

**Real World Graduation: Question 44: Bond Commissions**

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Question 44

Suppose Christine has \$1000 to invest for one year only (she will cash out after 12 months), and is only interested in conservative investments such as mutual funds based on high-quality bonds that have a guaranteed annual return. She is presented with three options: a) Bond Fund A with a guaranteed return of 3% and no sales commission; b) Bond Fund B with a guaranteed return of 6% and a sales commission of 3%; and c) Bond Fund C with a guaranteed return of 10% and a sales commission of 7%. Assume that the risk of all three options is zero. Sales commissions are always paid up-front. Choose the correct statement for this one-year investment:

- a) Bond Fund B is twice as good an investment as Bond Fund A ( $6/3 = 200\%$ )
- b) Bond Fund C is 166% better as an investment than Bond Fund B ( $10/6 = 166\%$ ).
- c) Bond Fund C is 333% better as an investment as Bond Fund A ( $10/3 = 333\%$ )
- d) Bond Fund C is a better investment than splitting the \$1000 between Fund A and Fund B in any ratio.
- e) All of the above are true.

### Answer to Question 44

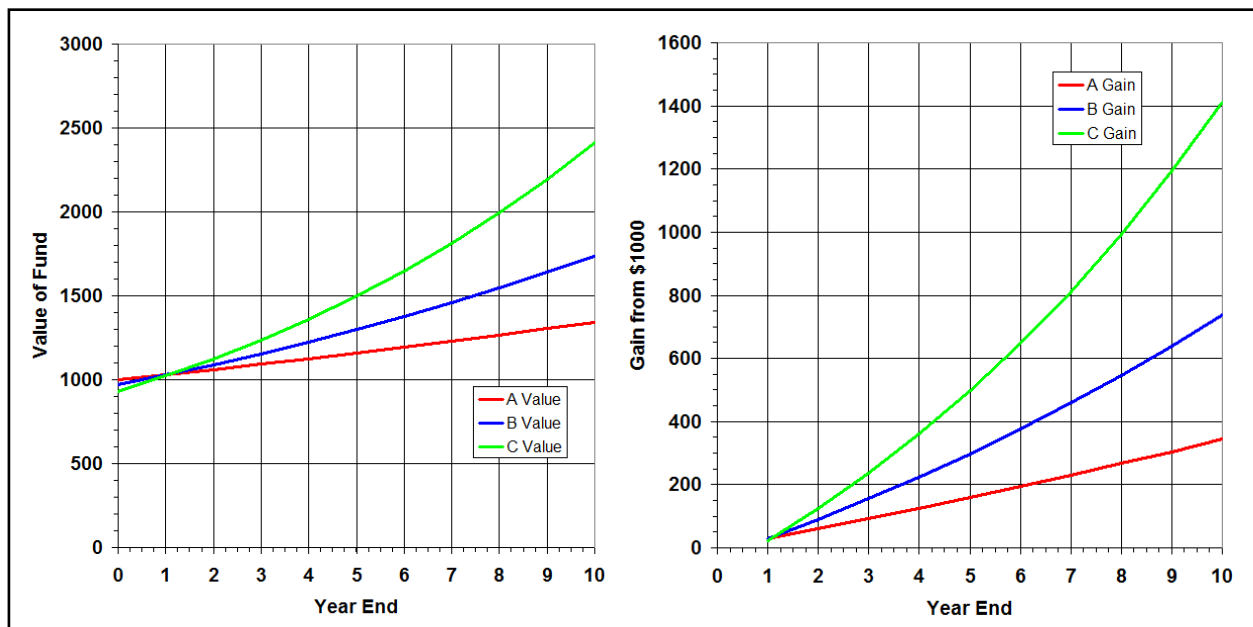
This is a trick question. All of the choices are wrong.

The benefit of an investment has to be evaluated on an absolute scale, not the relative scale of the guaranteed return. By an absolute scale, we are referring to the amount actually invested. In these examples, the amount invested depends on the sales commissions, paid up-front, meaning they are paid before investment is actually purchased. Bond Fund A has no sales commission, so the entire \$1000 is invested for Christine. The 3% sales commission in Bond Fund B brings her actual investment down to \$970. The 7% commission for Bond Fund C brings her initial investment down to \$930.

After the one year period, Bond Fund C will make 3% on the \$1000, and will be worth \$1030. Likewise Bond Fund B will earn 6% on the \$970, and will be worth \$1028.20, and Bond Fund C will earn 10% on the \$930, and will be worth \$1023.00.

Therefore all the answers are wrong for a one-year investment: Bond Fund B is worse than A, C is worse than A, and there is no way to make C better than either of the other two by splitting in any ratio.

These answers turned out this way because the term was only one year. If Christine could invest her money for a longer period, The Figure below shows what would happen. The left panel shows the value of the respective Fund options over a ten-year period. The right panel shows the overall gain at the end of each year on the original \$1000 Christine had for investment. If we regard "better than" as equivalent to "gain made in dollars", it is seen from the right panel that Option B is twice as good as Bond Fund A after about two years; Bond Fund C is 166% as good as Bond Fund B after about five years, Bond Fund C is 333% better than Bond Fund A after about six years. Fund C is guaranteed to be a better than any combination of A and B after about 15 months or so.



The important point here is to remember that numeric values such as rates of return have to be calibrated to an absolute, in this case, the amount actually invested. If someone makes a claim that something is "twice as good" as something else, make sure that the two measurements are to an absolute scale. For example, if an insurance salesman sells you a \$100,000 life insurance policy, and tells you "it's twice as good a deal as a \$50,000 policy", that is true only if the premiums and terms on the two policies are the same. If they are sold over different terms or at different premiums, then you should compare the premiums and terms to a standard reference in order to make an accurate comparison.