PART 3

• An economic analysis of financial structure

ECS301D: STUDY UNIT 3

8.1 pp.182-184 MIBCOF **(6)**

1 Stocks (stock market) are not the main source of external financing for nonfinancial businesses.

2 Marketable debt & equity securities (bonds and stocks) are not the primary source of finance.

3 Indirect finance (nonbank and bank loans through financial intermediaries) is more important than direct finance (direct sales of stocks and securities to households).

4 Banks are the principal source of external funds to businesses.

5 The financial system is heavily regulated.

6 Only large, well-established firms have access to securities markets.

7 Collateral is prevalent in debt contracts.

8 Debt contracts typically have numerous restrictive covenants on the behaviour of the borrower.

Explain how FI can overcome the problem of high transaction costs in financial transactions & how they can offer financial expertise.

8.2 pp. 184-185 **(10)**

Small-scale investors are frozen out of financial markets. They typically have small amounts to invest, which means that the transaction costs are relatively large (the transaction cost of investing $50 is not much less than that of $5000; only a small number of stocks may be purchased (they cannot diversify); and because the minimum denomination of a bond might be too large they cannot buy bonds. Banks and financial institutions (FI) thus offer economies of scale to small-scale investors. Financial intermediaries bundle funds of many investors; In case of mutual funds they sell shares to investors and invest in large blocks of bonds and stocks – this leads to lower transaction costs. Financial intermediaries also invest in information technology which lowers the cost per transaction. In addition, the mutual funds' increased diversification spreads risk.

Banks also provide financial expertise. They harness IT to provide convenient services (such as call centres or web updates). Low transaction costs also allow them to provide customers with liquidity services that make it easier for customers to conduct transactions.

8.3 p.186 ~~(10)~~ (6)

Asymmetric information is a situation that arises when one party's insufficient knowledge about the other party involved in a transaction makes it impossible to make accurate decisions when conducting the transaction. The presence of asymmetric information leads to the problems of adverse selection and moral hazard.

Adverse selection is the asymmetric information problem that occurs before the transaction. Potential bad credit risks are the ones who most actively seek out loans. Thus the parties who are most likely to produce an undesirable outcome are the ones most likely to want to engage in the transaction. Because adverse selection increases the chances that a loan might be made to a bad credit risk, lenders might decide not to make any loans at all, even if there are good credit risks in the marketplace.

Moral hazard is the asymmetric information problem that arises after a transaction occurs. The lender runs the risk that the borrower will engage in activities that are undesirable from the lender's point of view because they make it less likely that the loan will be repaid. For example, once a borrower have obtained a loan they make take on big risks which might have a high possible return, but also run a greater risk of default. Because moral hazard reduces the probability that the loan will be repaid, lenders may decide not to make loans.

8.4 pp.186-191 **(10)**

The presence of the "lemons problem" makes securities markets (debt and equity) ineffective in channelling funds from savers to borrowers. Investors cannot distinguish between good firms (high profits and low risk) and bad firms (low profits and high risk) due to lack of information. Owners of firms have better information and are unwilling to sell securities for only an average price (or they require a higher interest rate). Because only "bad" firms investors will therefore be willing to sell securities, investors will be unwilling to buy securities.

The lemons problem will disappear if the asymmetric information problem (adverse selection) can be eliminated by the supply of accurate information. Private companies can collect & produce information and sell it to investors. Firms like Standard & Poor, Moody's etc sell information to subscribers.

This does not completely solve the problem due to the free-rider problem (people who do not pay, but take advantage of the information) – the free riders can simply behave similar to those that have purchased the info. Because prices of "good" firms are bid up, the advantage of buying at a lower price disappears.

Financial intermediaries are usually experts in producing information about firms, and are therefore well-equipped to sort good credit risks from bad ones. People will also be more willing to buy securities with a financial intermediary's "guarantee".

Governments may encourage firms to reveal honest information, e.g. by independent audits. However, problems like the Enron implosion may still occur (false reporting, debt and financial contracts were kept off its balance sheet). Thus government regulation may lesson the problems of asymmetric information, but it cannot eliminate them.

8.5 pp.190-191 **(10)**

Regarding indirect financing, financial intermediation is similar to the functioning of used car dealers. They become experts in the determination of the condition of a used car. They could then sell it with some form of guarantee. The dealer makes his profit by selling a good car privately at a relative higher price. There is also no free-rider problem. A bank may be such an expert in acquiring information about firms. It can distinguish between "bad" and "good" risks. Banks make private (nontraded) loans to firms, rather than trading in securities in the open market. Banks are therefore the most important source of external finance for financing businesses because they may be experts in assessing firms.

The problem with direct financing is that investors typically have a lack of information of the firm selling a bond or security which makes it difficult to assess the degree of risk of repaying the loan.

"The role of banks in lending will probably decline in future": In the past 20 years there has been a huge improvement in information technology. Thus the role of banks in acquiring and providing information has declined and is likely to decline even further.

"The more established a firm is, the more likely it will issue securities to raise funds": Information about larger firms is more likely to be more freely available. Investors may thus be better placed to evaluate them directly, without the help of financial intermediaries.

8.6 pp.191-192 **(4)**

The minimisation of adverse selection still does not completely eliminate the possibility of a borrower defaulting on loan repayments. Collateral reduces the lender's loss in the case of default. If the borrower defaults, the lender can sell the collateral to reduce the loss.

Nett worth of the borrower functions similar to collateral. In the case of default, the lender may claim from net worth. Also, the greater the net worth, the less likely the borrower is to default.

8.7 pp. 192-197 **(12)**

Moral hazard is an asymmetric information problem which occurs after the financial transaction has taken place. It can explain why it is easier for firms to acquire funds through debt rather than equity contracts.

Equity contracts are subject to the principal agent problem. The principal agent problem arises when managers (the agents) have more information than stockholders (the owners or the principals). The separation between ownership and control creates the possibility that agents may act in their own interest, rather than that of the principals. The problem is aggravated if the agent is dishonest. The principal agent problem could be prevented if the principals had complete information of the action of the agents.

Better information on the functioning of the firm reduces the principal agent problem. It could however be costly to acquire this information. A complication is the free-rider problem which exists when only some stockholders do the monitoring, and others free-ride on their efforts. Government has a role to reduce the moral hazard problem by strong regulation of the financial system. E.g. public firms are required to adhere to strict accounting standards and people who commit fraud are heavily penalised.

Debt contracts are structured in such a way that moral hazard only exists in certain situations, and the need to monitor managers is therefore reduced. The debt contract only requires the borrower to repay fixed amounts at fixed intervals and there is no need to know the exact amount of profits. Only when the borrower defaults, then the profits and the running of the firm need to be verified (as in the principal agent problem).

8.8 pp.195-198 **(12)**

Moral hazard is an asymmetric information problem which occurs after the financial transaction has taken place. There may be a strong incentive for the borrower to use the funds for riskier alternatives. This will be greatly reduced if the borrower has more to lose. A high net worth or collateral are incentive compatible – the aims of the borrower are aligned to that of the lender.

Monitoring and restrictive covenants written in the loan contract may be used to lower moral hazard. There are four types of restrictive covenants:

Covenants to restrict undesirable behaviour: E.g. the loan may be used only for specific purposes; or restrictions to engage in risky business.

Covenants to encourage desirable behaviour: E.g. the borrower in case of a house must take out life insurance; the firm must hold a minimum of certain assets.

Covenants to keep collateral valuable: Collateral must be kept in good condition: E.g. in the case of a car loan the owner must take out insurance; for a house adequate insurance must be taken out and the loan must be paid off when sold.

Covenants to provide information: E.g. periodic accounting reports, the right to monitor and inspect the accounting books.

Restrictive covenants are not necessarily effective. Not all types of risky activities can be written into contracts. They must also be monitored – which may be costly.

Financial intermediation, particularly banks may avoid the free-rider problem if they make private loans. Thus financial intermediaries play a more important role in channelling funds from lenders to borrowers than marketable securities.

8.9 pp.198-201 **(14)**

Conflicts of interest arise when a person or institution has multiple objectives or interests and, as a result, have conflicts between these objectives.

Financial intermediaries can use the same information multiple times (economies of scale) and they may also provide multiple services to customers creating economies of scope (lowering the cost of information production for each service by applying one information resource to many different services). However, a moral hazard problem may arise if offering multiple services to customers creates multiple interests, and possible conflicts between these interests, causing a reduction in the quality of information and making financial markets less efficient.

The research activities of investment banks serve the security-buying investors by providing unbiased research. When investment banks also underwrite securities, they serve the security-issuing firms. But these two client groups have different and possibly conflicting interests. The security-issuing firms favour optimistic research regarding their securities, to make the securities easier to sell, while investors want to hear the truth to guide them in their buying decisions. When the policy of investment banks is that "we do not make negative comments on our clients" then this could obviously distort the research information. "Spinning" also generates conflicts of interest. Spinning is a "kickback" when investment banks allocate hot

CH9: Banking & the management of FI

9.1 **pp.219-223** **(6)**

Assets	Liabilities
Reserves	Deposits
Securities	Borrowings of banks
Loans	Capital

RSL DBC

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9.2 **pp.226-229** **(10)**

(a) When a bank receives deposits it is in the form of cash and is added to reserves. Similarly, when a deposit is withdrawn it represents an outflow of reserves.

Deposit inflow:

Assets		Liabilities	
Reserves	+x	Deposits	+x

Deposit outflow:

Assets		Liabilities	
Reserves	-x	Deposits	-x

The world is flat

(b) Consider the following example (assume a 10% required reserve ratio):

Assets		Liabilities	
Reserves	20	Deposits	100
Loans	80	Bank capital	10
Securities	10		

It is evident that this bank's required reserves is only 10 (10% of 100), and it therefore has more than enough reserves. If deposits (and thus reserves) fall by 10, the bank will now be required to hold at least 9 as required reserves (10% of 90). But since the bank will still have reserves of 10 left (see T-account below), there will be no need to change other parts of their balance sheet (such as borrow from other banks or call in loans).

Assets		Liabilities	
Reserves	10	Deposits	90
Loans	80	Bank capital	10
Securities	10		

(c) From the example in (b) it is evident that the more excess reserves a bank has (that is, reserves in excess of the minimum required reserves), the safer it is against having to change its balance sheet in response to deposit outflows.

→ Explain the 4 primary concerns banks have in managing their assets & liabilities

9.3 **pp.226-223** **(4x2=8)**

Liquidity management is about banks having sufficient cash reserves to deal with cash outflows. Banks must also adhere to minimum cash holdings held at the central bank. Banks can borrow reserves either from other banks or from the central bank at the Federal Funds (interest) rate. In South Africa, the equivalent of the Federal Funds rate is the repo rate.

Asset management is about banks allocating their total assets to reserves, securities and loans in order to meet the three goals of sufficient cash reserves (liquidity), optimal return and minimal risk.

Liability management is about banks having sufficient access to borrowings to supplement their cash reserves in the short run. Banks have become active and creative in their acquisition of deposits.

Capital adequacy management is about banks having an adequate amount of capital. Bank capital helps prevent bank failures, and affects returns for the owners (equity holders) of the bank. A minimum amount of bank capital requirements is also held.

- Explain briefly the meaning of credit risks and how banks

9.4 **pp.234-238** **(6)**

To be profitable, banks must reduce the probability of defaulting loans by lenders. Again, the problems of adverse selection and moral hazard have to be dealt with. Adverse selection in loan markets occur because bad credit risks are usually the ones who actively seek out loans, while moral hazard exists in loan markets because borrowers might engage in risky and undesirable activities after they have secured the funds.

The bank's need for accurate information on the lender's activities can be handled in several ways:

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1. screening and monitoring
2. long-term customer relationships
3. loan commitments

Banks also use the following credit risk management tools:

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1. collateral and compensating balances
2. credit rationing

→ Briefly explain the meaning of interest rate risk & how banks may deal with problem

9.5 **pp.238-241** **(6)**

Interest rate risk deals with the increased interest rate volatility. Varying interest rates affect both the banks' flows of revenue (assets) and their flow of payments (liabilities). If a bank has more rate-sensitive liabilities than assets, a rise in interest rates will reduce bank profits. Similarly, a decline in interest rates will raise bank profits.

The sensitivity of bank profits to changes in interest rates can be measured using "gap analysis" (in which the amount of rate-sensitive liabilities is subtracted from the amount of rate-sensitive assets) or "duration analysis" (which examines the sensitivity of the market value of the bank's total assets and liabilities to changes in interest rates.

If interest rates are expected to rise, the duration of the bank's assets could be shortened to increase their rate-sensitivity. Alternatively, the duration of the liabilities could be lengthened, leading to lower exposure to interest rate risk.

9.6 pp.241-244 **(6)**

Banks' traditional activities (acquiring deposits and converting them to higher yield assets) are recorded in balance sheets. Off-balance-sheet activities (trading financial instruments and generating income from fees and loan sales) do not appear in balance sheets. Some off-balance sheet activities include:

Loan sales: Bank A may sell the future income stream of certain categories of its loans, or part of its loans, to outside investor B. This reduces the amount of loans of bank A, while simultaneously increasing the amount of securities held by bank A. This happened in the so-called "subprime market" of home loans in the USA.

Generation of fee income: A part of fee income accrues to banks when they perform specialised services for clients. Fees are also earned when banks provide backup lines of credit.

Trading activities and risk management techniques involve trading in financial futures and options and interest rate swaps. These are often highly technical instruments which can be used to reduce interest rate risk.

- Loan sales
- Generating fee income
- Risk managent techniques.