

MONEY and BANKING: ECON 3115

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Chapter 8: Economic Analysis of Financial Structure

Outline

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I) Eight Outstanding Facts about Financial Structure

1) First, some definitions:

A) This discussion uses the terms 'equity' and 'stock' (as Intel corporation's common stock) interchangeably.

B) This discussion uses the term 'securities' to refer to stocks and bonds.

C) In most cases, the term 'external finance' is used to denote funds obtained when a non-financial firm finances real capital investment by either:

i) *borrowing* from a financial intermediary, or

ii) *selling securities* in a primary financial market.¹

2) Economic analysis helps explain the following outstanding features of financial structure:

Fact 1) Equity sales are **not** the primary source of external finance.

Fact 2) Direct finance (I.E., securities sales) is **not** the primary sources of external finance. Although this sounds like Fact 1, Fact 2 is much more general. After reading Fact 1, students tend to conclude that bonds must be the primary source of external finance. To many peoples' surprise, that is not the case; thus the need to distinguish between Facts 1 and 2.

Fact 3) **Indirect finance** (I.E., borrowing from financial intermediaries) is the primary source of funds used to finance capital investment.

Fact 4) **Commercial banks** are the primary source of indirect external finance.

Fact 5) The financial system is among the most heavily regulated sectors of the economy.

Fact 6) Only large, well established, corporations can obtain financing in securities markets.

Fact 7) Collateral is a very common feature of debt contracts

Fact 8) Debt contracts are highly complex legal documents that restrict borrowers' behavior.

II) Transactions Costs (again)

1) In the financial system, transactions costs include the relatively large costs finance firms must pay

¹ In contrast, 'internal finance' refers to cases where a non-financial firm uses its own funds (E.G., retained earnings) to finance real capital investment.

before they can begin transferring funds: these include costs of physical infrastructure and legal and administrative costs. Note these large “upfront” costs often are referred to as ‘fixed costs.’ Transactions costs also include the value of time used up in transferring funds from savers to borrowers. Because of these fixed costs, even transfers that are small in dollar terms tend to have transactions costs that are large fractions of the transfers themselves. However, the *per unit* transactions costs decline as the amount of funds transferred increases. E.G., transactions costs of trading \$1 million are not much more than the costs of trading \$1,000. This is what we mean by the term ‘economies of scale.’ When many small traders pool their funds, they take advantage of economies of scale, reducing unit costs, and making it economical for small savers to indirectly own financial securities they otherwise could not afford to own.

2) Financial Intermediaries (*FI*) are excellent vehicles for small savers to pool funds to take advantage of economies of scale. In addition, because *FIs* pool sufficient funds to purchase diversified portfolios of stocks and bonds, *FIs* benefit small savers by reducing the financial risks faced by the latter.

3) Because *FIs* reduce transactions costs per dollar transferred, they make it easier for small savers to sell their portion of pooled funds, effectively increasing liquidity for small savers.

4) Therefore, economies of scale, diversification, and liquidity help to explain Facts 1, 2, 3 and 4.

III) Asymmetric Information (*AI*) (again)

1) Recall that *AI* means that savers do not have information needed to accurately gauge the risk of prospective borrowers. Because of *AI*, individual savers cannot distinguish between bad credit risks – borrowers who are highly likely to suffer losses – and good credit risks. *AI* occurs in both financial markets and *FIs*, but *AI* is more prevalent and more severe in financial markets.

2) Two types of *AI*:

A) Adverse Selection (*AS*) is risk that arises because bad credit risks are the most likely to seek loans. Individual savers do not have the information or expertise needed to distinguish between these good and bad credit risks.

B) Moral Hazard (*MH*) is the risk that borrowers engage in activities that reduce the likelihood loans will be repaid. Individual savers usually do not have the information or expertise needed to determine which borrowers are likely to engage in risk-increasing activities.

IV) *AS*, Efficiency, and Facts about Financial Structure

1) *AS* is risk that arises because bad credit risks are the most likely to seek loans, and because savers do not have information or expertise needed to distinguish good from bad credit risks. Because savers cannot easily distinguish good from bad credit risks, they demand higher expected real rates of return on borrowed funds, to compensate for the risk. Because rates of return are higher, some good credit risks drop out of the market. Here’s the most important point: because some good credit risks drop out, some good investment opportunities go unfunded, fewer new products and production processes are developed, and society is worse off. The economic problem with *AS* is, in a nutshell, lower economic efficiency.

2) *FIs* are better than financial markets at reducing *AS* for small savers. Therefore, *AS* helps to

explain Facts 1, 2, 3 and 4.

3) Financial markets can reduce *AS* somewhat. Analysts in financial markets collect information about prospective borrowers, and sell the information for profit. Obtaining information takes time and is costly. Markets, however, have fewer incentives than *FIs* to pay information costs. This is true, first because firms that employ the analysts usually take ownership of only small percentages of the securities borrowers issue. And second, information gathered by analysts often becomes freely available: thus, savers can obtain the information without paying for it. As a result, markets often are not compensated for the full cost of obtaining the information.

A) Savers can obtain information without paying for it because the information is “nonrival:” That is, the information can be used by many people at the same time.²

B) When savers obtain information without paying for it, the profit from gathering the information is lower than it could be, so the incentive to pay the costs of gathering the information is reduced. The result is that less information is gathered. Public finance economists call this the “free-rider problem.” Free-riding is a problem because society does not get all the information it is willing to pay for: this is inefficient.

C) Government has a *potential* to reduce the free-rider problem, and increase efficiency, by requiring firms to reveal information about themselves. This helps explain Fact 5.

a) Financial regulation has *potential* to increase efficiency. Evidence for this can be seen in the free-banking era that occurred between the demise of the Second Bank of the United States in 1837 and the National Bank Act of 1863. Bank regulation was lax and fraud was rampant in the free-banking era. Bank crises were very common in the U.S. until financial regulation was increased substantially during the Great Depression.

b) Because wealth is at stake, there is a huge temptation for unethical and socially destructive risk-taking in the financial system. The widespread occurrence of unethical and excessive risk-taking provides one motivation for financial regulation. Unfortunately, regulation cannot guarantee unethical and misguided risk-taking do not occur. And uninformed and poorly structured regulation has the potential to reduce efficiency. The commerce that increases innovation and the standard of living, and the finance arrangements that lead to economic growth, are necessarily risky. Regulation can stifle risky, but productive transactions, reducing efficiency.

c) But the question is not whether the financial system should or should not be regulated. What is needed is sound, or “prudential” regulation.

i) regulation *per se tends* to have a negative influence on efficiency because regulations are costly to comply with, even if they reduce risk (Nevertheless,

² Tangible commodities are “rival”: Only one person at a time can use a tangible commodity. E.G. an article of clothing is rival. Thomas Jefferson described the nonrival nature of knowledge beautifully in a personal letter defending the U.S. patent system (which he helped create). Jefferson wrote “If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper (candle) at mine, receives light without darkening me.”

the *net* effect of regulation has potential to be positive).

ii) regulated economic agents often find ways of avoiding regulations. This is costly and wastes resources, with little or no offsetting social benefits. Bankers are famous (infamous?) for clever regulation avoidance. Before 1863 privately issued bank notes made up the lion's share of the U.S. money stock. The National Bank Act of 1863 imposed a tax on private bank notes. Bankers responded by issuing checks, which were not taxed. In order to reduce risky competition among banks during the Great Depression the U.S. government instituted a prohibition against interest on funds deposited in checking accounts. It took awhile, but banks eventually avoided the prohibition by issuing "Negotiable Orders of Withdrawal" (NOW accounts) which were not subject to the prohibition. NOW accounts were checking accounts in all but name: the only reason for their existence was to avoid the law against interest-bearing checking accounts. ATMs were invented to avoid the prohibition some states imposed against branch banking. The proverbial 'Etc., etc., etc.,' is appropriate here.

iii) What is desirable is informed, disciplined, regulation that reduces *AS* to the efficient level. Cost-benefit analysis is necessary to guide the development of efficient regulation. However, financial regulation often takes place during crises, when the immediacy of the crisis precludes careful cost-benefit analysis.

4) Even if regulation is sound, there still is room for improving the information savers have, because bad credit risks can be very good at hiding their true natures. This generates an important role for *FIs*. *FIs* have the highest level of expertise obtaining information needed to distinguish good from bad credit risks. *FIs* can reduce loans to bad credit risks, or charge them higher interest to compensate for the risk. This increases *FIs* average rates of return, which allows them to profit in spite of the increased risk. Individual savers are better off because they can earn a relatively safe return, and don't individually pay the costs of collecting information.³ And because *FI* information is private, the free-rider problem is avoided. Thus, *FIs* reduce *AS*. This helps explain Facts 1, 2, 3 and 4.

5) *AS* also helps to explain Fact 6. Because they are highly visible, much more is known about large well established firms than is known about small firms, so individual savers tend to be more confident buying securities from large firms than from small firms. As a result, large firms can avoid the transactions costs of *FIs* by obtaining funds by selling securities. Further, *AS* helps explain Fact 7. Collateral refers to assets that become the property of a lender if the borrower defaults. Collateral reduces the risk of *AS*.

V) *MH*, the Principal-Agent Problem, and Financial Contracts

1) *MH* is risk that borrowers engage in activities that reduce the likelihood loans will be repaid. Savers usually do not have information needed to determine which borrowers are likely to engage in such activities. *MH* is inefficient in the same way *AS* is: savers demand higher rates of return to compensate for the risk. Because required returns are higher, some reliable borrowers drop out of the

³ Savers pay the costs collectively, by receiving lower interest rates. However, this cost is spread out among many savers, lowering the cost to individual savers.

market, some profitable investment opportunities are not funded, so fewer new products are developed, and society is worse off.

2) This problem is particularly severe in the case of equity contracts because most equity contracts do not guarantee regular fixed payments (firms are not required to pay dividends on common stock). The absence of fixed payments can lead to the “Principal-Agent Problem” (*PAP*). Savers, who lend their hard-earned funds to finance projects, are the 'principals' to a contract. Borrowers, who use the funds are the 'agents.' *PAP* refers to *MH* that occurs when the agent has less incentive than the principal to do what is necessary to make investment projects pay off. The smaller the amount of funds the agent stands to lose, the larger is *PAP*. *PAP* can create *MH* because, not having much to lose, agents may be tempted to take the principals' money and run (I.E. steal the funds).

3) One way to overcome *PAP* would be for individual savers to monitor agents closely. But it is time consuming and expensive for individual savers to monitor. Also, the information collected by monitoring can suffer from the free-rider problem: If saver A can access information collected by saver B, she has less incentive to pay costs of monitoring. If every principal behaved this way, no monitoring would occur. Although some monitoring inevitably occurs, the free-rider problem results in less than the efficient amount of monitoring in financial markets. *FIs* can effectively reduce *PAP* by closely monitoring borrowers, verifying that borrower activities are consistent with contracts. As well, *FIs* can keep information they obtain private, which tends to prevent free-riding on information they collect. This helps explain Facts 1, 2, 3, and 4.

4) *PAP* helps explain Fact 5. Governments spend substantial resources monitoring firm behavior, enforcing contracts, and prosecuting cheats.⁴

5) Debt contracts reduce *PAP* because they require fixed payments to savers, even if borrowers' investment projects are unprofitable. To some degree, this reduces the need to monitor (except in the case that a borrower might default). This helps explain Fact 1.

VI) *MH* and Financial Structure

1) Debt contracts suffer less *MH* than equity contracts because debt contracts require borrowers to make fixed payments to savers. Nevertheless, debt contracts suffer from some *MH* because managers of firms that issue bonds have control over other people's money: These managers may use the funds in ways that jeopardize the firm's ability to earn profits sufficient to repay debt. As a result, debt contracts often include complex legal provisions that restrict borrower behavior.

A) The more collateral or net worth a borrower must forego if the borrower defaults, the higher the borrower's incentive to avoid activities that increase the probability loans won't be repaid. This is why debt contracts often require collateral. In this way, *MH* helps explain Fact 7.

⁴ If not for government monitoring, Bernie Madoff might still be enjoying the Mediterranean sunshine from his yacht. Against this, it is not unreasonable to argue that if there were no regulation of financial markets Madoff would not have been able to defraud the public because, with no government monitoring individual savers would have had much more incentive to monitor, and would have prevented the fraud: I.E., the market regulates itself. There is some truth in this argument. However, unfettered financial markets appear not to regulate themselves well. This view is supported by the very large amounts of fraud that occurred before governments began monitoring financial markets.

B) The following observations show how *MH* also helps explain Fact 8. Debt contracts:

- a) often require borrowers to maintain minimum levels of net worth. E.G., contracts often require firm owners to contribute some of their own funds to finance projects.
- b) can require a borrower to agree to be monitored by the lender and require “restrictive covenants” (rules restricting borrower behavior).
 - i) restrictive covenants state the borrower must not engage in certain risky behaviors. See the textbook for examples.
 - ii) restrictive covenants state the borrower must take action to reduce risk the loan will not be repaid. See the textbook for examples.
 - iii) restrictive covenants state the borrower must maintain loan collateral, helping to explain Facts 7 and 8. See the textbook for examples.
 - iv) restrictive covenants state the borrower must provide information. See the textbook for examples.

VII) Financial Development and Economic Growth

The Application at the end of Chapter 8 explains how the absence of financial development in poor and developing countries leads to extreme amounts of *AS* and *MH*, which contributes to poverty and inhibits economic growth. Read this material carefully. There will be a question about it on the next test.