The purpose of this assignment is to make sure everyone understands how to value bonds and how to record bond-related journal entries prior to moving on from the topic and prior to testing your knowledge of bonds on Quiz 2. This homework contains 3 sets of questions, all of which are based on Goldman Sachs’ [GS.SF](http://finra-markets.morningstar.com/BondCenter/BondDetail.jsp?ticker=C181534&symbol=GS.SF) bond. If you are stuck, you can use the price chart on the linked Morningstar page to assist you.

*This assignment will be graded on effort. Show your work for each of the calculations, as your work is what will be graded, not your final answers.* You will receive feedback on this assignment prior to Quiz 2, so that you can be sure to understand the material.

***NOTE: Rounding in the below answers is only done at the end. All calculations used full precision internally.***

Question 1

Assume the GS.SF bond was issued on February 15, 2004[[1]](#footnote-1). When the bond was issued it had a coupon rate of 6.345% and a yield of 6.345%, and the principal amount was $2,750M. The bond pays its coupon semiannually and uses a 30/360 count date. The bond will mature after 30 years, on February 15, 2034. Note that Goldman Sachs uses a December 31st fiscal year end.

Required:

1. What was the price of this bond at issuance? Record the journal entry for its issuance.
2. What is the journal entry to record this bond’s first coupon payment?
3. What is the journal entry for the adjusting entry?
4. What is the journal entry for the bond’s second coupon payment?

Part A) No need for calculations. Since coupon rate = yield, the bond is priced at par.

Part B)

 Coupon payment is $2750M×\frac{6.345\%}{2}=87.24M$

Part C)

 30/360: Aug 15 to Dec 31. Dec 31->Jan 1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Month | August | September | October | November | December | January |
| Days | 15 | 30 | 30 | 30 | 30 | 1 |

Days = 15 +30\*4 + 1 = 136

Full coupon payment is 87.24MM. Interest accrued is $87.24M×\frac{136}{180}=65.92M$

Part D)

Partial period interest expense is $Full period IE - Already recognized = 87.24M-65.92M = 21.33M$

Question 2

Now, let’s assume that the bond was instead issued on February 15, 2008, and was still due on February 15th, 2034. On this date, the bond was trading at a yield of 6.89%. Assume everything else about the bond remains the same.

Required:

1. What is the price of this hypothetical bond at issue? Record the journal entry for its issuance.
2. What is the journal entry to record this bond’s first coupon payment?
3. What is the journal entry for the adjusting entry?
4. What is the journal entry for the bond’s second coupon payment?

Part A) Calculate bond price. CF=87.24M (calculated in part 1), r=0.03445, T=52, P=2,750M

Note that T=52 as the bond is now going from 2008 to 2034.

$$\frac{87.24M}{0.03445}×\left[1-\frac{1}{\left(1+0.03445\right)^{52}}\right]+\frac{2750M}{\left(1+0.03445\right)^{52}}=2569.85M$$

Part B)

Interest Expense = Carry x yield/n = $2569.85M×0.03445=88.53M$

Discount CR = Interest Expense – CF = 1.29M

New carrying amount = $2569.85M+1.29M=2571.14M$

Part C)

Full period interest expense = Carry x yield/n = $2571.14M×0.03445=88.58M$

Partial period interest expense = $88.58M×\frac{136}{180}=66.92M$

Part D)

Partial period interest expense = Full period IE – Already recognized = $88.58M-66.92M=21.65M$

Question 3

Now, let’s assume that the bond was instead issued on February 15, 2018, and was still due on February 15th, 2034. On this date, the bond was trading at a yield of 4.649%. Assume everything else about the bond remains the same.

Required:

1. What is the price of this hypothetical bond at issue? Record the journal entry for its issuance.
2. What is the journal entry to record this bond’s first coupon payment?
3. What is the journal entry for the adjusting entry?
4. What is the journal entry for the bond’s second coupon payment?

Part A) Calculate bond price. CF=87.24M (calculated in part 1), r=0.023245, T=32, P=2,750M

Note that T=32 as the bond is now going from 2018 to 2034.

$$\frac{87.24M}{0.023245}×\left[1-\frac{1}{\left(1+0.023245\right)^{32}}\right]+\frac{2750M}{\left(1+0.023245\right)^{32}}=3272.33M$$

Part B)

Interest Expense = Carry x yield/n = $3272.33M×0.023245=76.07M$

Premium DR = CF - Interest Expense = $11.18M$

New carrying amount = $3272.33M-11.18M=3261.15M$

Part C)

Full period interest expense = Carry x yield/n = $3261.15M×0.023245=75.81M$

Partial period interest expense = $75.81M×\frac{136}{180}=57.28M$

Part D)

Partial period interest expense = Full period IE – Already recognized = $75.81M-57.28M=18.53M$

1. It was actually issued, effectively, on February 20th, 2004. This difference makes only a marginal difference on the bond issue price, which is essentially just a rounding error in this bond’s case. [↑](#footnote-ref-1)