

Survey of Capital Market Assumptions

2012 Edition



Introduction

Horizon Actuarial Services, LLC is proud to serve as the actuary to over 70 multiemployer defined benefit pension plans across the United States and across various industries. As actuary to these plans, we must develop assumptions regarding future investment returns on plan assets. We then use those assumptions as we determine the actuarial values of the benefits promised by these plans to their participants and beneficiaries.

At Horizon, we are actuaries, not investment professionals. Therefore, when developing assumptions as to what returns a pension plan's assets might be expected to earn in the future, we look to our colleagues in the investment advisory community. For each of the past three years, we have surveyed different independent investment advisors and asked them to provide their "capital market assumptions" – their expectations for future risk and returns for different asset classes in which pension funds commonly invest.

The information gathered from this survey can help answer the commonly-asked question: "Is my plan's investment return assumption still reasonable?" Of course, there are many factors to consider when evaluating a plan's investment return assumption, such as its asset allocation and the maturity of its participant population. Any of these factors can make the expected return for one plan very different from others. Therefore, this report does not opine on the reasonableness of any one plan's investment return assumption. Nevertheless, we hope this report will be a useful resource for trustees, actuaries, and investment professionals alike.

Horizon Actuarial sincerely thanks the 17 investment advisors who participated in this survey.

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Summary

When Horizon first conducted this survey in 2010, 8 investment advisors responded with their capital market assumptions. The 2011 survey had 12 respondents, and the 2012 survey has 17 respondents.

Overall, the results from the 2012 survey are not that different from the 2011 survey. The “composite” (average) expected returns for the survey have come down slightly from 2011 to 2012 – about 10 basis points for the hypothetical pension fund we examine in this report. However, this drop seems to be due to changes in the survey respondents more than anything else. In other words, the respondents who are new to the survey in 2012, on average, had slightly lower expected returns than the respondents who were in the 2011 survey.

When we focus on the 6 investment advisors who participated in all three of our capital market assumption surveys from 2010 to 2012, we see that expected returns for equity-type asset classes have actually increased slightly from 2010 to 2012. At the same time, expected returns for US fixed income securities have decreased, as interest rates have fallen. The standard deviations of expected returns have increased slightly for most asset classes, implying that the survey respondents expect the markets to remain volatile.

The survey asked respondents to indicate the time horizon over which their assumptions apply. When we focus on the 4 advisors that provided both short-term (10 years or less) and long-term (20 years or more) assumptions, we found that expected returns for fixed income investments were generally higher for the long term than for the short term. However, there was no clear consensus for whether expected returns for equities and alternative investments will be higher or lower over the long term than for the short term. In developing its composite assumptions, the survey blends shorter-term and longer-term together.

The subject matter of this report can be very technical at times, and we have attempted to present it in a manner that can be understood by most trustees. Still, some topics may benefit from additional explanation or discussion. If you have any questions, please contact your consultant at Horizon Actuarial.

Horizon Actuarial Services, LLC does not practice law, nor do we provide tax advice or investment advice. Please consult with your legal counsel, tax advisor, or investment advisor for information specific to your plan’s legal, tax, or investment implications.

Horizon Actuarial Services, LLC is an independent consulting firm specializing in providing actuarial and consulting services to multiemployer benefit plans. For more information, please visit our website at www.horizonactuarial.com.

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Survey Respondents

Exhibit 1 (right) lists the 17 investment advisors who responded to the 2012 survey. This report will not attribute specific assumptions to individual advisors, which was a precondition of the survey.

Exhibit 2 (below) shows the ranges of expected annual returns for the different asset classes that were provided by the respondents. For example, focusing on large cap US equity, the most conservative investment advisor expects returns of 7.8% per year, while the most optimistic advisor expects returns of 10.7% per year. The composite (average) expected return for all advisors in the survey is 9.4% per year.

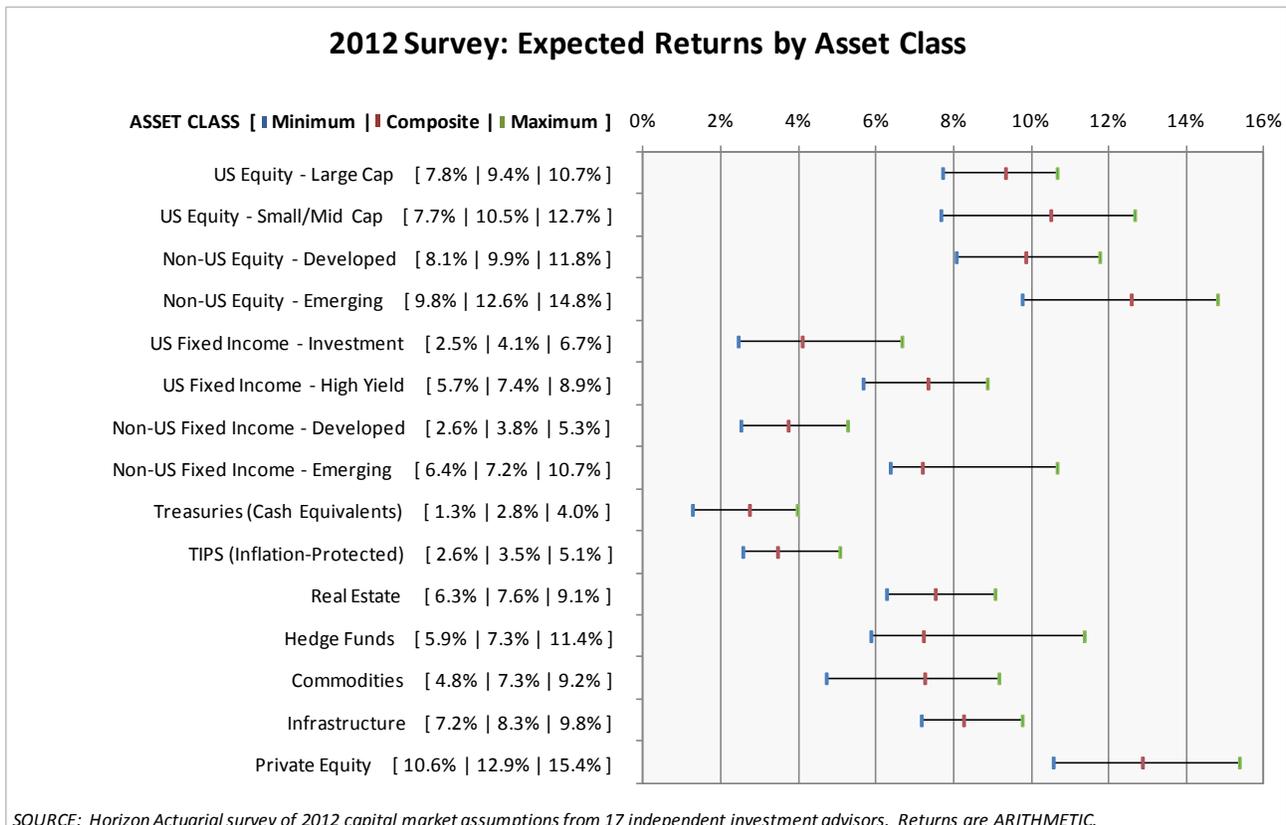
For some asset classes, there are big differences in the expected returns from advisor to advisor. As described later in this report, one reason for the wide ranges is that some investment advisors focus on relatively short time horizons, while others look out over the long term. Regardless of the reason, however, it is apparent that different advisors have different opinions regarding future investment returns. As the saying goes, “reasonable people may differ.”

Exhibit 1

2012 Survey Respondents
Callan Associates
CAPTRUST Financial Advisors
A.J. Gallagher / Independent Fiduciary Services
Hewitt EnnisKnupp
Investment Performance Services, LLC
R.V. Kuhns & Associates
Marco Consulting Group
Marquette Associates
Meketa Investment Group
J.P. Morgan
Morgan Stanley / Graystone Consulting
New England Pension Consultants
Pension Consulting Alliance
The PFM Group
SEI
Towers Watson
Wurts & Associates

A summary of the composite assumptions from the 2012 survey, including standard deviations and a correlation matrix, can be found in the appendix to this report.

Exhibit 2



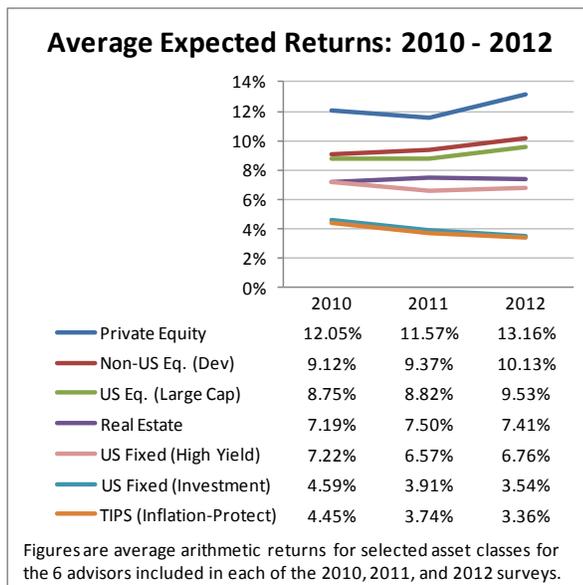
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Changing Expectations, 2010 - 2012

Over the past few years, there has been much discussion about whether it is reasonable for pension funds to expect future investment returns to be as high as they have been historically. When people look at the market collapse of 2008, continued high unemployment rates, current economic uncertainty, and historically low interest rates, it is understandable if they have a gloomy outlook for future investment returns.

However, when we look at how expected returns in the survey have changed from 2010 through 2012, we do not see declines across the board. Exhibit 3 (below) shows average expected returns for the 6 investment advisors who participated in each of Horizon's surveys from 2010 to 2012. The selected asset classes are those for which all 6 advisors provided expected return assumptions in all three survey years.

Exhibit 3



For this subset of survey respondents, average expected returns actually increased for equity-type investments such as US large cap equity, Non-US equity (developed), and private equity. For example, the average expected return for US large cap equity went from 8.75% in 2010, to 8.82% in 2011, to 9.53% in 2012. (It is important to note that some consultants raised their expected returns, some lowered them, and others kept them the same. However, the average expected return assumption increased for most equity-type investments.)

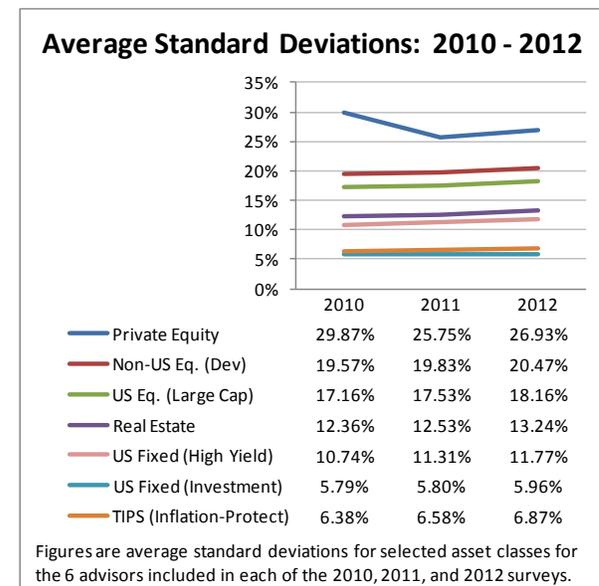
On the other hand, it is no surprise that average expected returns for fixed income-type investments like treasury inflation-protected securities (TIPS) and US

investment-grade fixed income have declined, as interest rates have continued to fall. Average expected returns for real estate and US high yield bonds have remained relatively flat, with some small fluctuations.

Note that Horizon conducted its first capital market assumption survey in 2010. Therefore, if any of the 6 respondents included in Exhibit 2 lowered their return expectations from 2008 to 2009 or from 2009 to 2010, those declines would *not* be reflected here.

In addition to expected returns, it is also important to consider expected volatility in the returns. While average expected returns have not necessarily declined from 2010 to 2012, the average standard deviations of those expected returns have increased slightly. Changes in average standard deviations from 2010 to 2012 are shown in Exhibit 4 (below).

Exhibit 4



The increases in the average standard deviations are relatively modest for some asset classes. For example, the average standard deviation for US investment-grade fixed income has only increased from 5.79% to 5.96% from 2010 to 2012.

However, there are more significant changes for other asset classes. For example, the standard deviations for US large cap equity, Non-US equity (developed), US high yield bonds, and real estate each increased by about 100 basis points from 2010 to 2012.

This implies that, on average, the 6 advisors whose assumptions are included in Exhibit 4 expect the financial markets to remain volatile. In fact, they expect even *more* volatility for some asset classes.

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Investment Horizons

When considering an investment advisor's expectations for future investment returns, it is also important to consider the investment horizon over which those expectations apply. Given current market conditions, some investment advisors may expect returns for certain asset classes to be more or less in the short term than over the long term.

An investment horizon of 20 years is usually appropriate when evaluating long-term expected returns for active, ongoing multiemployer pension funds. A shorter horizon may be more appropriate when dealing with a pension fund with a more mature participant population. (We use a 20-year horizon when evaluating investment return assumptions for most of our clients.)

In the 2012 survey, 4 of the 17 respondents provided both short-term and long-term assumptions. For these 4 advisors, the short-term horizons were 5 to 7 years, and the long-term horizons were 20 to 30 years. Comparing the short-term expected returns to the long-term expected returns, we see some interesting differences. See Exhibit 5(below).

Exhibit 5

Average Expected Returns: Short-Term vs. Long-Term <i>Subset of 4 Survey Respondents</i>			
Asset Class	Short-Term	Long-Term	Diff
US Equity - Large Cap	9.8%	9.2%	-0.6%
US Equity - Small/Mid Cap	10.2%	10.3%	0.1%
Non-US Equity - Developed	9.7%	9.6%	-0.1%
Non-US Equity - Emerging	13.1%	11.5%	-1.6%
US Fixed Income - Investment	3.5%	5.4%	1.9%
US Fixed Income - High Yield	6.1%	7.5%	1.4%
Non-US Fixed - Developed	2.6%	4.4%	1.8%
Non-US Fixed - Emerging	6.0%	6.4%	0.4%
Treasuries (Cash Equivalents)	1.7%	3.7%	2.0%
TIPS (Inflation-Protected)	2.4%	4.4%	2.0%
Real Estate	7.2%	7.6%	0.4%
Hedge Funds	8.0%	8.4%	0.4%
Commodities	7.4%	7.3%	-0.1%
Infrastructure	N/A	N/A	N/A
Private Equity	13.0%	12.5%	-0.5%

Figures are averages arithmetic returns for the 4 advisors who provided separate short-term and long-term assumptions.

Most notably, the consensus among these 4 advisors was that returns for fixed income investments are expected to be lower in the short term rather than over the long term. This may be due to the fact that interest rates are currently at historic lows, and presumably they will begin to rise after a few years.

All 4 of these advisors expect returns for emerging market equities to be higher in the short term than over the long term. Other than that, there was no clear consensus on expected returns for equities and alternative investments. Two of the advisors expected returns to be generally higher over the long term than over the short term, while the other two indicated that they expected returns for some asset classes to be higher over the short term than over the long term.

The results shown in Exhibit 5 are based on a small sample size of only 4 investment advisors. If we include the other 13 respondents in the analysis, we see somewhat different results when comparing short-term and long-term assumptions. See Exhibit 6 (below).

For the 13 respondents who did not provide separate short-term and long-term assumptions, 11 indicated that their horizons were 10 years or shorter (considered "short-term" in the exhibit below), and the other 2 respondents indicated that their horizons were 20 years or longer (considered "long-term"). When we expand the comparison to include all 17 respondents, we see that long-term expected returns are more consistently higher than short-term expected returns.

Exhibit 6

Average Expected Returns: Short-Term vs. Long-Term <i>All 2012 Survey Respondents</i>			
Asset Class	Short-Term	Long-Term	Diff
US Equity - Large Cap	9.2%	9.6%	0.4%
US Equity - Small/Mid Cap	10.0%	10.8%	0.8%
Non-US Equity - Developed	9.5%	10.3%	0.8%
Non-US Equity - Emerging	12.4%	12.4%	0.0%
US Fixed Income - Investment	3.5%	5.3%	1.8%
US Fixed Income - High Yield	6.8%	7.7%	0.9%
Non-US Fixed - Developed	3.4%	4.4%	1.0%
Non-US Fixed - Emerging	6.5%	7.4%	0.9%
Treasuries (Cash Equivalents)	2.2%	3.5%	1.3%
TIPS (Inflation-Protected)	3.1%	4.2%	1.1%
Real Estate	7.3%	7.8%	0.5%
Hedge Funds	7.1%	8.0%	0.9%
Commodities	7.1%	7.3%	0.2%
Infrastructure	7.8%	9.8%	2.0%
Private Equity	12.7%	12.6%	-0.1%

Figures are averages arithmetic returns for the 15 advisors who provided short-term assumptions and the 6 advisors who provided long-term assumptions.

It is important to keep in mind that an investment advisor who provided assumptions for a 10-year horizon might not necessarily have different assumptions if the horizon were 20 years or longer. In other words, the differences in returns for short-term and long-term horizons shown above may be coincidental. Horizon's 2013 survey will look to explore this in more depth.

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Evaluating the Return Assumption

Multiemployer pension plans are usually invested in a well-diversified mix of stocks, bonds, real estate, and alternative investments structured to maximize returns over the long term while minimizing return volatility.

The actuary to a multiemployer pension plan must evaluate the plan's asset allocation and, based on expectations of future returns, develop an assumption for what plan assets are projected to earn over the long term. This assumption is then used (along with others) in determining the actuarial value of the benefits promised by the plan to its participants and beneficiaries.

The actuary will often rely on the future return expectations of the plan's investment advisor in developing the plan's investment return assumption. However, as noted earlier, different investment advisors often have very differing opinions on what future investment returns will be. Therefore, it may be beneficial to keep in mind other advisors' expectations when setting the investment return assumption.

Here, we will evaluate the investment return assumption for a hypothetical multiemployer pension fund. Exhibit 7 (below) shows the asset allocation for this hypothetical pension fund. The asset allocations are completely arbitrary, except for the fact that we made sure to include at least a small allocation to every asset class in the survey.

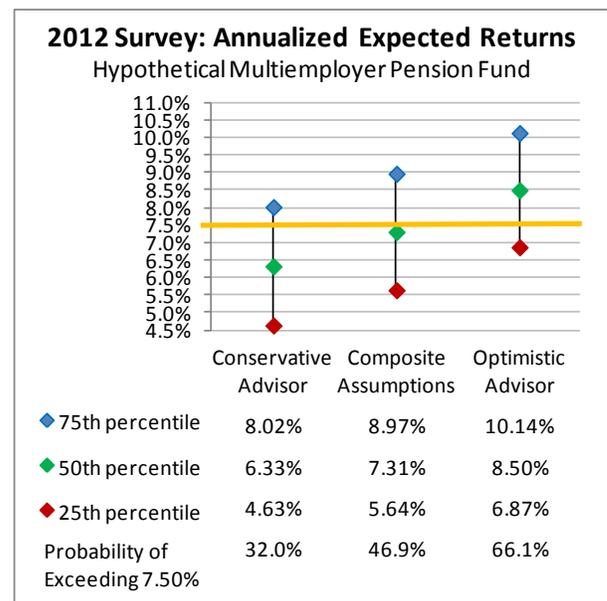
Exhibit 7

Hypothetical Multiemployer Pension Fund	
Asset Class	Weight
US Equity - Large Cap	20.0%
US Equity - Small/Mid Cap	10.0%
Non-US Equity - Developed	7.5%
Non-US Equity - Emerging	5.0%
US Fixed Income - Investment	10.0%
US Fixed Income - High Yield	5.0%
Non-US Fixed Income - Developed	5.0%
Non-US Fixed Income - Emerging	2.5%
Treasuries (Cash Equivalents)	5.0%
TIPS (Inflation-Protected)	5.0%
Real Estate	10.0%
Hedge Funds	5.0%
Commodities	2.5%
Infrastructure	2.5%
Private Equity	5.0%
Inflation	N/A
TOTAL PORTFOLIO	100.0%

Exhibit 8 (below) evaluates the expected return assumption for the hypothetical multiemployer pension fund. Expected returns are annualized over a 20-year period.

It is important to keep in mind that the expected returns shown below apply only for the hypothetical asset allocation described in Exhibit 7. The expected returns would be different (perhaps very significantly) if a different asset allocation were used.

Exhibit 8



Note the following regarding the results in Exhibit 8. Also note that a more detailed exhibit showing the derivation of the annualized expected returns can be found in the appendix to this report.

Median Return: Based on the composite assumptions in the 2012 survey, the median (50th percentile) expected return for this hypothetical asset allocation is 7.31% per year. In other words, there is a 50% probability that the fund will return at least 7.31% per year (annualized) over a 20-year period, and there is a 50% probability that the fund will return less than 7.31% per year.

Reasonable Range: Often times, actuaries consider the range of results between the 25th and 75th percentiles to be the "reasonable range" of assumptions. By definition, there is a 50% probability (75% less 25%) that the fund's returns over a 20-year period will fall somewhere within this range. (Note that, under actuarial standards of practice, it may be difficult for an actuary to justify a return assumption outside of this range.) Based on the composite assumptions, the reasonable range for this hypothetical pension fund is very wide: 5.64% to 8.97%.

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Probability of Beating the Benchmark: In addition to considering the expected returns, it is also important to note the probability that a given asset allocation will meet or beat its benchmark over the investment horizon. Say that the actuary for this hypothetical pension fund expects the fund to earn 7.50% per year on its assets. Based on the composite assumptions in the 2012 survey, there is a 46.9% chance that the fund will beat its 7.50% benchmark over a 20-year period.

Optimistic and Conservative Assumptions: It may also be interesting to consider the expected returns based on the assumptions provided by the most conservative and most optimistic respondents to the survey. For this hypothetical asset allocation, the most conservative advisor would expect a median (50th percentile) return of only 6.33% per year, with a 32.0% probability of exceeding 7.50% per year over a 20-year period. The most optimistic advisor would expect a median return of 8.50% per year, with a 66.1% probability of exceeding 7.50% per year over a 20-year period. Again, reasonable people may differ.

Limitations: There are three important limiting factors to keep in mind when reviewing these results.

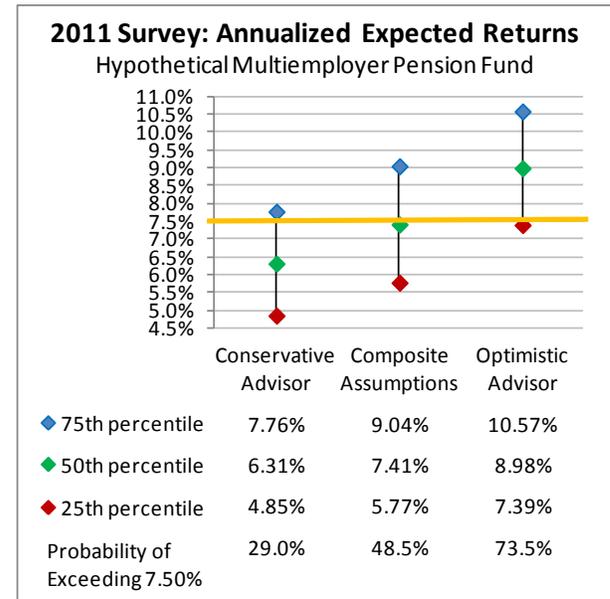
- One, the asset classes in this survey sometimes do not align perfectly with the asset classes provided by the investment advisors. Adjustments were made to standardize the different asset classes from the respondents.
- Two, the return expectations included in the survey are based on indexed returns. In other words, they do not reflect any additional returns that may be earned due to active asset managers outperforming the market (“alpha”), net of investment expenses.
- Three, many of the investment advisors develop their future assumptions based on investment horizons of 10 years or less, and some returns (especially for fixed income) are generally expected to be lower in the short term. The pension fund itself will likely have a much longer investment horizon than 10 years.

In most cases, adjustments made to account for these limitations tended to slightly lower the expected returns in the survey, for the sake of conservatism.

Comparison versus 2011 Survey

Exhibit 9 (below) evaluates the expected return assumption for the same hypothetical multiemployer pension fund as in Exhibit 7, but based on the results from the 2011 survey rather than the 2012 survey.

Exhibit 9



Based on the composite assumptions, the median expected return for 2012 (7.31%) is slightly lower than the median expected return for 2011 (7.41%), a decrease of 10 basis points (0.10%).

The median expected return for the most conservative advisor was virtually unchanged, increasing 2 basis points (from 6.31% to 6.33%). On the other hand, the median expected return for the most optimistic advisor dropped by 48 basis points (from 8.98% to 8.50%); this was due to the fact that the most optimistic advisor adjusted its expectations downward, from 2011 to 2012.

Note that the decrease in the composite expected return is due almost entirely to the changes in the survey respondents from 2011 to 2012. There were five respondents in the survey in 2012 who were not included in the 2011 survey. On average, the new respondents had slightly lower expected returns than those who were also included in the 2011 survey.

Also note that the change in the expected return from 2011 to 2012 is dependent on the asset allocation. In other words, not all pension funds will see a reduction in their expected return of 10 basis points moving from the composite assumptions in the 2011 survey to those in the 2012 survey.

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Glossary

The following are basic definitions of some of the investment terminology used in this report.

Expected Return

The *expected return* is the amount that the plan actuary expects the plan to earn on its investments over a period of time. Returns are expressed as a percentage of plan assets and are net of investment fees.

Arithmetic vs. Geometric Returns

In very simple terms, an *arithmetic* return has a one-year investment horizon. A *geometric* return is annualized over a multi-year period.

The survey requested arithmetic expected returns from different investment advisors. However, some advisors responded with geometric returns. In those cases, we made appropriate adjustments to convert the returns from geometric to arithmetic.

The exhibits that show different expected returns by asset class (Exhibits 2, 3, 4, 5, 6, and 11) focus on arithmetic returns. The exhibits that show expected annualized returns for a hypothetical asset allocation (Exhibits 8, 9, and 10) focus on annualized geometric returns, which were derived from the arithmetic returns provided for each asset class.

Standard Deviation

The *standard deviation* is a measure of the expected volatility in the returns. Generally, the standard deviation expresses how much returns may vary in any one year. Assuming that returns are “normally distributed,” there is about a 68% probability that the actual return for a given year will fall within one standard deviation (higher or lower) of the expected return. There is about a 95% probability that the actual return will fall within two standard deviations of the expected return.

Correlation

An important aspect of capital market assumptions is the degree to which the returns for two different asset classes move in tandem with one another – this is their *correlation*. For example, if two asset classes are perfectly correlated, their correlation coefficient will be 1.00; in other words, if one asset class has a return of X% in a given market environment, then the other asset class is expected to also have a return of X%. A portfolio becomes better diversified as its asset classes have lower (or even negative) correlations with each other.

Methodology

The following is a high level description of the methodology used in compiling the assumptions provided by the respondents to the survey.

Standardized Asset Classes

Not all investment advisors use the same asset classes when developing their capital market assumptions. Some are very detailed (more asset classes), while others keep things relatively simple (fewer asset classes).

We exercised judgment in classifying respondents' capital market assumptions into a standard set of asset classes. In the event that a respondent did not provide assumptions for a given asset class, the composite assumptions from the other respondents was used.

No Adjustment for Alpha

No adjustment was made to reflect the possibility or expectation of an active investment manager outperforming market returns (earning “alpha”).

Time Horizons

In the 2012 survey, 11 of the 17 respondents provided return assumptions that applied to a time horizon of 10 years or shorter. We included the one respondent that indicated a horizon of 10-15 years in this group. The remaining 6 respondents indicated that their time horizons were at least 20 years.

4 of the 6 respondents with longer horizons provided *both* short-term and long-term assumptions. In those cases, we blended the assumptions to develop expected returns over a 20-year investment horizon.

Normally-Distributed Returns

This survey assumes that investment returns will be normally distributed according to the capital market assumptions provided. The survey also assumes that the investment return in one year does not affect the investment return in the following year.

Equal Weighting

Every respondent was given equal weight in developing the composite assumptions for the 2012 survey, regardless of factors such as the advisor's investment time horizon, number of clients common with Horizon, total assets of client funds, etc.

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APPENDIX

Exhibit 10

The following exhibit evaluates the investment return assumption for a hypothetical multiemployer pension fund. This exhibit reflects the same hypothetical asset allocation as shown in Exhibit 7, and it provides more detail than Exhibit 8.

Asset Class	Weight	Expected Return (Arithmetic)			Conservative Advisor	Survey Composite	Optimistic Advisor
		Minimum	Composite	Maximum			
US Equity - Large Cap	20.0%	7.8%	9.4%	10.7%	1-Year Arithmetic Returns Expected Return 6.96% 7.92% 9.09% Standard Deviation 11.23% 11.04% 10.83% 20-Year Geometric Returns 75th Percentile 8.02% 8.97% 10.14% 67th Percentile 7.41% 8.37% 9.55% 50th Percentile 6.33% 7.31% 8.50% 33rd Percentile 5.25% 6.24% 7.46% 25th Percentile 4.63% 5.64% 6.87% Probability of Exceeding 7.50% 32.0% 46.9% 66.1%	20-Year Annualized (Geometric) Returns 	
US Equity - Small/Mid Cap	10.0%	7.7%	10.5%	12.7%			
Non-US Equity - Developed	7.5%	8.1%	9.9%	11.8%			
Non-US Equity - Emerging	5.0%	9.8%	12.6%	14.8%			
US Fixed Income - Investment	10.0%	2.5%	4.1%	6.7%			
US Fixed Income - High Yield	5.0%	5.7%	7.4%	8.9%			
Non-US Fixed Income - Developed	5.0%	2.6%	3.8%	5.3%			
Non-US Fixed Income - Emerging	2.5%	6.4%	7.2%	10.7%			
Treasuries (Cash Equivalents)	5.0%	1.3%	2.8%	4.0%			
TIPS (Inflation-Protected)	5.0%	2.6%	3.5%	5.1%			
Real Estate	10.0%	6.3%	7.6%	9.1%			
Hedge Funds	5.0%	5.9%	7.3%	11.4%			
Commodities	2.5%	4.8%	7.3%	9.2%			
Infrastructure	2.5%	7.2%	8.3%	9.8%			
Private Equity	5.0%	10.6%	12.9%	15.4%			
Inflation	N/A	2.2%	2.7%	3.3%			
TOTAL PORTFOLIO	100.0%						

Considerations and Limitations

- Target allocations may be approximated if certain asset classes are not included in the survey.
- Capital market assumptions are based on indexed returns and do not reflect anticipated alpha.
- Many investment advisors provided assumptions over a short time horizon (10 years or less).
- For advisors that provided both short term and long-term assumptions, long-term assumptions were generally higher by 100 to 200 basis points for fixed income investments.

SOURCE: Horizon Actuarial survey of 2012 capital market assumptions from 17 independent investment advisors.

Exhibit 11

For reference, the following exhibit provides the composite (average) capital market assumptions for all 17 investment advisors in the 2012 survey. Each of the 17 respondents was given equal weight in determining the composite assumptions.

Horizon Actuarial 2012 Survey of Capital Market Assumptions				Correlation Matrix														
Composite Assumptions																		
Asset Class	[E[R]	StdDev		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 US Equity - Large Cap	9.37%	18.23%	1	1.00	0.86	0.80	0.68	0.19	0.62	0.07	0.51	0.03	0.02	0.33	0.58	0.25	0.55	0.76
2 US Equity - Small/Mid Cap	10.54%	23.01%	2	0.86	1.00	0.71	0.66	0.11	0.59	0.02	0.48	0.00	(0.02)	0.23	0.55	0.23	0.50	0.71
3 Non-US Equity - Developed	9.89%	20.41%	3	0.80	0.71	1.00	0.72	0.13	0.55	0.25	0.45	0.00	0.04	0.29	0.58	0.32	0.55	0.67
4 Non-US Equity - Emerging	12.61%	28.27%	4	0.68	0.66	0.72	1.00	0.05	0.54	0.10	0.59	(0.02)	0.06	0.23	0.58	0.36	0.54	0.59
5 US Fixed Income - Investment	4.13%	5.89%	5	0.19	0.11	0.13	0.05	1.00	0.34	0.49	0.44	0.23	0.65	0.05	0.15	0.06	0.19	0.04
6 US Fixed Income - High Yield	7.37%	12.28%	6	0.62	0.59	0.55	0.54	0.34	1.00	0.16	0.61	(0.00)	0.22	0.22	0.47	0.24	0.52	0.52
7 Non-US Fixed Income - Developed	3.77%	7.28%	7	0.07	0.02	0.25	0.10	0.49	0.16	1.00	0.26	0.12	0.43	(0.04)	0.11	0.13	0.32	(0.01)
8 Non-US Fixed Income - Emerging	7.23%	13.21%	8	0.51	0.48	0.45	0.59	0.44	0.61	0.26	1.00	0.05	0.28	0.05	0.46	0.27	0.42	0.39
9 Treasuries (Cash Equivalents)	2.77%	1.89%	9	0.03	0.00	0.00	(0.02)	0.23	(0.00)	0.12	0.05	1.00	0.16	0.13	0.11	0.04	0.05	0.04
10 TIPS (Inflation-Protected)	3.49%	6.01%	10	0.02	(0.02)	0.04	0.06	0.65	0.22	0.43	0.28	0.16	1.00	0.06	0.15	0.28	0.22	(0.04)
11 Real Estate	7.56%	11.73%	11	0.33	0.23	0.29	0.23	0.05	0.22	(0.04)	0.05	0.13	0.06	1.00	0.23	0.26	0.35	0.38
12 Hedge Funds	7.25%	9.00%	12	0.58	0.55	0.58	0.58	0.15	0.47	0.11	0.46	0.11	0.15	0.23	1.00	0.37	0.48	0.52
13 Commodities	7.29%	18.72%	13	0.25	0.23	0.32	0.36	0.06	0.24	0.13	0.27	0.04	0.28	0.26	0.37	1.00	0.37	0.26
14 Infrastructure	8.29%	13.78%	14	0.55	0.50	0.55	0.54	0.19	0.52	0.32	0.42	0.05	0.22	0.35	0.48	0.37	1.00	0.50
15 Private Equity	12.90%	25.14%	15	0.76	0.71	0.67	0.59	0.04	0.52	(0.01)	0.39	0.04	(0.04)	0.38	0.52	0.26	0.50	1.00

SOURCE: Horizon Actuarial survey of 2012 capital market assumptions from 17 independent investment advisors.