Module 4.2. Valuation Bond Test

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# Single Bond Analysis

**Parameters Provided**:  
Settlement Date: 10/ 7/2019  
Maturity Date: 5/ 15/2024  
Bond Price: $992,890  
Coupon Rate: 3.8  
Yield to Maturity: 3.97%  
Par: $1,000,000  
Payment Frequency: 2

**Preliminary Analysis**:  
Number of Accrued Days: 145  
Number of Total Days: 184  
Fraction of period that has already elapsed: 78.8% of semi-annual period  
Number of remaining coupon payments: 10  
Time to bond maturity: 4.606 years

**Bond Valuation Analysis**:  
Model Value of Bond: $1,007,850  
Quoted Value of Bond: $1,007,863  
Quoted Model Value of Bond: $992,877  
Quoted Price of Bond: $992,890  
Accrued Interest Amount: $14,972.83  
Model Error: $-13.28 (Model - Actual)

**Bond Yield To Maturity Analysis**:  
Model Yield to Maturity: 3.97%  
Actual Yield to Maturity: 3.97%  
Model Error: -0.000322% (Model - Actual)

**LSC Fit of CMT Data**:  
Number of Factors: 4  
Level: 3.33%  
Slope: -0.673%  
Curvature1: -0.503%  
Curvature2: -1.08%

**Estimated CMT Spot Rates (1-30)**:

## [1] 2.547815 2.482560 2.457005 2.457294 2.473899 2.500306 2.532108 2.566369  
## [9] 2.601171 2.635301 2.668024 2.698930 2.727825 2.754653 2.779447 2.802294  
## [17] 2.823311 2.842628 2.860380 2.876699 2.891711 2.905535 2.918280 2.930047  
## [25] 2.940924 2.950996 2.960334 2.969008 2.977074 2.984589

**Estimated CMT Discount Rates (1-30)**:

## [1] 2.531387 2.466265 2.440752 2.441398 2.458846 2.486633 2.520331 2.556946  
## [9] 2.594485 2.631653 2.667636 2.701954 2.734349 2.764715 2.793043 2.819386  
## [17] 2.843837 2.866507 2.887519 2.906996 2.925060 2.941827 2.957407 2.971900  
## [25] 2.985401 2.997995 3.009759 3.020765 3.031077 3.040752

**LSC Fit of Spread Over CMT Data**:  
Number of Factors: 4  
Level: 7.71%  
Slope: -4.63%  
Curvature1: 0.775%  
Curvature2: -3.91%

**Estimated Spot Rate Spreads Over CMT (1-30)**:

## [1] 3.116891 3.253887 3.456163 3.688600 3.928711 4.162723 4.382786 4.584968  
## [9] 4.767853 4.931566 5.077115 5.205963 5.319754 5.420149 5.508731 5.586955  
## [17] 5.656126 5.717402 5.771794 5.820182 5.863326 5.901885 5.936424 5.967432  
## [25] 5.995329 6.020478 6.043196 6.063754 6.082390 6.099311

**Estimated Discount Rate Spreads Over CMT (1-30)**:

## [1] 3.093070 3.230441 3.435997 3.675971 3.928470 4.179707 4.421370 4.648808  
## [9] 4.859770 5.053548 5.230391 5.391113 5.536834 5.668808 5.788318 5.896608  
## [17] 5.994851 6.084123 6.165401 6.239562 6.307387 6.369566 6.426712 6.479360  
## [25] 6.527985 6.573003 6.614780 6.653639 6.689863 6.723703

