Introduction to Finance
Quiz on Corporate Debt

Answer succinctly and precisely. Show all of your work.

1. **(20 points)** Explain the difference between how the US Treasury interfaces with the capital markets to obtain debt capital and how public companies like Verizon and 3M interface with the capital markets to obtain debt capital.

2. **(10 points)** Which approach to raising debt capital from your answer to #1 is cheaper? Explain.

3. Bloomberg shows that Northrup-Grumman has a 6.65% Jan. 15, 2028 note selling at 116.278% of par. Bloomberg reports that the yield to maturity on this note is 4.55% on a bond-equivalent basis and that this note's spread over the benchmark Treasury – the 2.25% of November 15, 2027 – is 193 basis points.

   (a) **(10 points)** What is the yield to maturity on the benchmark Treasury?

   (b) **(10 points)** What would you estimate the annual hazard rate for Northrup-Grumman defaulting on this debt issue to be? Show how you get this estimate.

   (c) **(10 points)** Given your estimate from the previous question, what estimate would you infer from market prices about the probability of Northrup-Grumman defaulting over the 10-year term of this note?

(d) **(20 points)** As we saw in class, 3M has a 10-year note– the $6\frac{3}{8}\%$ of Feb 15, 2028, that is selling for 125.4% of par. The yield to maturity on this note is 3.34%. Which firm has a lower cost of debt – 3M or Northrup-Grumman? What specific factors would you look at to understand the reasons for this difference? We know that 3M has a AA credit rating. Do you think that Northrup-Grumman's credit rating is higher or lower? Explain.

4. **(20 points)** The attached graph is taken from the Federal Reserve's data base. It plots the US Average High Yield bond credit spread against time from 1997 through today. Why does this spread exhibit so much volatility? Are there multiple components to this spread? Explain. What do you think its current level implies for the US economy?