

Table: Equity Risk Premium & Risk-free Rates

December 31, 2018

**Duff & Phelps Recommended** U.S. Equity Risk Premium (ERP) and Corresponding Risk-free Rates  $(R_f)$ ; January 2008-Present

For additional information, please visit  $\underline{www.duffandphelps.com/CostofCapital}$ 

Date	Risk-free Rate (R <sub>f</sub> )	R <sub>f</sub> (%)	Duff & Phelps Recommended ERP (%)	What Changed
Current Guidance: December 31, 2018 - UNTIL FURTHER NOTICE	Normalized 20-year U.S. Treasury yield	3.50	5.50	ERP
September 5, 2017 - December 30, 2018	Normalized 20-year U.S. Treasury yield	3.50	5.00	ERP
November 15, 2016 - September 4, 2017	Normalized 20-year U.S. Treasury yield	3.50	5.50	Rf
January 31, 2016 - November 14, 2016	Normalized 20-year U.S. Treasury yield	4.00	5.50	ERP
December 31, 2015	Normalized 20-year U.S. Treasury yield	4.00	5.00	
December 31, 2014	Normalized 20-year U.S. Treasury yield	4.00	5.00	
December 31, 2013	Normalized 20-year U.S. Treasury yield	4.00	5.00	
February 28, 2013 – January 30, 2016	Normalized 20-year U.S. Treasury yield	4.00	5.00	ERP
December 31, 2012	Normalized 20-year U.S. Treasury yield	4.00	5.50	
January 15, 2012 - February 27, 2013	Normalized 20-year U.S. Treasury yield	4.00	5.50	ERP
December 31, 2011	Normalized 20-year U.S. Treasury yield	4.00	6.00	
September 30, 2011 - January 14, 2012	Normalized 20-year U.S. Treasury yield	4.00	6.00	ERP
July 1 2011 - September 29, 2011	Normalized 20-year U.S. Treasury yield	4.00	5.50	$R_f$
June 1, 2011 - June 30, 2011	Spot 20-year U.S. Treasury yield	Spot	5.50	$R_f$
May 1, 2011 - May 31, 2011	Normalized 20-year U.S. Treasury yield	4.00	5.50	$R_f$
December 31, 2010	Spot 20-year U.S. Treasury yield	Spot	5.50	
December 1, 2010 - April 30, 2011	Spot 20-year U.S. Treasury yield	Spot	5.50	$R_f$
June 1, 2010 - November 30, 2010	Normalized 20-year U.S. Treasury yield	4.00	5.50	$R_f$
December 31, 2009	Spot 20-year U.S. Treasury yield	Spot	5.50	
December 1, 2009 - May 31, 2010	Spot 20-year U.S. Treasury yield	Spot	5.50	ERP
June 1, 2009 - November 30, 2009	Spot 20-year U.S. Treasury yield	Spot	6.00	Rf
December 31, 2008	Normalized 20-year U.S. Treasury yield	4.50	6.00	
November 1, 2008 - May 31, 2009	Normalized 20-year U.S. Treasury yield	4.50	6.00	$R_f$
October 27, 2008 - October 31, 2008	Spot 20-year U.S. Treasury yield	Spot	6.00	ERP
January 1, 2008 - October 26, 2008	Spot 20-year U.S. Treasury yield	Spot	5.00	Initialized

<sup>&</sup>quot;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.

To learn more about cost of capital issues, and to ensure that you are using the most recent Duff & Phelps Recommended ERP, visit www.duffandphelps.com/CostofCapital.

To learn more about/purchase Duff & Phelps valuation data resources, visit: www.dpcostofcapital.com.