



# Risk Modeling Bulletin Issue 17

## Corporate Bonds

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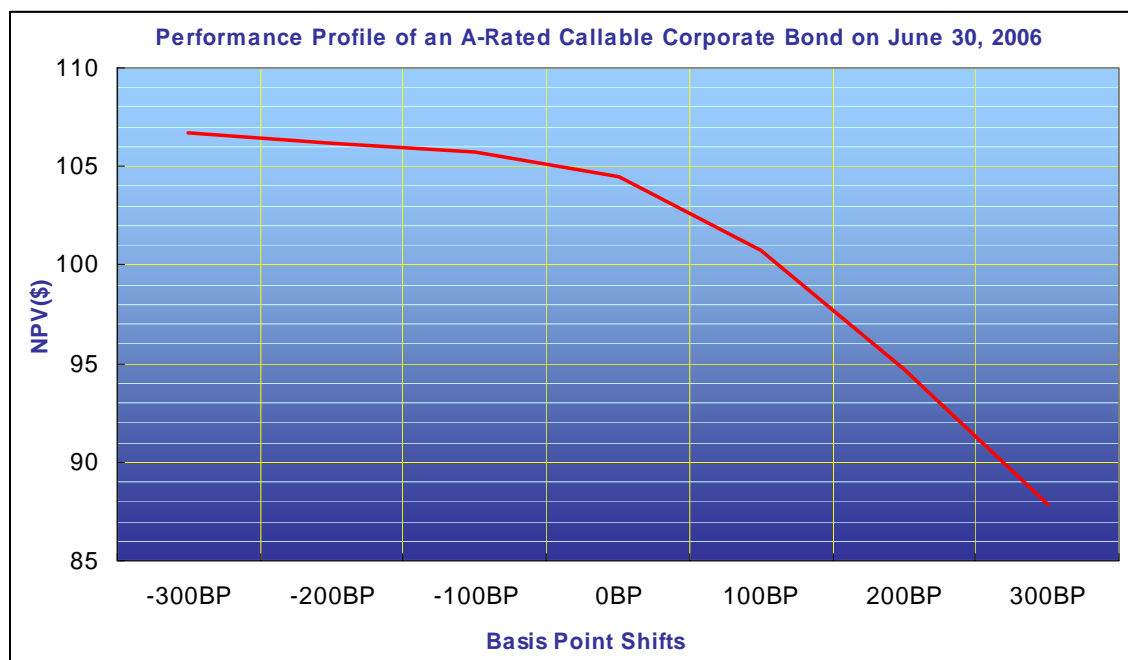
Corporate bond valuation must take credit risk and the bond provisions into consideration. The Feature Article in this issue takes a look at the corporate bond valuation using an A-rated callable corporate bond issued by BANKAMERICA CAPITAL II as illustration; the Market Perspective analyzes the corporate credit spreads.

### Feature Article: Corporate Bond Valuation

To value a corporate bond with a call schedule, we need to use an arbitrage-free interest rate model along with the spread required to compensate for the credit risks. In THC Decisions, we use an interest rate lattice to determine the optimal call strategy of the issuer. Using this valuation approach, we can value the bond relative to the treasury curve, taking the bond coupon rate, maturity, call and/or put option provision, sinking fund provision and credit spreads into account.

Consider the following simulation for an A-Rated callable corporate bond issued by BANKAMERICA CAPITAL II. Figure 1 presents the performance profile of the bond on June 30, 2006. It shows that the call provision limits the value of the bond as the interest rates fall. Figure 2 depicts the interest risk profile using key rate durations as the measure. The results show that the interest rate sensitivity does not concentrate on the bond maturity but spreads across the maturity spectrum. Effective duration, convexity and WAL are presented in Table 1. The bond is described in Table 2.

**FIGURE 1**



**FIGURE 2**

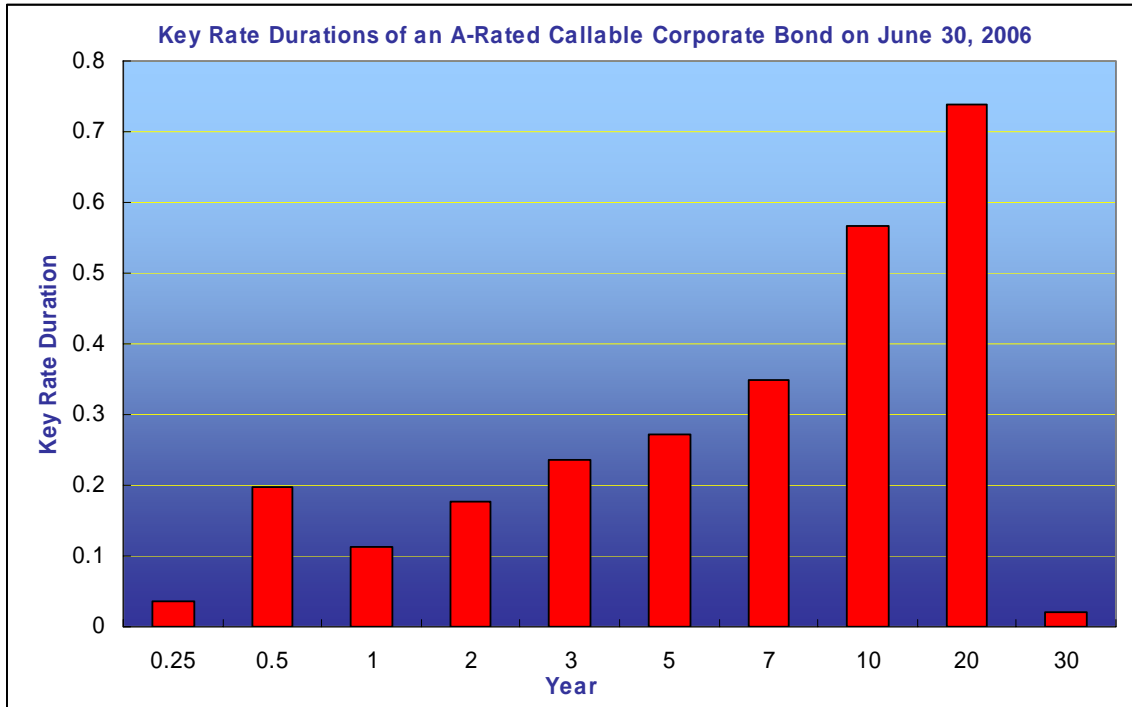


Table 1: Duration, Convexity and WAL of the Corporate Bond

Effective Duration	Convexity	WAL
2.77	33.14	14.25

Table 2: Characteristics of an A-rated Callable Corporate Bond issued by BANKAMERICA CAPITAL II

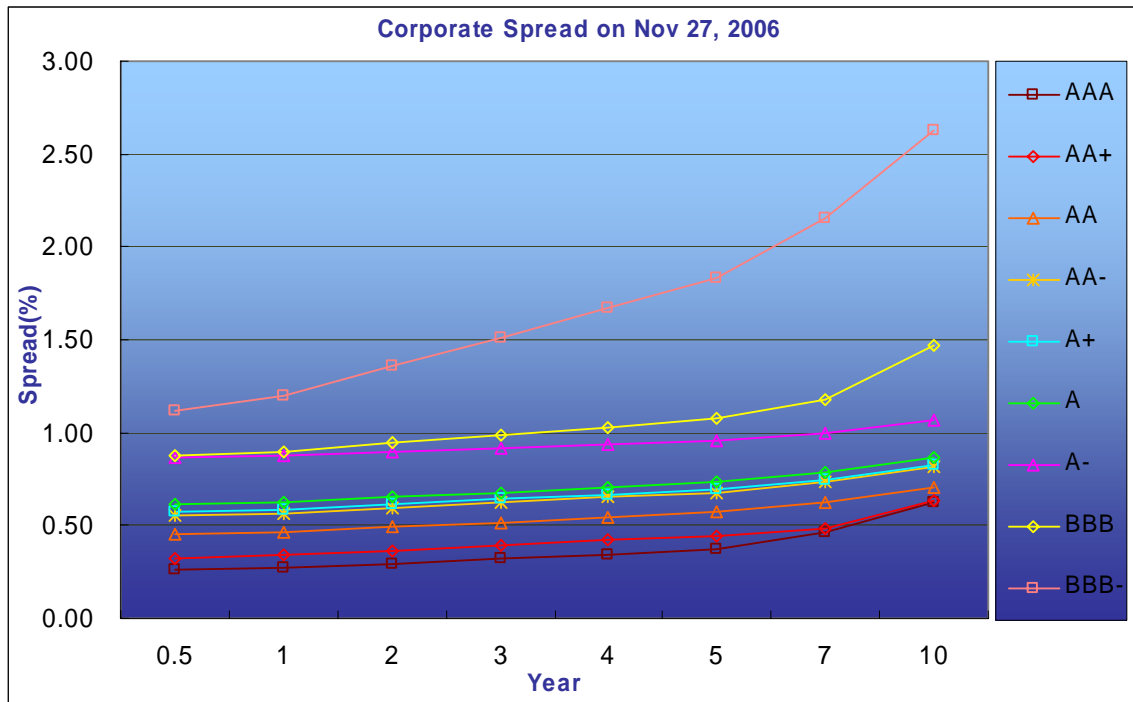
Coupon	Maturity	Principal(\$)	Callable		
8.00 Fixed S/A Act/365	12/15/26	100	Yes		
Call Schedule					
Call Date	2006-12-15	2007-12-15	2008-12-15	2009-12-15	2010-12-15
Call Price(\$)	103.969	103.572	103.175	102.778	102.381
Call Date	2011-12-15	2012-12-15	2013-12-15	2014-12-15	2015-12-15
Call Price(\$)	101.984	101.587	101.19	100.793	100.396

**Market Perspective: Corporate Spread**

The spread at which the corporate bond is discounted as a premium over the treasury curve is called corporate spread. THC estimates the corporate spread functions for each credit rating and maturity using the TRACE data from actively traded corporate bonds.

Figure 3 depicts the estimated corporate spread results on November 27, 2006, as calculated by THC Decisions.

**FIGURE 3**



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**Contact us if you have any questions, suggestions or comments**

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