Assignment ii

Finance

1) Securitization is a financial innovation where cash flows from a basket or portfolio of assets are used to provide collateral to bonds sold to investors.

A). Why is the quality of the collateral important to investors?

It is important for investors to consider the quality of the collateral because it is needed to make interest and principal payments by cash flow. Furthermore, the assurance of cash flow is dependent on the review of its different scenarios regarding defaults and delinquencies by rating agencies. The rating agencies determine if the review could be rejected. For example, you may make your apartment to become the collateral of your mortgage so that if you stop making monthly house payment, the lender can take possession of the apartment through foreclosure process, and sell it in order to receive an equivalent amount of the principal lent to you. This happens in the situation of securitization. The quality of the collateral can therefore be a credit for investors who can securitize them as many times as they can.

B). what is a credit enhancement? Please provide and briefly discuss two examples of a credit enhancement

Credit enhancement is a technique aimed at reducing default or risk of default. This is done through processes such as prioritizing tranches. Credit risk causes all non-agency securities to engage in credit enhancement. Credit enhancement of securities requires additional support against defaults. Specific security rating agency determines the amount of credit enhancement needed based on specific rating. There are two general types of credit enhancement mechanisms namely external and internal credit enhancement mechanisms.

Overcollateralization refers to a state in which the collateral value is more than the par value of the issued securities. For instance, if securities of par

value $10 million is issued and at collateral carries a market value of $12 million during the time of issuance of the security, there will be an overcollateralization of $2 million. This process can also be used to absorb losses; hence it may act as an internal credit enhancement.

Senior-Subordinate Structure enhances credit tranching while the subordinate bond classes support the senior bond classes in terms of credit. For example, bonds are classified into three classes namely A (Senior), B (Subordinate) and C (Subordinate) with par values of $90million, $8 million and $2 million respectively. Bonds A and B are both credit enhanced by class C.

C). Does correlation of default among pooled assets need to be highly positive? (Closer to +1 VS -1)

No, the correlation of default among pooled assets doesn’t need to be highly positive. A highly positive correlation +1 indicates that assets in a pool face the same level of risk. Therefore, if there is a default in one class of assets then there will be a high chance of default among other assets in the same pool.

There may be several “ economic scenarios” but we can assume that there are only three distinct economic scenarios as follows:

i. Expansionary, Growth

ii. Neutral, Stagnant

iii. Contractionary, Recession

iv.

2) Securitization

Assume that there is a pool of loans that have been securitized. Assume the loans are conventional mortgage loans, either 15 or 30 year maturity. All

loans are conforming. Which economic scenario would be comfortable owning a bond backed by the pool?

I feel more comfortable with owning a bond categorized under the pool of neutral monetary condition and GDP output that is stagnating. If interest rates go below the coupon rate of the bond, investors may face prepayment risk. If interest rates increase, mortgage loans face high default risks. None of the two risks is better than the other, so is more preferable to have a stable and neutral economic condition. In addition, a mortgage loan with either 15 or 30 years of maturity is highly volatile; hence causing a higher premium risk. However, a stagnant environment is preferable because down payment is guaranteed in this scenario and there is a relatively stable credit.

3) Securitization

Assume the pool of loans is comprised of credit card receivables. As an investor you were able to obtain the average credit score of the consumers belonging to the credit cards. You find that the average credit score is very low by industry standards.

a) Which economic scenario would you be comfortable owning a bond backed by the pool?

I would prefer an expansionary monetary condition and a growing GDP output. An optimistic economic condition may stimulate credit card holders to spend. This condition is expected to enhance more disposable income; hence improving credit card holders' ability to spend or pay. The cash flow of the pool of securities in this situation expands and the risk of default declines.

b) Is there a credit enhancement that you would consider highly desirable?

Yes, I prefer “ prioritizing” the tranches because it is a good way to enhance credit. Tranches can be categorised in form of subordinate or senior bonds through prepayment. Subordinate classes protect senior tranches, so the credit of senior tranches is enhanced. Credit enhancement protects high market value and minimizes default risk.

4) Portfolio Hedge

1) Duration of the future

DURATION(" 1/1/2000"," 12/31/2019", 0. 06, 0. 038, 2)=

12. 97

future duration ≈-12. 97

2)50% hedged

Ratio of duration, portfolio and future h=(7. 75/-12. 97) = -0. 5976

contracts ((125, 000, 000/100, 000)*-0. 5976)*50% = -373. 50

- change in value given a 0. 75% increase in rates

△V= 125, 000, 000*-7. 75*0. 75%= -7, 265, 625

△F =-373. 50*100, 000*-12. 97*0. 75% = 3, 632, 813

Total change in value = -7, 276, 625+3, 632, 813 = -3, 632, 813

change in value given a 1. 50% decrease in rates

△V= 125, 000, 000*-7. 75*-1. 5%= 14, 531, 250

△F =-373. 50*100, 000*-12. 97*-1. 5% = -7, 265, 625

Total change in value = -7, 276, 625+3, 632, 813 = 7, 265, 625

3)25% hedged

Ratio of duration, portfolio and future h=(7. 75/-12. 97) = -0. 5976

contracts ((125, 000, 000/100, 000)*-0. 5976)*25% = -186. 75

change in value given a 1. 25% increase in rates

△V= 125, 000, 000*-7. 75*1. 25%= -12, 109, 375

△F =-186. 75*100, 000*-12. 97*1. 25% = 3, 027, 344

Total change in value = -12, 109, 375 + 3, 027, 344 = -9, 082, 031

- change in value given a 0. 50% decrease in rates

△V= 125, 000, 000*-7. 75*-0. 5%= 4, 843, 750

△F =-186. 75*100, 000*-12. 97*-0. 5% = -1, 210, 938

Total change in value = 4, 843, 750 -1, 210, 948= 3, 632, 813