DUFF & PHELPS

Client Alert

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Duff & Phelps Increases U.S. Equity Risk Premium Estimate to 6%

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6.0%

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The Equity Risk Premium (ERP) is a key input used to calculate the cost of capital within the context of the Capital Asset Pricing Model (CAPM) (and other models).[1] The ERP is used as a building block when estimating the cost of capital (i.e. "discount rate", "expected return", "required return"), and is an essential ingredient in any business valuation, project evaluation, and the overall pricing of risk.

Duff & Phelps regularly reviews fluctuations in global economic and financial conditions that warrant periodic reassessments of ERP. Based upon current market conditions, Duff & Phelps is increasing its recommended U.S. ERP to 6.0% when developing discount rates as of September 30, 2011. Duff & Phelps reviews its equity risk premium assessment on a monthly basis. We will continue to use 6.0% until such time as evidence indicates equity risk in financial markets has materially changed.

In developing our ERP recommendation, we incorporate a "normalized" 20-year yield on U.S. government bonds of 4.0% (based on a trailing 12 month average) because, were we to use the spot yield-to-maturity of 2.66% as of September 30, 2011, we would arrive at an overall discount rate inappropriately low vis-à-vis the risks currently facing investors.[2]

The prior Duff & Phelps recommended U.S. ERP was 5.5%, established as of December 1, 2009. Factors such as the recent Standard & Poor's downgrade of U.S. government debt, recent indication of a slowdown in the global economy accompanied by a threat of a double-dip recession in certain developed countries (including the U.S.), the Euro sovereign debt crisis, and the continued deterioration of financial market conditions throughout the Summer of 2011 are factored into the reassessment of ERP.

[1] The cost of capital is the expected rate of return required in order to attract funds to a particular investment.

[2] To learn more about the equity risk premium, the risk free rate, and other cost of capital related issues, download a free copy of "Developing the Cost of Equity Capital: Risk-Free Rate and ERP During Periods of 'Flight to Quality'", August 2011, by Roger J. Grabowski at http://www.duffandphelps.com/CostofCapital

Overview of Duff & Phelps ERP Methodology

The Duff & Phelps Equity Risk Premium (ERP) Methodology is a Two-Dimensional Process

There is no single universally accepted methodology for estimating the Equity Risk Premium (ERP); consequently there is wide diversity in practice among academics and financial advisors with regards to recommended ERP estimates. For this reason, Duff & Phelps employs a two-dimensional process that takes into account a broad range of economic information and multiple ERP estimation methodologies to arrive at our recommendation.

Long-term research indicates that the ERP is cyclical. We use the term *normal*, or *unconditional* ERP to mean the long-term average ERP without regard to current market conditions. This concept differs from the *conditional* ERP, which reflects current economic conditions. The "unconditional" ERP range versus a "conditional" ERP is further distinguished as follows:

"What is the range?"

- **Unconditional ERP Range** – The objective is to establish a reasonable range for a normal or unconditional ERP that can be expected over an entire business cycle. Based on the analysis of academic and financial literature and various empirical studies, we have concluded that a reasonable long-term estimate of the normal or unconditional ERP for the U.S. is in the range of 3.5% to 6.0%.[3]

"Where are we in the range?"

- **Conditional ERP** – The objective is to determine where within the unconditional ERP range should the conditional ERP be, based on current economic conditions. Research has shown that ERP is cyclical during the business cycle. When the economy is near (or in) recession, the conditional ERP is at the higher end of the normal, or unconditional ERP range; conversely, when the economy improves, the conditional ERP moves back toward the middle of the range. At the peak of an economic expansion, the conditional ERP is closer to the lower end of the range.

[3] For a more detailed description on how we arrive at our unconditional ERP range, refer to *Cost of Capital: Applications and Examples*, Fourth Edition, by Shannon P. Pratt and Roger J. Grabowski.

Basis for Change in Recommended U.S. ERP

Current Economic Conditions

As previously indicated, based on the analysis of academic and financial literature and various empirical studies, we have concluded that a reasonable long-term estimate of the normal or unconditional equity risk premium (ERP) is in the range of 3.5% to 6.0%. Based on economic conditions during late 2008 and early 2009, the Duff & Phelps recommended U.S. ERP was increased from 5.0% to 6.0%. As markets began to stabilize following the 2008−2009 financial crisis, we decreased the recommended U.S ERP in December 2009 to 5.5%.

While the perceived risks seemed to have diminished (to a degree) during late 2009 and 2010, at the beginning of 2011 indicators began emerging that suggested that the U.S. and some other advanced economies' recoveries may have slowed. Questions regarding the pace and sustainability of the economy recovery began to re-surface.

Global economic and financial market conditions deteriorated even further in the summer of 2011, with volatility in financial markets reaching significantly elevated levels. In fact, many aspects of the global economic and financial conditions observed during the 2008−2009 financial crisis may be reemerging. As a recent Standard & Poor's (S&P) report updating the economic outlook for the U.S. succinctly stated:[4]

"Any economic forecast will turn out to be wrong; it is simply a question of how far off the mark. Currently, the crystal ball remains cloudier than usual, though it is clearing somewhat. Many of the old economic relationships are no longer working. When and if they return to normal is unknown, making the range of risks even wider than usual."

–Standard & Poor's (September 26, 2011)

The global economy may be on the verge of a crisis once again.[5] Two main adverse developments are contributing to the current situation.

First, global economic growth has slowed significantly since the beginning of 2011. Threats of a double dip recession have arisen in many advanced economies, whereas emerging economies are struggling to balance the threats of a recession versus higher inflation. Initially, one-time events such as the earthquake and tsunami in Japan, as wells as the shocks to oil supply caused by the Jasmine revolution in North Africa and Middle East, seemed to offer reasonable

[4] Standard & Poor's *Global Credit Portal – RatingsDirect* "Economic Research: U.S. Risks To The Forecast: The Recovery Is A- Changin", September 26, 2011.

[5] For a more extensive review of current economic conditions and an outlook for the global economy, consider a review of "World Economic Outlook September 2011 – Slowing Growth, Rising Risks", published by the International Monetary Fund.

explanations for the slowdown. However, this slowdown has now extended to China, considered by some analysts to be the main engine of global economic recovery in the post-Lehman world.[6] The risks of another recession have extended to countries such as the U.S., Germany, and France, to name a few.

The second significant development is a large increase in fiscal uncertainty, which has been particularly pronounced since August. Markets have become increasingly skeptical about governments' ability to stabilize their public debt. As late as May 2011, investors' concerns were mostly limited to a few small countries on the periphery of the Euro-zone: Greece, Portugal, and Ireland. Since June 2011, however, these concerns have extended to larger Euro-zone countries such as Spain and, later, Italy. Budget deficit concerns and the lack of political consensus on how to deal with these issues have led to a series of sovereign debt downgrades by the three major U.S. credit rating agencies. Even the U.S. was not immune to this, as Congress' stalemate in raising the U.S. debt ceiling culminated in S&P's historical decision in August 2011 to downgrade the U.S. sovereign debt rating from AAA to AA+.

Concerns about more than a few governments' solvency have translated into reservations regarding the health of financial institutions holding these sovereign bonds. These concerns have led to a partial freeze of financial flows, with banks seeking to maintain high levels of liquidity and tightening lending. Certain European banks faced liquidity constraints, which have forced the European Central Bank to implement measures to introduce additional liquidity into the system. The intensification of Europe's sovereign debt and banking crisis are raising concerns about the potential for a systemic banking crisis like that observed in the Fall of 2008, which produced a massive tightening of financial liquidity and led to plummeting stock and bond prices. Unsurprisingly, the level of uncertainty is currently significant. Equity markets have fallen dramatically, and investors have taken flight to government bonds of perceived "safe-haven" countries, such as, for example, the U.S., Germany, and the U.K. Buying U.S. Treasuries, German Bunds or U.K. gilts may provide a certain degree of insurance against this perceived risk.

[6] Lehman Brothers filed for Chapter 11 bankruptcy on September 15, 2008. The failure of the global financial firm, once the fourth largest Wall Street investment firm with assets of nearly $700 billion, was the largest bankruptcy in U.S. history and is seen by many as a catalyst that aggravated and possibly deepened the 2008−2009 financial crisis. Source: CNN Money, "The 10 largest U.S. bankruptcies", http://money.cnn.com, November 1, 2009.

In the words of Duff & Phelps' Managing Director Roger Grabowski:[7]

"Financial crises are often accompanied by a "flight to quality". Investors are looking for places to "park" funds that they consider free from [the risk of] loss of principal. They are not looking for yield. The nominal returns on "risk-free" securities fall dramatically for reasons other than inflation expectations, and, thus, without adjustment, become less reliable as the best building block upon which to estimate the cost of equity capital."

In August 2011, the Federal Reserve Board announced that conditions were "likely to warrant" keeping its benchmark interest rate (i.e., the federal funds target rate) at the current level of 0%−0.25% (instituted December 2008) at least through mid-2013. Interest rates in certain maturities have dipped to historical all time lows, both in the U.S. and Germany. Uncertainty over future demand on the business side and future income on the household side may be holding back investment and spending decisions. Many corporations, while holding significant cash balances, are not investing this cash. In a CNBC interview on September 6, 2011, Caitlin Long, head of the Corporate Strategies Group at Morgan Stanley, tried to explain some of this apparent contradiction.[8] On the one hand, from a corporate perspective it would appear that cost of capital is at all time lows, based on the low yields observed for government securities. However, as she points out, the problem is that the cost of capital is assessed against longer term return expectations, and as economic uncertainty rises, in her opinion, longer-term return expectations are diminishing.

Additional Indicators Supporting ERP Change

In addition to the general economic factors described above, Duff & Phelps monitors other indicators that may provide a more quantitative view of where we are within the range of reasonable long-term estimates for the U.S. ERP.

Specifically, we consider the following two models:[9]

- **Hassett Implied ERP** − Stephen Hassett has developed a model for estimating the implied ERP, as well as the estimated S&P 500 index level, based on the current yield on long-term U.S. government bonds and a risk

[7] "The S&P Downgrade, the Risk Free Rate, and Flights to Quality", dated August 8, 2011 available at http://www.duffandphelps.com/CostofCapital.

[8] A video of this interview is available at http://video.cnbc.com/gallery/?video=3000043358.

[9] The description of these methodologies is largely based on Chapter 9 of *Cost of Capital – Applications and Examples*, Fourth Edition, by Shannon Pratt and Roger Grabowski. Both the Hassett and Damodaran models estimate ERP in terms of a 10-year U.S. Government bond; we convert these implied ERP estimates to an equivalent estimate in terms of 20-year U.S. government bonds.

premium factor (RPF).[10] The RPF is the empirically derived relationship between the risk-free rate, S&P 500 earnings, real interest rates, and real GDP growth to the S&P 500 index over time. The RPF appears to change only infrequently. The model can be used monthly to estimate the S&P 500 and the conditional ERP based on the current level of interest rates.

- **Damodaran Implied ERP** − Professor Aswath Damodaran calculates implied ERP estimates for the S&P 500 and publishes his estimates on his website.[11] He uses a two-stage model, projecting expected distributions (dividends and stock buybacks) based on an average of analyst estimates for earnings growth for individual firms comprising the S&P 500 for the first five years and the risk-free rate thereafter (since 1985). He solves for the discount rate, which equates the expected distributions to the current level of the S&P 500.

[Note: Appendix A summarizes the U.S. ERP implied by the Hassett and Damodaran models since December 31, 2008]

Conclusion

Duff & Phelps Increases U.S. ERP to 6.0% as of September 30, 2011

6.0%

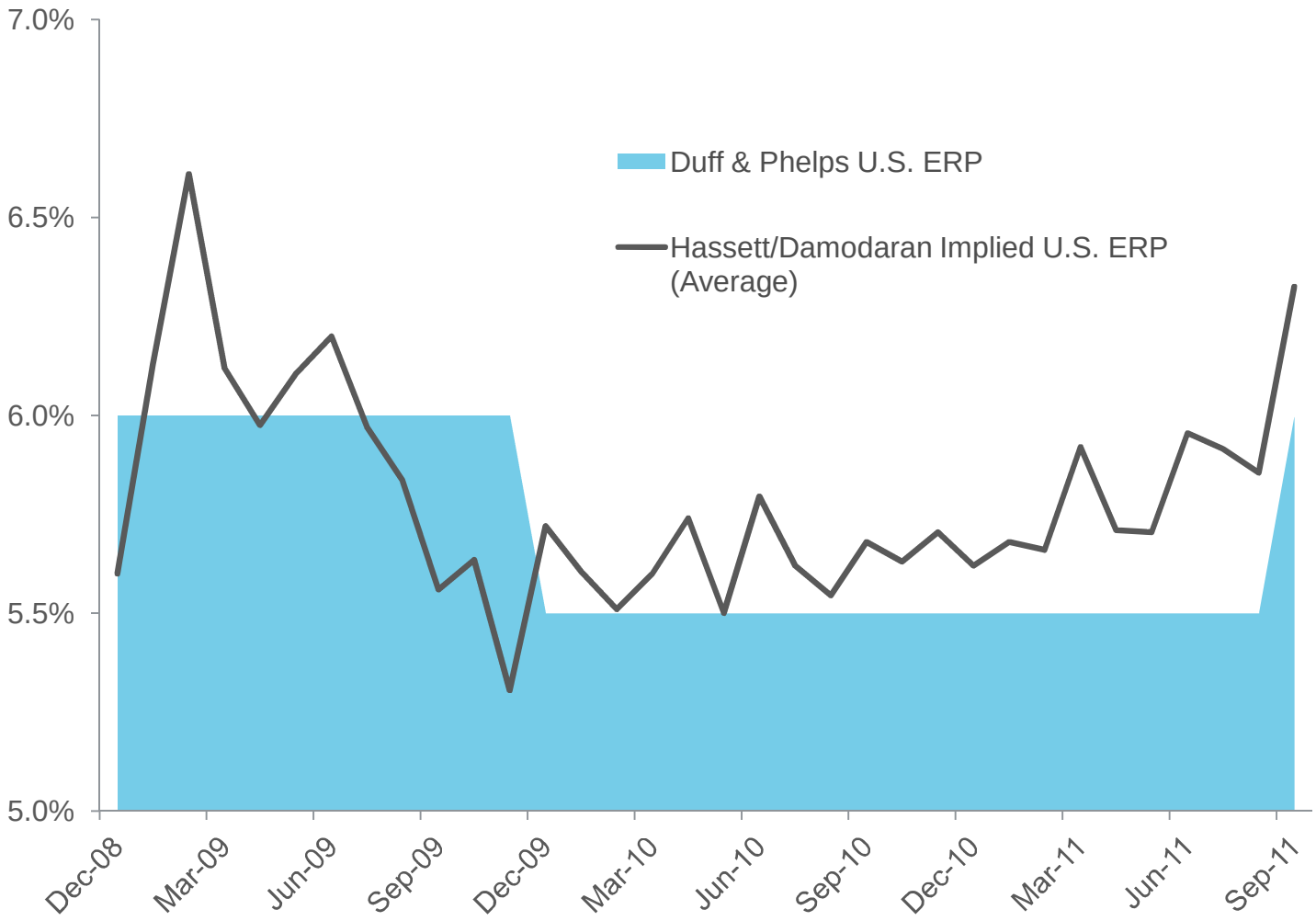
The Duff & Phelps Recommended U.S. Equity Risk Premium as of September 30, 2011

Based on the foregoing, we conclude that the appropriate *conditional* ERP is currently at the top of the long-term range, such that we increase our recommended U.S. Equity Risk Premium to 6.0% when developing discount rates as of September 30, 2011. Duff & Phelps reviews its equity risk premium assessment on a monthly basis. We will continue to use 6.0% until such time as evidence indicates equity risk in financial markets has materially changed. This ERP change was developed based on the use of a normalized risk-free rate. “Normalized” in this context means that in months where the risk-free rate is deemed to be abnormally low, a proxy for a longer-term sustainable risk-free rate is used (e.g. 4.0% as of September 30, 2011, based on trailing 12-month average yield on 20-year U.S. government bonds).

[10] Stephen D. Hassett, ‘‘The RPF Model for Calculating the Equity Risk Premium and Explaining the Value of the S&P with Two Variables,’’ *Journal of Applied Corporate Finance* 22, 2 (Spring 2010): 118–130.

[11] Information and data available at http://pages.stern.nyu.edu/~adamodar/

Appendix A



Additional Indicators Supporting the U.S. ERP Change

The graph illustrates the average of the Hassett implied U.S. ERP model and the Damodaran Implied U.S. ERP model (estimated using a "normalized" 20-year U.S. Treasury yield), as compared to the Duff & Phelps U.S. ERP. Duff & Phelps regularly reviews fluctuations in global economic and financial conditions which that warrant periodic reassessments of ERP.

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