

Wilshire Consulting

2010 Asset Allocation Return and Risk Assumptions

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Introduction

This report is Wilshire Consulting's annual study on asset allocation for institutional portfolios. The return and risk assumptions contained within the report should be used for asset-liability and asset allocation studies conducted in 2010. Unless otherwise noted, all return assumptions represent median geometric returns based on a log-normal distribution.

The asset allocation process is comprised of four steps. The initial step requires forecasting return, risk and correlation for all asset classes. The second step is client specific and involves a review of a fund's unique financial commitments. Next, using inputs from the first two steps, an efficient frontier of diversified portfolios is constructed. The portfolios residing on this frontier are specific to each client's commitments, or spending objectives, and represent varying tradeoffs between expected risk and funding cost or expected risk and real return. The final step is to select an asset mix from the efficient frontier that matches the institution's attitude toward risk. The research presented here aids in completing the first step of the asset allocation process. Wilshire Consulting works with funds individually to complete the remaining steps and to select the optimal portfolio that best reflects the risk tolerance and environment for that institution.

Expected Future Returns

At the beginning of each year, Wilshire reviews its long-term return and risk assumptions for the major asset classes. We define "long-term" as forecasts that span at least the next ten years. This extended time horizon is consistent with the benefit/spending obligations of institutional investors, which generally average at least ten years. Wilshire's forecasting methodology, which will be illustrated in exhibits throughout the paper, has shown a strong degree of accuracy over intervals of ten or more years and is superior to short-term estimates that are notoriously error prone. As a result of this long-term forecasting horizon, Wilshire's assumptions typically experience only a moderate level of change from year to year. However, during volatile or transformative market environments, such as those experienced over the past two-plus years, one can expect more significant forecasting adjustments.

As we discussed in last year's report, the dislocated and fear-driven markets that existed during late-2008 and early-2009 presented great challenges to the formulation of long-term asset class assumptions. As such, even those models that had proven track records of success were further scrutinized to ensure their assumptions regarding market "normality" were robust in a period of distressed pricing. To accommodate this environment, we overlaid an increased level of judgment, or "art," to enhance the pure quantitative signals, or "science," produced by our models. In retrospect, we believe our clients were well served by the qualitative adjustments imposed on our models and, while we anticipate a diminishing importance of model overrides in current and future markets, we will continue the practice of imposing additional qualitative judgment on model



results. In that pursuit, we continue to recognize the importance of transparency in our forecasting process, particularly as it relates to model inputs, and remain committed to maintaining that spirit of disclosure by qualitatively detailing our thinking in areas of departure from our traditional models.

The early part of 2009 saw a continuation to the selloff in risk-based investments, such as stocks, real estate and high yield bonds. The environment began to shift in mid-March as bargain-hunters, buoyed by government policies enacted to help support credit markets, began to buy up stocks, high yield bonds and real estate shares. Though it is contrary to Wilshire's normal practice of publishing asset assumptions on only an annual basis, we believed that the 2009 market activity through June warranted a mid-year evaluation of investment opportunities. The return forecasts presented in our 2009 mid-year report reflected a drop in the size of the expected premium for risk-based investments, most notably stocks and high yield bonds, versus lower risk investments such as core bonds and Treasuries. The sustained rally in risk-based assets through the end of 2009 leads to a continuation of the trend of falling risk premium expectations.

Several notable areas of change from both our 2009 annual and mid-year assumptions are inflation, stocks and high yield bonds. Our current inflation forecast is 2.50%, which is 100 basis points and 75 basis points higher, respectively, than our 1.50% 2009 and 1.75% mid-year 2009 forecasts. As we discuss in the inflation section beginning on page 4, our inflation forecast is once again consistent with what is suggested by the TIPS breakeven-inflation rate; a relationship that was broken within last year's dislocated pricing environment. In last year's report we introduced an alternate Income-Growth-Valuation (IGV) equity model to serve as an additional signal to enhance the information from our three-stage dividend-discount model (DDM). While neither the 2009 nor mid-year 2009 assumptions for stocks were ultimately affected by the new model, our current U.S. Stocks forecast of 7.50% reflects a 25 basis point discount to what is suggested by our DDM forecast and represents 1.00% and 0.50% reductions from our 2009 and mid-year 2009 equity assumptions; 8.50% and 8.00%, respectively. Finally, despite a significant reduction in our embedded default rate input assumption for non-investment grade bonds, their dramatic run up in pricing (and corresponding drop in spreads) results in a significant reduction in Wilshire's 2010 High Yield forecast of 6.00%: down 75 basis points from our 6.75% mid-year forecast and a dramatic 250 basis points from our 8.50% forecast a year ago.

Long-term return forecasts play an important role in the institutional investment process. Actuarial interest rate assumptions, which are essentially portfolio return forecasts, are intensively scrutinized because of their potential impact on plan contributions. Wilshire has been forecasting asset class returns using forward looking assumptions since 1981 with a strong record of success for ten-year periods. We believe the methods used in this report are intuitive, robust and, as the recent environment has demonstrated, provide sufficient flexibility to adapt to a rapidly changing landscape. Exhibit 1 presents Wilshire's 2010 return forecasts and contrasts them with our 2009 mid-year assumptions; while Exhibit 2 displays our 2010 projections in graphical form.

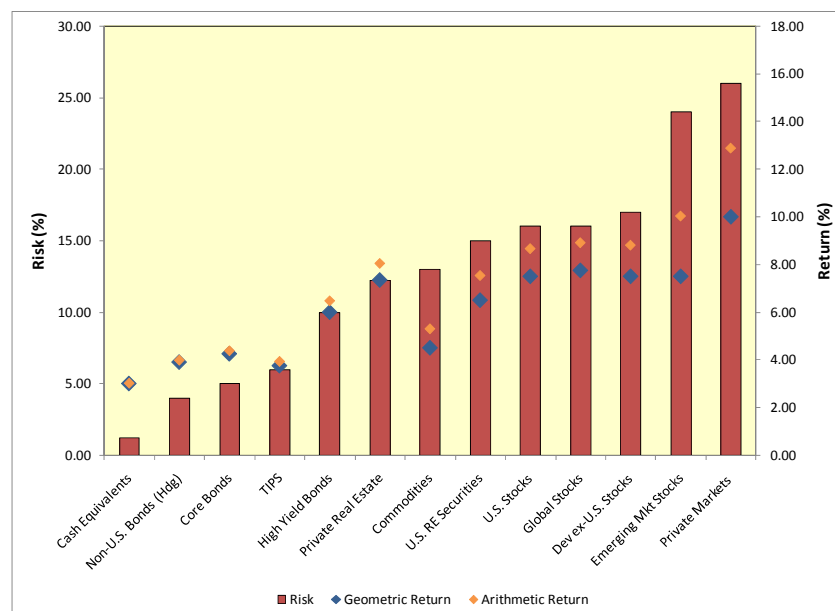


Exhibit 1 Wilshire's Expected Return and Risk Assumptions

	Total Return			Risk		
	MY 2009	2010	Change	MY 2009	2010	Change
Investment Categories:						
U.S. Stocks	8.00 %	7.50 %	-0.50 %	16.00 %	16.00 %	0.00 %
Dev ex-U.S. Stocks	8.00	7.50	-0.50	17.00	17.00	0.00
Emerging Mkt Stocks	8.00	7.50	-0.50	24.00	24.00	0.00
Global Stocks	8.20	7.75	-0.45	16.00	16.00	0.00
Private Markets	11.15	10.00	-1.15	26.00	26.00	0.00
Cash Equivalents						
Cash Equivalents	2.25	3.00	0.75	1.25	1.25	0.00
Core Bonds						
Core Bonds	4.25	4.25	0.00	5.00	5.00	0.00
TIPS						
TIPS	3.50	3.75	0.25	6.00	6.00	0.00
High Yield Bonds						
High Yield Bonds	6.75	6.00	-0.75	10.00	10.00	0.00
Non-U.S. Bonds (Hdg)						
Non-U.S. Bonds (Hdg)	3.90	3.90	0.00	4.00	4.00	0.00
U.S. RE Securities						
U.S. RE Securities	7.25	6.50	-0.75	15.00	15.00	0.00
Private Real Estate						
Private Real Estate	7.90	7.35	-0.55	12.25	12.25	0.00
Commodities						
Commodities	3.75	4.50	0.75	13.00	13.00	0.00
Real Asset Basket *						
Real Asset Basket *	6.65	6.75	0.10	7.50	7.50	0.00
Inflation:						
Inflation:	1.75	2.50	0.75	1.75	1.75	0.00
Total Returns minus Inflation:						
U.S. Stocks	6.25	5.00	-1.25			
U.S. Bonds	2.50	1.75	-0.75			
Cash Equivalents	0.50	0.50	0.00			
Stocks minus Bonds:						
Stocks minus Bonds:	3.75	3.25	-0.50			
Bonds minus Cash:						
Bonds minus Cash:	2.00	1.25	-0.75			

* The 2009 MY return/risk uses 2009 MY forecasts with 2010 real asset sub-asset class component weights

Exhibit 2 2010 Return and Risk Assumptions





These return forecasts are more fully explained in subsequent sections dedicated to each asset class.

Historical Returns

A key check on the reasonableness of Wilshire's assumptions is their relationship to historical returns. Exhibit 3 contrasts Wilshire's return assumptions with historical returns over various periods of time and market scenarios.

Exhibit 3
Historical Returns¹ vs. Wilshire Forward-Looking Assumptions

	Historical Returns (%)					Wilshire Forecast (%)
	1802-2009 *	1926-2009	High Inflation 1970-1979	Bull Market 1980-1999	"Lost Decade" 2000-2009	
Total Returns:						
Stocks	8.0	9.8	5.9	17.8	-1.0	7.5
Bonds	4.9	5.7	7.2	10.0	6.3	4.3
T-bills	4.2	3.8	6.4	7.2	3.0	3.0
Inflation:	1.4	3.0	7.4	4.0	2.5	2.5
Returns minus Inflation:						
Stocks	6.6	6.8	-1.5	13.8	-3.5	5.0
Bonds	3.5	2.7	-0.2	6.0	3.8	1.8
T-bills	2.8	0.7	-1.0	3.1	0.5	0.5
Stocks minus Bonds:	3.1	4.1	-1.3	7.8	-7.3	3.3

* Jeremy Siegel returns from 1802-2001 ("Stocks for the Long Run" McGraw-Hill 2002) updated with S&P 500 Index and Barclays Capital Aggregate Index

There are several notable relationships, in both absolute and relative terms.

- Wilshire's stock and bond return forecasts, 7.5% and 4.3%, respectively, are slightly below the actual returns achieved during the 208-year period ending 2009.
- Since our current inflation estimate of 2.5% is 1.1% above the long-run historical inflation rate of 1.4%, Wilshire's return estimates relative to inflation are notably lower than the historical spreads above inflation – 5.0% and 1.8%, respectively, for our stock and bond estimates versus historical spreads of 6.6% and 3.5%.
- Wilshire's return forecast for stocks relative to bonds of 3.3% is marginally higher than the 208-year historical spread of 3.1%.

The remainder of the report explains the methodologies behind Wilshire's return forecasts.

Inflation

Wilshire's long-term inflation forecast is 2.50%, which is up 1.00% from a year ago and 0.75% from June, 2009. In recent years it has been Wilshire's practice to derive its

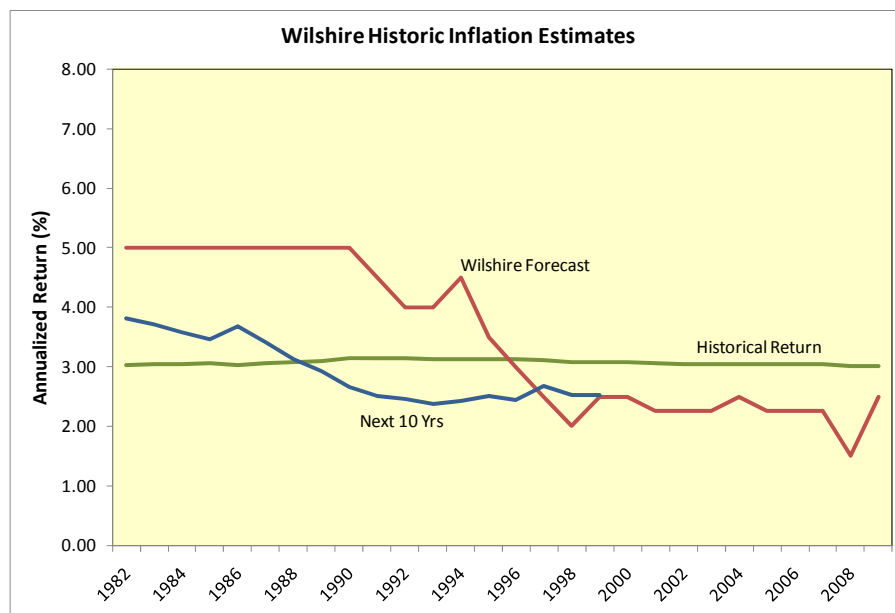
¹ Source of historical returns presented throughout this report is Wilshire Compass unless otherwise noted.



inflation forecast by observing the market's breakeven inflation – the spread between the yield on a 10-year Treasury and the real yield on a similar maturity Treasury Inflation Protected Security (TIPS). At the end of last year, this signal was severely distorted due to large liquidity premiums affecting all securities relative to nominal Treasuries. However, Wilshire believes that TIPS pricing has normalized during 2009 and we are once again considering the market's implied estimate of future inflation as a reliable forecasting signal.

The current inflation forecast is based on data as of December 31, 2009. The ten-year Treasury yield at year-end was 3.84% while the yield on the ten-year TIPS was 1.44%. The 2.40% difference in yields is the bond market's estimate for inflation for the next ten years, or the ten-year breakeven inflation rate. Wilshire's practice is to select a return forecast rounded to the nearest 0.25%. Consequently, we round the 2.40% breakeven inflation rate to arrive at our current inflation rate forecast of 2.50%. Exhibit 4 provides a summary of Wilshire's historical inflation forecast and the actual result for the following ten-year period.²

Exhibit 4
Wilshire's Inflation Forecast and Historical CPI 1982-2009



Equity

U.S. Stocks

The U.S. stock market shook off a rough start to the year to register its best return since

² It is worth noting that TIPS are relatively new and are only recently producing a ten-year track record, therefore their accuracy in forecasting future inflation is now only beginning to be measured.



2003. The Wilshire 5000 Total Market IndexSM and S&P 500 indexes closed the year with total returns of 28.30% and 26.46%, respectively, which provided some relief to battered equity investors. From its October 9, 2007 high to its low on March, 9 2009, the Wilshire 5000 declined -55.40%, before rallying 69.92% from March 9th through December 31st to end the year off -24.21% from its October 9, 2007 high.

The stock market's directional swings over the past two years contribute to the challenge of deriving long-term forecasts. Wilshire employs a dividend-discount model ("DDM") as our main driver to forecast long-term U.S. stock returns. Our current expected return for stocks incorporates the following DDM assumptions:

- A year-end 2009 S&P 500 Index price of 1,115, up 23.5% from 903 a year earlier;
- A base earnings level of \$51.8 per share;
- Earnings-per-share growth of 6.75% during the next five years, dropping incrementally to 5.0% from years six through 15;
- A 45% dividend payout ratio.

Wilshire's current DDM forecast, which builds from the inputs listed above, points to a 7.75% long-term stock assumption (we round the DDM's 7.74% output to the nearest quarter-percent). With several exceptions, our DDM forecast has been a very good predictor of the market's return over the following ten-year period. Wilshire's DDM forecasts in the late 1980s and early 1990s underestimated subsequent performance, as actual ten-year returns that began in those years include the technology bubble of the late 1990s. Experiencing forecast errors in such periods is not surprising, as the inflating of a market bubble is not something we would expect our methodology to predict. However, as we discussed a year ago, the most recent rolling ten-year intervals have also proven to be a tremendously challenging period to forecast accurately. While the DDM was signaling lower returns, it was unable to fully anticipate the negative equity environment that transpired. Correctly projecting an outlier long-term stock return, such as any negative ten-year return, is daunting. For perspective, the ten years through 2008 and 2009 have delivered two of only four such periods with negative stock returns out of 75 ten-year observations since the early 1930s (see the ten-year return histogram in Appendix F).

As we introduced in last year's report, we have incorporated an alternate Income-Growth-Valuation (IGV) model to serve as an additional signal to supplement the results of Wilshire's DDM. Wilshire believes that the IGV model may offer valuable market insights during market regimes that present a significant challenge to a DDM framework. For example, in the three most recent 10-year periods of rolling returns, where the DDM failed to anticipate the depth of the negative equity environment, Wilshire's IGV model correctly forecasted a negative ten-year return, although to a greater degree than what was realized. Recent results reveal the potential value of this signal, particularly during periods of large valuation change.

The IGV model utilizes the market's current dividend yield for Income, an historical dividend growth rate for Growth and assumes a market price in ten years that leads to the



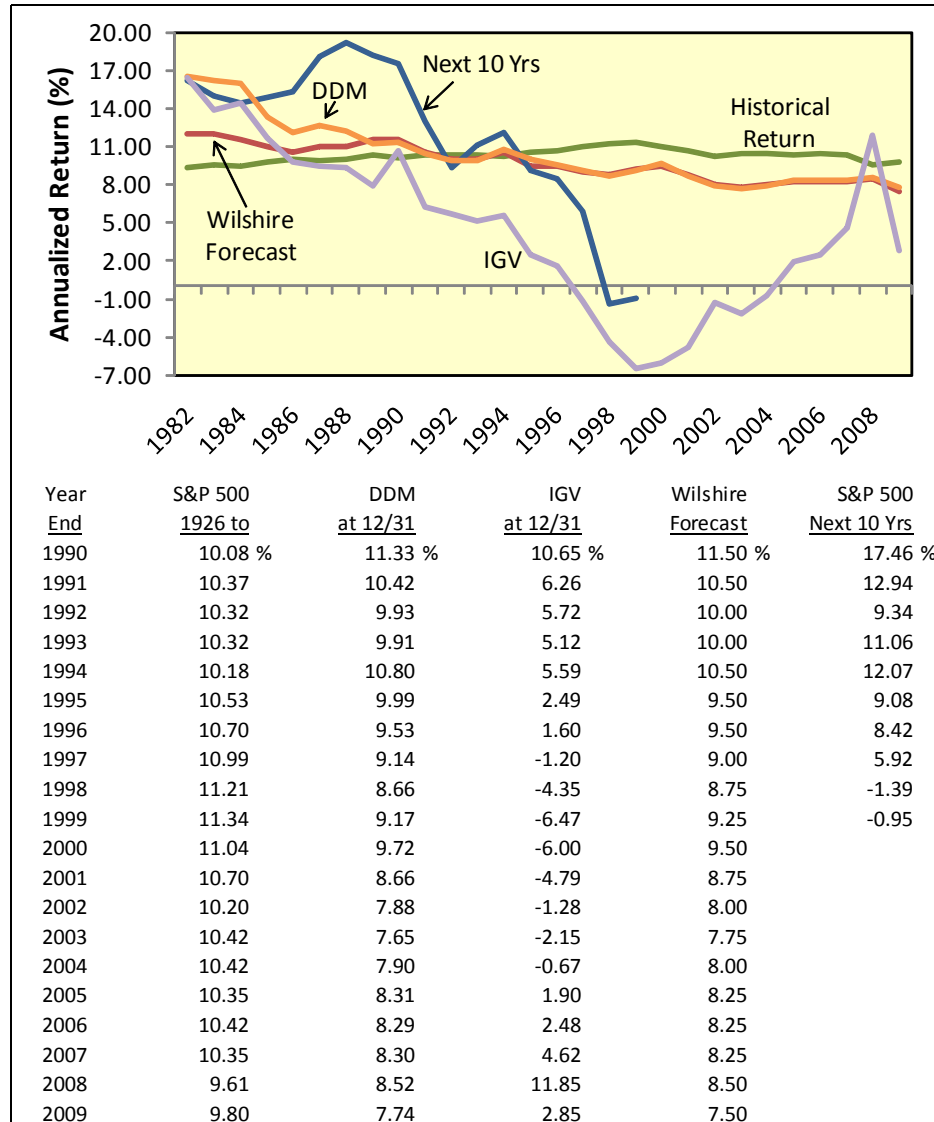
historical average dividend yield. The model is attractive for a variety of reasons: it avoids the necessity of making any heroic assumptions as it relies solely on past relationships, its dependence on limited and readily available data facilitates long historical evaluation periods and, most importantly, its forecasting signal seems accurate over many market environments and cycles. Of course some of its strengths, such as utilizing only historical data, can be viewed as a weakness in not being able to foresee systemic shifts in market fundamentals. While the inputs could be questioned for their historical bias, they are complimentary when combined with our DDM approach, which uses forward-looking estimates of earnings and dividends. Using the two models together with their complimentary inputs gives us greater confidence in our forecasts, especially when the two signals correspond.

Our 2010 U.S. Stock assumption is 7.50% and reflects the DDM's forecasted return of 7.75% but with a 0.25% deduction due to the much lower 2.85% IGV signal. Despite introducing the IGV approach during last year's report, this year's estimate is the first to utilize the IGV signal to adjust the result of our dividend-discount model. We limit the impact of the IGV model to prevent the volatility of its result from dominating the DDM estimate; one that we've trusted with relative success for many years. Wilshire currently believes that the 0.25% deduction is prudent given the model's volatility and the fact that, even though the IGV model has been quite impressive over the past few rolling ten-year periods, it has overstated the market's actual downturn by hundreds of basis points.

Exhibit 5 details the history of Wilshire's stock return forecasts together with the dividend-discount and IGV models' return forecasts, historical returns, and the rolling returns for the ten-year period following each estimate.



Exhibit 5
Wilshire Stock Return Forecast vs. DDM Return, IGV Return,
Historical Return & Actual 10-Year Return Following Forecast



Developed ex-U.S. Market Stocks

Wilshire uses the same 7.50% expected return for stocks of non-U.S. developed markets as it does for U.S. stocks. While this view has gained wider acceptance in recent years, some institutional investors and their money managers assume that the non-U.S. developed stock market will generate somewhat higher returns than U.S. stocks. As demonstrated in Exhibit 6, the historical record does not support a non-U.S. return premium.



Exhibit 6 Historical Returns: 1970 – 2009

	U.S. Dollar		Local Currency	
	Return	Risk	Return	Risk
S&P 500 Index	9.8 %	15.6 %	9.8 %	15.6 %
MSCI EAFE Index	9.5	17.1	7.6	14.7
Europe	9.9	17.3	9.2	15.5
Pacific	9.4	20.6	6.6	17.3

Reliable returns for non-U.S. stocks are available beginning in 1970. Since that time U.S. stocks, as represented by the S&P 500 Index, have returned 9.8% per year, versus 9.5% for developed market non-U.S. stocks as measured by Morgan Stanley Capital International's ("MSCI") EAFE Index in U.S. dollars. Given this long-term performance record, similar risk levels, and common financial attitudes toward risk-taking, it would seem reasonable to forecast similar long-term returns for the U.S. and non-U.S. developed stock markets. In fact, evidence might suggest slightly lower expected returns on international stocks due to higher costs (transaction costs, taxes and dividend withholding) of investing outside U.S. markets.

Exhibit 7 includes the period from mid-1985 through most of 1995 during which the MSCI EAFE Index outperformed the S&P 500 Index due to the then robust Japanese market. However, the subsequent 11-plus years of out-performance by U.S. stocks versus non-U.S. stocks supports our assumption that the economic theories of Purchasing Power Parity ("PPP") and Interest Rate Parity ("IRP") prevail over long time periods and justify the selection of a single return assumption for both asset classes.

Exhibit 7 Rolling 10-Year Return Relative to S&P 500 Index



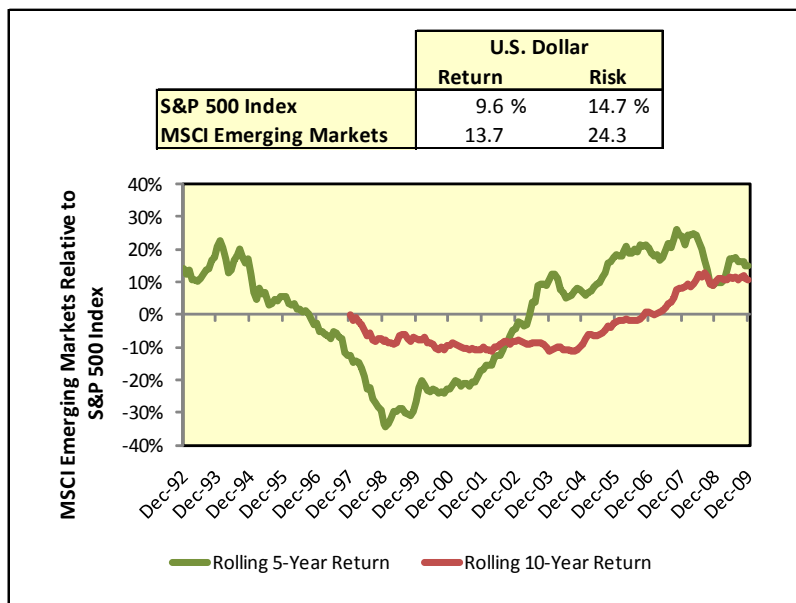


Lacking concrete evidence to support a non-U.S. equity return premium, Wilshire forecasts a 7.50% return for non-U.S. developed stocks; the same as for U.S. stocks.

Emerging Market Stocks

Wilshire believes that the arguments for a consistent return expectation from U.S. to developed markets stocks apply to emerging markets. Some investors have long supported the view that emerging market stocks should produce returns above those of developed markets given their far higher growth projections in terms of GDP. While growth rates can be in the high single digits, they are also far more volatile than in developed markets – and emerging markets equity returns follow that risk profile. It is important to understand that the historical record on emerging market performance is limited and shows mixed results. Poor returns in the late 1990s have reversed course during the past decade, although to a lesser degree. The rolling 5-year relative return line in Exhibit 8 reveals this so far cyclical pattern while the rolling 10-year relative return line demonstrates the questionability of anticipating a sustainable return premium for emerging stocks over the long-term. These results give us little confidence in predicting a return premium to emerging markets above our return forecast for the developed stock markets.

Exhibit 8
Emerging Market Returns: 1988 – 2009



Despite a level of return equal to that of the developed equity markets, Wilshire's research shows that efficient portfolios include a meaningful allocation to the emerging markets, consistent with a market-weighting. For example, an efficient frontier constructed from Wilshire's underlying assumptions for U.S., non-U.S. developed market and emerging market stocks suggests an allocation of approximately 13.5% to emerging



markets at a 16% risk level, which is the expected risk level of global stocks. This allocation is slightly above the emerging markets' 12.75% weight within the global opportunity set, reflecting a relative attraction to emerging market stocks despite their elevated risk level. We believe this provides strong support for our outlook of return parity between the developed and emerging markets.

Global and Global ex-U.S. Market Stocks

Despite creating separate forecasts for the developed and emerging markets as discussed above, Wilshire's asset allocation work – unless otherwise directed by client circumstances – will implicitly assume a market weighted combination of our non-U.S. developed and emerging market components in a single non-U.S. equity asset class. The emerging markets component will be market-weighted, which, as of 2009 end-of-year market values, represents approximately 22% of total non-U.S. equity. This approach is consistent with Wilshire's treatment of the U.S. stock market where large stocks are not separated from small stocks and value stocks are not separated from growth stocks in the asset allocation process. Wilshire believes that emerging markets have become sufficiently integrated into the fabric of institutional money management that market capitalization weighting will give most investors a near optimal return/risk tradeoff.

In this framework, emerging stock markets become a risk management or diversification vehicle rather than an asset class that is expected to generate outsized long-term returns. Some institutions may prefer to treat emerging markets as a separate asset class. Such an approach is easily accommodated and is well supported by our practice of deriving separate assumptions for the developed and emerging markets. A market-weighted blend of our developed ex-U.S. and emerging market stock forecasts leads to a combined global ex-U.S. equity return of 7.75%, or a 25 basis-point premium to each of the underlying components, which is due to the complementary nature of combining diversifying sub-asset classes.

Wilshire can build the process up one step further for clients that view the entire global equity market as a single asset class; thus completely eliminating any home-country equity bias within their portfolios. Within this context, we construct the global market-weighted portfolio with allocations of 42% to U.S. stocks and 58% to the Global ex-U.S. market, resulting in a 7.75% return forecast at 16% estimated risk.

Fixed Income

U.S. Treasury Bonds: Market and Long Term

Wilshire's return assumption for Treasuries has historically been derived from the yield-to-maturity on the Barclays Capital (formerly Lehman Brothers) Treasury indexes with no assumed permanent change in interest rates. However, last year's deviation in forecasting inflation naturally lead us to re-model our Treasury assumptions – and those for each fixed income market segment. While our inflation assumption is based on



market signals for 2010, we will maintain last year's added scrutiny of the fixed income market rather than naively extrapolating current real yield levels into the future.

It is well accepted that the economy's inflationary environment will affect the Federal Reserve's rate decisions to some degree. While the consensus expectation for inflation has increased throughout 2009, the short end of the yield curve has not moved higher in concert with the long end. Wilshire is assuming that the market will further "normalize" at some point during the next ten years and that the yield on the Treasury Index will reach a 2.25% historical spread above inflation, or 4.75% based on our inflation assumption. Rising rates will affect a current investment in Treasuries in two ways: 1) the principal value will decline as rates rise and 2) the reinvestment rate will increase at the same time. Based on the December 31, 2009 yield-to-maturity of 2.46% of the Barclays Treasury Index and its duration, Wilshire's model indicates that the improving reinvestment rate during the next ten years will provide a boost to the Treasury Index. A simulated investment in Treasuries under this environment would yield a return of 3.00%, which serves as our 2010 return forecast. The same model applied to the Long Term Treasury Index reveals that a rising rate environment would be a detriment to long term bonds as the decreasing principal value is too great for the higher reinvestment rate to compensate. Based on the Barclay's Long Term Treasury Index year end yield-to-maturity of 4.45% and its duration, a simulated investment would return 4.25%, which is our 2010 assumption.

U.S. Bonds

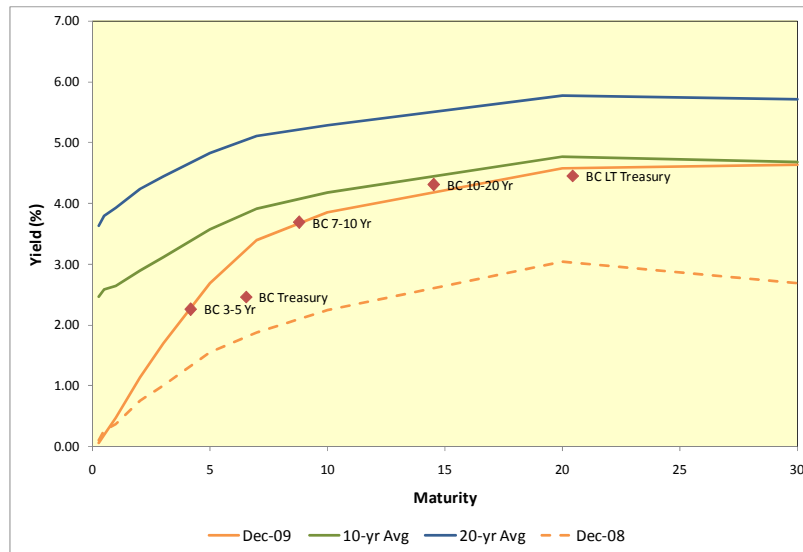
The core bond market as represented by the Barclays Aggregate Bond Index and is comprised of four major segments: Treasuries, Government-related, Corporate and Securitized. As introduced in the previous section, we have modeled each segment based on an environment of rising Treasury rates but also normalizing spreads versus a historical average. Unlike last year, however, current spreads are relatively close to where they have been historically. Simulated investments showed that, besides the improving Treasury bond environment, the other three market segments would also receive a boost in return. Again, the shorter end of the yield curve did not experience similar increases during 2009 as did the long end so that a market-duration core bond index would benefit to a greater degree as the yield curve normalizes. Our model suggests that the net effect is an overall boost in return for the core market with an expected return of 4.25% versus the Index's yield-to-maturity of 3.68% on December 31, 2009.

As has been discussed, the U.S. yield curve moved rather dramatically during 2009 in terms of level and shape. Long-term yields move towards the past 10-years average but the short end of the curve remained pinned down near zero for 3-month yields, thereby producing a very steep curve. Exhibit 9 illustrates the yield curve shift and compares the current curve to the historical 10 and 20-year averages. Current yields are still relatively low across the term structure with wide spreads between maturities. The current spread between the ten- and two-year yields is 2.71 versus 1.29 for the ten-year average and 1.05



for 20-years. The spread between the 30 and ten-year yield is 0.78 versus 0.50 and 0.42 for the ten- and 20-year averages, respectively. As will be explained in the discussion of U.S. TIPS, the Barclays 7-10 Year Treasury Index shown in Exhibit 9 provides the supporting data for our TIPS forecast.

Exhibit 9 Historical Treasury Yield Curves

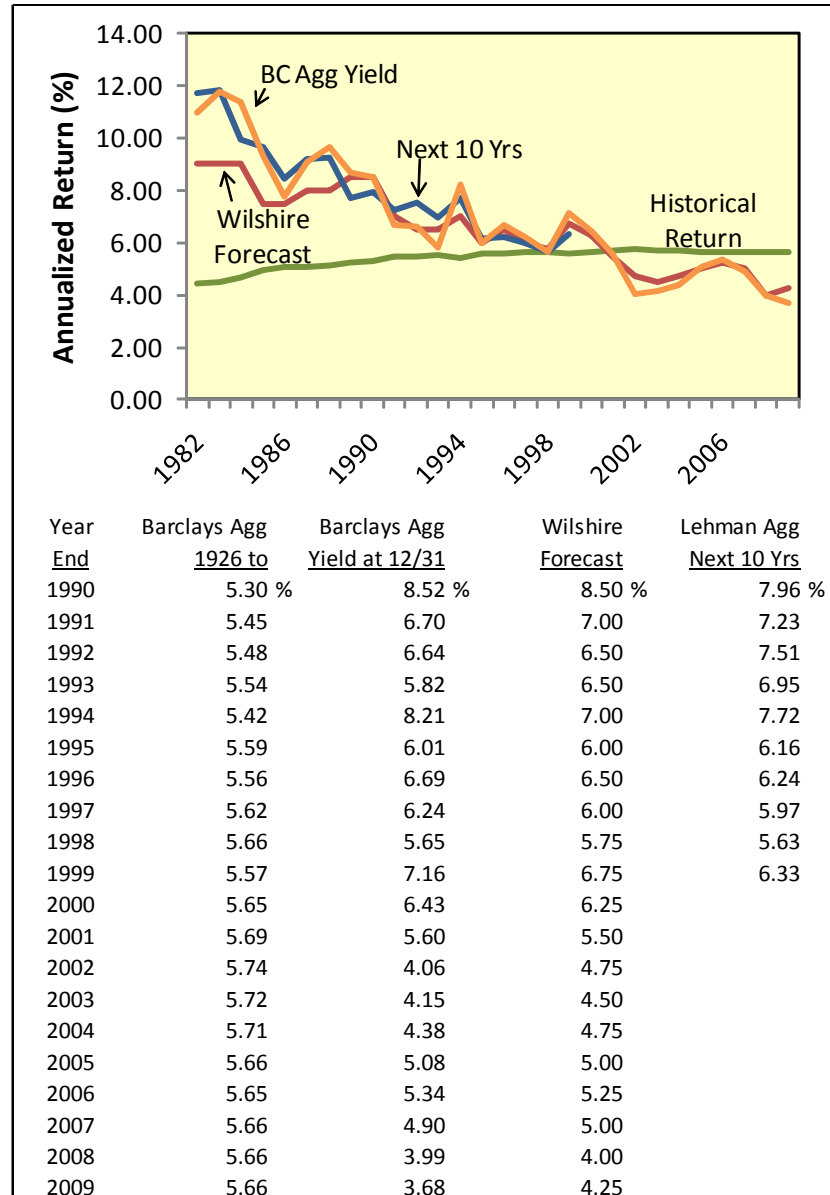


Source: Barclays Capital, U.S. Department of Treasury

Exhibit 10 below compares Wilshire's past bond return assumptions with historical returns, yields and the rolling returns for the ten year period following each forecast. The accuracy of Wilshire's forecast methodology of future long-term returns is confirmed by the tight relationship between the forecast line and the rolling ten-year historical return line depicted below.



Exhibit 10
Wilshire Bond Return Forecast vs.
Current Yield, Historical Return, & Actual 10-Year Return Following Forecast



Cash Equivalents

Wilshire blends two methodologies in forecasting returns for cash equivalents: a “Yield Curve Approach” and an “Inflation-plus Approach.”

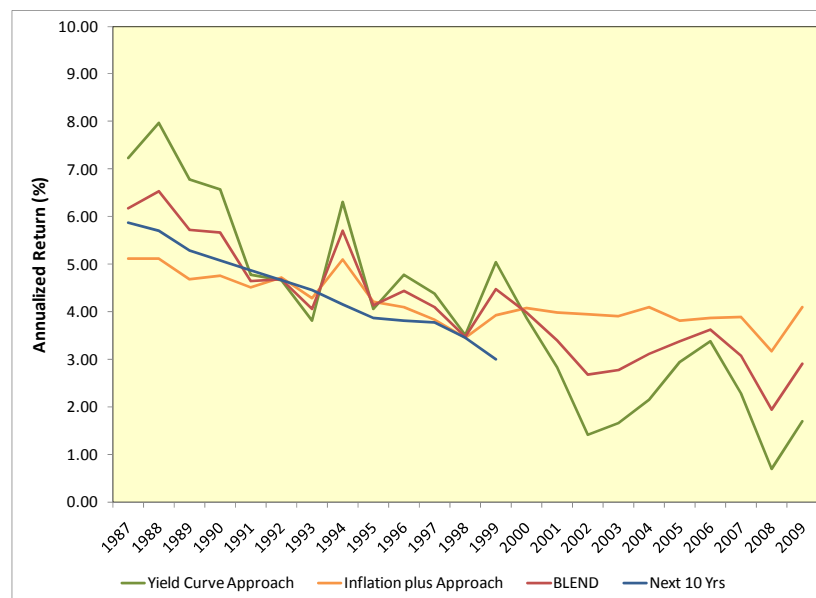
The yield curve approach starts with the yield-to-maturity on Treasury bonds and subtracts the average yield premium between short and long bond yields. For 2010, we will be using our modeled Treasury assumption described above instead of the market



yield. A 20-year average is used and allows for changes in market conditions while avoiding undesirable swings in the assumed premium. As of December 31, 2009, the 20-year yield curve premium averaged 1.39%, resulting in a 1.71% cash return forecast. Alternatively, the inflation-plus approach adds a short-term real return component to our inflation rate forecast. During the past half-century, real returns for Treasury bills have averaged 1.59% that, when added to our inflation rate assumption, equals a 4.09% cash return forecast. An equal blend of the two approaches, rounded to the nearest 0.25%, leads to a 3.00% cash return forecast.

Exhibit 11 compares Wilshire's yield curve approach, inflation-plus approach and a 50/50 blend of the two approaches with the Treasury bill return for the rolling ten-year period following each estimate. Focusing on the red line depicting a 50/50 blend of the two approaches and the blue line depicting the Treasury bill rolling ten-year return, it appears that the 50/50 blend serves as a relatively accurate forecast of cash equivalents for the forward ten-year period.

Exhibit 11
Wilshire's Cash Equivalents Forecast vs. Actual 10-Year Return



Source: Wilshire Compass, U.S. Department of Treasury

Non-U.S. Bonds

Investment theory suggests that non-U.S. bond yields will be equivalent to core U.S. bond yields when currency adjustments are taken into account. This would imply using the same 4.25% core U.S. bond return forecast for non-U.S. bonds. Our experience, however, shows that custodial costs, taxes, transaction fees and a higher credit quality versus the U.S. bond market, due to the large proportion of government debt in non-U.S. bond indexes, reduce the non-U.S. bonds return by 25 basis points. Thus, our



methodology results in a 4.00% expected return for non-U.S. bonds. Exhibit 12 compares historical core U.S. bond return and risk values³ with hedged and unhedged values of the Citigroup Non-U.S. Government Bond Index.

Exhibit 12
U.S. vs. Non-U.S. Bond Returns (1985 through 2009)

	U.S. Dollar		Local Currency	
	Return	Risk	Return	Risk
Core U.S. Bonds	8.1%	4.7%	8.1%	4.7%
Citigroup Non-U.S. Govt.	9.7%	11.6%	7.3%	4.1%

Unhedged non-U.S. bonds offered better returns over the 25-year period due to a net fall in the dollar, in aggregate, for the entire time period. Hedged non-U.S. bond returns take out expected and unexpected currency movements and have exhibited returns 80 basis points below core U.S. bonds at less risk. A long-term forecast for non-U.S. bonds should not include a currency return, positive or negative, and should rely upon historical hedged returns. Risk forecasts, however, should come from the experience of the unhedged indexes unless a hedged strategy is employed.

In summary, Wilshire is using a 4.00% expected return for unhedged non-U.S. bonds and a 3.90% expected return for hedged non-U.S. bonds, with a ten basis point deduction in return due to expected additional hedging costs.

Treasury Inflation Protected Securities (TIPS)

Wilshire typically recommends using an expected return for Treasury Inflation Protected Securities (TIPS) equal to the expected return for nominal Treasury bonds of similar maturity. As with other fixed income asset classes, we have modeled the Treasury segment closest in maturity to TIPS including our forecast for the interest rate environment during the next ten years. However, our modeled assumption is nearly identical to the current yield on the Treasury index. The results are not surprising as the average maturity for U.S. TIPS is significantly longer than the broad Treasury market and, as was evident in Exhibit 9, longer-term yields rose to a greater degree than short-term in 2009. The average maturity for the Barclays U.S. TIPS Index was 8.8 years on December 31, 2009. The index with the closest average maturity is the U.S. Treasury 7-10 Year Index, also at 8.8 years. The modeled return assumption for this index is 3.84%, resulting in a U.S. TIPS assumption rounded to 3.75%. The assumption is slightly higher than the 3.69% yield-to-maturity of the Treasury 7-10 Year Index.

³ Wilshire uses the Barclays Aggregate U.S. Bond Index as the principal benchmark for U.S. Core Bonds.



Long-Term Bonds

Beginning in 2009, Wilshire's return assumption for long-term bonds was derived from the yield-to-maturity on the Barclays Long Term Government/Credit Index. Previously, we had utilized the Citigroup Large Pension Fund (LPF) Index. Both indexes are comprised of government and credit securities with relatively long term maturities. The Barclays index consists of Treasuries, government-related and corporate securities with a minimum maturity of ten years. Like with the core bond market, we modeled the various sectors within the index due to our custom return forecast for long-term Treasuries. In all three segments of the long term index, the rising rate environment is expected to provide a slight drag on returns. Our return forecast for long-term bonds is 5.25% versus the yield-to-maturity of 5.46% on the Barclays index as of December 31, 2009. While the assumption is greater than our long-term Treasury assumption of 2.50%, the difference is due to the inclusion of spread products in the long core index.

High Yield Bonds and Emerging Market Debt

Wilshire's return forecast for high yield bonds is 6.00%. This forecast represents a 0.75% and 2.50% decrease from our mid-year and year-end 2009 forecasts, respectively. The large decrease in expected return is the direct result of a dramatic decrease in high yield spreads from 18% at the beginning of 2009 to 10% mid-year and finally 6.6% at year-end. This return forecast is based upon our high yield bond model that accounts for the dynamic nature of credit yield spreads, defaults and recoveries.

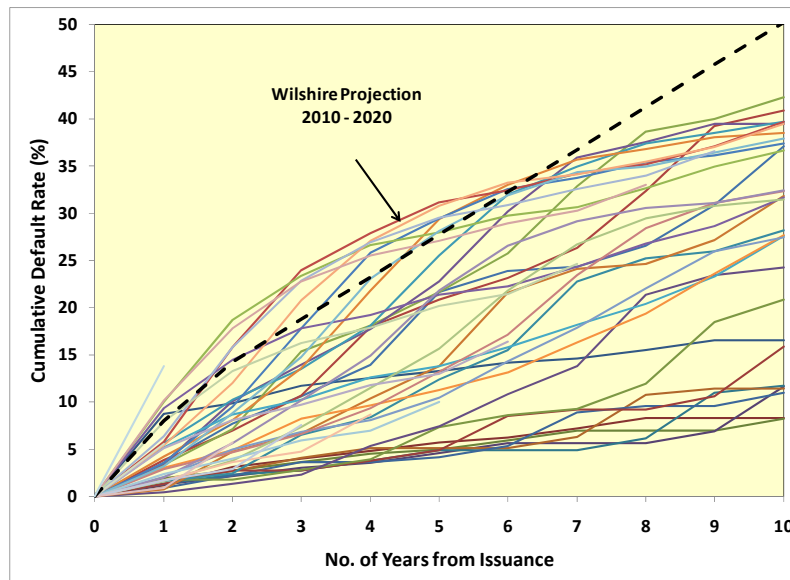
Wilshire's 6.00% high yield expected return incorporates the following assumptions:

- An initial yield spread of 6.6%, down from 18.0% one year prior;
- An initial default rate of 8.0%, decreasing incrementally over a three-year explicit period to an historical 4.5% long-run average;
- A ten-year cumulative annual default rate of 50.3%;
- An initial recovery rate of 30%, increasing incrementally over a three-year explicit period to a historical 40% long-run average;
- A ten-year cumulative annual loss rate – defaults minus recoveries – equal to 31.3% versus 39.4% last year.

Wilshire's high yield bond model incorporates the ability to input variable default rates. In Exhibit 13 we graph Wilshire's expected future default rates against all historical cumulative default rates from 1970 through 2008. Each line represents the historical cumulative default rates for high yield bonds issued in a single vintage year. The black dotted line is Wilshire's forward-looking default rate that is used in our expected return model for high yield bonds. Wilshire's default forecast line represents default expectations for a market portfolio holding bonds issued across various years. While it differs in nature from the vintage year default lines, which represent cumulative default rates specific to each single year of issue, the chart is useful in comparing our projection to historical default rate paths.



Exhibit 13 Historical Cumulative Default Paths - 1970 to 2008



Source: Moody's Investor Service

Our previous research on high yield bonds⁴ explains the rationale behind Wilshire's long-term return forecasting methodology in greater detail.

In the context of a portfolio, emerging market debt can be viewed as a spread product among other high yield fixed income components providing access to unique country specific risk.⁵ As such, returns to emerging market debt can be forecasted using modeling techniques similar to other credit instruments. Wilshire incorporates the mechanics of the high yield model described above in deriving our emerging market debt forecast of 5.75%, which is down 75 and 250 basis points, respectively, versus our 2009 mid-year and 2009 assumptions.

Private Market Investments

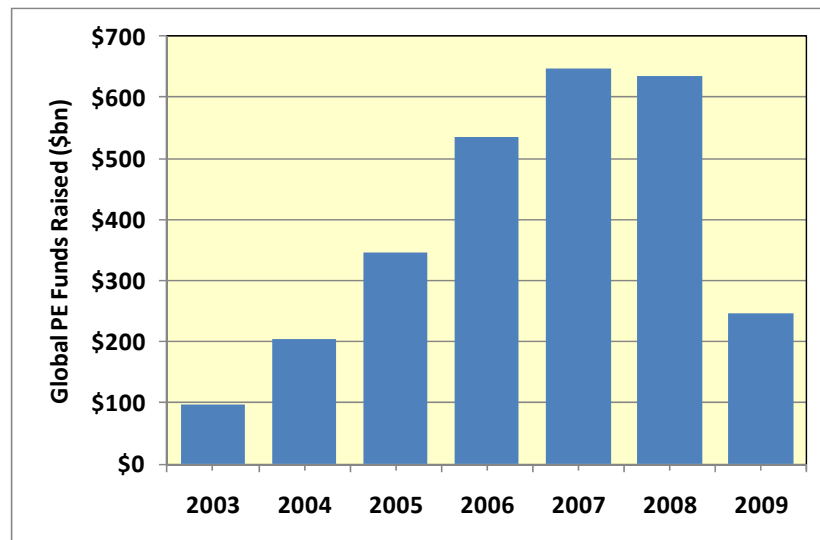
The slowdown in mergers and acquisition activity that began in late 2007 and intensified in 2008 as the tightening credit environment severely strained M&A deal financing flowed through to private equity fundraising in 2009. Global private equity fundraising activity dropped from \$636 billion in 2008 to \$246 billion in 2009. The 61% decrease resulted in the lowest fundraising year since 2004.

⁴ Wilshire Associates Incorporated (2005). *High Yield Market Update*: Yang.

⁵ For details on Wilshire's forecasting methodology: Wilshire Associates Incorporated (2009). *Emerging Markets Debt Part 1 – Introduction to the Asset Class*: Browning.



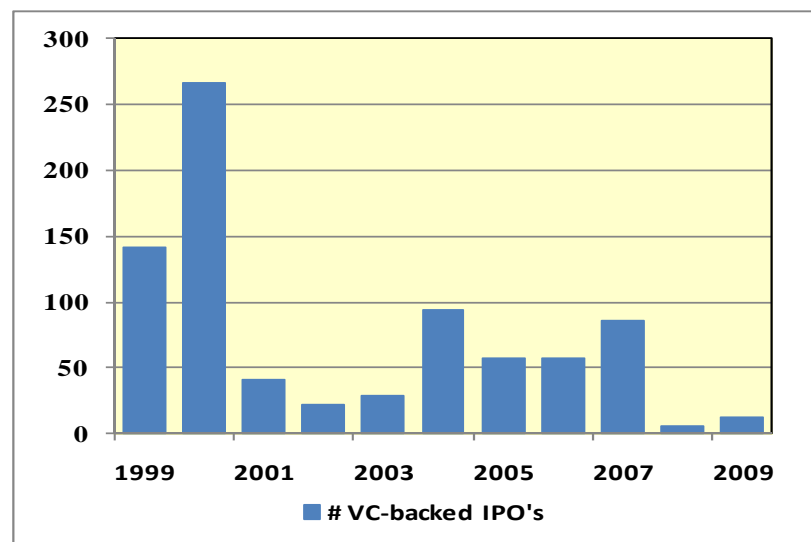
Exhibit 14
Global Private Equity Fundraising (\$ billions) – 2003 to 2009



Source: Prequin Ltd. - Q4 2009 Fundraising Update

Reflective of the tightening felt in the global private equity market was the slow year in venture capital backed IPO's, which totaled only 13 deals. While 2009 more than doubled the deal volume from 2008's six completed deals, the last two years have been the lowest consecutive deal volume years since 1974-1975.

Exhibit 15
Venture Capital Backed IPO's



Source: PWC / NVCA

Wilshire's assumptions for individual private market asset classes are contained in Appendix B together with risk and return comparisons to some of the major public asset



classes. Our private market return expectations are based upon drawing parallels to the public markets where appropriate. Further detail on Wilshire's methodology is available in part two of our three part series on private equity investing.⁶ Return forecasts are shown in the first row of Appendix B.

Wilshire's risk forecasts, which are expressed as standard deviations of annual returns, are reported in row two of Appendix B. Risk estimates for the Private Market asset class pose a unique challenge because infrequent private market investment valuations preclude the calculation of short-term periodic returns. As a result, projections of risk based on accounting data consistently understate risk. Wilshire's approach has thus been to estimate risk by drawing parallels to the public markets and adjusting for any added risk contributed by financial leverage, the absence of liquidity or greater business risk.

The remaining rows in Appendix B contain correlation forecasts. Again, these estimates come from parallels to the public markets and are useful in assessing the diversification benefits of private markets. In general, Wilshire views the use of private equity as a type of super-charged equity return rather than a diversification tool. The linkage between these markets is quite intuitive, as private equity returns are subject to the receptiveness of the capital markets to generate potential outsized returns.

Buyouts (U.S. and non-U.S.)

Our expected return assumptions for U.S. and non-U.S. buyouts are 8.50%. The assumption is that buyouts will exhibit similar business risks as publicly traded companies but will have greater financial risk. Therefore, it is appropriate to model buyout returns using public market proxies for equity returns and financing costs. Wilshire's Buyout return forecast is 1.50% lower than last year's return expectation as the 1.00% decrease in our underlying public equity forecast is magnified by the greater use of financial leverage. Expected returns in Appendix B are intended to be net returns. For example, the 8.50% expected return for buyouts should be viewed as net of all fees, including carried interest.

Wilshire's risk forecasts for U.S. and non-U.S. buyouts are 28.0% and 30.0%, respectively. These forecasts are considerably higher than the 16.0%-17.0% risk levels we assume for public stocks and are attributable to greater financial risk due to a more leveraged capital structure in buyout companies. Our leverage assumption is based on a capital structure with 40% short-term debt, 20% high yield debt and 40% equity for buyouts, which is consistent with historical measurements.

Venture Capital

Wilshire's return assumption for venture capital is 10.75%, down 1.75% from last year and consistent with our view on the public markets. The valuation of venture capital

⁶ Wilshire Associates Incorporated (2006). *Private Equity Investing Part 2 – Generating Asset Class Assumptions*: Foresti and Toth.



investments can vary by manager. A mix of current and stale valuations becomes an issue when aggregating venture performance for use in asset allocation. Therefore the presence of stale valuations suggests that to the extent venture capital performance is related to public market performance it will have some sensitivity to both recent and past returns. By including lagged data from the public markets, a more correct beta can be derived versus one naively found with a regression on contemporaneous data.

Our analysis indicates that venture capital exhibits a beta of 1.7 to the public market. Using the familiar CAPM formula $E(r) = \beta(R_m - R_f) + R_f$, we can derive an expected return for venture capital. This return estimate makes intuitive sense as investors should demand a return premium for making venture investments considering the uncertainty inherent in investing in new ventures.

Distressed Debt

The Citigroup Global Markets Bankrupt/Defaulted Debt Index was selected as a public market proxy for distressed debt investments. The index contains virtually all issues in default. The 19.00% risk forecast and correlations reported in Appendix B for distressed debt are based upon historical measurements for the Citigroup Index. The 8.00% expected return for distressed debt comes from our view that successful distressed investors take equity-like control positions in distressed companies with significant upside potential but less risk than other buyouts because companies have already encountered financial distress.

Our analysis suggests that one of the benefits of including distressed debt in a private markets portfolio is its low correlation with public asset classes, particularly stocks, when compared with other private market asset classes.

Mezzanine Debt

Wilshire views mezzanine debt like a convertible bond. However, unlike publicly traded convertibles with characteristics combining stocks and bonds, mezzanine debt possesses characteristics combining buyouts and high yield bonds. Consequently, we expect their return and risk measures to lie somewhere between buyouts and high yield bonds. Therefore, the 7.75% return and 19.00% risk forecast for mezzanine debt in Appendix B is based upon a blend of our buyout and high yield assumptions.

Private Markets Portfolio

The return and risk forecast for a diversified private markets portfolio is provided in Appendix B. The makeup of the private markets portfolio is:

U.S. Buyouts	50%
Venture Capital	20%
Non-U.S. Buyouts	20%



Mezzanine Debt	5%
Distressed Debt	5%
	100%

When the components are geometrically calculated with a lognormal assumption, the forecast return for a diversified private markets portfolio is 10.00%, or approximately 2.50% above the 7.50% expected return for U.S. stocks. The expected risk for the diversified private markets portfolio is 26%, which is consistent with last year's forecast at slightly more than 1.5x the forecasted risk of U.S. stocks.

Real Assets

Asset correlation, or the degree to which asset prices move in tandem, results from a common sensitivity to underlying economic forces (i.e. growth, employment, inflation). Real assets, in particular, share a positive correlation to inflation and consequently, can partially hedge real asset investment values against inflationary environments. This connection with inflation generates a relatively low correlation with other traditional assets; therefore Wilshire groups the discussion of Real Estate, Infrastructure, Timberland, Commodity Futures, and Oil and Gas Partnerships into a Real Assets⁷ section. While we consider TIPS a member of the real asset class, they are absent from this section as a discussion of our TIPS methodology was included in the Fixed Income section above.

U.S. Real Estate Securities

Wilshire is forecasting an expected return of 6.50% for U.S. real estate securities, down 50bps from last year's forecast of 7.00%. In a typical year, Wilshire would derive its forecast from combining the one-year average Equity REIT dividend yield with an expected dividend growth rate equal to three-quarters of long-run inflation⁸. This year, as a result of the turbulence in real estate property valuations and volatility of dividend yields, Wilshire is using an eight month average for its dividend yield component. While this marks a departure from our normal forecasting process, we believe that the addition of measured judgment is warranted. Below in Exhibit 16, the REIT Dividend Yield is charted with its one-year moving average. Significantly, the one-year moving average and the current measure of dividend yield are displaying a departure in the context of the five year history shown below. A red dashed line marks the point at which the moving average begins to pare down the skew created by the first four months of the year while not completely ignoring the trend of the historical data set.

The REIT sector followed up a -39.2% decline in 2008 with a substantial 28.6% rebound in 2009. Exhibit 16 shows that while REIT dividend yields continued to increase for the

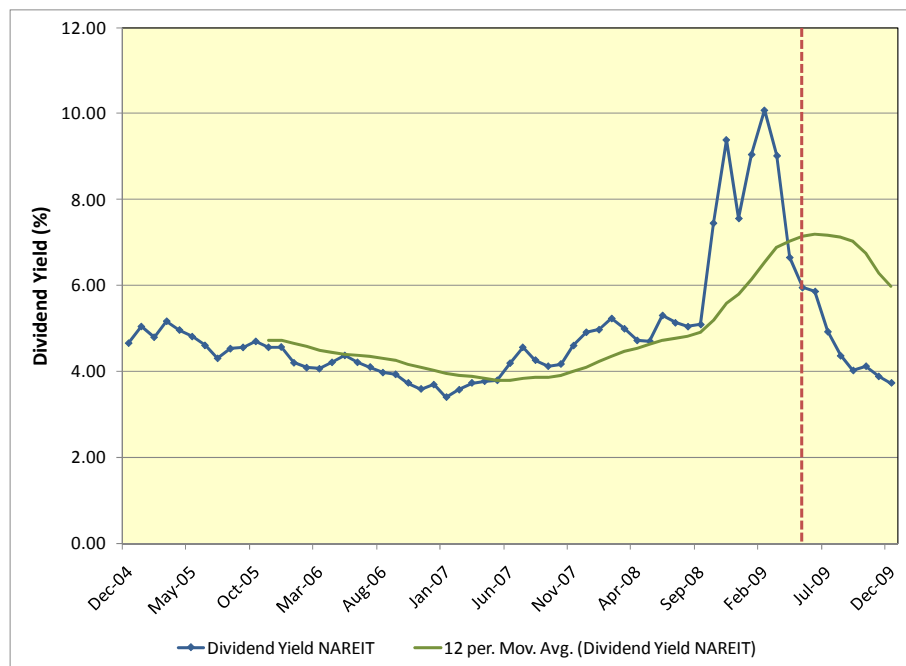
⁷ Wilshire Associates Incorporated (2007). *Real Asset Investments*: Browning.

⁸ Examining REIT dividend growth historically, Wilshire found that REITS were able to pass through about three-quarters of long-run inflation through rent and dividend increases.



first two months of the year, as REIT prices declined, they came crashing down as property appraisals increased while funds from operations (FFO) fell as had been anticipated by the previous year's price declines. The rapid ramp up and subsequent decline in dividend yields was symptomatic of REIT investors pricing securities ahead of an expected deterioration and then stabilization of underlying real estate fundamentals. Wilshire believes that the most recent dividend yield data points, unlike those from the preceding two years, represent a more reliable reflection of future fundamentals and dividend yields. As such, we narrow our focus on the most recent eight monthly yields to support our decreased U.S. real estate securities forecast of 6.50%.

Exhibit 16
REIT Dividend Yield



Source: FTSE Group and the National Association of Real Estate Investments Trust

Non-U.S. Real Estate Securities

Wilshire's usual practice is to assume comparable non-U.S. and U.S. returns within a global asset class containing regional components. Within this context we often employ a market or model based approach to forecasting the U.S. component return, which we then build into a non-U.S. component assumption. Similar to our equity assumptions, we forecast a long-term return for U.S. real estate securities and then expand that result to serve as our non-U.S. real estate securities return forecast. While the historical record for global real estate securities is short, it does not support a non-U.S. return premium and until strong evidence supports otherwise, we are comfortable assuming a similar return globally. This approach leads to our 6.50% long-term return forecast for non-U.S. real estate securities.



Private Real Estate

Private real estate investments can be divided into three primary subsets: core, value-added, and opportunistic. Wilshire's return assumption for private real estate is 7.35%, down from 7.65% last year, and is based on a private real estate portfolio consisting of 70% core, 15% value-added, and 15% opportunistic property investments. The 30 basis point decrease in our private real estate return mainly reflects a decrease in the capitalization rates of the individual components in our private real estate portfolio. These private real estate asset weightings are flexible and dependent on a client's investment objectives. Wilshire's assumptions for individual private real estate asset classes are contained in Appendix C together with comparisons to some of the major public asset classes.

As mentioned above, the private real estate portfolio can be broken up into three categories: core, value-added, and opportunistic. Core real estate investments are characterized by larger properties with more stable cash flows, less utilization of financial leverage and a lower level of risk than the other real estate investment strategies. Value-added investments in the real estate market are characterized by improvements in a number of attributes. Value-added real estate investors are able to create wealth by developing new properties as well as redeveloping underperforming properties through physical, financial and operational upgrades. Investing in opportunistic real estate occurs after the cyclical nature of assets in different geographies and property types cause market values to fall. The opportunistic investor attempts to successfully exploit inefficient market pricing through property selection and market-timing while at the same time managing risk appropriately. For a more detailed discussion on Private Real Estate Investing, please refer to Wilshire's 2006 research paper "Private Real Estate Investing."

Infrastructure

Direct infrastructure investments cover a broad range of asset types, ranging from stabilized, income producing assets ("brownfield infrastructure") to new and unproven development projects ("greenfield infrastructure"). These physical assets are further differentiated by geographic location, sector, financing, and other characteristics. Similar to real estate properties, infrastructure returns are primarily generated by owning and operating physical assets; and like real estate, operating income is often linked directly or indirectly to long-term inflation trends. Until an historical track record develops for direct infrastructure types and sub-types, Wilshire will utilize private real estate as an infrastructure proxy in asset liability studies⁹. Recognizing the imperfections that exist in this methodology, Wilshire believes there are few better corollaries than private real estate with relation to inflation capture and physical asset cost structure. On a project basis, customized assumptions can be developed to model the unique characteristics of specific infrastructure investments.

⁹ Wilshire Associates Incorporated (2007). *Infrastructure Investing*: Dudkowski and Toth.



Timberland

Timberland Investment returns are driven by four primary components: biological growth, the market price for timber, the market price for land, and the skill of active management. Wilshire's return assumption for the timber asset class is 7.50% and is based on a return attribution of 5.00% annual biological growth and a 2.50% increase in timber market prices. The timber market price component is consistent with our inflation forecast and reflects the ability of timberland products to capitalize expected and unexpected inflation over long time periods. The holding period return to land is assumed to be negligible, and thus estimated to have no addition to return unless successful management is employed. Active timber management is thus viewed as a source of excess return, which in our forecast is assumed to contribute 0% net-of-fees across the universe of timber managers. Wilshire forecasts the risk for the timberland asset class to be 15.0%. For a more detailed discussion on our forecast methodology, please refer to Wilshire's 2007 research paper "Timberland Investments – Does the Return Fall Far From the Tree?"

Commodity Futures

After experiencing a dramatic capitulation in June of 2008, commodities found stability in February 2009 as deflationary pressures grew into inflationary expectations with the deployment of stimulus spending packages and the renewal of emerging markets growth. While the correlation of commodities to traditional assets during the height of the credit crisis increased, their unique sensitivity to physical supply and demand supports their diversification benefits in an investment portfolio. Institutional investors can gain exposure to commodities through either the futures market or via a swap contract however, given recent legislative changes in the structure of the CFTC, effective implementation strategies are subject to change.

The returns for commodities differ from other asset classes because commodities do not represent compensation for the risk associated with future cash flow uncertainty. Instead, investors in commodity futures are compensated for bearing the risk of short-term commodity price fluctuations. In other words, a majority of a commodity future investor's exposure is to short-term economic conditions¹⁰. Exhibit 17 lays out a return history for the Dow Jones-UBS Commodity IndexSM, an equal weight index, CPI-U, and CPI-U + 2% premium over time. From this historical record, we estimate that the future expected return for commodities will be inflation plus a two percent risk premium, or 4.50%.

¹⁰ Wilshire Associates Incorporated (2005) *Commodity Futures Investing: Is All That Glitters Gold?*: Foresti and Toth, provides a more in depth examination of the history of commodities and their use in an institutional portfolio.



Exhibit 17 Historical Commodity Returns



Source: Gary Gorton and K. Geert Rouwenhorst "Facts and Fantasies about Commodity Futures," Wilshire Compass

Wilshire's forecasted risk for commodity futures is 13% based on the historical record of the Dow Jones-UBS Commodity Index. It is important to note that other indexes differ in composition from the Dow Jones-UBS index and therefore may be substantially more or less risky.

The low measured correlation of commodity returns with more traditional assets, such as stocks and bonds, stems from their price sensitivity to current economic supply and demand forces. In contrast, stock and bond valuations are more heavily driven by forward-looking expectations. Historically, these factors have caused traditional assets and commodities to have lower correlations. A complete list of correlations for commodities versus other asset classes can be found in Appendix A.

Oil and Gas Partnerships

Private Oil and Gas Partnerships generally represent geological and operational business improvement plays on oil and gas extraction. As with other partnership investments, Wilshire's forecast is intended to represent a median expected return absent the assumption of alpha from active management (i.e. a broad investment to the Oil & Gas Partnership opportunity set)¹¹.

¹¹ For further information on the oil & gas forecasting process reference Wilshire Associates Incorporated (2009).
2009 Asset Allocation Return and Risk Assumptions: Foresti, Rush, and Browning.



To model Private Oil and Gas Partnership returns and risk, Wilshire employs the following three distinct approaches with the intention of capturing market value, dividend growth, and commodity price volatility:

- An analysis of Oil & Gas Master Limited Partnership (MLP) returns and Oil & Gas spot market volatility;
- A Dividend-Discount Model (DDM) forecast of Oil and Gas MLPs;
- A yield plus inflation approach.

By observing the estimation signals derived from these three approaches and accounting for each method's strengths and weaknesses, Wilshire forecasts Private Oil & Gas Partnerships to generate a long-run return of 9.00% with annual volatility of 20.00%.

Real Asset Basket

In an effort to help develop the discussion towards a more diversified approach to inflation linked investments, Wilshire created a Real Asset Basket approach to real asset investment allocation in the 2009 Asset Allocation Return and Risk Assumptions report. In that approach, the Real Asset Basket was an equally weighted macro-asset class with two major sub-asset components; a public real asset basket and a private real asset basket, whose components were also equally weighted. This year, we are maintaining the approach to equal weight between private and public real asset baskets but are risk weighting the sub-component assets of the two baskets to more efficiently gain exposure to the inflation capture of the individual underlying investments. The new approach weights the sub-components as follows:

- Public Real Asset Basket
 - TIPS: 50%
 - Commodity Futures: 25%
 - Global REITS: 25%
- Private Real Asset Basket
 - Private Real Estate (including infrastructure): 40%
 - Timberland: 35%
 - Oil & Gas Partnerships: 25%

The aggregate Real Asset Basket with risk weighted sub-components is expected to return 6.75% and is included in the standard annual asset class matrix (Appendix A). Furthermore, the Real Estate sub-matrix has been expanded to include individual Real Asset components and is further detailed in Appendix D.

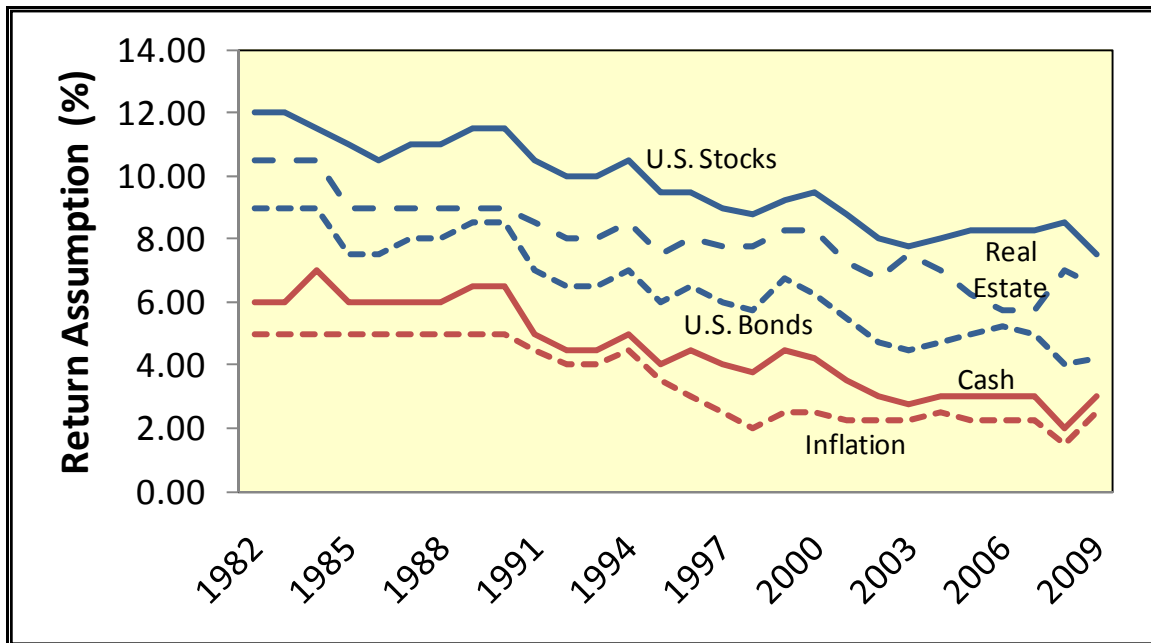
Wilshire's Historical Forecasts

Exhibit 18 shows how Wilshire's return forecasts have changed during the past 28 years. Notice the relative relationship between asset classes and how, when the assumptions change, they generally move together. This co-movement in assumptions is the result of



common economic drivers, such as the level of inflation and interest rates, which contribute to all asset class valuations, thereby linking various investments to each other in, at minimum, an indirect way. Such a natural linkage accommodates Wilshire's practice of generating asset class assumptions on an annual basis and protects the usefulness of forecasts based on somewhat lagged valuations and market conditions.

Exhibit 18
Wilshire's Past Forecasts for Asset Class Returns



Risk and Correlation

Wilshire's approach to forecasting long-term risk and correlation is largely based on observed historical asset class behavior. Generally, past relationships serve as very good predictors of future risk and correlation. This year risk estimates were unchanged. Our disciplined approach did not result in lowering risk excessively during the years leading up to 2008, and as a result we did not have to ramp risks back up again when the risk regime shifted from low/no-risk to high. We did however increase some correlation statistics, particularly in High Yield, which will lead to higher expected portfolio risk for those portfolios with heavier allocations to High Yield. In practice, Wilshire applies sound financial theory and judgment to the interpretation and analysis of historical results. The role of judgment ("art") versus measured statistics ("science") is more pronounced for investment categories with less historical data or that have experienced material structural changes.

In general, Wilshire places much more confidence in the predictive accuracy of past relationships for asset classes with longer and more robust historical data. In this report we rely upon historical measurements of risk and correlation through 2009 to estimate



future risk and correlation. To maximize the quality of our estimates, we observe this historical behavior over various time horizons (i.e. five years, ten years, full history, etc.). Wilshire does not use a preset or static rolling time period to derive these forecasts; as such an approach could result in forward numbers reacting too quickly to what may prove to be short-term relationships or event driven anomalies between markets.

A full listing of Wilshire's risk and diversification assumptions for all asset classes is found in Appendix A.



Appendix A: Wilshire 2010 Correlation Matrix

	Equity						Fixed Income							Real Assets					US CPI	
	Dev			Gbl			LT					ex-US Bond (Hdg)	Real Estate			Real				
	US Stock	ex-US Stock	Emg Stock	ex-US Stock	Gbl Stock	Prvt Mkts	Cash	Core Bond	Core Bond	LT Treas	TIPS		High Yield	US RES	Gbl RES	Prvt RE	Cmdty	Asset Bskt		
Expected Return (%)	7.50	7.50	7.50	7.75	7.75	10.00	3.00	4.25	5.25	4.25	3.75	6.00	3.90	6.50	6.75	7.35	4.50	6.75	2.50	
Expected Risk (%)	16.00	17.00	24.00	17.25	16.00	26.00	1.25	5.00	10.00	11.00	6.00	10.00	4.00	15.00	12.00	12.25	13.00	7.50	1.75	
Cash Yield (%)	2.00	3.00	2.00	2.75	2.50	0.00	3.00	4.25	5.25	4.25	3.75	6.00	3.90	4.50	4.50	3.50	3.00	3.50		
Correlations:																				
US Stock	1.00																			
Dev ex-US Stock (USD)	0.80			1.00																
Emerging Mkt Stock	0.70			0.68			1.00													
Global ex-US Stock	0.83			0.96			0.83			1.00										
Global Stock	0.93			0.93			0.81			0.96			1.00							
Private Markets	0.75			0.65			0.63			0.69			0.75			1.00				
Cash Equivalents	-0.05			-0.09			-0.05			-0.08			-0.07			0.00				
Core Bond	0.29			0.12			0.00			0.09			0.18			0.32				
LT Core Bond	0.31			0.16			0.01			0.13			0.21			0.33				
LT Treasury	0.19			0.10			-0.05			0.06			0.12			0.24				
TIPS	-0.05			0.05			0.00			0.04			0.00			0.01				
High Yield Bond	0.55			0.40			0.50			0.46			0.52			0.34				
Non-US Bond (Hdg)	0.16			0.26			-0.01			0.20			0.19			0.27				
US RE Securities	0.35			0.25			0.30			0.28			0.32			0.35				
Global RE Securities	0.49			0.53			0.52			0.56			0.55			0.54				
Private Real Estate	0.34			0.24			0.29			0.27			0.31			0.33				
Commodities	0.00			0.20			0.24			0.23			0.14			0.05				
Real Asset Basket	0.30			0.39			0.44			0.43			0.38			0.34				
Inflation (CPI)	-0.10			-0.15			-0.13			-0.15			-0.14			-0.10				

* Inflation correlations are provided for informational purposes and do not represent forward-looking assumptions.



Appendix B: Wilshire 2010 Private Markets Correlation Matrix

	Buyouts	Venture Capital	Distressed Debt	Mezz Debt	Non-US Buyouts	Pvt Mkts Portfolio	US Stocks	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Cash	Core Bond	High Yield Bond	US RES
Expected Return (%)	8.50	10.75	8.00	7.75	8.50	10.00	7.50	7.50	7.50	7.75	3.00	4.25	6.00	6.50
Expected Risk (%)	28.00	42.00	19.00	19.00	30.00	26.00	16.00	17.00	24.00	17.25	1.25	5.00	10.00	15.00
Correlations:														
Buyouts	1.00						0.70	0.55	0.55	0.59	0.00	0.40	0.30	0.35
Venture Capital	0.65	1.00					0.60	0.50	0.50	0.54	0.00	0.10	0.25	0.30
Distressed Debt	0.15	0.10	1.00				0.30	0.25	0.25	0.27	0.00	0.05	0.55	0.10
Mezzanine Debt	0.65	0.35	0.65	1.00			0.70	0.55	0.58	0.60	0.05	0.35	0.65	0.40
Non-US Buyouts	0.78	0.50	0.15	0.40	1.00		0.60	0.70	0.60	0.72	0.00	0.25	0.25	0.20
Pvt Mkts Portfolio	0.96	0.81	0.21	0.62	0.83	1.00	0.75	0.65	0.63	0.69	0.00	0.32	0.34	0.35



Appendix C: Wilshire 2010 Private Real Estate Correlation Matrix

	----- Private RE -----													
	US RES	Non-US RES	Global RES	Core	Value Added	Opport	Prvt RE Basket	US Stocks	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Cash	Core Bond	High Yield Bond
Expected Return (%)	6.50	6.50	6.75	6.00	8.75	11.00	7.35	7.50	7.50	7.50	7.75	3.00	4.25	6.00
Expected Risk (%)	15.00	13.00	12.00	10.50	15.50	23.00	12.25	16.00	17.00	24.00	17.25	1.25	5.00	10.00
Correlations:														
US RE Securities	1.00							0.35	0.25	0.30	0.28	-0.05	0.15	0.45
Non-US RES	0.50	1.00						0.50	0.65	0.60	0.68	0.00	0.10	0.40
Global RES	0.86	0.87	1.00					0.49	0.53	0.52	0.56	-0.03	0.14	0.49
Core RE	0.90	0.45	0.77	1.00				0.30	0.20	0.25	0.23	-0.05	0.15	0.45
Value-Added RE	0.70	0.40	0.63	0.85	1.00			0.35	0.25	0.30	0.28	0.00	0.30	0.45
Opportunistic RE	0.55	0.35	0.52	0.70	0.95	1.00		0.35	0.25	0.30	0.28	0.00	0.35	0.45
Private RE Basket	0.82	0.44	0.72	0.96	0.96	0.88	1.00	0.34	0.24	0.29	0.27	-0.03	0.24	0.48

Appendix D: Wilshire 2010 Real Asset Basket Correlation Matrix

	Public Real Assets				Private Real Assets				
	Global RES	TIPS	Cmdty	Public RA Basket	Prvt RE	Timber	Oil & Gas Prtnshp	Private RA Basket	Real Asset Basket
Expected Return (%)	6.75	3.75	4.50	4.95	7.35	7.50	9.00	8.40	6.75
Expected Risk (%)	12.00	6.00	13.00	6.50	12.25	15.00	20.00	10.50	7.50
Correlations:									
Global REITS	1.00								
TIPS	0.17	1.00							
Commodities	0.26	0.20	1.00						
Public RA Basket	0.68	0.65	0.73	1.00					
Private RE Basket	0.72	0.16	0.21	0.52	1.00				
Timber	0.20	0.15	0.30	0.32	0.16	1.00			
Oil & Gas Prtnshp	0.35	0.15	0.25	0.36	0.30	0.25	1.00		
Priv RA Basket	0.60	0.22	0.36	0.57	0.68	0.69	0.73	1.00	
Real Asset Basket	0.71	0.43	0.56	0.82	0.69	0.61	0.66	0.94	1.00
US Stocks	0.49	-0.05	0.00	0.21	0.34	0.00	0.30	0.30	0.30
Dev ex-US Stocks	0.53	0.05	0.20	0.38	0.24	0.10	0.35	0.33	0.39
Emg Stock	0.52	0.00	0.24	0.37	0.29	0.15	0.40	0.40	0.44
Global ex-US Stock	0.56	0.04	0.22	0.40	0.27	0.12	0.39	0.37	0.43
Cash	-0.03	0.15	-0.05	0.03	-0.03	-0.05	-0.05	-0.06	-0.03
Core Bond	0.14	0.20	0.00	0.16	0.24	0.00	0.14	0.18	0.19
High Yield Bond	0.49	0.01	0.08	0.28	0.48	0.05	0.35	0.41	0.40



Appendix E: Historical 1, 5 & 10-Year Rolling Returns: 1926 to 2009

Appendix E: 1-Year Returns

Year	S&P 500 Index	Bond Index	T-bills	CPI	Year	S&P 500 Index	Bond Index	T-bills	CPI
1926	11.6	7.4	3.3	-1.5	1968	11.1	2.6	5.2	4.7
1927	37.5	7.4	3.1	-2.1	1969	-8.5	-8.1	6.6	6.1
1928	43.6	2.8	3.5	-1.0	1970	4.0	18.4	6.5	5.5
1929	-8.4	3.3	4.7	0.2	1971	14.3	11.0	4.4	3.4
1930	-24.9	8.0	2.4	-6.0	1972	19.0	7.3	3.8	3.5
1931	-43.4	-1.9	1.1	-9.5	1973	-14.8	2.3	6.9	8.7
1932	-8.2	10.8	1.0	-10.3	1974	-26.4	0.2	8.2	12.4
1933	54.0	10.4	0.3	0.5	1975	37.2	12.3	5.8	7.0
1934	-1.4	13.8	0.2	2.0	1976	24.1	15.6	5.0	4.9
1935	47.7	9.6	0.1	3.0	1977	-7.3	3.0	5.4	6.7
1936	33.9	6.7	0.2	1.2	1978	6.4	1.4	7.5	9.0
1937	-35.0	2.8	0.3	3.1	1979	18.5	1.9	10.3	13.3
1938	31.1	6.1	0.0	-2.8	1980	32.2	2.7	11.8	12.5
1939	-0.4	4.0	0.0	-0.5	1981	-4.9	6.3	14.5	8.9
1940	-9.8	3.4	0.0	1.0	1982	21.1	32.6	11.1	3.8
1941	-11.6	2.7	0.0	9.7	1983	22.4	8.4	8.8	3.8
1942	20.4	2.6	0.3	9.3	1984	6.1	15.2	9.9	4.0
1943	25.9	2.8	0.4	3.2	1985	32.1	22.1	7.7	3.8
1944	19.7	4.7	0.3	2.1	1986	18.6	15.3	6.1	1.1
1945	36.4	4.1	0.3	2.3	1987	5.2	2.8	5.4	4.4
1946	-8.1	1.7	0.4	18.2	1988	16.8	7.9	6.7	4.4
1947	5.7	-2.3	0.5	9.0	1989	31.5	14.5	9.0	4.6
1948	5.5	4.1	0.8	2.7	1990	-3.2	9.0	8.3	6.1
1949	18.8	3.3	1.1	-1.8	1991	30.6	16.0	6.4	3.1
1950	31.7	2.1	1.2	5.8	1992	7.7	7.4	3.9	2.9
1951	24.0	-2.7	1.5	5.9	1993	10.0	9.8	3.2	2.8
1952	18.4	3.5	1.7	0.9	1994	1.3	-2.9	4.2	2.7
1953	-1.0	3.4	1.8	0.6	1995	37.5	18.5	6.1	2.5
1954	52.6	5.4	0.9	-0.5	1996	23.1	3.6	5.4	3.3
1955	31.6	0.5	1.6	0.4	1997	33.3	9.7	5.5	1.7
1956	6.6	-6.8	2.5	2.9	1998	28.8	8.7	5.4	1.6
1957	-10.8	8.7	3.2	3.0	1999	21.0	-0.8	4.6	2.7
1958	43.4	-2.2	1.5	1.8	2000	-9.1	11.6	6.2	3.4
1959	12.0	-1.0	3.0	1.5	2001	-11.9	8.4	4.4	1.6
1960	0.5	9.1	2.7	1.5	2002	-22.1	10.3	1.8	2.4
1961	26.9	4.8	2.1	0.7	2003	28.7	4.1	1.2	1.9
1962	-8.7	8.0	2.7	1.2	2004	10.9	4.3	1.3	3.3
1963	22.8	2.2	3.1	1.7	2005	4.9	2.4	3.1	3.4
1964	16.5	4.8	3.5	1.2	2006	15.8	4.3	4.8	2.5
1965	12.5	-0.5	3.9	1.9	2007	5.5	7.0	5.0	4.1
1966	-10.1	0.2	4.8	3.4	2008	-37.0	5.2	2.1	0.1
1967	24.0	-5.0	4.2	3.0	2009	26.5	5.9	0.2	2.7

Winning Percentage: 62% 25% 13%



Appendix E: 5-Year Returns

Year	S&P 500 Index	Bond Index	T-bills	CPI	Year	S&P 500 Index	Bond Index	T-bills	CPI
1926-30	8.7	5.8	3.4	-2.1	1966-70	3.4	1.2	5.4	4.5
1927-31	-5.1	3.9	3.0	-3.7	1967-71	8.4	3.3	5.4	4.5
1928-32	-12.5	4.5	2.5	-5.4	1968-72	7.5	5.8	5.3	4.6
1929-33	-11.2	6.0	1.9	-5.1	1969-73	2.0	5.8	5.6	5.4
1930-34	-9.9	8.1	1.0	-4.8	1970-74	-2.4	7.6	6.0	6.6
1931-35	3.1	8.4	0.5	-3.0	1971-75	3.2	6.5	5.8	6.9
1932-36	22.5	10.3	0.3	-0.8	1972-76	4.9	7.4	5.9	7.2
1933-37	14.3	8.6	0.2	2.0	1973-77	-0.2	6.5	6.3	7.9
1934-38	10.7	7.8	0.1	1.3	1974-78	4.3	6.3	6.4	8.0
1935-39	10.9	5.8	0.1	0.8	1975-79	14.8	6.7	6.8	8.1
1936-40	0.5	4.6	0.1	0.4	1976-80	13.9	4.8	8.0	9.2
1937-41	-7.5	3.8	0.1	2.0	1977-81	8.0	3.1	9.9	10.1
1938-42	4.6	3.8	0.1	3.2	1978-82	13.9	8.4	11.0	9.5
1939-43	3.8	3.1	0.1	4.5	1979-83	17.2	9.8	11.3	8.4
1940-44	7.7	3.3	0.2	5.0	1980-84	14.6	12.6	11.2	6.5
1941-45	17.0	3.4	0.3	5.3	1981-85	14.6	16.5	10.4	4.8
1942-46	17.9	3.2	0.3	6.8	1982-86	19.7	18.4	8.7	3.3
1943-47	14.8	2.2	0.4	6.8	1983-87	16.4	12.5	7.6	3.4
1944-48	10.9	2.4	0.5	6.7	1984-88	15.4	12.4	7.1	3.5
1945-49	10.7	2.2	0.6	5.8	1985-89	20.4	12.3	7.0	3.7
1946-50	9.9	1.8	0.8	6.6	1986-90	13.2	9.8	7.1	4.1
1947-51	16.7	0.9	1.0	4.3	1987-91	15.4	9.9	7.1	4.5
1948-52	19.4	2.0	1.3	2.7	1988-92	15.9	10.9	6.8	4.2
1949-53	17.9	1.9	1.5	2.2	1989-93	14.5	11.3	6.1	3.9
1950-54	23.9	2.3	1.4	2.5	1990-94	8.7	7.7	5.2	3.5
1951-55	23.9	2.0	1.5	1.4	1991-95	16.6	9.5	4.8	2.8
1952-56	20.2	1.1	1.7	0.8	1992-96	15.2	7.0	4.6	2.8
1953-57	13.6	2.1	2.0	1.3	1993-97	20.2	7.5	4.9	2.6
1954-58	22.3	1.0	1.9	1.5	1994-98	24.1	7.3	5.3	2.4
1955-59	15.0	-0.3	2.3	1.9	1995-99	28.6	7.7	5.4	2.4
1956-60	8.9	1.4	2.6	2.1	1996-00	18.3	6.5	5.4	2.5
1957-61	12.8	3.8	2.5	1.7	1997-01	10.7	7.4	5.2	2.2
1958-62	13.3	3.6	2.4	1.3	1998-02	-0.6	7.5	4.5	2.3
1959-63	9.8	4.5	2.7	1.3	1999-03	-0.6	6.6	3.6	2.4
1960-64	10.7	5.7	2.8	1.2	2000-04	-2.3	7.7	3.0	2.5
1961-65	13.2	3.8	3.1	1.3	2001-05	0.5	5.9	2.4	2.5
1962-66	5.7	2.9	3.6	1.9	2002-06	6.2	5.1	2.4	2.7
1963-67	12.4	0.3	3.9	2.2	2003-07	12.8	4.4	3.1	3.0
1964-68	10.2	0.4	4.3	2.8	2004-08	-2.2	4.6	3.2	2.7
1965-69	5.0	-2.2	4.9	3.8	2005-09	0.4	5.0	3.0	2.6

Winning Percentage: 73% 24% 4%



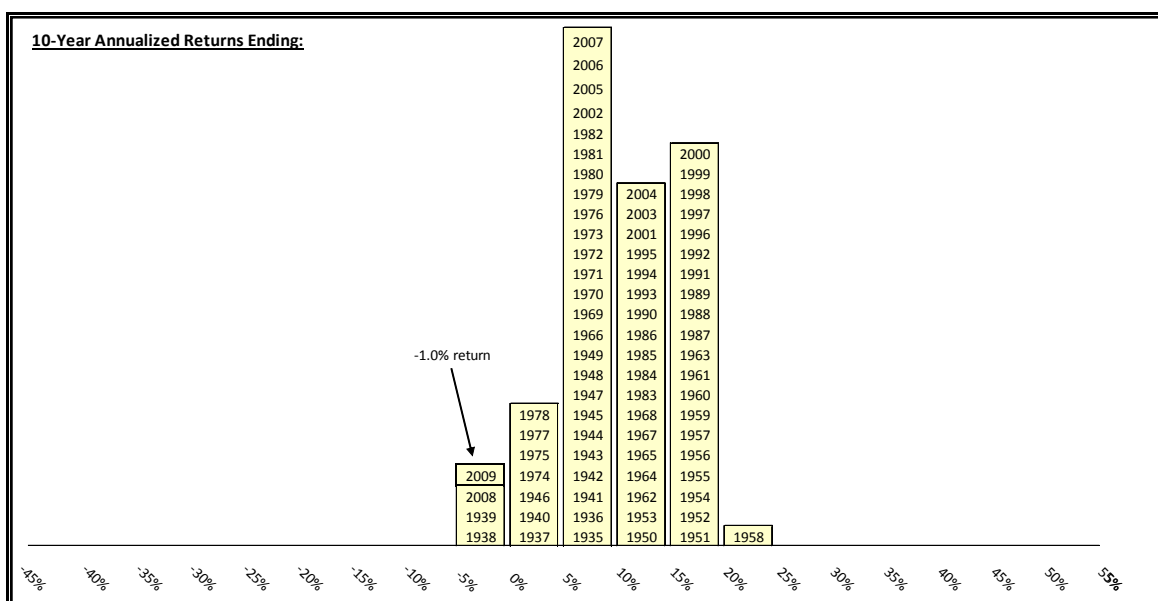
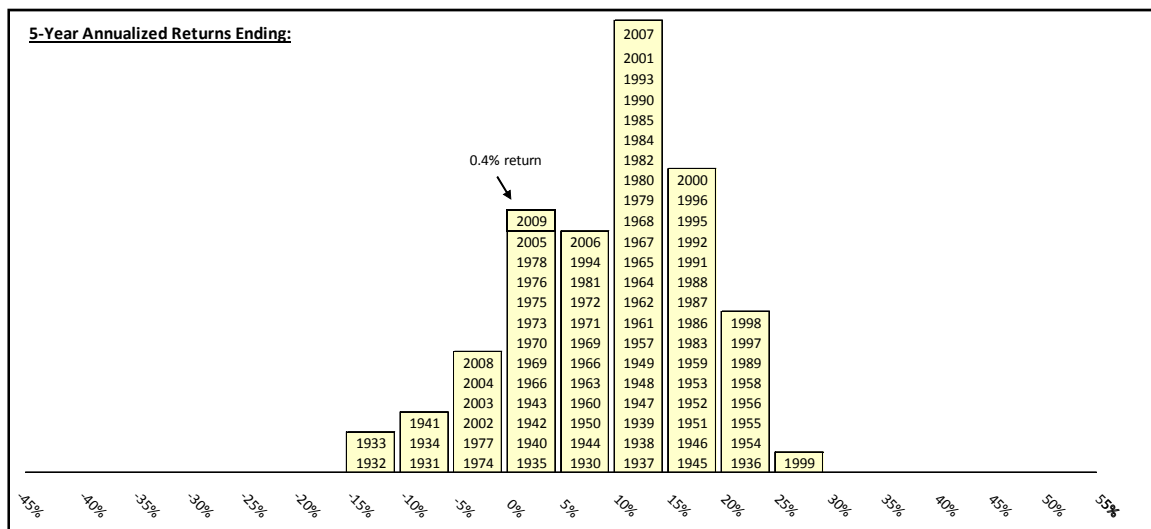
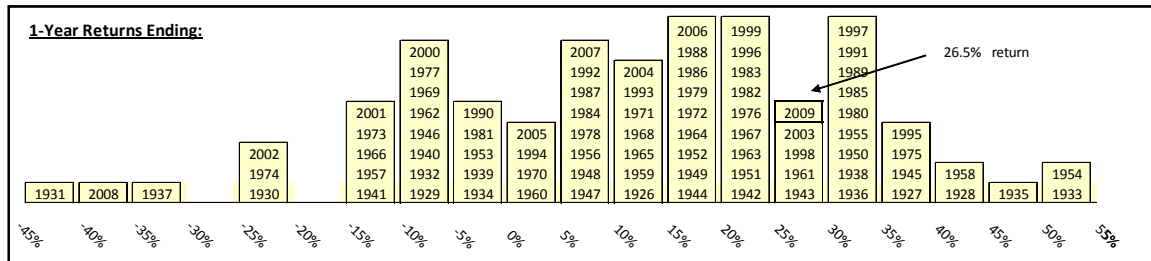
Appendix E: 10-Year Returns

Year	S&P 500 Index	Bond Index	T-bills	CPI	Year	S&P 500 Index	Bond Index	T-bills	CPI
1926-35	5.9	7.1	2.0	-2.6	1964-73	6.0	3.0	5.0	4.1
1927-36	7.8	7.0	1.7	-2.3	1965-74	1.2	2.6	5.4	5.2
1928-37	0.0	6.5	1.4	-1.8	1966-75	3.3	3.8	5.6	5.7
1929-38	-0.9	6.9	1.0	-2.0	1967-76	6.7	5.3	5.7	5.9
1930-39	-0.1	6.9	0.6	-2.0	1968-77	3.6	6.2	5.8	6.2
1931-40	1.8	6.5	0.3	-1.3	1969-78	3.2	6.1	6.0	6.7
1932-41	6.4	7.0	0.2	0.6	1970-79	5.9	7.2	6.4	7.4
1933-42	9.4	6.2	0.1	2.6	1971-80	8.4	5.6	6.9	8.1
1934-43	7.2	5.4	0.1	2.9	1972-81	6.4	5.2	7.9	8.6
1935-44	9.3	4.5	0.2	2.9	1973-82	6.6	7.4	8.6	8.7
1936-45	8.4	4.0	0.2	2.8	1974-83	10.6	8.1	8.8	8.2
1937-46	4.4	3.5	0.2	4.4	1975-84	14.7	9.6	9.0	7.3
1938-47	9.6	3.0	0.2	5.0	1976-85	14.2	10.5	9.2	7.0
1939-48	7.3	2.8	0.3	5.6	1977-86	13.7	10.5	9.3	6.6
1940-49	9.2	2.7	0.4	5.4	1978-87	15.2	10.4	9.3	6.4
1941-50	13.4	2.6	0.5	5.9	1979-88	16.3	11.1	9.2	5.9
1942-51	17.3	2.0	0.7	5.5	1980-89	17.5	12.4	9.1	5.1
1943-52	17.1	2.1	0.8	4.7	1981-90	13.9	13.1	8.7	4.5
1944-53	14.3	2.2	1.0	4.4	1982-91	17.5	14.1	7.9	3.9
1945-54	17.1	2.2	1.0	4.2	1983-92	16.2	11.7	7.2	3.8
1946-55	16.7	1.9	1.1	4.0	1984-93	14.9	11.9	6.6	3.7
1947-56	18.4	1.0	1.3	2.5	1985-94	14.4	10.0	6.1	3.6
1948-57	16.4	2.1	1.6	2.0	1986-95	14.9	9.6	5.9	3.5
1949-58	20.1	1.4	1.7	1.9	1987-96	15.3	8.5	5.8	3.7
1950-59	19.4	1.0	1.9	2.2	1988-97	18.0	9.2	5.9	3.4
1951-60	16.2	1.7	2.0	1.8	1989-98	19.2	9.3	5.7	3.1
1952-61	16.4	2.4	2.1	1.3	1990-99	18.2	7.7	5.3	2.9
1953-62	13.4	2.9	2.2	1.3	1991-00	17.5	8.0	5.1	2.7
1954-63	15.9	2.7	2.3	1.4	1992-01	12.9	7.2	4.9	2.5
1955-64	12.8	2.7	2.6	1.6	1993-02	9.3	7.5	4.7	2.5
1956-65	11.1	2.6	2.8	1.7	1994-03	11.1	6.9	4.5	2.4
1957-66	9.2	3.3	3.0	1.8	1995-04	12.1	7.7	4.2	2.4
1958-67	12.9	1.9	3.1	1.8	1996-05	9.1	6.2	3.9	2.5
1959-68	10.0	2.4	3.5	2.1	1997-06	8.4	6.2	3.8	2.4
1960-69	7.8	1.7	3.9	2.5	1998-07	5.9	6.0	3.8	2.7
1961-70	8.2	2.5	4.3	2.9	1999-08	-1.4	5.6	3.4	2.5
1962-71	7.1	3.1	4.5	3.2	2000-09	-1.0	6.3	3.0	2.5
1963-72	9.9	3.0	4.6	3.4					

Winning Percentage: 79% 16% 5%



Appendix F: Histogram of 1, 5 & 10-Year S&P 500 Index Returns





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