Consider two different portfolios of ten loans each

Portfolio A consists entirely of **Unsecured** Loans

Each Unsecured Loan bears simple interest at a **20%** annual rate

Portfolio B consists entirely of **Secured** Loans

Each Secured Loan bears simple interest at a **10%** annual rate

To keep the math easy, all loans are made on the same day for $1,000 and each has a one-year maturity

Portfolio A of Loans (Unsecured)

1. $1000 principal | 20% interest | 1 year
2. $1000 principal | 20% interest | 1 year
3. $1000 principal | 20% interest | 1 year
4. $1000 principal | 20% interest | 1 year
5. $1000 principal | 20% interest | 1 year
6. $1000 principal | 20% interest | 1 year
7. $1000 principal | 20% interest | 1 year
8. $1000 principal | 20% interest | 1 year
9. $1000 principal | 20% interest | 1 year
10. $1000 principal | 20% interest | 1 year

Portfolio B of Loans (Secured)

1. $1000 principal | 10% interest | 1 year
2. $1000 principal | 10% interest | 1 year
3. $1000 principal | 10% interest | 1 year
4. $1000 principal | 10% interest | 1 year
5. $1000 principal | 10% interest | 1 year
6. $1000 principal | 10% interest | 1 year
7. $1000 principal | 10% interest | 1 year
8. $1000 principal | 10% interest | 1 year
9. $1000 principal | 10% interest | 1 year
10. $1000 principal | 10% interest | 1 year

ASSUME: a case in which NO DEFAULTS OCCUR

Portfolio A (*unsecured*) returns a total of **$12,000**

The total return consists of $10,000 in principal amount returned and $2,000 in interest payments made (i.e. 20% x $1,000 = $200 in interest paid on each loan X 10 loans)

Portfolio B (*secured*) returns a total of **$11,000**

The total return consists of $10,000 in principal amount returned and $1,000 in interest payments (i.e. 10% x $1,000 = $100 in interest paid on each loan X 10 loans)

1. $1000 principal | 20% | 1 year | $1200	1. $1000 principal | 10% | 1 year | $1100
2. $1000 principal | 20% | 1 year | $1200	2. $1000 principal | 10% | 1 year | $1100
3. $1000 principal | 20% | 1 year | $1200	3. $1000 principal | 10% | 1 year | $1100
4. $1000 principal | 20% | 1 year | $1200	4. $1000 principal | 10% | 1 year | $1100
5. $1000 principal | 20% | 1 year | $1200	5. $1000 principal | 10% | 1 year | $1100
6. $1000 principal | 20% | 1 year | $1200	6. $1000 principal | 10% | 1 year | $1100
7. $1000 principal | 20% | 1 year | $1200	7. $1000 principal | 10% | 1 year | $1100
8. $1000 principal | 20% | 1 year | $1200	8. $1000 principal | 10% | 1 year | $1100
9. $1000 principal | 20% | 1 year | $1200	9. $1000 principal | 10% | 1 year | $1100
10. $1000 principal | 20% | 1 year | $ 1200	10. $1000 principal | 10% | 1 year | $1100

Portfolio A (Unsecured) returns $12,000   **Portfolio B (Secured) returns $11,000**

IN THE ABSENCE of any DEFAULTS, the returns on the Unsecured Portfolio A are higher than the returns on the Secured Portfolio B because the nominal interest rate on the unsecured portfolio is higher than the nominal interest rate on the secured portfolio:

20% is higher than 10%

The financial story changes dramatically once you assume a default on one of the loans in each portfolio!

For purposes of illustration, we assume that loan Number 10 in each portfolio defaults:

Default on the **unsecured** loan results in a **total loss** | no principal or interest is recovered

Default on the **secured** loan results in a **90% recovery** of principal amount | no interest is recovered

These recovery assumptions are realistic for the loan market generally: in larger syndicated loans for which data is available, it is not uncommon for a senior secured term loan to have a recovery rate following default in the 90% -100% range. The assumption of total loss is statistically low—trade credit might return 5% to 20%.

ASSUME: a case with a DEFAULT on one loan:

In **Portfolio A** the defaulted loan results in a total loss | **$ -0- is collected** (NB: this is just the assumption in the example; senior unsecured bank loans often return 50% in default, unsecured bonds 25% to 40%, trade credit 5% to 20%, etc.—linked studies provide details for those who are interested!)

None of the principal amount of $1,000 is returned and no interest is collected | the total loss is **$1,000**

Portfolio of Loans (Unsecured)

1. $1000 principal | 20% interest | $1200
2. $1000 principal | 20% interest | $1200
3. $1000 principal | 20% interest | $1200
4. $1000 principal | 20% interest | $1200
5. $1000 principal | 20% interest | $1200
6. $1000 principal | 20% interest | $1200
7. $1000 principal | 20% interest | $1200
8. $1000 principal | 20% interest | $1200
9. $1000 principal | 20% interest | $1200
10. **$1000 principal | 20% interest | $ -0- (R)**

Expected Return After One Year

1. $1000 principal | 20% interest | $1200
2. $1000 principal | 20% interest | $1200
3. $1000 principal | 20% interest | $1200
4. $1000 principal | 20% interest | $1200
5. $1000 principal | 20% interest | $1200
6. $1000 principal | 20% interest | $1200
7. $1000 principal | 20% interest | $1200
8. $1000 principal | 20% interest | $1200
9. $1000 principal | 20% interest | $1200

Principal = $9000 | Interest = $1800 | $10800

ASSUME: a case with a DEFAULT on one loan:

In **Portfolio B** the security interest allows a partial recovery—the example assumes **$900** | however no interest is collected

Even though Portfolio B suffers a loss of $100 this loss is less severe than the loss of $1,000 in Portfolio A

Portfolio of Loans (Secured)

1. $1000 principal | 10% interest | $1100
2. $1000 principal | 10% interest | $1100
3. $1000 principal | 10% interest | $1100
4. $1000 principal | 10% interest | $1100
5. $1000 principal | 10% interest | $1100
6. $1000 principal | 10% interest | $1100
7. $1000 principal | 10% interest | $1100
8. $1000 principal | 10% interest | $1100
9. $1000 principal | 10% interest | $1100
10. **$1000 principal | $900 (R) | $ 100 (L)**

Expected Return After One Year

1. $1000 principal | 10% interest | $1100
2. $1000 principal | 10% interest | $1100
3. $1000 principal | 10% interest | $1100
4. $1000 principal | 10% interest | $1100
5. $1000 principal | 10% interest | $1100
6. $1000 principal | 10% interest | $1100
7. $1000 principal | 10% interest | $1100
8. $1000 principal | 10% interest | $1100
9. $1000 principal | 10% interest | $1100

Principal = $9900 | Interest = $900 | $10800

The ANNUAL RETURN on each portfolio is 8%:

In **Portfolio A** the computation is: Principal ($9,000) + Interest **($1,800**) + **Recovery ($ -0-)** = $10,800

In **Portfolio B** the computation is: Principal ($9,000) + Interest **($900**) + **Recovery ($900)** = $10,800

Even though Portfolio B suffers a loss of $100 <u>on an individual loan</u> this loss is less severe than the loss of $1,000 <u>on an individual loan</u> in Portfolio A

The **KEY FACTOR** in the examples is that **IF A DEFAULT OCCURS**:

the RECOVERY expected for the unsecured loan is LOWER than the RECOVERY expected for the secured loan

I say 'expected' because on average—*in the long run of cases*—the presence of a PERFECTED SECURITY INTEREST tends to increase the recovery rate for the secured lender over what that same lender might experience if it had advanced the same loan amount as an unsecured lender instead

NOTE how this fact of a LOWER EXPECTED RECOVERY given a default impacts the pricing of the unsecured loan

A lender, such as BIG BANK, needs to price its **unsecured loans** at a relatively high rate of interest—20% in the example—because it must charge this high rate of interest to cover increased expected losses. On the facts of the example, even though loans bear a high nominal rate of 20%, the net return is a much more modest 8%. This is one reason why, even in a low interest rate environment, interest charged on credit cards remains high.[1] In most cases, the credit extended pursuant to a credit card agreement is unsecured credit.[2]

FOOTNOTES:

1) I say that it is "one" reason why the rates on unsecured consumer credit remain high even though interest rates are at historic lows. The main reason is simple greed and lack of meaningful competition over credit card interest rates. Consumers simply got used to paying high credit card interest rates and if consumers will pay, then banks are happy to charge. The business model of the credit card business is not to do a meaningful credit check before issuing a card. It is cheaper to simply issue a card to anybody and then see which customers default.

Footnote **1** (cont.): This enables the credit card issuer to develop a pool of "seasoned" accounts which are those which pay regularly. The high interest rates charged allow banks to use this business model because the high rates create a cushion which can be used to pay losses.

2) Most credit card debt is unsecured. Some issuers tried issuing "secured" credit cards—but they never really gained in popularity. Consumers use home equity lines instead for lower rates. The debit card is available for those who pose an unacceptable credit risk (despite the cushion provided by very high interest rates!).

NOTE how this fact of a HIGHER EXPECTED RECOVERY given a default impacts the pricing of the secured loan

A lender can price its **secured loans** at a relatively lower rate of interest—10% in the example—because the expected **loss-given-default** is much lower. On the example, even though loans bear a lower nominal rate of 10%, the net return remains at 8%. This result comes from the lower expected **loss-given-default**. While a borrower pays more in transaction costs for a secured loan than an unsecured loan, *the lower interest charged on the secured loan offsets the higher costs borrowers pay to document the secured transaction*.