**Assignment #2**

**Bond Features and Interest Rates**

**Instructions:**

***Hard copy*** of the HW is collected on due date. *No email HW will be accepted*.

**Format:**

 Part I) Font: Times News Roman; Font size: 11; Double space; Minimum 3 pages-Maximum 5 pages.

 Part II) Font: Times News Roman; Font size: 11; Double space; Minimum 2 page-Maximum 3 pages.

**Part I)**

Read Chapter 7 (Section 2, 3, 4, 5, 6, and 7), answer the following questions:

1. What are the distinguishing features of debt compared to equity?
2. What is the indenture? What are the protective covenants? Give some examples
3. What is a sinking fund?
4. What does a bond rating say about the risk of fluctuations in a bond’s value resulting from interest rate changes?
5. What is a junk bond?
6. What is the term structure of interest rates? What determines its shape?
7. What is the Treasury yield curve?
8. What six components make up a bond’s yield?

**Part II)**

Read the WSJ article carefully, and answer the following questions based on what you have learned about dividend policy. Please use your words, explain intuitively.

Article #1: Negative Interest Rates

1. How does the central bank influence interest rates?
2. Where do excess reserves come from and how do banks use their excess reserves?
3. What do central banks want to accomplish by imposing a negative deposit rate?
4. What is the impact of negative rates on economy?

Article #2: Corporate Bonds

1. What is the main difference between “high-yield” and “low-yield” bonds?
2. Why investors prefer high-rated bonds according to article
3. According to article, the iShares iBoxx USD High Yield Corporate Bond exchange-traded fund (ETF) dropped as much as 6.2% earlier this year:
	1. What is ETF?
	2. What does “decreasing in price in ETF” imply the yield to maturity of the bonds in its holdings?
	3. What is the reason for the price decline in this ETF?

**http://www.wsj.com/articles/everything-you-need-to-know-about-negative-rates-1456700481**

**Everything You Need to Know About Negative Rates**

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The Bank of Japan, the European Central Bank and several smaller European authorities have ventured into the once-uncharted territory of negative interest rates. But what are negative rates, and how do they come about? Here are some questions and answers.

**How do central banks work?**

All are a bit different, but as a rule the central bank is the bank for a country’s (or monetary union’s) banks. Commercial banks have accounts with the central bank, just as households and businesses have accounts with commercial banks. A commercial bank’s account at the central bank is part of what makes it a bank: It allows it to go about the daily business of moving money.

**What is a negative interest rate?**

It’s like a normal interest rate, except the lender pays the borrower.

Back to central banks…

The most basic rate in a financial economy is the rate one commercial bank will pay another for the simplest, shortest loan: a loan of electronic cash overnight. Since commercial banks use the central bank as their bank, such a loan moves money from one bank’s central-bank account to another’s. The funds in these accounts are called reserves.

**So how does the central bank influence that rate, called the overnight rate, or the Fed-funds rate in the U.S.?**

First, it can directly set some boundaries.

The central bank can lend to commercial banks, simply by creating new reserves. Perhaps the commercial bank that is borrowing is doing so because it needs the reserves to make a transfer to another bank—in which case the new reserves would be moved to the central-bank account of that second bank.

The central bank can charge interest on the loan it made to the first bank, and it can pay interest on the deposit it is taking from the second bank. Those rates provide a ceiling and floor on the overnight rate: One bank wouldn’t borrow reserves from another bank if it could get the same loan cheaper from the central bank. Likewise, one bank wouldn’t lend reserves to another if it could get a better rate simply by leaving them on deposit.

Historically, central banks have kept broad space between the floor and the ceiling, and have manipulated the overnight rate by stepping in to the market for reserves. But that technique is less powerful in the era of quantitative easing, and central banks are now directly making use of the boundaries (or at least of the floor.)

**What rate is now negative in Japan and the eurozone?**

The deposit rate—the floor. Instead of getting paid for depositing with the central bank, the commercial bank now pays the central bank when it does.

**Does this mean “interest rates” are negative?**

Some, but by no means all. The ECB’s chief interest rate is its “main refinancing” rate—a rate paid by banks when they borrow from the ECB for longer terms than overnight. That rate is positive, albeit barely, at 0.05%. The Bank of England uses a deposit rate as its principal rate. (It is positive, at 0.5%.) To most people, “interest rates” means the rates paid on things like mortgages or car loans or credit cards. With rare exceptions, those rates are still positive.

**How does a central bank actually impose a negative rate on deposit accounts?**

It makes the electronic balances in those accounts shrink. A deposit of €10,000 at the ECB today is €9,999.92 tomorrow.

**What does a commercial bank do when deposit rates are negative?**

In theory, it should want to get rid of its extra reserves, because those have to go in a central-bank deposit account and will be shrunk. (Most central-bank regimes [provide a way to avoid at least some](http://blogs.wsj.com/moneybeat/2016/02/11/why-swedens-negative-deposit-rate-isnt-as-scary-as-it-looks/) of the negative-rate penalty: Banks are only charged for reserve balances above a certain amount, for example. But holding additional reserves carries a cost when rates are negative.)

**Can’t commercial banks lend excess reserves to customers?**

No. Reserves can only be held by institutions that have reserve accounts—generally other banks and possibly the government. It’s a closed loop. (Well, almost closed: Electronic reserves can be exchanged for bank notes.) Banks lend and borrow reserves among themselves. They can also buy stuff, like bonds, with their reserves, but such transactions just move reserves around among banks.

**Why would a bank need to borrow reserves from another bank?**

For starters, the bank might need to meet a minimum threshold for reserves set by the central bank or regulators.

But banks also need reserves to handle electronic transactions across the banking system. A customer’s deposit at a bank is just a loan to the bank. The funds aren’t kept in a vault. So a transfer of electronic money from a customer of Bank A to a customer of Bank B is a transfer of Bank A’s debt to Bank B. And Bank B needs to be compensated by Bank A for taking on the obligation. That compensation comes in reserves: Bank A transfers reserves to Bank B.

**Where did the excess reserves come from in the first place?**

The central bank created them. In normal times (and it has been a long time since we’ve seen normal times,) banks collectively more or less hold just the reserves they need, and they borrow and lend reserves among themselves. The ECB’s deposit facility, the one now subject to negative rates, [had practically nothing in it](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=123.ILM.M.U2.C.L022.U2.EUR) until late 2008.

In these abnormal times, central banks have created huge volumes of extra reserves amid their emergency action: During the eurozone crisis, banks were too scared to lend to each other, so the ECB allowed needy banks to borrow cheap money in huge volumes directly from the central bank. And when a commercial bank borrows from the central bank, the central bank credits the commercial bank’s account: more reserves are created.

The Federal Reserve, the Bank of Japan and, lately, the ECB, too, have been buying bonds through giant quantitative-easing programs. Each time the central bank buys a bond, it credits the reserve account of the bank whose customer was the seller. Yet more reserves.

**Central banks created the extra reserves for which they are charging banks?**

Yes. That’s why negative rates are often seen as a tax on banks.

**So what does a negative deposit rate at the central bank accomplish?**

It pushes down short-term rates on other types of lending. In theory, that is supposed to provide an economic boost. And, also in theory, it weakens the country’s currency.

**How exactly does it make other lending cheaper?**

Let’s look at the eurozone. Banks keep their excess reserves in an ECB deposit account. The rate on that account had been 0% since mid-2012. In June 2014, the ECB cut it to minus-0.10%. In September 2014 it went down to minus-0.20%. Now, as of December 2015, it is minus-0.30%.

There are a lot of excess reserves, so there are a lot of banks trying to get rid of them by lending them to other banks. That competition pushes the overnight rate down, until it’s close to the deposit rate. The overnight rate is now [about minus-0.24%](http://www.emmi-benchmarks.eu/euribor-eonia-org/about-eonia.html).

Those overnight rates drag down other rates: the rate one bank will pay another for a one-month loan, for instance, and a three-month loan and a one-year loan and so on. The interbank rate in the eurozone, called Euribor, is minus-0.015% for one year. And those rates influence business and consumer rates, such as mortgages. The [average interest rate on a mortgage of more than five years](https://sdw.ecb.europa.eu/browseChart.do?BS_ITEM=A22&SERIES_KEY=124.MIR.M.U2.B.A22.J.R.A.2250.EUR.O&DATASET=0&REF_AREA=308&node=9484266&trans=N) in the eurozone has been falling since late 2011, alongside the ECB’s rate cuts. In the month before the move to negative deposit rates, it stood at 3.28%, according to ECB data. It is now 2.82%.

Negative rates also spur banks and other investors to buy things that are very much like money—short-term debt of ultrasafe governments. So great is the demand that the German three-month treasury bill now yields less than minus-0.5%.

Rates for financing in the capital markets—that is, the interest rate a company gets if it sells bonds to investors—are linked to the yields on government debt. All other things being equal, they go down when government-debt yields go down.

**How does it weaken the currency?**

Low rates should make euro investors try to move to places where interest rates are higher, such as the U.S. When they do so, they sell euros and buy dollars. (The same principle applies with positive rates.)

This can cause a cycle of rate-cutting.

The Swiss National Bank, for instance, wants to keep the Swiss franc from strengthening against the euro. So when the ECB goes negative, the SNB must go more negative.

**Does it actually help the economy?**

It’s hard to say. There haven’t been sharp turnarounds in the countries that have tried negative rates. Economic growth in the eurozone last year was 1.5%, better than the 0.9% recorded in 2014. (Negative rates began in mid-2014.) But growth [appears to be tailing off](http://appsso.eurostat.ec.europa.eu/nui/show.do?query=BOOKMARK_DS-406779_QID_12D9ECD0_UID_-3F171EB0&layout=TIME,C,X,0;GEO,L,Y,0;UNIT,L,Z,0;S_ADJ,L,Z,1;NA_ITEM,L,Z,2;INDICATORS,C,Z,3;&zSelection=DS-406779INDICATORS,OBS_FLAG;DS-406779UNIT,CLV_PCH_ANN;DS-406779S_ADJ,SCA;DS-406779NA_ITEM,B1GQ;&rankName1=UNIT_1_2_-1_2&rankName2=INDICATORS_1_2_-1_2&rankName3=NA-ITEM_1_2_-1_2&rankName4=S-ADJ_1_2_-1_2&rankName5=TIME_1_0_0_0&rankName6=GEO_1_2_0_1&sortC=ASC_-1_FIRST&rStp=&cStp=&rDCh=&cDCh=&rDM=true&cDM=true&footnes=false&empty=false&wai=false&time_mode=NONE&time_most_recent=false&lang=EN&cfo=###,###.###). In the fourth quarter of last year, the eurozone grew at an annualized rate of 1.1%.

Eurozone banks, however, have begun to lend more to households and businesses. Such lending began shrinking in mid-2012 and stayed that way through 2014. It [began turning around](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=117.BSI.M.U2.Y.U.A20TA.A.I.U2.2200.Z01.A) last year. At an annual growth rate of 0.6%, it is still far from robust, however.

It remains to be seen whether stronger benefits come at more-negative rates. And it’s impossible to know whether things might have been much worse had the countries not tried negative rates.

**Isn’t this bad for banks?**

[It is.](http://blogs.wsj.com/moneybeat/2016/02/17/how-slightly-negative-rates-can-tear-into-bank-profits/) Banks do lots of things, but the very core of banking is lending money at higher rates than you pay to depositors: Lending at 6% and paying depositors 2% is a nice business. But banks are now lending at extremely low rates, yet they have a hard time pushing the rates they pay depositors much below zero.

**Why?**

Depositors, especially smaller ones, can hold cash instead of facing negative rates. Cash is like a deposit with an interest rate of 0%. It doesn’t shrink: €10,000 in cash will be €10,000 tomorrow, not €9,999.92. Might want to [buy a safe](http://www.wsj.com/articles/japanese-seeking-a-place-to-stash-cash-start-snapping-up-safes-1456136223).

Commercial banks get the cash they give to their customers from the central bank: The central bank gives them bank notes and reduces their reserve balances. (That’s how reserves escape the closed loop.)

**That’s good for banks, then—don’t they want to get rid of excess reserves?**

To a degree. But banks don’t want customers to yank their deposits en masse. It would be better for banks if they could find a way to keep customers but charge them negative rates.

For central banks, it defeats the purpose of negative rates: If customers suddenly pulled huge amounts of deposits, commercial banks might start needing reserves—and that demand would push the interbank lending rate up, exactly the opposite of what central banks are trying to do.

**How negative could negative deposit rates get?**

No one knows. At a modestly negative deposit rate, cash probably isn’t worth the hassle: You need vaults and guards, and it’s difficult to use in large transactions. But at some point, that calculation changes.

**What about the Fed? Can it go negative?**

Possibly. Fed Chairwoman Janet Yellen [has suggested as much](http://www.wsj.com/articles/fed-nods-to-negative-rates-hurdles-and-all-1455126278). There are some wrinkles. Here’s one: The Fed’s version of a deposit rate, called interest on excess reserves, [is now at 0.5%](http://www.federalreserve.gov/monetarypolicy/reqresbalances.htm). But there are some government-linked institutions with accounts at the Fed, such as the Federal Home Loan Banks, that aren’t eligible to receive that interest payment—they get 0%. So those institutions have an incentive to lend reserves at less than 0.5%. And they do. As a consequence, the Fed-funds rate—the overnight rate in the U.S.—is a bit below the floor established by the deposit rate.

If the deposit rate went negative, those institutions wouldn’t have an incentive to lend. The drop in supply might press the overnight rate up—against the grain of what the Fed would be trying to do.

*—Colin Barr contributed to this article.*

**CHARLES FORELLE**

**Investors Turn Finicky on Corporate Bonds**

High-grade corporate issuance is up, but for lower-rated firms, it has been a different story

Bond-market turbulence in 2016 is widening the gap between corporate haves and have-nots, a dynamic that threatens to weaken the U.S. economic recovery by raising financing costs for lower-rated firms.

The wealthiest companies have hardly missed a beat even as investors have retreated from risk and economic numbers have softened. Investors bought $12 billion in bonds Monday from triple-A-rated [Exxon Mobil](http://quotes.wsj.com/XOM) Corp., and [Anheuser-Busch InBev](http://quotes.wsj.com/BUD) NV and[Apple](http://quotes.wsj.com/AAPL) Inc. also have completed blockbuster deals this year.

High-grade corporate issuance during the first two months of the year is up from the same period a year ago, when highly rated firms sold the most new bonds on record for the fourth year in a row, according to Securities Industry and Financial Markets Association data.

But for lower-rated firms, it has been a different story. U.S. junk-bond issuance had its slowest start to the year since 2009, according to Dealogic, and firms that have managed to sell bonds are paying a hefty price.

Software firm [Solera Holdings](http://quotes.wsj.com/SLH) Inc. on Monday sold $1.7 billion of junk bonds to finance its buyout, after reducing the sale from a planned $2 billion. The firm also increased its interest rate and made several investor-friendly covenant changes, according to S&P Global Market Intelligence.

The shift shows bond investors are getting pickier, focusing on low-risk bonds that are easy to trade. What’s in: highly rated debt from the safest issuers and bonds from companies expected to be resilient in a slower economy. What’s out: the energy sector, bonds from companies seen as needing a growing economy to thrive and bonds with longer maturities.

“We’re a long ways from the market being really hot,” said Ryan Preclaw, a credit strategist at [Barclays](http://quotes.wsj.com/BCS) PLC. “The more difficult deals are still going to be extremely difficult.”

Access to credit plays a key role in measures of financial conditions, which the Federal Reserve looks at when deciding whether to adjust its monetary policies. William Dudley, president of the Federal Reserve Bank of New York, said Monday that a continued tightening in financial conditions could prompt him to lower his outlook for economic growth, a shift analysts said could damp Fed plans to raise interest rates this year.

Those concerns have been most evident in high-yield bond trading. The iShares iBoxx USD High Yield Corporate Bond exchange-traded fund, the largest junk-bond ETF, has rallied in recent weeks, pushing its total return for the year to 0.4% on Tuesday, its first showing in the black all year.

But the ETF dropped as much as 6.2% earlier this year, underscoring the depth of investor risk aversion at midwinter. Even following the recent rally, many bond classes within the junk category continue to trade lower, reflecting concerns about economic and market volatility.

“There’s not a lot that’s actually performing at the averages,” said David Schawel, a portfolio manager at New River Investments.

One example: Some investors are buying high-yield debt that matures in shorter amounts of time, helping lift its recent performance over comparable bonds with longer maturities. Debt maturing in one to three years has risen 0.6% this year, while bonds maturing in three to five years are down 0.8%, according to index data maintained by Markit.

Others are differentiating between companies that are seen as depending more on a strong economy boosting earnings and cash flow. During the first eight weeks of the year, $51 billion worth of bonds were downgraded to the speculative category from investment grade, the most since 2009, according to Barclays PLC.

James Keenan, global head of fundamental credit at BlackRock Inc., said he is wary of companies that could be squeezed if a weak economy pushes up their cost of capital too much.

“In each sector we are seeing companies that are probably too levered toward economic growth and will be stressed in this economic environment,” he said. Still, he sees some attractive opportunities in the current market environment, he said.

In some ways the broader market is affecting most companies in the same manner, particularly in the cost of borrowing. For example, the yield premium demanded by investors has risen even for Exxon Mobil. A 10-year bond issued by the company Monday paid 1.3 percentage points more than comparable Treasurys, versus 0.58 percentage point on a 10-year bond sold last year, according to S&P Global Market Intelligence.

Jeffery Elswick, a portfolio manager at Frost Investment Advisors, said he has been purchasing some low-rated bonds, but only short-term debt, such as paper issued by [Sprint](http://quotes.wsj.com/S)Corp. that matures around the turn of the year. His reasoning: If you don’t know where the market is headed, why lock yourself in for a long period of time during which the economic cycle could turn or rates could rise?

“Our level of certainty about the prospects of the markets is lower,” he said.



By

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