Wilfrid W. Csaplar Jr. Money and Banking Review Sheet for Exam 1

This review sheet is intended to cover everything that could be on the exam; however, it is possible that I will have accidentally left something off. You are still responsible for everything in the chapters covered except anything that I explicitly say you are not responsible for. Therefore, if I left something off of this sheet, it can still be on the exam. There will be no multiple-choice questions. Most of the questions will be like the ones in the homework assignments. However, given the large number of types of securities, financial institutions, and terms, I will probably have a question like: (4 points each) Define five of the following terms.

The review session will be at 6:00 on Monday 2/25, in a Old Main 107.

I will provide $V_b = \dfrac{INT}{m} \displaystyle\sum_{t=1}^{mN} \left(\dfrac{1}{1+\dfrac{r_b}{m}} \right)^t + \dfrac{M}{\left(1+\dfrac{r_b}{m}\right)^{mN}}$ (which is really 2 PV equations added together),

$$i_{bey} = \left(\dfrac{P_f - P_0}{P_0} \right)\left(\dfrac{365}{h} \right) \text{ and } EAR = \left(1 + \dfrac{i_{bey}}{365/h} \right)^{365/h} - 1$$

Chapter 1: What are the following markets: **primary, secondary, money, capital, foreign exchange, derivative, OTC**? What is in each of these markets? What are **IPO**s? Know what each of the items in Table 1-3 are and why they are in the money market or capital market respectively. Know what the items in Table 1-4 are, but you will learn their details later this semester. What are the financial institutions in Table 1-5? We will learn more about them over the semester. What is meant by **liquidity**, **price risk, monitoring costs, transaction cost services, maturity intermediation, denomination intermediation, money supply transmission, credit allocation, intergenerational wealth transfers,** and **payment services**? Why **diversify**?

Chapter 2: What is the **nominal interest rate** and why do we use it for evaluating securities? Be able to manipulate the **supply/demand for loanable funds**. Note that is not the supply and demand for the asset. It is the supply and demand for the money the sale of the asset obtains. (The supply and demand for the asset has the price of the asset on the vertical axis and moves the opposite way from the graph you need to know.) Table 2-2 summarizes the movements of the curves well. Know how to calculate the **inflation (IP)** from the **CPI** for two years. Know the **Fisher Effect** and how it relates the **real interest rate (RIR), expected IP,** and the **nominal interest rate (i)**. Know how to calculate the **default risk premium (DRP)** for a specific bond. What is the **liquidity risk premium (LRP)**? What is the **special feature premium (SCP)**? What is the **maturity premium (MP)**? How do each of them affect the interest rate on a particular bond? Understand the **yield curve** and how it shows the maturity premium. On the theoretical graphs, it is the **LPH** curve while the **UEH** shows the **unbiased expectations hypothesis**. Be able to use the graphs to figure out what people expect inflation to do in the future. **Figure 2-10** shows how to derive the yield curve from the supply and demand for two securities. Know the difference between **simple and compound interest.** Understand the difference between a **lump sum payment** and an **annuity.** Note the calculator hints on page 62 and 63 say "CPT FV" but should say "CPT PV." (You can tell that by the fact it is negative and they gave FV already. I will provide you equation 2-8, the equation just below Figure 2-16 on page 65. Now how to calculate **effective annual return (EAR)**.

For all of the calculator problems in all chapters you just remember that N = the number of payments = payments per year * years. I (which on some calculators is I/YR) = the per period interest rate which means you must divide the annual rate by the number of payments per year. Note that PV is negative because you pay it now. PMT is the payment per period. Therefore, for something like a bond which you know the yearly payments, you must divide by the payments per period. *Make sure that after you explain what you did, you write your answer as what you typed.* For example, 10 N, 5 I/YR, -3000 PV, 200 PMT, FV.

Chapter 3: Most of this chapter is simple if you remember what I wrote between Chapter 2 and Chapter 3. Note that the **required rate of return**, r, is just what it says and can be used in any equation to replace the interest rate. The same can be said about the **expected rate of return, E(r).** CF_t is **cash flow at time t**. That is really just FV. Know why the bond price and the interest rate go opposite directions. Know what would cause a bond to be a **premium bond**, a **discount bond**, and a **par value bond**. What is meant by **yield to maturity (ytm)**? When dealing with the **coupon rate**, remember to divide by the number of payments per year before entering it into the calculator. Why are longer term assets more sensitive to changes in interest rates? Why do high-coupon bonds have higher bond values than low-coupon bonds? Understand the concept of **duration** and how it affects the bond price. Do not worry about calculating it. Why is the duration of a zero-coupon bond = its maturity? Why do maturity and duration differ more for longer term bonds? Ignore modified duration.

Chapter 4: Know what the **Federal Reserve System (Fed), Board of Governors of the Federal Reserve,** and **Federal Open Market Committee (FOMC)** are. Know what the functions of the Federal Reserve Banks are. That is a good summary of much of the following pages. Understand what the tools of the Fed are, **open market operations, discount rate,** and **required reserve ratio.** How do they affect the money supply? Understand which side of the **Fed's balance sheet** the different items listed in **Table 4-5** and why they are on that side. For manipulating the balance sheets, we will only worry about **bank reserves** and **Treasury securities**. Know what **monetary base, reserves, required reserves, and excess reserves** are. Know how to determine them from a bank's balance sheet. How do the following relate to **monetary policy**? **Federal funds rate, Federal Reserve Board Trading Desk,** and **policy directive**. What are **repurchase agreements (repos)**? Know why the **money multiplier** is 1/RRR (required reserve ratio) rather than 1. In other words, how can the Fed's purchase of a $1000 bond increase the money supply by $10,000? Know why the Fed cannot control (target) both interest rates and the money supply at the same time. Use the **MS/MD** diagram to prove this. The section on the international monetary policies is interesting to show how the countries compare to the USA. One particularly interesting thing is the Figure 4-8, look at the largest dollar value in the upper-right-hand part of the graph.

Chapter 5: This chapter is mostly just different ways to use a few different equations. The first is the calculation of return $i_{bey} = [(P_f - P_0)/P_0](365/h)$. Note that is just the general formula for % change ($\Delta X/X$) converted to an annual basis by 365/h. The second one is **effective annual rate (EAR)**. It takes into consideration compounding which the former equation does not. It is $EAR = \left(1 + \dfrac{i_{bey}}{365/h}\right)^{365/h} - 1$.

Note that is just compounding taking into consideration that the compounding is 365/h times a year where h is the number of days between transactions. The bey subscript means **bond effective yield** which means out of 365 days. The dy subscript means **discount yield** which pretends the year is 360 days. The spy subscript means **single payment yield** which is basically the same as dy. Therefore, $i_{bey} =$

i_{dy}*(365/360) or i_{spy}*(365/360). <u>Note, you can replace i_{bey} in the equation for EAR with i_{spy} or i_{dy} providing you replace both 365 incidences with 360.</u> Remember that **Treasury bills (T-bills)** have zero coupon. <u>Note that the formula for $i_{T\text{-bill,dy}}$ is the same as i_{bey} except that it assumes a 360 day year.</u> Note that for **federal funds**, you use the same general formula for i_{bey} and i_{spy}. The same is true for **repurchase agreements** except that they use P_0 in the denominator and 360 not 365. For formulas for returns on **commercial paper** take the same form as the others as does **negotiable CDs on the secondary market**. Know who the participants in **Table 5-6** are and why they do what they do. What are **Eurodollars** and **LIBOR**?

Chapter 6: Know how a **T-bond** and **T-note** differ from a **T-bill**. Know what a **STRIP** is, how its parts are valued, and why people would want it. Calculating **accrued interest** is simple. Multiply the interest payment by the fraction of time between payments which has passed. How are **municipal bonds (munis)** different from other securities? How do you find the **after tax return (r_a)** from the **before tax return (r_b)** for taxable bonds? Know the advantages and disadvantages to the underwriter and the bond issuer for **firm commitment underwriting, best efforts offering, and private placement**. For Table 6-8, know what is meant by the **first five terms, convertible bonds, callable bonds, and sinking fund provisions.** For each property, except the first two, explain how that feature might affect the return on the bond. Why is $r_{cvb} = r_{ncvb} - op_{cvb}$ For the **bond ratings**, the first letter is the most important letter with A being best, etc.. The more letters, the better. If there is a number, smaller numbers are better. Obviously, + is better and – is worse. **Junk bonds** start with B or worse and have fewer than 3 letters. What are **eurobonds**?

Non-graded Homework Assignment #3A to be reviewed with Assignment #3.

1) (20 points) What is meant by a STRIP? Why would somebody want to buy the STRIP? If the face value is $10,000.00, the semi-annual coupon is 6%, and the maturity date is in 7 years, then how much would the STRIP of the face value be worth now? How did you get those numbers?

2) (10 points) Suppose a $3000 bond has a coupon rate of 4%, with interest paid quarterly. If the last interest payment was 30 days ago, how much is the accrued interest? How did you get those numbers?

3) (10 points) Suppose a muni was paying 3% interest. If you were in the 40% tax bracket, then what is the equivalent return for a taxable bond? Explain your logic and show all work.

4) (10 points each) For each of these qualities of a bond, tell me what that quality means and how it would affect the price of the bond and the return on it.
A) Serial bonds (compared to term bonds).
B) Convertible bonds
C) Sinking fund provision.

5) (10 points) From a bond issuer's point of view, would you prefer your underwriter give a firm commitment or a best offer offering? Explain your logic.

6) (10 points) Why would anybody want to buy a junk bond?

7) (10 points) Why would you want to by a eurobond?