Economia e Gestione degli Intermediari Finanziari

Set 4

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Bank loans as inside debt

- Inside debt
  - contract in which creditor has access to information about the borrower not otherwise publicly available
- Outside debt
  - publicily traded debt in which the creditor depends only on publicly available information
- Bank lending is inside debt:
  - bank may have representation on borrower’s BofD
  - bank may count on borrower’s history as a depositor
  - send good signal about borrower to other creditors

Bank lending

- C&I loans
  - Transaction loan
  - Working capital loans
  - Term loans
- Consumer loans
  - mortgages
  - other
- They all are highly customized (& often illiquid) financial claims against the borrower future cash flow

Decomposition of lending function

- Origination
  - solicitation of customer’s business / loan application
  - credit analysis + loan contract design (with pricing)
- Funding (loan extension)
  - all at once
  - during a drawdown period (bank’s commitment)
  - revolving
- Servicing
  - bookkeping & collection of loan payments
- Risk processing
  - default risk control (monitoring, diversification, workouts)
  - interest rate risk control

Credit analysis

- Goal
  - determine borrower’s ability & willingness to repay the loan to uncover likelihood of default
- Object:
  - borrower’s reputation (its past record)
  - borrower’s economic prospect
  - value of the collateral (if offered)
- Style
  - asset based lending
  - cash flow lending

Factors considered in credit analysis (five Cs)

- **C**apacity (legal & financial)
  - check corporate charter & bylaws of the corporation to determine who has the authority to borrow
  - evaluate future cash flow
- **C**haracter
  - better reputation, lower incentive to default
- **C**apital
  - lessens the incentive for borrower opportunistic behavior
  - reduces borrower’s appetite for risk (moral hazard)
- **C**onditions
  - sources for debt repayment: income, sale of assets, borrowing from other sources, issue of new stock

Collateral

- Inside
  - assets owned by the borrower on which the bank become the primary claimant
  - if loans is unsecured bank would still have a claim on them, but not a first claim
- Outside
  - assets that the bank would never have a claim unless designed as collateral
- Benefit of security lending
  - signaling
  - protection from moral hazard

Sources of credit information

- Internal sources
  - interview with the applicant
  - bank's own records

- External sources
  - borrower's financial statements
  - credit information brokers (Dun & Bradstreet)
  - other banks (through a Central Bureau of Credit Risk)

Loan covenants - 1

- Clauses designed to prohibit the borrower from taking actions that could adversely affect the likelihood of repayment
- Affirmative covenants
  - periodical communication of financial statement
  - minimum level of working capital
  - maintain a management acceptable to the bank
- Negative covenants
  - negative pledge: do not pledge assets to other lenders
  - prohibitions against sale of assets or mergers

Loan covenants - 2

- Restrictive clauses
  - limits on dividends, salaries, bonuses, advance to employees
  - limits on purchases of fixed assets
- Default provisions
  - intended to make the loan immediately due if:
    - no timely payments
    - inaccurate statements in loan application
    - violation of covenants
    - entry of a judgement in excess of a specified amount
    - change of management or majority ownership

Loan pricing

- Interest
- Non interest fee on the loan
  - closing fees
  - loan servicing fees
  - commitment fees
- Fees charged for services purchased due to the lending relationship
  - cash management services
  - trust services

Interest

- Bank loan interest rates are set in relation to a benchmark (reference) rate:
  - prime rate: rate applied to most creditworthy customers
  - interbank rate: market rate applied to interbank deposit
- Some loans are indexed to the reference rate
  - prime plus
  - prime times
- The interest rate applied is not the expected rate of return on the loan for the bank (default risk)

Interest rate & rate of return on bank loans

- Loan amount = 100 $
- Interest rate = 10%
- Default probability = 5%

- Expected (gross) rate of return =
  = ([110*0.95+0*0.05] / 100) -1 = 4.5%

- Maximize rate of return = Max interest rate?

Double effect of loan rate on loan return

- Positive effect
  - higher interest rate means higher repayment, should the borrower serve its debt properly (we don't know ex-ante if he will)
- Negative effect
  - higher interest rate ex ante means a lower probability of a proper service of the debt
- The net effect is not known a priori
  - lowering the interest rate, the bank may increase the return on the loan

Why higher rate may mean lower return?

- Banks can’t discriminate each borrowers credit standing
- Banks partition borrowers in different risk classes whose average risks are known (high, medium, low)
- Banks charges the same interest, set on group average risk, to all borrowers in the same group

- *Adverse selection* & *moral hazard*
  - A higher rate force the safer borrower within the risk class to drop out the pool of applicants.
  - A higher rate may push borrowers with same latitude in their investment decision to choose riskier projects
  - In both cases the average risk of the group may increase more than the interest rate applied

Rationing

- It may be optimal for banks charge below market clearing interest rates

- Credit rationing
  - Given bank loan interest rate, the quantity demanded is greater than the quantity supplied
  - It is not due to a market failure or to a bank bad management
  - It is due to the fact that interest rate affects the quality of the object of the trade (credit)

Natura del rischio di credito

- **Default risk**
  - **PERDITA ATTESA**
  - **PERDITA INATTESA**
- **Migration risk**
  - TAVOLE DI MIGRAZIONE DEL RATING
- **Credit spread risk**
  - (CREDIT) YIELD CURVE

Pricing del Credito

$$ELR = PD \times LGD$$

$$LGD = 1 - RR$$

$$(1+i) = (1+r)^{*} (1-pd) + (1+r)(1-LGD)^{*}PD$$

$$r = [(1+i) / (1-PD^{*}LGD)] -1$$

$$r = [TIT + ELR + K (ROE-TIT) +CO] / (1-ELR)$$