

Appendix B  
Historic Interest Rates and Capital Costs

**Q. PLEASE DISCUSS LONG-TERM INTEREST RATES AND CAPITAL COSTS IN U.S. MARKETS.**

A. Long-term capital cost rates for U.S. corporations are a function of the required returns on risk-free securities plus a risk premium. The risk-free rate of interest is the yield on long-term U.S. Treasury bonds. The yields on 10-year U.S. Treasury bonds from 1953 to the present are provided on Panel A of Exhibit JRW-2. These yields peaked in the early 1980s and have generally declined since that time. These yields fell to below 3.0% in 2008 as a result of the financial crisis. From 2008 until 2011, these rates fluctuated between 2.5% and 3.5%. In 2012, the yields on 10-year Treasuries declined from 2.5% to 1.5% as the Federal Reserve initiated its Quantitative Easing III (“QEIII”) program to support a low interest rate environment. These yields increased from mid-2012 to about 3.0% as of December of 2013 on speculation of a tapering of the Federal Reserve’s QEIII policy. Since that time, the ten-year Treasury yield declined and bottomed out at 1.7% in January of 2015. These yields increased in 2015, but have declined to below 2.0% in 2016.

Panel B on Exhibit JRW-2 shows the differences in yields between ten-year Treasuries and Moody’s Baa-rated bonds since the year 2000. This differential primarily reflects the additional risk premium required by bond investors for the risk associated with investing in corporate bonds as opposed to obligations of the U.S. Treasury. The difference also reflects, to some degree, yield curve changes over time. The Baa rating is the lowest of the investment grade bond ratings for corporate bonds. The yield differential hovered in the 2.0% to 3.5% range until 2005, declined to 1.5% until late 2007, and then increased significantly in response to the financial crisis. This differential

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peaked at 6.0% at the height of the financial crisis in early 2009 due to tightening in credit markets, which increased corporate bond yields, and the “flight to quality,” which decreased Treasury yields. The differential subsequently declined, and but increased to over 3.0% range in 2015.

**Q. YOU MENTIONED RISK PREMIUM BEING REFLECTED AS THE DIFFERENTIAL BETWEEN THE TEN-YEAR TREASURIES AND MOODY’S BAA-RATED BONDS. PLEASE EXPLAIN WHAT THE RISK PREMIUM IS AND HOW IT AFFECTS YOUR ANALYSIS?**

A. The risk premium is the return premium required by investors to purchase riskier securities. The risk premium required by investors to buy corporate bonds is observable based on yield differentials in the markets. The market risk premium is the return premium required to purchase stocks as opposed to bonds. The market or equity risk premium is not readily observable in the markets (like bond risk premiums) since expected stock market returns are not readily observable. As a result, equity risk premiums must be estimated using market data. There are alternative methodologies to estimate the equity risk premium, and these alternative approaches and equity risk premium results are subject to much debate. One way to estimate the equity risk premium is to compare the mean returns on bonds and stocks over long historical periods. Measured in this manner, the equity risk premium has been in the 5% to 7% range.<sup>1</sup> However, studies by leading academics indicate that the forward-looking equity risk premium is actually in the 4.0% to 6.0% range. These lower equity risk premium results

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<sup>1</sup> See Exhibit JRW-11, p. 5-6.

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are in line with the findings of equity risk premium surveys of CFOs, academics, analysts, companies, and financial forecasters.

**Q. TELL US ABOUT INTEREST RATES ON LONG-TERM UTILITY BONDS.**

A. Panel A of Exhibit JRW-3 provides the yields on A-rated public utility bonds. These yields peaked in November 2008 at 7.75% and henceforth declined significantly. These yields declined to below 4.0% in mid-2013, and then increased with interest rates in general to the 4.85% range as of late 2013. These rates dropped significantly during 2014 due to economic growth concerns and were bottomed out below 4.0% in the first quarter of 2015. These yields subsequently increased to 4.75% as of mid-year 2015, and have since decreased to the 4.2% range.

Panel B of Exhibit JRW-3 provides the yield spreads between long-term A-rated public utility bonds relative to the yields on 20-year U.S. Treasury bonds. These yield spreads increased dramatically in the third quarter of 2008 during the peak of the financial crisis and have decreased significantly since that time. For example, the yield spreads between 20-year U.S. Treasury bonds and A-rated utility bonds peaked at 3.4% in November 2008 and then declined to about 1.25% in the summer of 2014. They have since increased to almost 2.0%.