



BOND DURATION		Basics		Annual Percentage Rate													
Inputs				Scenario: A 4 year Bond with a face value of \$1,000 and an annual coupon rate of 4.625% had a yield to maturity of 3.94%. This bond makes 2 (semi-annual) coupon payments per year and thus has 8 periods until maturity. What is price of this bond based on the Effective Annual Rate (EAR) convention? What is price of this bond based on the Annual Percentage Rate (APR) convention?													
Rate Convention	<input type="radio"/> EAR	<input checked="" type="radio"/> APR	2														
Annual Coupon Rate (CR)	4.625%																
Yield to Maturity (Annualized)	3.94%																
Number of Payments / Year (NOP)	2																
Number of Periods to Maturity (T)	8																
Face Value	\$1,000.00																
Outputs											Our Strategy: We create an option button that can be used to select either the EAR or APR rate convention. The choice of rate convention will determine the discount rate / period. For a given discount rate / period, we will calculate the bond price in four equivalent ways. First, we will calculate the bond price as the present value of the bond's cash flows. Second, we use a formula for the bond price. Third, we use						
Discount Rate / Period (r)	1.97%																
Coupon Payment	\$23.13																
Bond Duration using a Timeline																	
Period	0	1	2	3	4	5	6	7	8								
Time (Years)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	Total							
Cash Flows		\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$1,023.13								
Present Value of Cash Flow		\$22.68	\$22.24	\$21.81	\$21.39	\$20.98	\$20.57	\$20.17	\$875.28	\$1,025.12							
Weight		2.2%	2.2%	2.1%	2.1%	2.0%	2.0%	2.0%	85.4%	100.0%							
Weight * Time		0.01	0.02	0.03	0.04	0.05	0.06	0.07	3.42								
Duration	3.70																
Modified Duration	3.63																
Bond Duration using the Formula				A N F Management Co. Ltd 3/3 B, Purana Paltan Suleman Plaza (5th Floor) Dhaka - 1000 Bangladesh Phone: 7173-816 Mobile: 0191-2113343 USA : 1-(917) 846-5629 http://www.ANFManagement.com e-mail: info@ANFManagement.com													
Duration (D)	3.70																
Modified Duration	3.63																
Bond Duration using the Function (under APR)																	
Duration	3.70																
Modified Duration	3.63																