

Introduction to Finance
Quiz 3 *November 6, 2018*

1. **(10 points)** Suppose that a perpetual government bond or consol which pays \$5000 every 6 months (the next payment is in exactly six months) sells for \$166,666.67. What is the bond equivalent (i.e., semi-annually compounded) yield on this consol?
2. **(10 points)** What is the (monthly) payment on a perpetuity that makes monthly payments and has a market value of \$1 million using a yield of 5% on a monthly-compounded basis.
3. **(14 points)** Consider a perpetuity that makes monthly payments of \$1,000. Similar investments provide a 7% yield on an annually-compounded basis. What is the present value of this perpetuity in the context of these similar investments?

4. **(18 points)** Willard and Loomis Kruger have \$1.25 million in their retirement account. They would like to retire and turn this balance into an annuity that makes fixed monthly payments over the next 30 years. JP Morgan-Chase tells them that the current rate on such annuities is 5% on a monthly-compounded basis. What is the size of the monthly payment that the bank will make to the Krugers under these conditions?

5. Suppose that your bank offers a \$550,000 traditional fixed-rate, 30-year mortgage (with monthly payments) at 5% interest (compounded monthly).
- (a) **(10 points)** What is the equivalent annual yield on this mortgage?
- (b) **(18 points)** What is the monthly payment on this mortgage?
- (c) **(20 points)** Show the first 2 months of this mortgage's amortization table (i.e., show the interest payment, principal payment, and remaining principal for each of the first 2 payments).