

Remember: For the investor (bondholder / creditor), a bond is a promise of future payment. It's a contract that you will get some amount of money, usually \$1000, after some time period.

When interest rates increase,
bond prices _____.

When interest rates decrease,
bond prices _____.

Re-examine why...

Assume that the interest rate today is 4%. What is the present value (PV) of \$1000 5 years from now at 4% interest?

Write a sentence to explain exactly what your answer (\$821.93) means.

Assume you can invest the same \$821.93 at 6% interest for 5 years. How much would you get 5 years later?

Assume Louie owns the \$1000 4% bond above. He paid \$821.93 for it. The next day when interest rates have gone up to 6%, he wants to sell it to you for \$821.93.¹ If you took that \$821.93 and invested it at 6% for 5 years, how much would you earn?

Now you can buy a different 5-year bond that will pay you 6%, so why would you want to spend the \$821.93 to get \$1000, which is only 4% growth?

You wouldn't. If you're going to buy Louie's bond, you're not going to pay \$821.93 for it because it's not going to give you what you could get by investing that money at 6%. That's why bond prices go down when interest rates go up.

Price Louie's bond: Determine the PV of \$1000 at 5 years at 6% interest. It's the fraction calculation.

Did you get \$747.26? That's the price of Louie's 4% bond in a 6% world. When interest rates go up, bond prices go down because an equal amount delivered in the future should cost you less upfront. As interest rates increase, invested money earns more.

I hope that helped.

¹ Why would he want to cash out immediately when the interest rate increases? He would. But why?

Price the following bonds for their original price and their new price given changes in the interest rate:

Bond Alpha	\$1000
5%	10-yr.
zero-coupon	

Original price:

Interest rate moves to 7%.

New price:

Bond Beta	\$1000
7%	5-yr.
zero-coupon	

Original price:

Interest rate moves to 5%.

New price:

Bond Delta	\$1000
8%	20-yr.
zero-coupon	

Original price:

Interest rate moves to 9.5%.

New price:

Bond Gamma	\$1000
11%	2-yr.
zero-coupon	

Original price:

Interest rate moves to 9.5%.

New price:

Which bond above represents the least risk?

How do you know?

Why is the *discount* for Delta do large?

Which bond represents the greatest risk?

Why does it make sense that bond Gamma is for such a short term?