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ENNISKNUPP CAPITAL MARKETS MODELING ASSUMPTIONS: Updated July 2009

EnnisKnupp's capital markets modeling assumptions play a critical role in the advice rendered to clients, given the impact of the asset allocation decision on the success of the overall investment program. Continued market volatility has resulted in adjustments to our projections, which are presented here in our most recent biannual assumptions update.

In summary, the long-term return forecasts we derive for both U.S. equity and U.S. fixed income (the two anchors of the modeling process) have been affected as a result of these turbulent times. As a 0.6% decrease in the dividend yield more than offset a 0.3% increase in expected nominal earnings growth, the U.S. equity forecast has declined by 0.3% to 7.4%. We did not adjust for valuation as the current market P/E level of 13.2 (S&P 500 as of June 30th, 2009) remains above the 10th percentile (the "lower bound") historical value of 9.2. Our long-term U.S. fixed income forecast rose by 0.1% to 4.8%, mainly as a result of slightly higher yields.

Our long-term inflation forecast, which is based on the Blue Chip Economic Indicators survey, increased by 0.2% to 2.5%. The equity risk premium, which is the difference between U.S. equity and U.S. fixed income long-term compounded returns, decreased from 3.0% to 2.6%.

With regard to riskier types of assets, we have noticed a decline in the expected rates of return. In terms of efficient frontier allocations, we did not find a material difference in indicated portfolios (from current assumptions versus previous assumptions), but if anything: increase equity in favor of U.S. fixed income due to the decreased equity risk premium. The lower return on stocks means that a given level of total portfolio expected return would need to be achieved with a higher equity allocation, and associated higher volatility.

Asset allocation modeling requires three types of inputs: estimates of expected return; volatility (standard deviation); and correlation among asset classes. The most critical inputs are the estimates of expected return. EnnisKnupp's capital markets model uses a theoretical, Global Capital Asset Pricing Model (Global CAPM) methodology to obtain expected returns for individual asset classes, rather than relying on historical results or arbitrary estimates. With the exception of U.S. fixed income (described later), estimates of volatility (risk) and correlation are obtained directly from historical data—a standard practice, as these variables tend to be more stable over time than the level of returns.

The Global CAPM methodology requires two "anchors" that describe the tradeoff between risk and expected return. In our approach, these two anchors are the return estimates for U.S. equity and fixed income, from which all other asset class return estimates are derived.

Anchor #1: U.S. Equity

The expected annual return for the U.S. equity market is 8.8%. The historical record shows great variation in the premium of equities over bonds, depending on the period of time used. However, analysis indicates that the historical average at any point in time is a very poor predictor of future

experience. Our assumption is therefore based on the economic premise that the total return over time for stocks can be divided into three components:

Dividend income: The current dividend yield on the broad market is about 2.2%.[1]

Nominal growth in corporate earnings: The estimate for expected real (after-inflation) growth in earnings is based upon the current forecast of real gross domestic product (GDP) growth from a survey of leading economists (Blue Chip Economic Indicators). Over long periods of time, GDP and corporate earnings should grow at similar rates. The forecast for inflation, which is 2.5%, is also obtained from the same survey in order to arrive at the expected rate of nominal growth in earnings. The expected nominal growth in corporate earnings is 6.6%.

Change in valuation levels: Historical evidence indicates that valuation levels (e.g. price/earnings [P/E] ratios, etc.) at any point in time have an impact on the expected return of stocks over the succeeding years. Adjustments for valuation will be made if P/E (as defined by current price over trailing 10-year operating earnings) is above the 90th percentile (the "upper bound") or below the 10th percentile (the "lower bound") of historical experience. If required, an adjustment will be made so that the P/E will converge to the upper/lower bound within 15 years. Using current statistics, the lower and upper bounds for P/E are 9 and 25, respectively. Based on current market P/E level, there is currently no adjustment for valuation.

The long-term expected growth rate of the U.S. equity market, therefore, is the sum of 2.2% and 6.6%.

The standard deviation for U.S. equity is 16.8%, which reflects the historical volatility of equity returns over the 1978-2008 period. The standard deviation is a measure of the deviation from the expected return in a given year. For example, a 16.8% standard deviation means that, in two out of three years, one should expect to experience a U.S. equity return between -8.0% (8.8%-16.8%) and +25.6% (8.8%+16.8%), or one standard deviation around the expected return. In nine out of ten years, one should expect a U.S. equity return that is within two standard deviations of the expected return, or between -24.8% and +42.5%.

Anchor #2: U.S. Fixed Income

The expected return for U.S. fixed income (represented by the Barclays Capital (formerly Lehman Brothers) Aggregate Bond Index [Barclays Aggregate]) is based on the current yield, and a simulation of future changes in yield. The consensus results of a semiannual survey of leading economists for the forward-looking expectations on 10-year Treasury yields is used as a baseline for developing yield simulations.

At the end of June 2009, the yield for the Barclays Aggregate was 4.1% and the yield for the 10-year Treasury was 3.5%. In our model, the spread of the Barclays Aggregate yield over 10-year treasury is expected to decline gradually to the historical average of 0.4% from the current 0.6%.

A simulation of 10-year Treasury yields over a 15-year period is developed based on separate simulations of its components: expected inflation, inflation risk premium and real yields. Barclays Aggregate yields are then simulated based on the 10-year Treasury yields. Finally, the average annual expected returns for Barclays Aggregate are 5.0% over 15 years with a standard deviation of 6.6%.

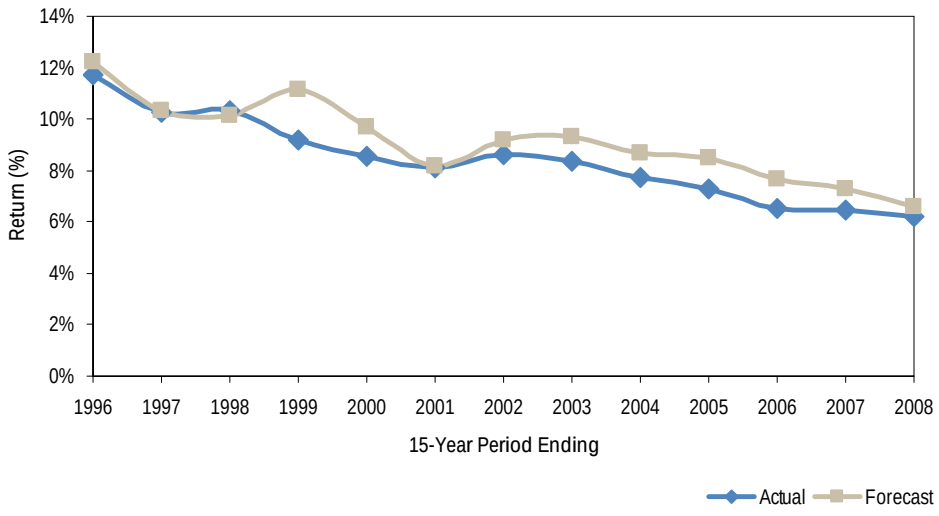
Comparison of Forecasts for the Anchors with Actual Historical Returns

The major inputs for determining expected returns for U.S. equity and fixed income are mainly derived from surveys of leading economists (Blue Chip Economic Indicators and Blue Chip Financial Forecasts). The long-term forecasts have been available since 1981. The methodology described above for determining forecasts of 15-year return expectations for U.S. Stocks and U.S. Bonds is applied retrospectively since 1981. The actual 15-year return historical results are then compared to the forecast results.

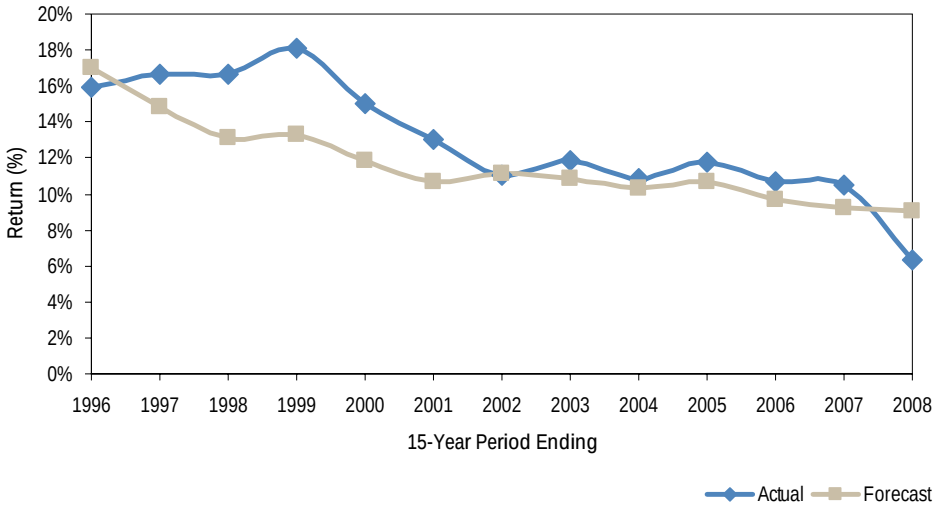
The following graphs illustrate the actual and forecasted results.

Exhibit 1

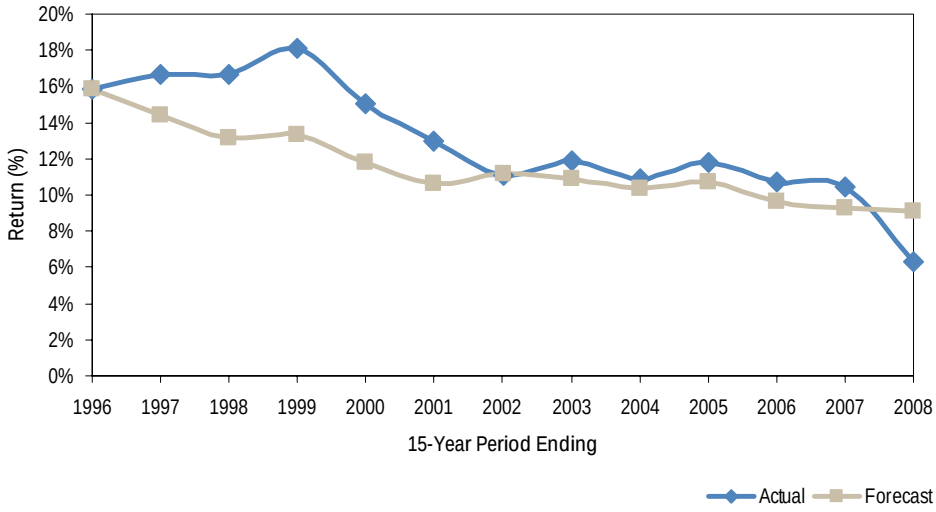
Fixed Income Returns Over 15 years



U.S. Equity Returns Over 15 years

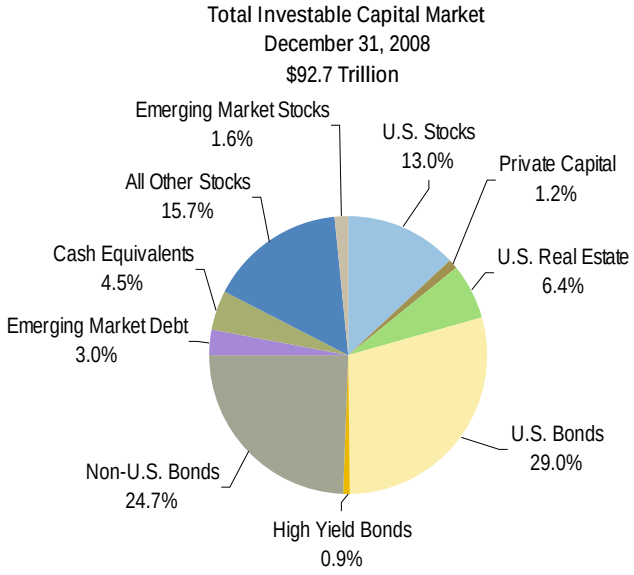


U.S. Equity Returns Over 15 years (Without Valuation Adjustment)



Other Asset Classes

A Global CAPM process is used to arrive at the expected returns for these asset classes with the exception of cash investments. Expected returns on the various asset classes are proportional to their systematic (market) risk relative to the market portfolio, defined in this context as the collection of all investable assets in the global marketplace. The current composition of the market portfolio is shown on the following page.



Source: UBS Global Asset Management, Venture Economics, EnnisKnupp

The return histories of indexes representing each asset class are combined at their historical market proportions in the total investable world capital market, creating a return stream that represents the market portfolio. (See the Appendix I for a partial list of the representative indexes.) Betas for each asset class are calculated relative to the market portfolio over the 1978-2008 period. Beta is a measure of an asset's sensitivity to overall market movements, sometimes also called "market risk" or "systematic risk." The beta of the market, here defined as the total world investable capital market, is by definition 1.0. An asset with a beta of 2.0, for example, has twice as much market risk, and we would expect it to experience about double the gain of the market in a period of positive returns—and double the loss of the market in a period of negative returns.

Additionally, the ratio of each asset class's beta to that of U.S. equity is calculated. This ratio for each asset class should be identical to the ratio of the asset class's risk premium to U.S. equity's risk premium. For instance, the ratio of U.S. fixed income's beta (0.37) to that of U.S. equity (1.81) is 20%, or 0.20. This implies that the ratio of U.S. fixed income's risk premium to U.S. equity's risk premium should also be 0.20 (i.e., (5.0 – rf)/(8.8 – rf) = 0.20). This results to an implied risk free rate (rf) of 4.0%, which is used in determining the risk premium of each asset class. The calculated risk premium of each asset class is directly proportional to its systematic risk, with the expected U.S. equity return and the expected U.S. bond return serving as the links between the Global CAPM model and current market yields and economic variables.

The full set of betas and expected asset class returns is shown in Exhibit 3 on the following page.

Exhibit 3
Betas, Standard Deviations and Expected Returns

Asset Class	Beta With Respect to World Market	Expected Arithmetic Return[1]	Standard Deviation	Expected Compounded/ Geometric Return
U.S. Equity	1.81	8.8	16.8	7.4
Non-U.S. Equity Equity	1.86	9.0	19.1	7.1
U.S. Bonds	0.37	5.0	6.6	4.8
Core Real Estate	0.73	7.1 [2]	11.9	6.4 [2]
Private Equity	3.00	14.9 [3]	32.0	9.8 [3]

[1] Arithmetic, or single-year, expected returns.

[2] Includes an extra 1.0% for private market premium

[3] Includes an extra 3.0% for private market return premium

The expected compounded/geometric return is the relevant assumption from the point of view of a long-term investor. It is the return that the asset will experience over the long-term. The geometric average return is lower than the arithmetic average return whenever there is uncertainty (which is measured by standard deviation) in annual returns. For instance, earning +50% in the first year and -50% in the second year produces an arithmetic average return of 0.0%. However, the average geometric return over the two-year period is -13.4%. The geometric average is equivalent to earning -13.4% for both the first and second years. To illustrate the math, suppose $100 is invested at the beginning of year 1. At the end of year 1, the asset would have grown to $150 (earn +50%). After earning -50% in the second year, the asset balance would be $75. This result is equivalent to earning -13.4% in the first year (ending with $86.6 after 1 year) and the second year (i.e., $86.6 * (1-.134) = $75).

Additionally, to account for the expected return compensation from investments on private markets, the arithmetic expected return for private equity is adjusted upward from 11.9% (based on the Global CAPM) to 14.9%. Consequently, the compounded/geometric return for private equity would increase from 6.8% to 9.8%. The 3% represents common industry expectation for the additional return provided by private equity investments over public equity. For expected returns on core private real estate investments, we would add 100 basis points in order to account for extra return compensation provided by private over public real estate. Thus, the annual/arithmetic return would increase from 6.1% to 7.1% while the compound/geometric return would increase from 5.4% to 6.4%. The expected return, standard deviation, and correlation estimates of the underlying sectors within private equity and real estate can be found in Appendix II and Appendix III of this paper.

The standard deviation for U.S. fixed income is based on a simulation of expected returns where the historical volatility of real yield changes is taken into account. The standard deviations of all other asset classes and correlations, shown in Exhibit 4, reflect the historical annualized volatility experienced over the 1978-2008 period. Correlation coefficients

measure the degree to which two asset classes' returns experience good or bad returns in the same period. A correlation coefficient of +1.0 between two asset classes means that they move together perfectly in lockstep. A correlation of -1.0 means that the two asset classes move in opposite directions, and a correlation of zero means that there is no relation between their returns. Asset classes that are less correlated with others provide greater opportunity for risk reduction through diversification.

Exhibit 4
Standard Deviations and Correlations

Asset Class	Standard Deviation	Correlation				
		U.S. Equity	Non-U.S. Equity	U.S. Bonds	Core Real Estate	Private Equity
U.S. Equity	16.8	1.00				
Non-U.S. Equity	19.1	0.73	1.00			
U.S. Bonds	6.6	0.16	0.16	1.00		
Core Real Estate	11.9	0.44	0.34	0.39	1.00	
Private Equity	32.0	0.90	0.66	0.03	0.35	1.00

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Appendix I

The market indexes used to represent each asset class are as follows:

U.S. Equity	Dow Jones U.S. Total Stock Market Index
Non-U.S. Equity	1988-2008 MSCI All-Country World Ex – U.S. Index 1978-1987 MSCI EAFE Index
Real Estate	January 1978-March 1984: Un-levered DJ Wilshire Real Estate Securities Index April 1984 – September 2008: MIT- Transaction Based Index
Private Equity	Warburg Pincus/Venture Economics Post-Venture Capital Index
Fixed Income	Barclays Capital (formerly Lehman Brothers) Aggregate Bond Index

An analytical framework such as Global CAPM that directly links expected returns with risk (volatility or standard deviation, and correlations between assets) requires, as inputs, returns based on prices determined in an open, publicly traded market. Traditional indexes for illiquid investments such as real estate and private equity suffer from disadvantages such as appraisal-based pricing, which tend to distort (generally understate) the risks of these asset classes, and artificially reduce their correlations with other assets. For this reason, EnnisKnupp uses indexes of publicly traded securities as proxies for such investments.

Appendix II

Capital Market Assumptions for underlying sectors within private equity

The expected nominal return and standard deviation assumptions for private equity represent this broad asset class which includes possible investments in the following sectors: Venture Capital; Leveraged Buyouts; Distressed Debt; Mezzanine Debt; and non-U.S. Private Equity. Investors in private equity might have different preferences on how to strategically allocate among these sectors within this broad asset class. The assumptions for expected returns and standard deviation have to be adjusted in order to reflect the differences in strategies of implementing a private equity portfolio.

The Global Capital Asset Pricing Model (GCAPM) approach used to determine the expected return assumption relies on the availability of a reasonable proxy for market-value returns for a particular asset class. For the total private equity asset class, the return series used in the GCAPM approach is the Warburg Pincus/Venture Economics Post-Venture Capital Index (PVCI). This is a market-valued index that measures the performance of public stocks of companies that have received venture capital or buyout financing. The index seeks to track the universe of venture-backed stocks from the point of going public until publicly traded for 10 years, at which time they are removed from the index. The PVCI is a measure of the public market for companies that have received private equity financing.

For the particular sections within private equity, there is a lack of reasonable proxy for market-value returns that is available for use within the GCAPM framework. The historical returns data for different sectors of private equity from Venture Economics are from an appraisal-based accounting of returns. Thus, the risk parameters that would be derived from these returns series might be understated for the purposes of evaluating asset allocation targets. Given this limitation, the historical return data from Venture Economics would be used as a starting guide to develop return and risk parameters for the different sectors of private equity. However, in order to have a consistent set of assumptions for the aggregated private equity portfolio, the initial parameters from historical returns data of Venture Economics were adjusted. Finally, general magnitudes of differences in returns and risks were evaluated for reasonableness compared to general expectations in the private equity market.

The table below summarizes the results in this process. For a client with a typical portfolio allocation to private equity, the return and standard deviation estimates would be 14.9% and 32.0%, respectively, as provided from the GCAPM approach. However, for investors with a different allocation to the different sectors, the total return, standard deviation, and correlation estimates for the private equity portfolio can be adjusted using the parameters in the table on the following page:

	Sectors in Private Equity	% Allocation	Expected Arithmetic Return	Standard Deviation
1	Venture Capital	21.0%	17.8%	43%
2	Leveraged Buyouts	42.0	13.7	31
3	Distressed Debt	3.0	11.9	29
4	Mezzanine Debt	3.0	12.5	25
5	Non-U.S. Private Equity	31.0	15.3	42
	Total Private Equity	100.0%	14.9%	32%

Correlations

	Venture Capital	Leveraged Buyouts	Distressed Debt	Mezzanine Debt	Non-U.S. Private Equity
Venture Capital	1.00				
Leveraged Buyouts	0.66	1.00			
Distressed Debt	0.20	0.30	1.00		
Mezzanine Debt	0.33	0.62	0.90	1.00	
Non-U.S. Private Equity	0.61	0.77	0.22	0.38	1.00

	Venture Capital	Leveraged Buyouts	Distressed Debt	Mezzanine Debt	Non-U.S. Private Equity
U.S. Equity	0.85	0.95	0.81	0.70	0.94
Non-U.S. Equity	0.32	0.47	0.33	0.55	0.90
U.S. Bonds	0.17	0.30	0.07	0.14	0.09
Real Estate	0.36	0.59	0.61	0.79	0.31

APPENDIX III

Capital Market Assumptions for underlying sectors within Real Estate

The expected nominal return and standard deviation assumptions for real estate presented in the main section of this paper are for a core private real estate investment. The other possible types of investment in real estate are: REITS, Value-added and Opportunistic Real Estate. Investors in real estate might have different preferences on how to strategically allocate among these sectors. The assumptions for expected returns and standard deviation have to be adjusted in order to reflect the differences in strategies of implementing a real estate portfolio.

The Global Capital Asset Pricing Model (GCAPM) approach used to determine the expected return assumption relies on the availability of a reasonable proxy for market-value returns for a particular asset class. For the core real estate asset class, the return series that is used in the GCAPM approach is the MIT Transactions-Based Real Estate Index (from 2nd quarter 1984) and the un-levered DJ Wilshire Real Estate Securities Index (from 1978 to 1st quarter 1984). The MIT index is developed as a Transactions-Based Index (TBI) of institutional commercial real estate investment performance. This index measures the market movements and returns on investment based on transaction prices of real estate properties sold from the NCREIF Index database. This index offers advantages over the median-price or appraisal-based indexes previously available for commercial real estate. Median price indexes are not true price-change indexes because the properties that transact in one period are different from those that transacted in the previous period. Appraisal-based indexes are based on appraisal estimates rather than actual prices of actual transactions. Since this index starts only in 2nd quarter 1984, the un-levered DJ Wilshire Real Estate Securities Index is used from Estate Securities Index is used from 1978 to 1st quarter 1984 in order to have a comparable time period as the other major asset classes.

For the REITS sub-sector, the REITS index is used (from 1978) to calculate the beta relative to the Global Market Portfolio. This beta is used in the GCAPM in order to calculate the expected return for the REITS. For Value-added and Opportunistic real estate, there is a lack of reasonable proxy for market-value returns that is available for use within the GCAPM framework. In order to develop assumptions for return and standard deviation, the assumptions for core private real estate is used with some adjustments. The adjustments made take into account the following: higher expected return and risk premium; higher leverage or use of debt; and potentially longer period of illiquidity for these investments.

The table below summarizes the results in this process. It is illustrated in the table that for a client with a typical portfolio allocation to real estate (35% core, 15% REITS, 25% value-added, 25% opportunistic), the return and standard deviation estimates would be 9.9% and 24.0%, respectively. However, for investors with a different allocation to the different sectors, the total return and standard deviation estimates for the real estate portfolio can be adjusted using the parameters in the table below:

	Sectors in Real Estate	% Allocation	Expected Arithmetic Return	Standard Deviation
1	Core	35.0%	7.1%	11.9%
2	REITs	15.0	8.0	19.0
3	Value-Added	25.0	10.0	26.9
4	Opportunistic	25.0	14.9	41.1
	Total Real Estate	100.0%	9.9%	24.0%

GLOSSARY

Appraisal-based pricing: Determining the market value of an asset based on estimates given by analysts or experts. Since appraisals are done only periodically (not continuously), the fluctuation in value of an appraisal-priced asset may be understated.

Beta: A measure of an asset class' relative volatility. The beta is the covariance (a measure that combines correlation and volatility) of an asset class in relation to the rest of the market portfolio. The market portfolio has a beta coefficient of 1. Any asset class with a higher beta is more volatile than the market, and any with a lower beta can be expected to rise and fall more slowly than the market.

Capital Asset Pricing Model (CAPM): Model of the relationship between expected risk and expected return. The model is grounded in the theory that investors demand higher returns for higher risks. It says that the return on an asset or a security is equal to the risk-free return plus a risk premium that is proportional to its relative risk (beta). Global CAPM extends the analysis to all investment opportunities worldwide.

Correlation: A measurement of the degree of mutual variation between two random variables. The correlation coefficient is bounded by the values +1 and -1. A correlation close to +1 indicates that the two random variables tend to move in the same direction (i.e., a higher value for one variable increases the chances for a higher value for the other variable). A correlation close to -1 indicates that the two random variables tend to move in the opposite direction. A correlation close to 0 indicates that the two variables tend to change independently of each other.

Gross Domestic Product (GDP): Market value of the goods and services produced by labor and property in a country. GDP is made up of consumer and government purchases, private domestic investments, and net exports of goods and services. Figures for GDP are released by the Commerce Department on a quarterly basis. Growth of the U.S. economy is measured by the change in inflation-adjusted GDP, or real GDP.

Nominal return: The percentage change in the value of a financial asset, where the beginning and ending values of the asset are not adjusted for inflation over the time of the investment.

Price/earnings ratio (P/E ratio): Price of a stock divided by the company's earnings per share. The P/E ratio gives investors an idea of how much they are paying for a company's earning power.

Risk premium: The additional return, above that offered by cash equivalents, on a risky investment in compensation for its risk. In the Capital Asset Pricing Model, the risk premium reflects market-related risk as measured by beta.

Standard deviation: Statistical measure of the degree to which an individual value in a probability distribution (such as the returns on an asset class) tends to vary from the average.

Valuation: Placing a value or worth on an asset. Stock analysts determine the value of a company's stock based on the outlook for earnings and the market value of assets on the balance sheet. Stock valuation is normally expressed in terms of price/earnings ratios. A company with a high P/E is said to have a high valuation, and a low P/E stock has a low valuation.

ENDNOTES

[1]As measured by the Dow Jones U.S. Total Stock Market Index (float-adjusted) as of June 30, 2008. EnnisKnupp does not make an explicit adjustment to the dividend yield to account for the possible impact of future net share repurchases on equity prices. Although share repurchase programs have been popular in recent years, the future effect of such corporate actions on the income return of the broad market is difficult to predict. In particular, much share repurchase activity is related to firms' need for funding employee stock options, rather than a mechanism for distributing earnings to shareholders.

[2]Blue Chip Economic Indicators, and its companion publication Blue Chip Financial Forecasts, are monthly surveys of more than 50 economists from manufacturing firms, banks, insurance companies, brokerage firms and other institutions on a wide range of economic variables. They are published by Aspen Publishers.

