and isolated almost out of existence. In a world becoming far more attuned to demanding genuine action on climate change, is it not hard to envision that economic growth could be sacrificed in the name of that action? Just ask the coal industry, as perhaps the cheapest form of energy, whether it had envisioned that outcome ten years ago.

One last question before we leave the energy discussion: Is private equity a place where energy investments outperform?

In a time frame where energy prices have declined by roughly 33% and public energy stocks have declined 3%, private equity energy returns, in general, (and Hamilton Lane's, in particular) have outperformed public comparables (Chart 45). (OK, fine, so there was one more, tiny shameless plug.)

The energy space continues to provide interesting investment opportunities for PE, and we believe that will continue to be the case for at least the next five years. We believe the worst is over for existing energy investments. That's not to say the value of these investments will increase exponentially, but most write downs have been taken and balance sheets restructured, leading us to believe that these holdings will do well in this environment.

ALTERNATIVE ALTERNATIVES

To kick off this section, let's do a little role playing. Imagine you're a GP. You head out on the road to begin pitching your new fund to hundreds of investors around the world. What is the single most common question you are asked?

"How much co-investment will you give me?"

That's soon followed by, "Can I get a secondary stake in your prior fund?"

Primary funds are becoming the Rodney Dangerfield[3] of the alternative universe: They get no respect.

It seems no one wants to invest in primary funds unless they have to, presumably to generate secondary and co-invest deal flow. We showed the numbers earlier in Chart 3; we estimate that co-investment capital accounted for approximately one-third of all capital committed to U.S. PE in 2015 (Chart 46). That's a massive amount. And, as we've already said, we think that's underestimating the real total, since this doesn't include amounts being invested directly by LPs into secondaries. (It does, however, capture amounts invested through secondary funds.)

What we're talking about isn't a momentary phenomenon; this is a sea change in investor attitudes that shows no signs of abating.

[3] *Unfamiliar with Rodney Dangerfield's work? Please reference two of his classic hits "Back to School" and "Caddyshack" or check out any of his standup routines on YouTube.*

Take a look at the GP polling results and try to put those numbers in perspective. GPs can have hundreds of LPs, and over one-quarter of the GPs we polled report that more than half of their LPs want co-investment opportunities (Chart 47). Over two-thirds of the GPs report that more than 25% of LPs want co-investments. Everyone wants to get in the CI game. Now, whether those LPs can execute on those deals is another matter entirely. The fact remains, however, that a large and growing number of LPs view primary commitments as nothing more than a necessary conduit to get to the really fun stuff: co-investments.

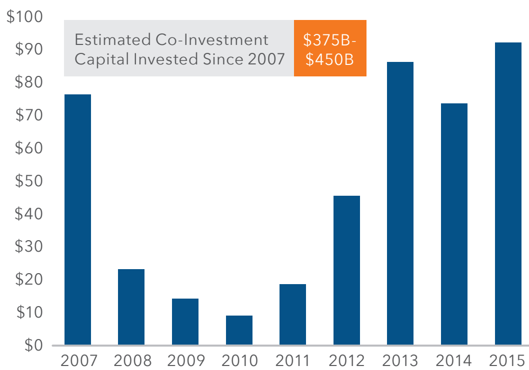
This has significant ramifications for GPs, LPs and the deal market.

We compared a large deal in 2007 (the previous peak in co-investment interest) and a large deal in 2016 (Chart 48). The 2007 co-investment represented 24% of the equity in the deal. The more recent deal had a larger equity check and yet had 41% of the equity in the form of co-investment. Moreover, we can report that the co-investment was over-subscribed. In addition, you see that the debt portion, which had zero co-investment in 2007, featured 5% in 2016.

LPs love co-investing. We've outlined the reasons why: it results in a fee reduction overall, it offers higher returns, it puts the capital to work far faster and it's much more fun to say you are a deal person than it is to say you look at boring old funds. On the other side of the table, GPs are beginning to like co-investing as well: It locks in LPs and provides a source of capital that isn't coming from a rival GP who, despite actually being quite passive, will nevertheless eventually claim full credit for the deal.

So, it's all good – that is, at least until we have a market correction.

Chart 46: U.S. CI Shadow Capital
USD in Billions



Source: Hamilton Lane Estimates, Pitchbook (June 2016). U.S. PE includes all U.S. buyout, distressed debt, growth equity, mezzanine and special situations funds.

Chart 47: What Percent of Your LPs Are Asking to See CI Opportunities?

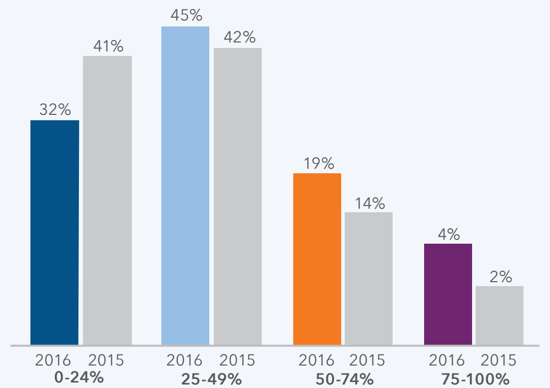
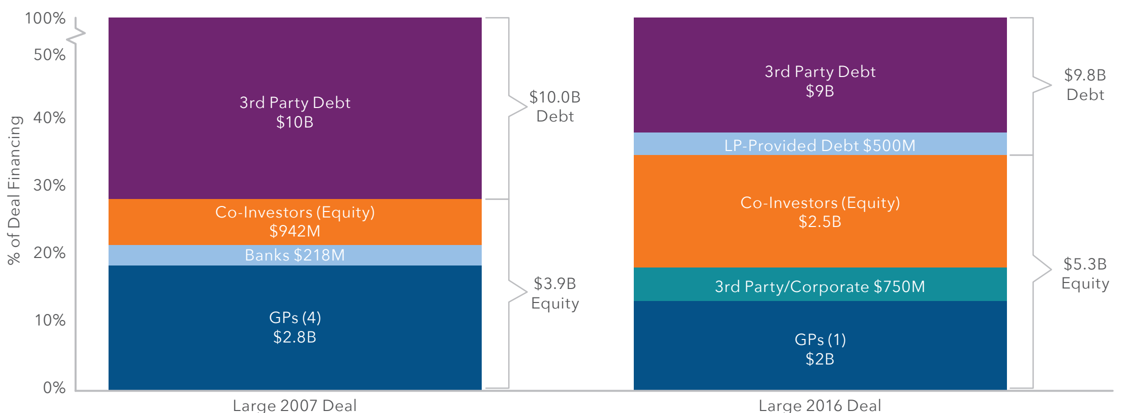
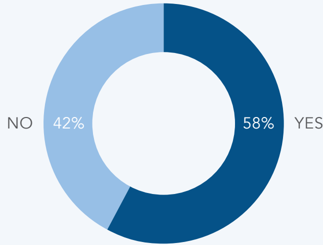


Chart 48: CI Deal Profile



GP

Chart 49: Have Any of Your LPs Sold Their Interests on the Secondary Market in the Past Year?



If So, How Many Secondary Transactions Have Occurred?

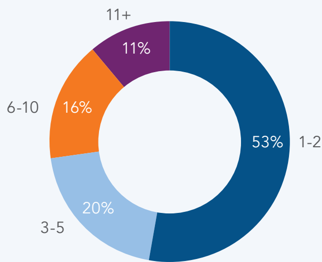
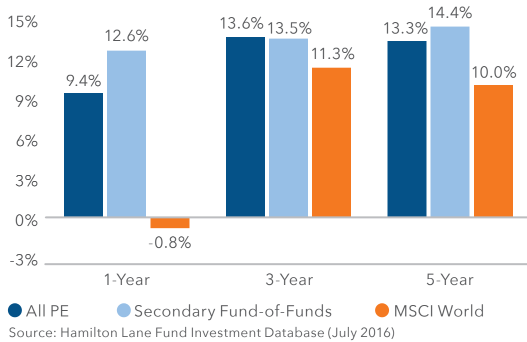


Chart 50: Horizon Returns Comparison



Source: Hamilton Lane Fund Investment Database (July 2016)

Let's turn our attention to secondaries for a moment and see what the GPs are telling us.

A majority of GPs have experienced LPs selling interests in their fund just in the past year (Chart 49). Amazingly, more than 25% report that 5+ such transactions have occurred. Remember, the GPs we polled are not the ones re-structuring their funds or are otherwise unable to fundraise; these are some of the best GPs in the world, and yet secondary transactions of their fund interests are occurring regularly.

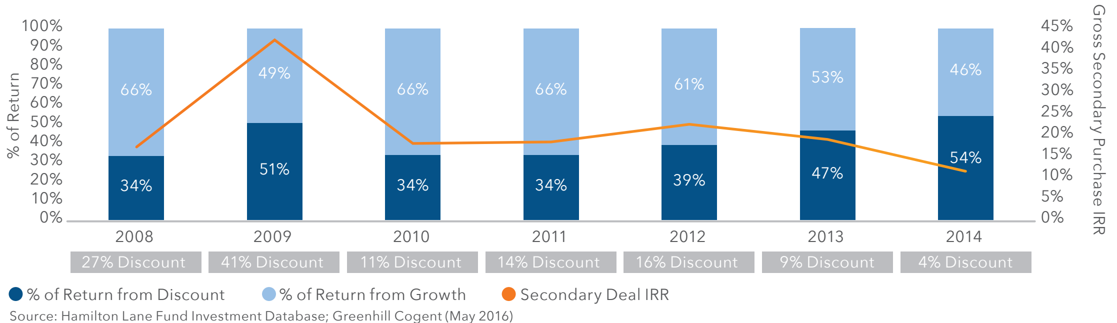
Secondary buying has a much different dynamic than co-investment. Here's a dirty little secret: Secondary investments have actually outperformed their primary brethren over the one- and five-year time horizons (Chart 50). LPs would have been better off having an entire portfolio of secondaries. The question could easily be raised as to whether an investor could purchase enough of them given the state of the market, but the return numbers remain compelling regardless.

Yet, returns have not been the "normal" reason to purchase secondaries; rather, secondaries have largely been on the radar of LPs seeking to mitigate the J-curve. This makes sense when you think about it: Bonus payments and performance metrics alike are punished by the J-curve profile of a typical primary fund. But, for all those J-curve mitigation junkies out there, just be careful. With the typical secondary purchase discount, J-curve mitigation may be great, but is that what will ultimately drive your returns?

The majority of return in secondary transactions comes from asset appreciation, not discount (Chart 51). (That's with the notable exception of 2009 when the discount was massive; even then, asset appreciation accounted for almost half the return.) In short, the discount helps, but it isn't going to be responsible for generating the real returns in secondaries. That's why we worry.

Chart 51: % of Secondary Return from Discount vs. Asset Growth

By Year of Secondary Purchase



Source: Hamilton Lane Fund Investment Database; Greenhill Cogent (May 2016)

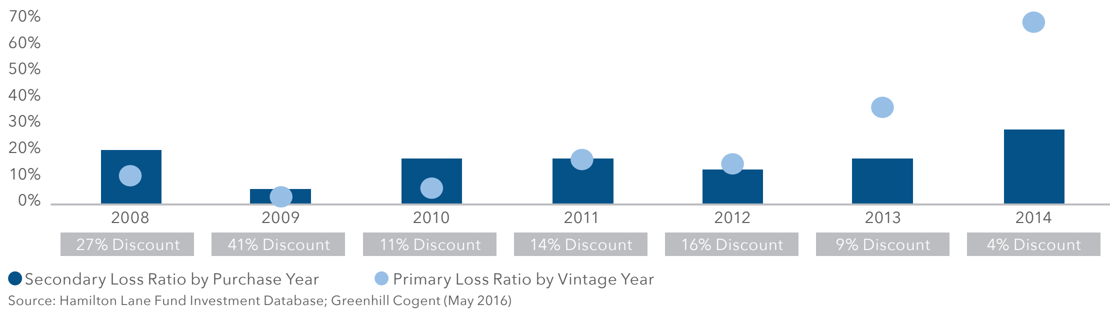
Let's use our data to look at an interesting "what if" scenario. Charts 52 and 53 are pretty busy, but it's worth taking some time to look closely at their results. First, we compared the loss ratio of primary and secondary funds, using the actual discounts seen in Chart 51.

Good stuff. Loss ratios are low for secondary purchases because the discount provides a solid cushion (Chart 52). The loss ratios of primary funds aren't awful, although during the last few years they've been killing hapless LPs on the J-curve. What happens when we simulate those same purchases at par, which is closer to where today's market lies?

Ruh-roh. In this scenario, with the exception of the last two years, LPs are suffering far higher loss ratios (Chart 53). Have investors prepared for that eventuality in their portfolios?

Chart 52: Loss Ratio at Average Annual Discount

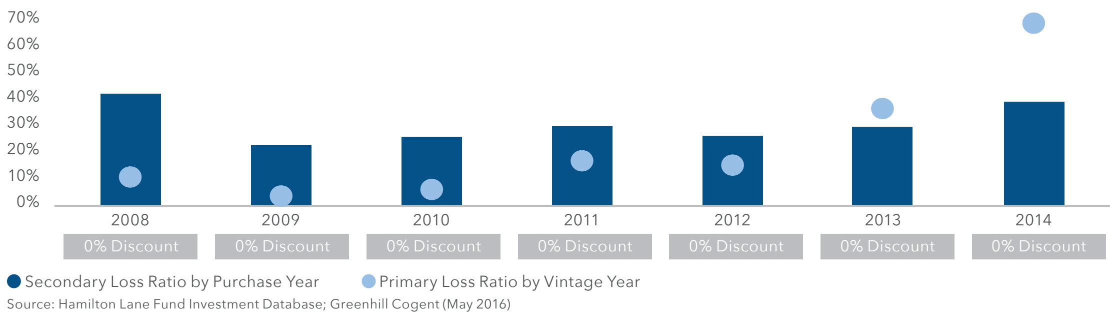
% of Secondary Purchases Returning Less Than 1.0x, by Vintage Year



Source: Hamilton Lane Fund Investment Database; Greenhill Cogent (May 2016)

Chart 53: Loss Ratio at Par

% of Secondary Purchases Returning Less Than 1.0x; by Vintage Year



Source: Hamilton Lane Fund Investment Database; Greenhill Cogent (May 2016)

Unintended Consequences?

» What is to become of the unloved primary? Longer-term, is this the breakdown of the primary fund as the main investment vehicle for alternatives? Do investors become conditioned to more of a "just-in-time" investment structure and menu of choices?

» What happens to all these co-investments and secondaries in a market downturn? Losses and write-downs will surely occur, but are investors prepared for the more immediate impact on their portfolios than they'd experience with primaries?

» How does this development impact LP-to-LP relationships? An LP with a co-investment capability has a different return profile in the same fund than one that doesn't. How does the former LP interact with the GP? Anecdotally, we've heard that an LP has a different attitude on the advisory board when given co-investment compared to when not given any. How do regulators, particularly the SEC, address co-investments and secondaries being offered to certain LPs and not others?

» What happens to the fee structure around the entire industry as LPs become more conditioned to co-investment pricing? Is that pricing, in fact, really just a fee concession masquerading as deal flow?

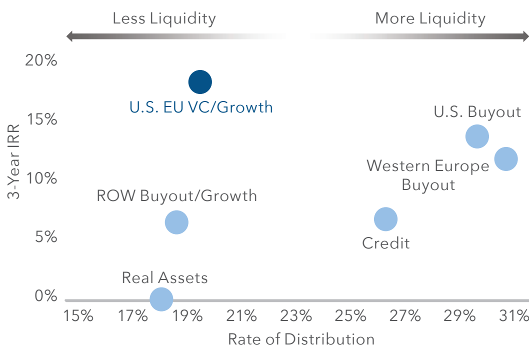
UNICORNS

Very little in alternatives has captured the media's fancy of late more than unicorns – those fabled, venture-backed companies, each with a $1B+ private valuation.

You'll recognize plenty of the names: Uber, AirBnB, Palantir. You might also be surprised by some of the names you don't know: Warby Parker, InMobi, WeWork. Don't feel badly that you can't keep track of them all; there are literally hundreds of them.

Why do they matter, other than as great investments in our portfolios? We believe unicorns are part of a trend likely to have some real impact in private equity portfolios. But before we get into all that, let's take a step back.

Chart 54: 3-Year Return vs. Rate of Distribution



Source: Hamilton Lane Fund Investment Database (August 2016)

Remember our periodic table of fund returns, where venture and growth were top performers in recent years? Take a look at Chart 54 where we are plotting performance against liquidity – i.e., actual cash making its way back to investors. No one can argue that venture has been generating great returns, but those are largely on paper and dramatically more paper-based when compared to other alternatives sub-sectors. Why is this happening? It's very much a function of the unicorn world not going public.

Consider the last time we had a venture boom in the late 1990s; just look at the number of venture-backed IPOs compared to the number today (Chart 55). (Today's figure includes a number of biotech IPOs and those are not generally in the unicorn universe.) Suddenly, private markets are looking a lot like the old public markets. Mutual funds are now participating in the later-stage financing rounds of these unicorns. They have to; if you're a venture firm with a $500 million fund and you're funding a company valued at more than $1B, where else is the capital going to come from today if you are not looking to the public market? This has real implications for the private equity universe.

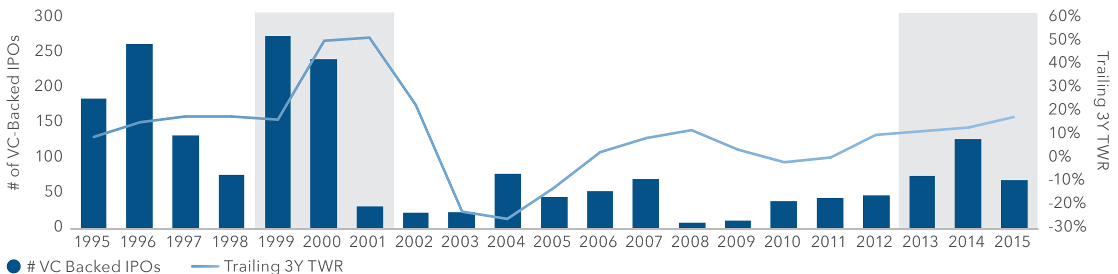
» Unicorn valuations will come down and LP portfolios will suffer. However, the declines will not be as dramatic as what we saw with public markets during the internet boom.

» Venture firms will raise companion funds to provide capital to unicorns similar to the way buyout firms raised companion funds to provide capital to mega-buyouts in the 2006-2007 time frame. Will the result be much different?

» Buyout firms will begin raising dedicated pools of capital to invest in unicorns. This will mirror buyout firms raising capital in the late 1990s to invest in internet and telecom. Will the result be much different?

More broadly, how will exits occur at the vast majority of these companies? The founders seem to have zero interest in going public and the venture firms have less ability to force an offering than they've traditionally enjoyed. We believe an entire alternative set of structures will arise to meet that demand, whether directly from LPs, through mutual funds, or through vehicles designed to provide limited liquidity for unicorns. These companies will eventually go public, albeit in different stages of development than we have seen in the past. LP portfolios will reflect those changes. Different types of exit structures will be driven by investor demand for access. If Uber is, indeed, a revolutionary technology and application, how do investors have access to that?

Chart 55: Venture Capital-Backed IPOs & TWR



Source: CRSP, EDGAR, Dealogic. VC Return Source: Hamilton Lane Fund Investment Database. (July 2016)

SUDDENLY,
private markets
are looking a
lot like the old
public markets

FUND FAMILIES

A long time ago in a galaxy far, far away, there existed a solitary fund that orbited around an LP. That fund was Carlyle or KKR or CVC, and the LP had but one avenue through which to access that manager. Today? One of the great transformations in the alternatives universe is the growth of fund families, or multiple funds and products within the same GP house. In today's world, it's often an asteroid belt of fund bodies circling a given LP.

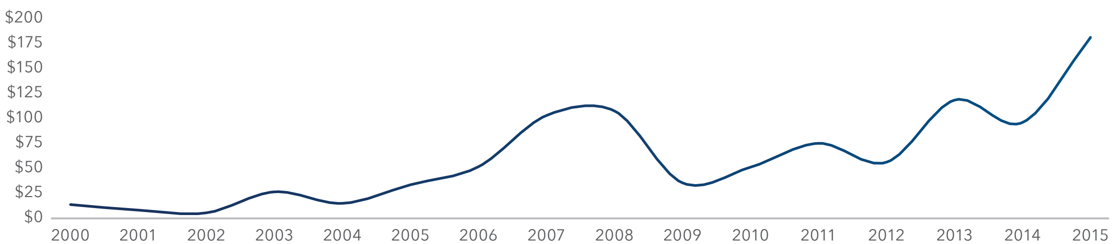
In the extensive research we conduct in preparation for the market overview every year, we have occasionally come across some statistics that simply blow us away. Chart 56 is a perfect example.

Nearly one-third of the capital raised by multi-line managers went to their non-flagship funds. Keep in mind, most of those managers boast very large flagship funds. Take a look at the tremendous growth of that non-flagship fund number, particularly from the early 2000s, which really wasn't all that long ago. When Willie Sutton explained that he robbed banks because "That's where the money is," he might as well have been talking about non-flagship funds.

So, what kinds of funds are being raised?

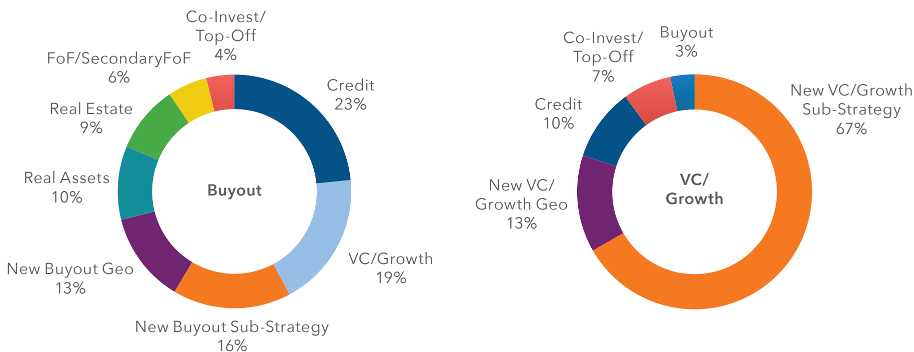
It's interesting, isn't it, that the buyout shops are more eclectic in their pursuit of other strategies (Chart 57).

Chart 56: Estimated Fundraising of Non-Flagship Vehicles
USD in Billions



Source: Hamilton Lane Fund Investment Database (May 2016)

Chart 57: Types of Non-Flagship Product Lines

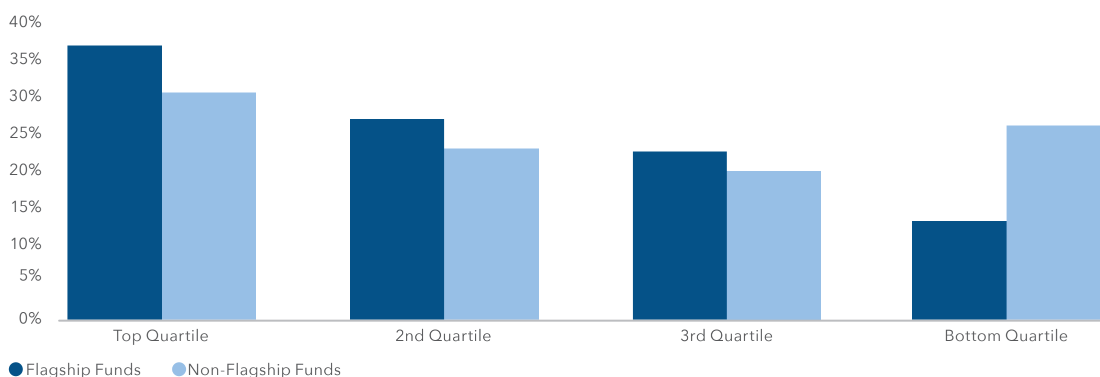


Source: Hamilton Lane Fund Investment Database (June 2016)

> NEARLY 1/3

of the capital raised by multi-line managers went to their non-flagship funds

Chart 58: Fund Distribution by IRR Quartile
% of Funds by Count



Source: Hamilton Lane Fund Investment Database (May 2016)

Whereas buyout firms will cover the range of opportunities across the alternatives landscape, the venture and growth firms have tended to stay far closer to their basic line of business.

Ok, so we know there are a lot of them, but how have these fund families performed?

We're data nerds (and we're okay with that), but you have to agree this is fascinating stuff. Here's what the performance numbers are telling us (Chart 58):

» Single product managers are over-represented in the bottom quartile.

» Flagship funds of multi-product groups are far more likely to be in the top quartile. Of course, that's part of the reason why they can raise other products in the first place.

» Most interesting is that non-flagship funds are over-represented in the top quartile. *They are also over-represented in the bottom quartile.* We're looking at a boom or bust history.

What this all means is that investors should give serious consideration to the different risk and return profiles of flagship vs. non-flagship funds as they build portfolios.

Unintended Consequences?

» Multiple fund families will proliferate – both in number and in variation within a single family of funds. How many GPs have the management expertise to run a multi-product company? How many are willing to spend the money to build the infrastructure and legal and compliance backbone to support the larger entity? Does this become a diligence item for LPs?

» LPs want to reduce the number of relationships, while simultaneously increasing the number of strategies and investment choices they pursue. Do fund families become the default choice to achieve both aims? Or, do the performance attributes that indicate tremendous dispersion in fund family performance counter that trend?

» Will managers pursuing the fund family strategy look to acquire other GPs in greater numbers than we have seen in the past as a way to quickly achieve scale and expertise?

Hamilton Lane Builds Portfolios Designed to Outperform

Concentrated

In 2015, Hamilton Lane screened more than $615B in primary deal flow, yet invested in only 4%

The 2015 capital allocated includes all primary commitments for which Hamilton Lane retains a level of discretion and all advisory client commitments for which Hamilton Lane performed due diligence and made an investment recommendation. This amount excludes secondary and co-investment commitments. (December 31, 2015)

Diversified

Investments Across Multiple Sectors

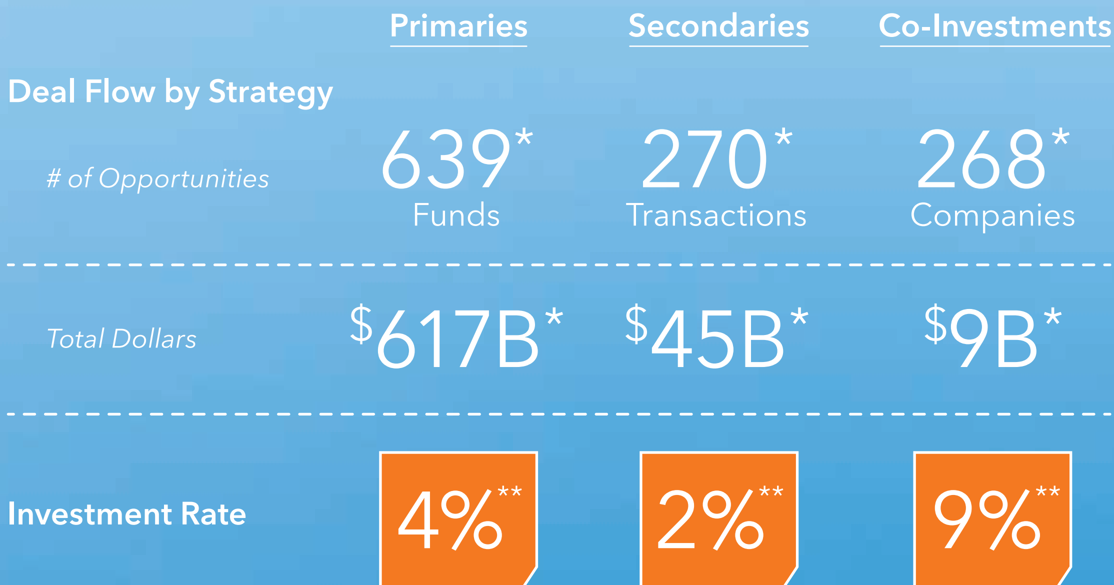
Energy

Healthcare

SMID

Debt

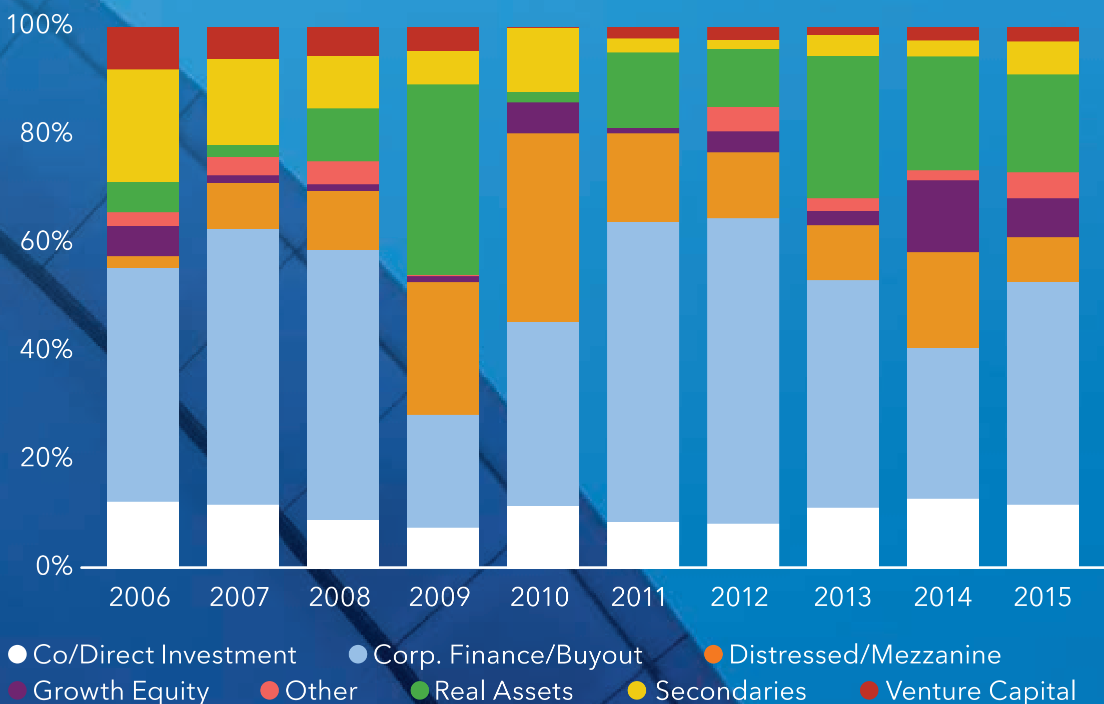
Selective Deployment



* Total opportunities reviewed in 2015
** Invested as a % of total opportunities reviewed

Tactical Allocations

Hamilton Lane Discretionary Commitments by Type and Vintage



Source: Hamilton Lane Fund Investment Database (June 30, 2016)

HOW TO INVEST

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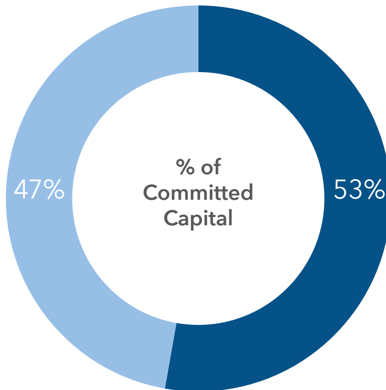
WHAT ARE LPS DOING?

If you think representative, industry-wide data on GP performance is difficult to obtain, just try finding it for LP portfolios. *Fuggedaboutit.*

A reasonable proxy, certainly in terms of the bulk of capital in alternatives, is U.S. pension plans. They present a number of interesting characteristics.

Chart 59: Large Pension Plans vs. Small Pension Plans: 2015 Commitments



- 10 Largest Public Pensions
- All Other Public Pensions

Source: Bison (May 2016)

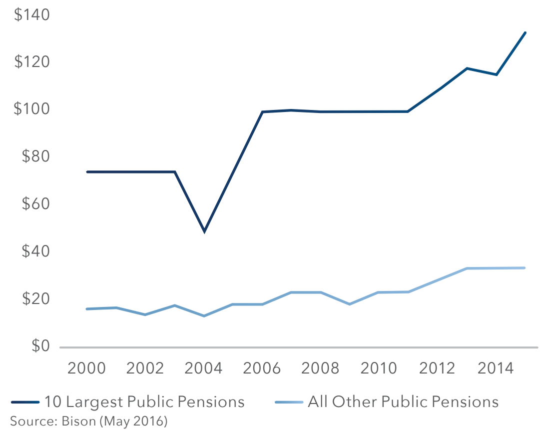
The ten largest U.S. pension funds account for more capital committed to PE than all other pension funds combined (Chart 59). This affects GP behavior, since it means the largest share of capital can be obtained with relatively concentrated relationships. We suspect this same ratio holds true internationally, although it probably breaks down when you move into the endowment/foundation and high net worth arenas.

The long-held presumption has been that smaller investors invest differently than their larger brethren. That may be incorrect. (Hey, don't get mad at us; take it up with the data.)

Whether by median size of commitment or by number of unique managers, large and small funds tend to mirror each other (Charts 60 and 61). The scale is obviously different, but the trends are not; both groups are increasing the average size of their commitments and decreasing the number of relationships. We believe this has become a universal trend across all private equity investors.

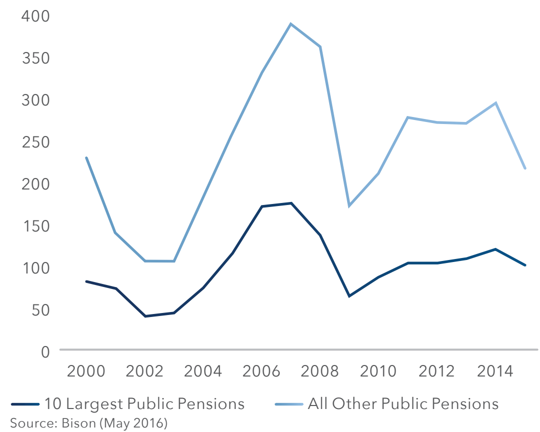
Urban myth would suggest smaller, nimbler PE investors are far more likely to stray from buyout and instead go farther afield in terms of risk and return. Instead, the data reveals that smaller investors are, in fact, becoming more similar to larger investors who, mainly as a function of the size of their portfolios, are almost forced into heavier buyout exposure (Chart 62). We don't think this is accidental. As data has demonstrated throughout this overview, the buyout segment has a very interesting risk/return profile for investors and, based on historical performance, merits a meaningful place in portfolios.

Chart 60: Median Commitment Size by Vintage Year
USD in Millions



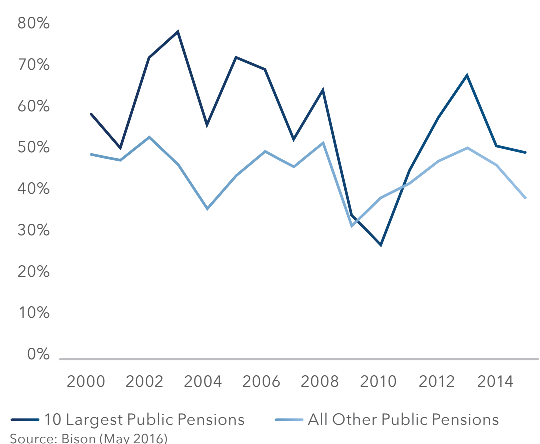
Source: Bison (May 2016)

Chart 61: # of Unique Managers Across Portfolios



Source: Bison (May 2016)

Chart 62: Buyout Allocations by Vintage Year
% of Annual Commitments

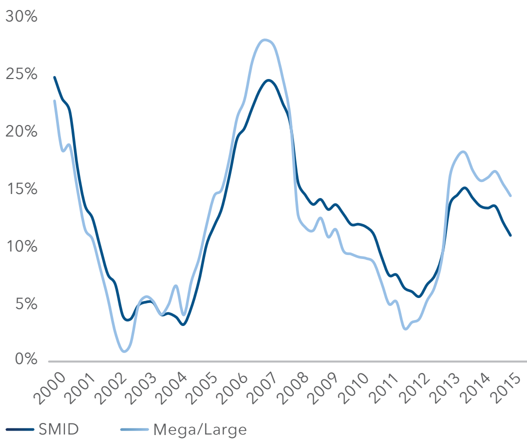


Source: Bison (May 2016)

DOES FUND SIZE MATTER?

In our experience, nothing generates more discussion, passion, anger, blind faith and rolling of the eyes than the debate of whether larger or smaller funds perform better. Nothing. Despite the fair amount of data we're about to throw at you, we remain fairly secure in the knowledge that good data never trumps overwhelming belief. Still, we'll do our best to lay out the facts.

Chart 63: Rolling Five-Year Annualized TWR



Source: Hamilton Lane Fund Investment Database (May 2016)
A SMID [Mega/Large] fund is defined as a buyout fund of up to [over] $1B in fund size in vintage years prior to 1997, or up to [over] $2B in fund size between vintage years 1997 – 2005, or up to [over] $3B in fund size from vintage year 2006 – present.

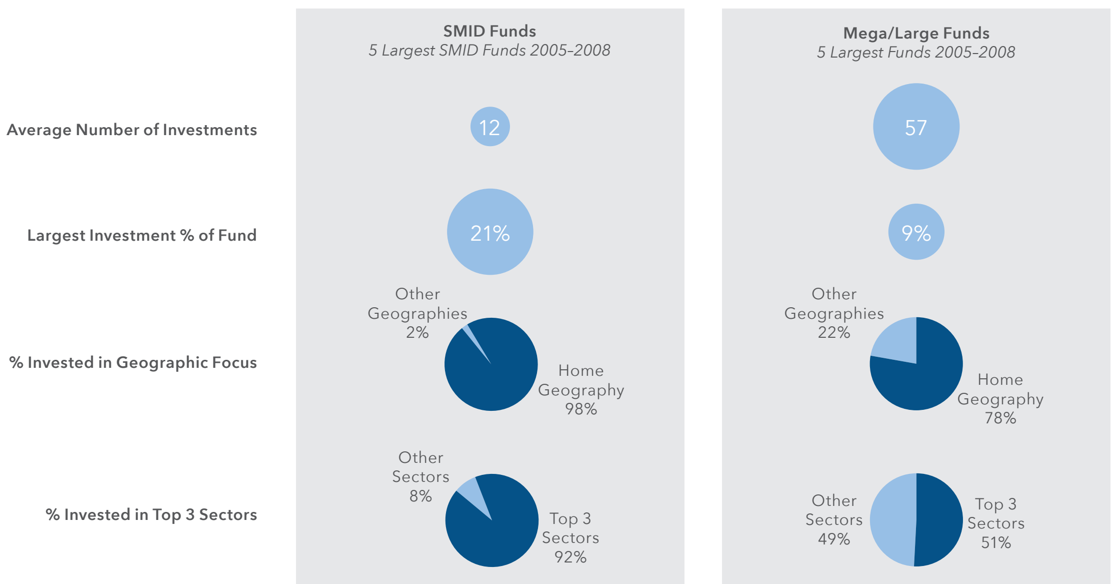
Sorry, die-hards, the cold, emotionless data *declares* that there is no consistent pattern of outperformance by either large or small funds (Chart 63). None. There exists a faint indicator that large outperforms in times of market recovery, whereas small outperforms during downturns, but even that is not enough on which to base a strategy.

Not surprisingly, smaller funds display a consistently higher dispersion of returns. We've touched upon that in various sections throughout this overview. While the aggregate return may not vary too much, the smaller segment has higher highs and lower lows than the larger segment. Since PE is very much an anecdotal asset class, a great deal of the SOL (small outperforms large) religious movement in alternatives is based on the experience of one or two small funds generating great returns and subsequently being cited as what all small funds are expected to achieve.

One place where there is a clear difference between large and small funds is portfolio concentration.

Across any metric, smaller funds are more concentrated (Chart 64). Granted, we only picked a few funds in a single period; nevertheless, the data shows that these characteristics only vary by degree, not by fundamentals. Smaller portfolios are more concentrated by company, by size of investment, by geography and by sector.

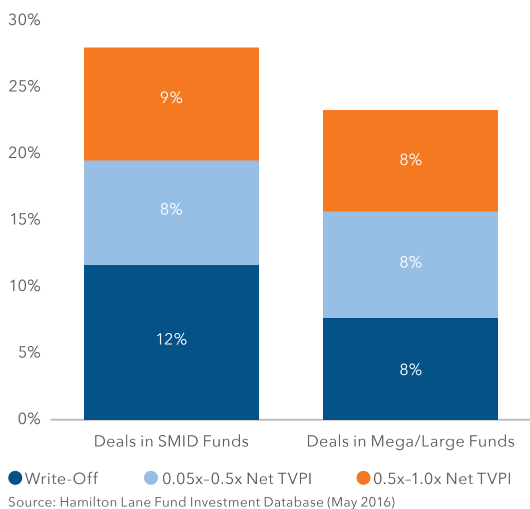
Chart 64: Portfolio Concentration



Source: Hamilton Lane Fund Investment Database. For funds of which HL tracks underlying portfolio companies. (May 2016)

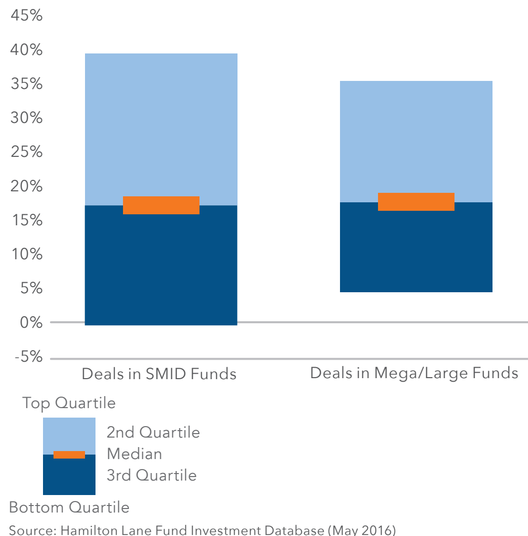
DON'T GET MAD at us; take it up with the data

Chart 65: Loss Ratios: Deal Level
% of Deal Count, Deals Completed 1980–2013



Source: Hamilton Lane Fund Investment Database (May 2016)

Chart 66: Spread of Gross PE Deal Returns



Source: Hamilton Lane Fund Investment Database (May 2016)

In Chart 65, we are looking at the individual deal level in SMID and mega/large funds. The write-downs are roughly comparable, but the number of write-offs in a smaller fund is far higher. It's 50% higher, in fact, and that leads to a drastically different outline of risk/return considerations.

Small and mid-market managers tend to make up for the write-offs thanks to a larger set of higher-returning deals (Chart 66). SMID funds can achieve a similar return profile to that of their larger counterparts; they just do so in a totally different way.

You need both types of funds, particularly to the extent you believe you can pick the best-performing smaller managers. Once again, we apologize that this violates the "only small is good" mantra, but the data makes it difficult to argue otherwise.

PE PERFORMANCE DURING CYCLES

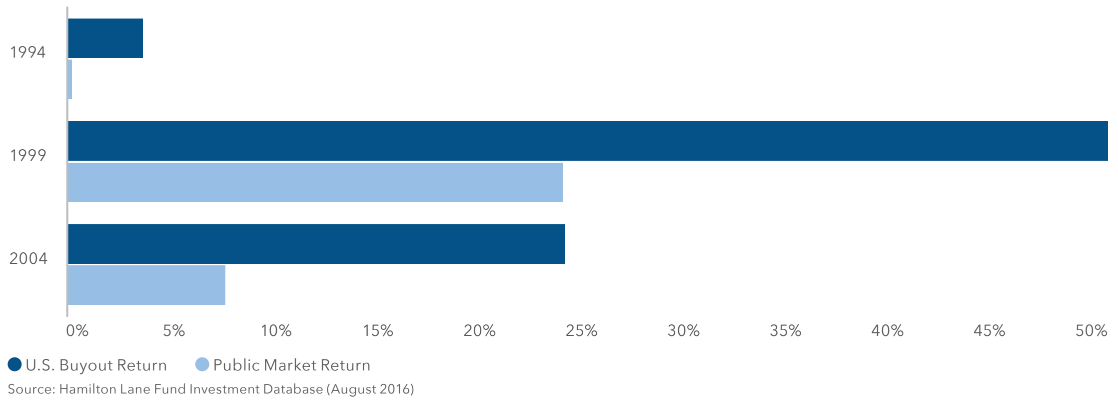
The U.S. Federal Reserve has raised rates and has said that it will do so more often over the coming year. Let's take a look at how alternatives perform following a change in the interest rate cycle.

We don't have a ton of data points, but buyout generally seems to be a better place to be than the public markets once the interest rate cycle turns (Chart 67). This wasn't the case in the 1994 scenario, where no economic downturn occurred for quite a number of years following the rate hike. (Perhaps our current cycle bears more resemblance to that period?) More interesting still is taking a look at how different private equity sectors have performed during rate hikes.

In Chart 68, we took funds that were actively investing during the time frame after the rate hikes began. If history is any guide, it might be time to start favoring debt and income-producing strategies. Of course, part of the dynamic here has to do with whether or not you believe a recession is looming, as it was in two of the prior three rate hike cycles (1999 and 2004). Recessions help distressed debt investments and lead to significant headwinds for growth and venture strategies.

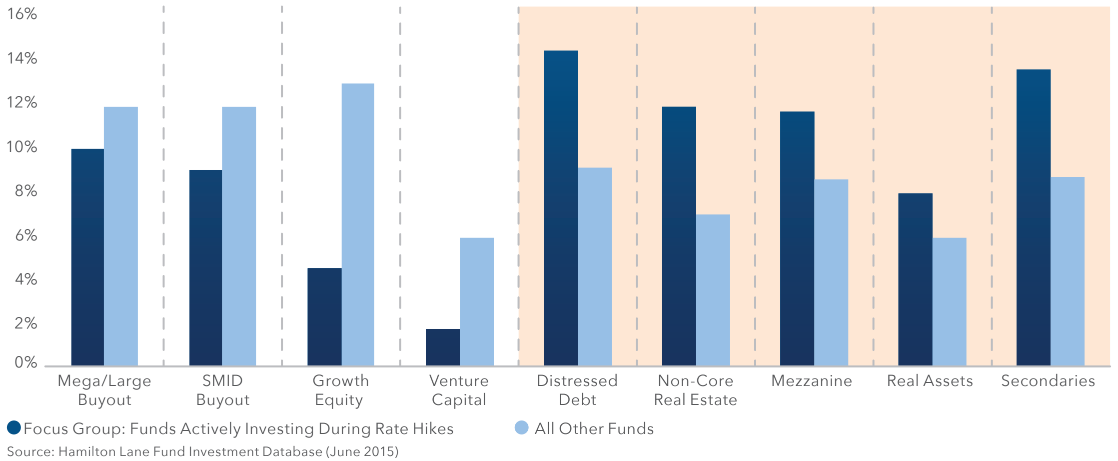
Not solely based on this data – and as we discussed earlier in our overview of the debt markets – our own position is that private debt continues to represent an intriguing investment area today.

Chart 67: U.S. Buyout Returns 1Y Following First Rate Hike
Annual Time-Weighted Return



Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 68: U.S. Private Equity During Rate Hikes
Median Net IRR, Vintages 1985-2010



Source: Hamilton Lane Fund Investment Database (June 2015)

PE PERFORMANCE PRIOR TO RECESSION

Now to the topic for which some of you have been anxiously waiting. We realize it's been a relatively long time coming, but when you have as much powerful data as we do, you want to take the time to really showcase it all. (And you thought perhaps the shameless plugs had ended?!)

Ok, so we know a recession is coming, and coming relatively soon, but do we know how alternatives perform heading into a recession? We do, in fact; check out Chart 69.

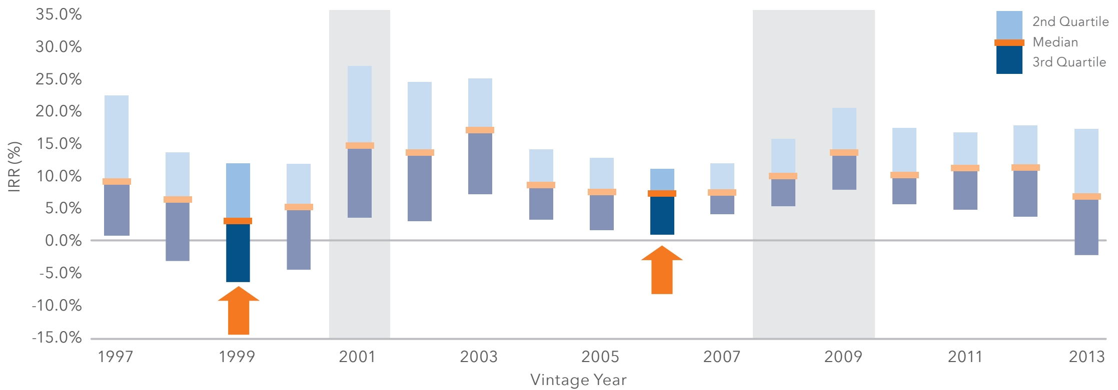
Ugh, not so great. In fact, two years prior to a recession is the worst time to invest in private equity.

The average PE return is still ok and over 230 bps better than global equity returns for the same periods, but no one invests in alternatives in the hope of generating an average return of 3%, like in 1999, or 7%, like in 2006. One or two years prior to a recession, the downside in alternatives' performance tends to be more pronounced, making the asset class really unappealing during those periods. (On the flip side, the argument could very well be made that one year before a recession and, perhaps morbidly, even during a recession is when investors ought to be loading up on alternatives.)

As previously noted, cash flows exhibit some clearly-defined characteristics heading into a recession; in fact, both contributions and distributions actually accelerate during that period (Charts 70 and 71).

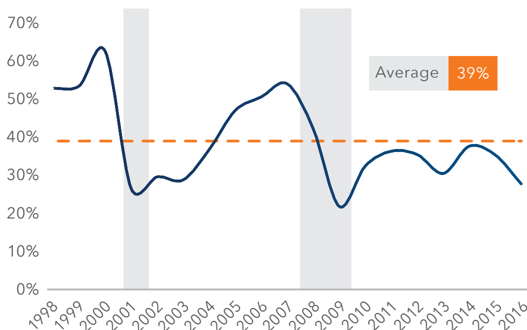
That makes sense when euphoria and ebullient markets rule the day. We don't see that today. Oddly, PE is behaving more like it has in past periods of market recovery.

Chart 69: Private Equity IRR Quartiles
By Vintage Year



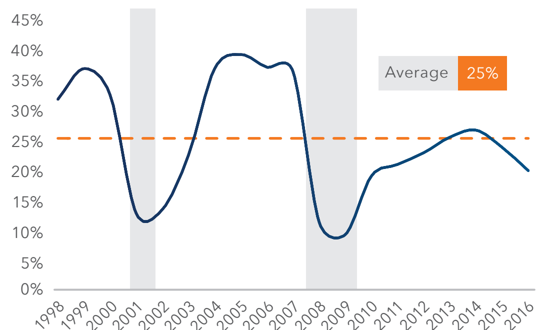
Source: Hamilton Lane Fund Investment Database (August 2016)

Chart 70: Industry Level PE Contribution Pace
Annual Contributions as a % of Unfunded



Source: Hamilton Lane Fund Investment Database (August 2016).
Cashflows through 6/30/2016.

Chart 71: Industry Level PE Distribution Pace
Annual Distributions as a % of NAV

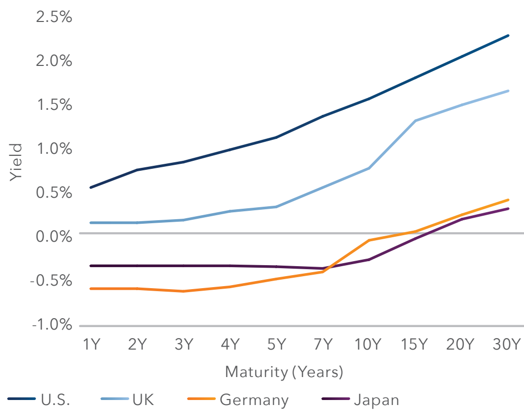


Source: Hamilton Lane Fund Investment Database (August 2016).
Cashflows through 6/30/2016.

> 'MAYBE THIS TIME IS DIFFERENT'

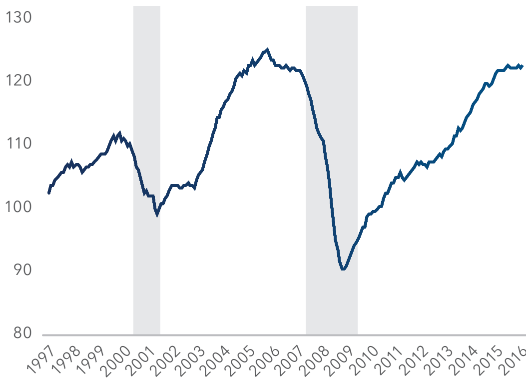
used as an investment thesis has rarely ended well

Chart 72: Yield Curves
By Tenor

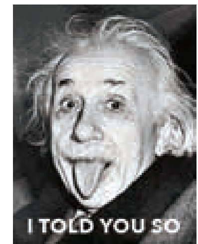


Source: Bloomberg (July 2016)

Chart 73: Composite U.S. Leading Economic Indicators



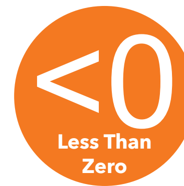
Source: Conference Board Leading Economic Index (August 2016)



Last year, nothing we said generated more controversy and incredulity than our prediction that the probability of recession in the U.S. and most major economies was ZERO. (Ahem, we were right.)

So, then, where are we on the recession meter today?

Honoring the tradition of central bankers around the world who have shown that negative interest rates are possible, our prediction for the probability of recession in 2017 is:



Outrageous, we know. How can we even say that? For two reasons, particularly in the U.S.:

(1) By now, we've accepted that we'll forever field accusations that the yield curve doesn't matter given central bank behavior. On this point, we continue to disagree. It does matter. The yield curve slope is positive and, until it turns, we remain hard pressed to call for a recession (Chart 72). Still don't believe us? We'll add yet another indicator.

(2) This index has a reliable record of moving down well ahead of U.S. recessions (Chart 73). Again, maybe this time is different, but that phrase used as an investment thesis has rarely ended well.

Instead, based on what we're seeing in the data, we'll predict at least another year of slow growth, low interest rates, high valuations and continued recovery.

WHERE
TO
INVEST

Congratulations! You've arrived. After making it through pages and pages of text, tables and charts, you must feel a little like Indiana Jones after he bravely navigated all sorts of hazards, obstacles and clues ultimately to reach some mysterious, legendary treasure.

Offering investment advice is only slightly less perilous than Dr. Jones' adventures, so let us now tackle the question that inspired many of you to pick up this market overview in the first place:

"What investments are going to make me the most money?"

We'll pause here and venture a guess that some of you probably cheated and skipped right to the end. Well, you may already know what these final pages hold, but you should also know that you've robbed yourself of the 'Aha' moment that the rest of our readers will now get to experience. (In other words, you chose poorly.)

For those of us who have read countless market overviews throughout the years, we know all too well that what usually awaits us in the final pages is merely fool's gold. Too often, the momentous advice is something along the lines of: "invest carefully" or "a well-diversified portfolio is important in times like these." (To which we've always been tempted to ask, "As opposed to times like what?")

That's not what you're going to get here.

Let's start with Hamilton Lane's broad outlook for each of the sectors in the private markets.

Chart 74 gives you a colorful snapshot of the areas that we believe are more or less promising, and does so with insight into both shorter- and longer-term attractiveness of the sectors as well as whether investors can actually access these areas in any reasonable way. All very useful and all far more than you are going to get anywhere else, if we do say so ourselves.

But, that's not really enough, is it? After all, inquiring minds want to know: *"But where should we be investing RIGHT NOW? C'mon, Hamilton Lane, give us your best ideas!"*

You want 'em? You've got 'em!

Private Debt. For anyone who has yet to completely re-think your approach to private debt, now is the time. (We mean it; do it today.) All the time spent wasted on worrying about allocations to infrastructure or real assets? Spend it instead on what you are going to do on the private debt side.

We'll make a few suggestions: Take some of your liquid fixed income allocation and move it to private debt; take some of your alternative allocation and move it to private debt; take some of your equity allocation and move it to private debt; make private debt its own allocation or make it part of your fixed income allocation, but just do something. Even if that something means actually doing nothing in private debt, but doing so as a conscious, thoughtful choice.

No area of today's private markets presents a more interesting investment opportunity than private debt. We have explained why earlier in this piece, so we won't belabor the argument. You can thank us in five years.

Unicorns. For the first time in a long time, a category of company exists to which normal investors have no access. We've outlined the dynamics behind the rise

Chart 74: Sector Outlooks

		Accessibility	Supply/ Demand Balance	Near-Term Outlook	Long-Term Outlook	Trending
U.S. Buyout	Large					
	SMID					
Europe Buyout	Large					
	SMID					
Distressed Debt	U.S.					
	Europe					
Credit	U.S.					
	Europe					
	Emerging Markets					
Venture						
ROW						
Infrastructure						
Real Estate						

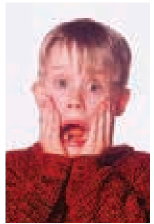
of these unicorn companies; in prior periods, investors would have been able to gain access to them either through venture portfolios or as the companies became public. As they stay private, can investors afford to have this large a segment of the market unrepresented in their portfolios? This would be like having an asset allocation today that didn't include Amazon, Apple, Google or Facebook.

After you've figured out what you are doing with private debt, shift your focus to figuring out how to gain access to the Ubers and Palantirs of today and tomorrow. While we don't have great answers today, we nevertheless believe the market will develop those answers over time. Successfully gaining early exposure to unicorns will require a combination of ingenuity and creativity, along with a keen understanding of the risk and reward that investors are willing to undertake.

European Buyout. Over the last few years, we've been more bullish on the European markets in general. For non-euro investors like us, maintaining a belief that the euro has bottomed has helped. Ironically, Brexit has caused us to react differently from most. We're all guilty of the occasional Pavlovian response to events such as Brexit: Ah, bad news… Let's buy! Today, we are in a different place. Brexit will have little short-term impact, resulting in investors experiencing a feeling of relief and moving back into European assets. For our part, we view Brexit as a longer-term problem that has made us a bit more cautious on European private equity; not necessarily bearish, but a little less certain than we were one year ago.

U.S. Buyout. Ok, fine, it may seem boring, predictable and something you've heard from us numerous times before, but we continue to view U.S. buyout as an interesting place to invest. As discussed, we acknowledge that we're closer to a market top than bottom; however, we don't see a recession occurring in the next year, nor do we see U.S. general partners acting a fool and paying crazy prices for assets. Stay long here; you won't be disappointed.

We'll wrap the U.S. buyout discussion with another piece of advice that might cause you to fling this book against the wall. (Suppose it's no great harm as we're almost done; although it does have some beautiful graphics you may wish to admire from time to time.) Consider leaning a little farther into larger buyout funds.

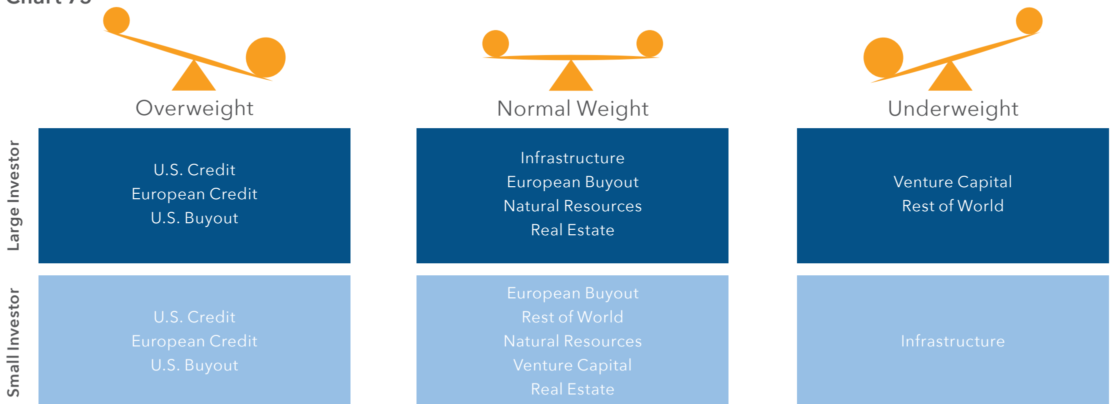


Why would we ever say such a thing? True, we don't see a recession looming tomorrow, but we are mindful of the increasing risk in the nearer future. Larger funds tend to purchase larger companies and, as we've pointed out, do so in a more diversified portfolio. Tending toward those characteristics may very well reduce some overall risk in portfolios. Chart 75 further outlines our general perspective on a variety of sector weightings for both large and small investor groups.

We hope this overview has proved helpful, not to mention entertaining. While we remain convinced that most people are spending too much time worrying about an imminent economic collapse, ironically enough, we are also firm in our view that many of those same people are venturing farther out on the risk spectrum precisely at a time when they should begin pulling back in. That means taking steps like increasing debt exposure to move up the capital structure and, oddly enough, increasing private equity exposure since we view private assets as less risky than public assets.

For private market investors, the proliferation of choices in this asset class continues to expand, and that's a positive. We can choose among strategies, styles, geographies and managers in ways unthinkable only 10 years ago. Yet, such a wide range of selection requires more data, more thought and more conviction than ever before. We sincerely hope this year's Market Overview has helped to give you some of each.

Chart 75



Our Mission and Values

We enrich lives & safeguard futures

- Do the right thing
- Integrity, candor and collaboration
- The pursuit of excellence
- A spirit of competition that inspires innovation

About Hamilton Lane

Hamilton Lane is an independent alternative investment management firm providing innovative private markets solutions to sophisticated investors around the world. The firm has been dedicated to private markets investing for more than two decades and currently has 260+ employees operating in offices around the world.

With over $315 billion in total assets under management and supervision[1], Hamilton Lane offers a full range of investment products and services that enable clients to participate in the private markets asset class on a global and customized basis. The firm has been named an Inc. 5000 Fastest-Growing Company and a "Best Place to Work in Money Management" by Pensions & Investments for four consecutive years.

www.hamiltonlane.com

[1] As of June 30, 2016

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Indices Used

S&P 500: The S&P 500, or the Standard & Poor's 500, is an American stock market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ. The S&P 500 index components and their weightings are determined by S&P Dow Jones Indices.

Shanghai Composite: The SSE Composite Index is a stock market index of all stocks (A shares and B shares) that are traded at the Shanghai Stock Exchange.

Euro Stoxx 50: The Euro Stoxx 50 is a market capitalization-weighted stock index of 50 large, blue-chip European companies operating within Eurozone nations.

NSE CNX NIFTY: The NSE CNX NIFTY is a stock index endorsed by Standard & Poor's and composed of 50 of the largest and most liquid stocks found on the National Stock Exchange (NSE) of India.

Ibovespa: The Bovespa Index is an index of about 50 stocks that are traded on the São Paulo Stock, Mercantile & Futures Exchange

NIKKEI 225: The Nikkei 225 is a price-weighted index comprised of Japan's top 225 blue-chip companies on the Tokyo Stock Exchange.

Markit CDX North America High Yield Index: Markit's North American High Yield CDX Index, or the CDX.NA.HY Index (the "HY Index"), is composed of one hundred (100) liquid North American entities with high yield credit ratings that trade in the CDS market.

Markit CDX North America Investment Grade Index: Markit's North American Investment Grade CDX Index, or the CDX.NA.IG Index (the "IG Index"), is composed of one hundred twenty-five (125) of the most liquid North American entities with investment grade credit ratings that trade in the CDS market.

Markit iTraxx Europe Index: The European Markit iTraxx indices trade 3, 5, 7 and 10-year maturities, and a new series is determined on the basis of liquidity every six months. The benchmark Markit iTraxx Europe index comprises 125 equally-weighted European names.

MSCI World Net Total Return Index: The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity performance of developed markets with net dividends reinvested.

S&P 500 Net Total Return Index: The S&P 500 Total Return Index is a capitalization-weighted index of 500 U.S. large cap stocks that assumes all dividends and distributions are reinvested.

Russell 2000 Net Total Return Index: The Russell 2000 Net Total Return Index is an index measuring the performance of approximately 2,000 small-cap companies in the Russell 3000 Index, which is made up of 3,000 of the biggest U.S. stocks with net dividends reinvested.

MSCI World Index: The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity performance of developed markets.

Russell 3000 Index: The Russell 3000 index tracks the equity performance of the 3,000 largest U.S. companies.

ProShares Ultra S&P 500: ProShares Ultra S&P 500 seeks daily investment results, before fees and expenses, that correspond to two times (2x) the daily performance of the S&P 500®.

WTI Crude: WTI Crude is light, sweet crude oil commonly referred to as "oil" in the Western world. WTI is the underlying commodity of the New York Merchantile Exchange's oil futures contracts.

MSCI ACWI Select Energy Producers IMI: The MSCI ACWI Select Energy Producers Investable Market Index (IMI) aims to focus on companies in the energy industries that are highly sensitive to underlying prices of energy commodities. The index includes companies at or near the initial phase of energy production that are primarily engaged in the exploration and production of oil and gas or in the production and mining of coal and other consumable fuels related to the generation of energy - as classified by the Global Industry Classification Standard GICS®. The index excludes companies that derive a majority of their revenues from the marketing, storage and/or transportation of oil and gas and companies involved primarily in alternative fuels.

MSCI World ex US Index: The MSCI World ex. U.S. Index tracks large and mid-cap equity performance in developed market countries, excluding the U.S.

MSCI Emerging Markets Index: The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets.

Barclays Aggregate Bond Index: The Barclay Aggregate Bond Index tracks the performance of U.S. investment grade bonds.

Credit Suisse High Yield Index: The Credit Suisse High Yield index tracks the performance of U.S. sub-investment grade bonds.

HFRI Composite Index: The HFRI Composite Index reflects hedge fund industry performance.

FTSE/NAREIT Equity REIT Index: The FTSE/NAREIT All Equity REIT Index tracks the performance of U.S. equity REITs.

Dow Jones-UBS Commodities Index: The Dow Jones-UBS Commodity Index tracks the performance of exchange traded futures on physical commodities, and currently represents 20 commodities.

PE Definitions

Public Market Equivalent: Calculated by taking the fund cash flows and investing them in a relevant index. The fund cash flows are pooled such that capital calls are simulated as index share purchases and distributions as index share sales. Contributions are scaled by a factor such that the ending portfolio balance is equal to the private equity net asset value (equal ending exposures for both portfolios). This seeks to prevent shorting of the public market equivalent portfolio. Distributions are not scaled by this factor. The IRR is calculated based off of these adjusted cash flows.

All PE: All Private Equity (All PE) includes all funds classified as buyout, growth equity, venture capital, distressed debt, mezzanine, and real assets in addition to other miscellaneous strategies. The sample excludes real estate, secondary, and fund-of-fund strategies.

PE Energy: Private Equity Energy includes any All PE funds with a strategy focus on the production, processing, or distribution of energy.

North America: North America includes all funds with a geographic focus on the United States and Canada

Western Europe: Western Europe includes all funds with a geographic focus on Western Europe

ROW: Rest of World (ROW) includes all funds whose principal focus is not North America or Western Europe, including regions such as Eastern Europe, Latin America, Africa, Asia, Australia, and other emerging markets.

Buyout: Buyout includes any All PE funds whose principal strategy is corporate finance and leveraged buyout.

Venture Capital: Venture Capital includes any All PE funds focused on any stages of venture capital investing, including seed, early-stage, mid-stage, and late-stage investments.

U.S. Buyout: U.S. Buyout includes any All PE funds with a geographic focus of North America and a strategy focus of buyout.

EU Buyout: EU Buyout includes any All PE funds with a geographic focus of Western Europe and a strategy focus of buyout.

U.S.-EU VC/Growth: U.S.-EU VC/Growth includes any All PE funds with a geographic focus of either North America or Western Europe and a strategy focus of either venture capital or growth equity.

Credit: Credit includes any All PE funds with a strategy focus of either distressed debt or mezzanine debt.

ROW Buyout/Growth: ROW Buyout/Growth includes any All PE funds with a geographic focus of rest of world and a strategy focus of buyout or growth equity.

Real Assets: Real Assets includes any All PE funds with a strategy of either infrastructure or natural resources. Real Estate is not included.

Other: Other includes any All PE funds not included in U.S. buyout, EU buyout, U.S.-EU venture capital/growth, credit, ROW buyout/growth, and real assets.

Mega/Large Buyout: Mega/Large Buyout includes any All PE funds with a strategy of buyout and a sub-strategy of mega or large.

SMID Buyout: SMID Buyout includes any All PE funds with a strategy of buyout and a sub-strategy of small or mid.

Growth Equity: Growth Equity includes any All PE funds with a strategy focusing on providing growth capital as an equity investment.

Distressed Debt: Distressed Debt includes any All PE funds with a strategy that invests in the debt of distressed companies.

Mezzanine: Mezzanine includes any All PE funds with a strategy to invest in the mezzanine debt of private companies.

Real Estate Non-Core: Real Estate Non-Core includes all real estate funds with a focus on non-core real estate. This excludes funds that are separate accounts or joint ventures.

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