Financial Institutions Management Risk Management Approach 10th edition Saunders Solutions Manual

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Solutions for End-of-Chapter Questions and Problems: Chapter One

1. What are risks common to all financial institutions?

Risks common to all financial institutions include default or credit risk of assets, interest rate risk caused by maturity mismatches between assets and liabilities, liability withdrawal or liquidity risk, underwriting risk, and operating risks.

2. Explain how economic transactions between household savers of funds and corporate users of funds would occur in a world without financial institutions.

In a world without FIs the users of corporate funds in the economy would have to directly approach the household savers of funds in order to satisfy their borrowing needs.
In this economy, the level of fund flows between household savers and the corporate sector is likely to be quite low. There are several reasons for this. Once they have lent money to a firm by buying its financial claims, households need to monitor, or check, the actions of that firm. They must be sure that the firm's management neither absconds with nor wastes the funds on any projects with low or negative net present values. Such monitoring actions are extremely costly for any given household because they require considerable time and expense to collect sufficiently high-quality information relative to the size of the average household saver's investments. Given this, it is likely that each household would prefer to leave the monitoring to others. In the end, little or no monitoring would be done. The resulting lack of monitoring would reduce the attractiveness and increase the risk of investing in corporate debt and equity.
The net result would be an imperfect allocation of resources in an economy.

3. Identify and explain three economic disincentives that would dampen the flow of funds between household savers of funds and corporate users of funds in an economic world without financial institutions.

Investors generally are averse to directly purchasing securities because of (a) monitoring costs, (b) liquidity costs, and (c) price risk. Monitoring the activities of borrowers requires extensive time, expense, and expertise. As a result, households would prefer to leave this activity to others, and by definition, the resulting lack of monitoring would increase the riskiness of investing in corporate debt and equity markets. The long-term nature of corporate equity and debt securities would likely eliminate at least a portion of those households willing to lend money, as the preference of many for near-cash liquidity would dominate the extra returns which may be available. Finally, the price risk of transactions on the secondary markets would increase without the information flows and services generated by high volume.

4. Identify and explain the two functions FIs perform that would enable the smooth flow of funds from household savers to corporate users.

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FIs serve as conduits between users and savers of funds by providing a brokerage function and by engaging in an asset transformation function. The brokerage function can benefit both savers and users of funds and can vary according to the firm. FIs may provide only transaction services, such as discount brokerages, or they also may offer advisory services which help reduce information costs, such as full-line firms like Bank of America Merrill Lynch. The asset transformation function is accomplished by issuing their own securities, such as deposits and insurance policies that are more attractive to household savers, and using the proceeds to purchase the primary securities of corporations. Thus, FIs take on the costs associated with the purchase of securities.

5. In what sense are the financial claims of FIs considered *secondary securities*, while the financial claims of commercial corporations are considered *primary securities*? How does the transformation process, or intermediation, reduce the risk, or economic disincentives, to the savers?

Funds raised by the financial claims issued by commercial corporations are used to invest in real assets. These financial claims, which are considered primary securities, are purchased by FIs whose financial claims therefore are considered secondary securities. Savers who invest in the financial claims of FIs are indirectly investing in the primary securities of commercial corporations. However, the information gathering and evaluation expenses, monitoring expenses, liquidity costs, and price risk of placing the investments directly with the commercial corporation are reduced because of the efficiencies of the FI.

6. Explain how financial institutions act as delegated monitors. What secondary benefits often accrue to the entire financial system because of this monitoring process?

By putting excess funds into financial institutions, individual investors give to the FIs the responsibility of deciding who should receive the money and of ensuring that the money is utilized properly by the borrower. This agglomeration of funds resolves a number of problems. First, the large FI now has a much greater incentive to collect information and monitor actions of the firm because it has far more at stake than does any small individual household. In a sense, small savers have appointed the FI as a delegated monitor to act on their behalf. Not only does the FI have a greater incentive to collect information, the average cost of collecting information is lower. Such economies of scale of information production and collection tend to enhance the advantages to savers of using FIs rather than directly investing themselves. Second, the FI can collect information more efficiently than individual investors. The FI can utilize this information to create new products, such as commercial loans, that continually update the information pool. Thus, a richer menu of contracts may improve the monitoring abilities of FIs. This more frequent monitoring process sends important informational signals to other participants in the market, a process that reduces information imperfection and asymmetry between the ultimate providers and users of funds in the economy. Thus, by acting as a delegated monitor and producing better and more timely information, FIs reduce the degree of information imperfection and asymmetry between the ultimate suppliers and users of funds in the economy.

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7. What are five general areas of FI specialness that are caused by providing various services to sectors of the economy?

First, FIs collect and process information more efficiently than individual savers. Second, FIs provide secondary claims to household savers which often have better liquidity characteristics than primary securities such as equities and bonds. Third, by diversifying the asset base FIs provide secondary securities with lower price risk conditions than primary securities. Fourth, FIs provide economies of scale in transaction costs because assets are purchased in larger amounts. Finally, FIs provide maturity intermediation to the economy which allows the introduction of additional types of investment contracts, such as mortgage loans, that are financed with short-term deposits.

8. What are agency costs? How do FIs solve the information and related agency costs experienced when household savers invest directly in securities issued by corporations?

Agency costs occur when owners or managers take actions that are not in the best interests of the equity investor or lender. These costs typically result from the failure to adequately monitor the activities of the borrower. If no other lender performs these tasks, the lender is subject to agency costs as the firm may not satisfy the covenants in the lending agreement. That is, agency costs arise whenever economic agents enter into contracts in a world of incomplete information and thus costly information collection. The more difficult and costly it is to collect information, the more likely it is that contracts will be broken. Because the FI invests the funds of many small savers, the FI has a greater incentive to collect information and monitor the activities of the borrower because it has far more at stake than does any small individual household.

9. How do large FIs solve the problem of high information collection costs for lenders, borrowers, and financial markets?

One way financial institutions solve this problem is that they develop of secondary securities that allow for improvements in the monitoring process. An example is the bank loan that is renewed more quickly than long-term debt. When bank loan contracts are sufficiently short term, the banker becomes almost like an insider to the firm regarding informational familiarity with its operations and financial conditions. Indeed, this more frequent monitoring often replaces the need for the relatively inflexible and hard-to-enforce covenants found in bond contracts. Thus, by acting as a delegated monitor and producing better and timelier information, FIs reduce the degree of information imperfection and asymmetry between the ultimate suppliers and users of funds in the economy.

10. How do FIs alleviate the problem of liquidity risk faced by investors who wish to buy securities issued by corporations?

FIs provide financial or secondary claims to household and other savers. Often, these claims have superior liquidity attributes compared with those of primary securities such as corporate equity and bonds. For example, depository institutions issue transaction account deposit contracts with a fixed principal value (and often a guaranteed interest rate) that can be withdrawn

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immediately on demand by household savers. Money market mutual funds issue shares to household savers that allow those savers to enjoy almost fixed principal (deposit-like) contracts while often earning interest rates higher than those on bank deposits. Even life insurance companies allow policyholders to borrow against their policies held with the company at very short notice.

11. How do financial institutions help individual savers diversify their portfolio risks? Which type of financial institution is best able to achieve this goal?

Money placed in any financial institution will result in a claim on a more diversified portfolio. as long as the returns on different investments are not perfectly *positively* correlated, by exploiting the benefits of size, FIs diversify away significant amounts of portfolio risk—especially the risk specific to the individual firm issuing any given security. This risk diversification allows an FI to predict more accurately its expected return on its asset portfolio. A domestically and globally diversified FI may be able to generate an almost risk-free return on its assets. As a result, it can credibly fulfill its promise to households to supply highly liquid claims with little price or capital value risk. FIs best able to achieve this goal include banks that lend money to many different types of corporate, consumer, and government customers. Insurance companies have investments in many different types of assets. Investments in a mutual fund may generate the greatest diversification benefit because of the fund's investment in a wide array of stocks and fixed income securities. As long as an FI is sufficiently large to gain from diversification and monitoring, its financial claims are likely to be viewed as liquid and attractive to small savers compared with direct investments in the capital market.

12. How can financial institutions invest in high-risk assets with funding provided by low-risk liabilities from savers?

FIs exploit the law of large numbers in their investments, achieving a significant amount of diversification, whereas because of their small size, many household savers are constrained to holding relatively undiversified portfolios. This risk diversification allows an FI to predict more accurately its expected return on its asset portfolio. A domestically and globally diversified FI may be able to generate an almost risk- free return on its assets. As a result, it can credibly fulfill its promise to households to supply highly liquid claims with little price or capital value risk.

13. How can individual savers use financial institutions to reduce the transaction costs of investing in financial assets?

By pooling the assets of many small investors, FIs can gain economies of scale in transaction costs. This benefit occurs whether the FI is lending to a corporate or retail customer, or purchasing assets in the money and capital markets. In either case, operating activities that are designed to deal in large volumes typically are more efficient than those activities designed for small volumes. By grouping their assets in FIs that purchase assets in bulk—such as in mutual funds and pension funds—household savers can reduce the transaction costs of their asset purchases.

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14. What is maturity intermediation? What are some of the ways in which the risks of maturity intermediation are managed by financial institutions?

If net borrowers and net lenders have different optimal time horizons, FIs can service both sectors by matching their asset and liability maturities through on- and off-balance sheet hedging activities and flexible access to the financial markets. A dimension of FIs' ability to reduce risk by diversification is that they can better bear the risk of mismatching the maturities of their assets and liabilities than can small household savers. Thus, FIs offer maturity intermediation services to the rest of the economy. Specifically, through maturity mismatching, FIs can produce long-term contracts, such as long-term, fixed-rate mortgage loans to households, while still raising funds with short-term liability contracts. By investing in a portfolio of long- and short-term assets that have variable- and fixed-rate components, the FI can reduce maturity risk exposure by utilizing liabilities that have similar variable- and fixed-rate characteristics, or by using futures, options, swaps, and other derivative products.

15. What are five areas of institution-specific FI specialness and which types of institutions are most likely to be the service providers?

First, commercial banks and other depository institutions are key players for the transmission of monetary policy from the central bank to the rest of the economy. Second, specific FIs often are identified as the major source of financing for certain sectors of the economy. For example, savings institutions traditionally serve the credit needs of the residential real estate market. Third, life insurance companies and pension funds commonly are encouraged to provide mechanisms to transfer wealth across generations. Fourth, depository institutions efficiently provide payment services to benefit the economy. Finally, money market and debt-equity mutual funds provide denomination intermediation by allowing small investors to purchase pieces of assets with large minimum sizes such as negotiable CDs and commercial paper issues.

16. How do depository institutions such as commercial banks assist in the implementation and transmission of monetary policy?

Because the liabilities of depository institutions are a significant component of the money supply that impacts the rate of inflation, they play a key role in the transmission of monetary policy from the central bank to the rest of the economy. That is, depository institutions are the conduit through which monetary policy actions impact the rest of the financial sector and the economy in general. Indeed, a major reason the United States and world governments bailed out many depository institutions and increased the deposit insurance limit from $100,000 to $250,000 per person per bank during the financial crisis was so that central banks could implement aggressive monetary policy actions to combat collapsing financial markets. Monetary policy actions include open market operations (the purchase and sale of securities in the U.S. Treasury securities market), setting the discount rate (the rate charged on "lender of last resort" borrowing from the Federal Reserve), and setting reserve requirements (the minimum amount of reserve assets depository institutions must hold to back deposits held as liabilities on their balance sheets).

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17. What is meant by credit allocation regulation? What social benefit is this type of regulation intended to provide?

Credit allocation regulation refers to the requirement faced by FIs to lend to certain sectors of the economy which are considered to be socially important. These may include housing and farming. Presumably the provision of credit to make houses more affordable or farms more viable leads to a more stable and productive society.

18. Which intermediaries best fulfill the intergenerational wealth transfer function? What is this wealth transfer process?

Life insurance companies and pension funds often receive special taxation relief and other subsidies to assist in the transfer of wealth from one generation to another. In effect, the wealth transfer process allows for the accumulation of wealth by one generation to be transferred directly to one or more younger generations by establishing life insurance policies and trust provisions in pension plans. Often this wealth transfer process avoids the full marginal tax treatment that a direct payment would incur.

19. What are two of the most important payment services provided by financial institutions? To what extent do these services efficiently provide benefits to the economy?

The two most important payment services are check clearing and wire transfer services. Any breakdown in these systems would produce gridlock in the payment system with resulting harmful effects to the economy at both the domestic and potentially the international level.

20. What is denomination intermediation? How do FIs assist in this process?

Denomination intermediation is the process whereby small investors are able to purchase pieces of assets that normally are sold only in large denominations. Because they are sold in very large denominations, many assets are either out of reach of individual savers or would result in savers' holding highly undiversified asset portfolios. For example, the minimum size of a negotiable certificate of deposit (CD) is $100,000 and commercial paper (short-term corporate debt) is often sold in minimum packages of $250,000 or more. Individually, a saver may be unable to purchase such instruments. However, by buying shares in a money market mutual fund along with other small investors, household savers overcome the constraints to buying assets imposed by large minimum denomination sizes. Such indirect access to these markets may allow small savers to generate higher returns on their portfolios as well.

21. What is negative externality? In what ways do the existence of negative externalities justify the extra regulatory attention received by financial institutions?

A negative externality refers to the action by one party that has an adverse effect on another party who is not part of the original transaction. For example, bank failures may destroy

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household savings and at the same time restrict a firm's access to credit. Insurance company failures may leave households totally exposed in old age to catastrophic illnesses and sudden drops in income on retirement. Further, individual FI failures may create doubts in savers' minds regarding the stability and solvency of FIs in general and cause panics and even runs on sound institutions. FIs are special because of the various services they provide to sectors of the economy. Failure to provide these services or a breakdown in their efficient provision can be costly to both the ultimate sources (households) and users (firms) of savings. FIs are regulated to prevent this from happening.

22. If financial markets operated perfectly and costlessly, would there be a need for financial institutions?

To a certain extent, financial institutions exist because of financial market imperfections. If information is available costlessly to all participants, savers would not need FIs to act as either their brokers or their delegated monitors. However, if there are social benefits to intermediation, such as the transmission of monetary policy or credit allocation, then FIs would exist even in the absence of financial market imperfections.

23. Why are FIs among the most regulated sectors in the world? When is the net regulatory burden positive?

FIs are required to enhance the efficient operation of the economy. Successful financial institutions provide sources of financing that fund economic growth opportunities that ultimately raise the overall level of economic activity. Moreover, successful financial institutions provide transaction services to the economy that facilitate trade and wealth accumulation.

Conversely, distressed FIs create negative externalities for the entire economy. That is, the adverse impact of an FI failure is greater than just the loss to shareholders and other private claimants on the FI's assets. For example, the local market suffers if an FI fails and other FIs also may be thrown into financial distress by a contagion effect. Therefore, since some of the costs of the failure of an FI are generally borne by society at large, the government intervenes in the management of these institutions to protect society's interests. This intervention takes the form of regulation.

However, the need for regulation to minimize social costs may impose private costs to the FIs that would not exist without regulation. This additional private cost is defined as a net regulatory burden. Examples include the cost of holding excess capital and/or excess reserves and the extra costs of providing information. Although they may be socially beneficial, these costs add to private operating costs. To the extent that these additional costs help to avoid negative externalities and to ensure the smooth and efficient operation of the economy, the net regulatory burden is positive.

24. What forms of protection and regulation do regulators of FIs impose to ensure their safety and soundness?

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Regulators have issued several guidelines to insure the safety and soundness of FIs:

a. FIs are required to diversify their assets. For example, banks cannot lend more than 15 percent of their equity to a single borrower.
b. FIs are required to maintain minimum amounts of capital to cushion any unexpected losses. In the case of banks, the Basle standards require a minimum core and supplementary capital based on the size of an FIs' risk-adjusted assets.
c. Regulators have set up guaranty funds such as DIF for commercial banks, SIPC for securities firms, and state guaranty funds for insurance firms to protect individual investors.
d. Regulators also engage in periodic monitoring and surveillance, such as on-site examinations, and request periodic information from the FIs.

25. In the transmission of monetary policy, what is the difference between *inside money* and *outside money*? How does the Federal Reserve try to control the amount of inside money? How can this regulatory position create a cost for the depository institutions?

Outside money is that part of the money supply directly produced and controlled by the Fed, for example, coins and currency. Inside money refers to bank deposits not directly controlled by the Fed. The Fed can influence this amount of money by adjusting reserve requirement and discount rate policies. In cases where the level of required reserves exceeds the level considered optimal by the FI, the inability to use the excess reserves to generate revenue may be considered a tax or cost of providing intermediation.

26. What are some examples of credit allocation regulation? How can this attempt to create social benefits create costs to a private institution?

Credit allocation regulation supports the FI's lending to socially important sectors such as housing and farming. For example, the qualified thrift lender test (QTL) requires thrifts to hold 65 percent of their assets in residential mortgage-related assets to retain the thrift charter. Some states have enacted usury laws that place maximum restrictions on the interest rates that can be charged on mortgages and/or consumer loans. Such price and quantity restrictions may have justification on social welfare grounds—especially if society has a preference for strong (and subsidized) housing and farming sectors. However, they can also be harmful to FIs that have to bear the private costs of meeting many of these regulations. To the extent that the net private costs of such restrictions are positive, they add to the costs and reduce the efficiency with which FIs undertake intermediation.

27. What is the purpose of the Home Mortgage Disclosure Act? What are the social benefits desired from the legislation? How does the implementation of this legislation create a net regulatory burden on financial institutions?

The HMDA was passed by Congress to prevent discrimination in mortgage lending. The social benefit is to ensure that everyone who qualifies financially is provided the opportunity to

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purchase a house should they so desire. The regulatory burden has been to require a written statement indicating the reasons why credit was or was not granted.

28. What legislation has been passed specifically to protect investors who use investment banks directly or indirectly to purchase securities? Give some examples of the types of abuses for which protection is provided.

The Securities Acts of 1933 and 1934 and the Investment Company Act of 1940 were passed by Congress to protect investors against possible abuses such as insider trading, lack of disclosure, outright malfeasance, and breach of fiduciary responsibilities.

29. How do regulations regarding barriers to entry and the scope of permitted activities affect the *charter value* of financial institutions?

The profitability of existing firms will be increased as the direct and indirect costs of establishing competition increase. Direct costs include the actual physical and financial costs of establishing a business. In the case of FIs, the financial costs include raising the necessary minimum capital to receive a charter. Indirect costs include permission from regulatory authorities to receive a charter. Again in the case of FIs this cost involves acceptable leadership to regulators. As these barriers to entry are stronger, the charter value for existing firms is higher.

30. What reasons have been given for the growth of investment companies at the expense of "traditional" banks and insurance companies?

The recent growth of investment companies can be attributed to two major factors:

a. Investment companies differ from banks and insurance companies in that they give savers cheaper access to the direct securities markets. They do so by exploiting the comparative advantages of size and diversification, with the transformation of financial claims, such as maturity transformation, a lesser concern. Thus, open-ended mutual funds buy stocks and bonds directly in financial markets and issue savers shares whose value is linked in a direct pro rata fashion to the value of the mutual fund's asset portfolio. Similarly, money market mutual funds invest in short-term financial assets such as commercial paper, CDs, and Treasury bills and issue shares linked directly to the value of the underlying portfolio. To the extent that these funds efficiently diversify, they also offer price risk protection and liquidity services.

b. Recent episodes of financial distress in both the banking and insurance industries have led to an increase in regulation and governmental oversight, thereby increasing the net regulatory burden of "traditional" companies. As such, the costs of intermediation have increased, which increases the cost of providing services to customers.

31. What events resulted in banks' shift from the traditional banking model of "originate and hold" to a model of "originate and distribute?"

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As FIs adjusted to regulatory changes brought about by the likes of the FSM Act, one result was a dramatic increase in systemic risk of the financial system, caused in large part by a shift in the banking model from that of "originate and hold" to "originate to distribute." In the traditional model, banks take short term deposits and other sources of funds and use them to fund longer term loans to businesses and consumers. Banks typically hold these loans to maturity, and thus have an incentive to screen and monitor borrower activities even after a loan is made. However, the traditional banking model exposes the institution to potential liquidity, interest rate, and credit risk. In attempts to avoid these risk exposures and generate improved return-risk tradeoffs, banks shifted to an underwriting model in which they originated or warehoused loans, and then quickly sold them. Indeed, most large banks organized as financial service holding companies to facilitate these new activities. More recently activities of shadow banks, nonfinancial service firms that perform banking services, have facilitated the change from the originate and hold model of commercial banking to the originate and distribute banking model. These innovations removed risk from the balance sheet of financial institutions and shifted risk off the balance sheet and to other parts of the financial system. Since the FIs, acting as underwriters, were not exposed to the credit, liquidity, and interest rate risks of traditional banking, they had little incentive to screen and monitor activities of borrowers to whom they originated loans. Thus, FIs failed to act as specialists in risk measurement and management.

32. How did the boom in the housing market in the early and mid-2000s exacerbate FI's transition away from their role as specialists in risk measurement and management?

The boom ("bubble") in the housing markets began building in 2001, particularly after the terrorist attacks of 9/11. The immediate response by regulators to the terrorist attacks was to create stability in the financial markets by providing liquidity to FIs. For example, the Federal Reserve lowered the short-term money market rate that banks and other financial institutions pay in the Federal funds market and even made lender of last resort funds available to non-bank FIs such as investment banks. Perhaps not surprisingly, low interest rates and the increased liquidity provided by Central banks resulted in a rapid expansion in consumer, mortgage, and corporate debt financing. Demand for residential mortgages and credit card debt rose dramatically. As the demand for mortgage debt grew, especially among those who had previously been excluded from participating in the market because of their poor credit ratings, FIs began lowering their credit quality cut-off points. Moreover, to boost their earnings, in the market now popularly known as the "subprime market," banks and other mortgage-supplying institutions often offered relatively low "teaser" rates on adjustable rate mortgages (ARMs) at exceptionally low initial interest rates, but with substantial step-up in rates after the initial rate period expired two or three year later and if market rates rose in the future. Under the traditional banking structure, banks might have been reluctant to so aggressively pursue low credit quality borrowers for fear that the loans would default. However, under the originate-to-distribute model of banking, asset securitization and loan syndication allowed banks to retain little or no part of the loans, and hence the default risk on loans that they originated. Thus, as long as the borrower did not default within the first months after a loan's issuance and the loans were sold or securitized without recourse back to the bank, the issuing bank could ignore longer term credit risk concerns. The result was deterioration

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in credit quality, at the same time as there was a dramatic increase in consumer and corporate leverage.

The following questions and problems are based on material in Appendix 1B to the Chapter.

33. What are the tools used by the Federal Reserve to implement monetary policy?

The tools used by the Federal Reserve to implement its monetary policy include open market operations, the discount rate, and reserve requirements. Open market operations are the Federal Reserves' purchases or sales of securities in the U.S. Treasury securities market. The discount rate is the rate of interest Federal Reserve Banks charge on "emergency" or "lender of last resort" loans to depository institutions in their district. Reserve requirements determine the minimum amount of reserve assets (vault cash plus bank deposits at Federal Reserve Banks) that depository institutions must maintain by law to back transaction deposits held as liabilities on their balance sheets. This requirement is usually set as a ratio of transaction accounts, e.g., 10 percent.

34. Suppose the Federal Reserve instructs the Trading Desk to purchase $1 billion of securities. Show the result of this transaction on the balance sheets of the Federal Reserve System and commercial banks.

For the purchase of $1 billion in securities, the balance sheet of the Federal Reserve System and commercial banks is shown below.

Change in Federal Reserve's Balance Sheet

Assets		Liabilities	
Treasury securities	+ $1 b	Reserve account of securities dealers' banks	+ $1 b

Change in Commercial Bank Balance Sheets

Assets		Liabilities	
Reserve accounts at Federal Reserve	+ $1 b	Securities dealers' demand deposit accounts	+ $1 b

35. Explain how a decrease in the discount rate affects credit availability and the money supply.

Changing the discount rate signals to the market and the economy that the Federal Reserve would like to see higher or lower rates in the economy. Thus, the discount rate is like a signal of the FOMC's intention regarding the tenor of monetary policy. For example, raising the discount rate "signals" that the Fed would like to see a tightening of monetary conditions and higher interest rates in general (and a relatively lower amount of borrowing). Lowering the discount rate

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"signals" a desire to see more expansionary monetary conditions and lower interest rates in general.

36. What changes did the Fed implement to its discount window lending policy in the early 2000s?

In January 2003, the Fed implemented changes to its discount window lending that increased the cost of borrowing but eased the terms. Specifically, three lending programs are now offered through the Feds discount window. Primary credit is available to generally sound depository institutions on a very short-term basis, typically overnight, at a rate above the Federal Open Market Committee's (FOMC) target rate for federal funds. Primary credit may be used for any purpose, including financing the sale of fed funds. Primary credit may be extended for periods of up to a few weeks to depository institutions in generally sound financial condition that cannot obtain temporary funds in the financial markets at reasonable terms. Secondary credit is available to depository institutions that are not eligible for primary credit. It is extended on a very short-term basis, typically overnight, at a rate that is above the primary credit rate. Secondary credit is available to meet backup liquidity needs when its use is consistent with a timely return to a reliance on market sources of funding or the orderly resolution of a troubled institution. Secondary credit may not be used to fund an expansion of the borrower's assets. The Federal Reserve's seasonal credit program is designed to assist small depository institutions in managing significant seasonal swings in their loans and deposits. Seasonal credit is available to depository institutions that can demonstrate a clear pattern of recurring intra-yearly swings in funding needs. Eligible institutions are usually located in agricultural or tourist areas. Under the seasonal program, borrowers may obtain longer term funds from the discount window during periods of seasonal need so that they can carry fewer liquid assets during the rest of the year and make more funds available for local lending.

With the change, discount window loans to healthy banks would be priced at 1 percent above the fed funds rate rather than below as it generally was in the period preceding January 2003. Loans to troubled banks would cost 1.5 percent above the fed funds rate. The changes were not intended to change the Fed's use of the discount window to implement monetary policy, but significantly increase the discount rate while making it easier to get a discount window loan. By increasing banks= use of the discount window as a source of funding, the Fed hopes to reduce volatility in the fed funds market as well. The change also allows healthy banks to borrow from the Fed regardless of the availability of private funds. Previously, the Fed required borrowers to prove they could not get funds from the private sector, which put a stigma on discount window borrowing. With the changes, the Fed will lend to all banks, but the subsidy of below fed fund rate borrowing will be gone.

37. Bank Three currently has $600 million in transaction deposits on its balance sheet. The Federal Reserve has currently set the reserve requirement at 10 percent of transaction deposits.

a. Suppose the Federal Reserve decreases the reserve requirement to 8 percent. Show the balance sheet of Bank Three and the Federal Reserve System just before and after the full

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effect of the reserve requirement change. Assume Bank Three withdraws all excess reserves and gives out loans, and that borrowers eventually return all of these funds to Bank Three in the form of transaction deposits.

a. Panel A: Initial Balance Sheets

Federal Reserve Bank

Assets		Liabilities	
Securities	$60m	Reserve accounts	$60m

Bank Three

Assets		Liabilities	
Loans	$540m	Transaction deposits	$600m
Reserve deposits at Fed	60m		

Panel B: Balance Sheet after All Changes Resulting from Decrease in Reserve Requirement

Federal Reserve Bank

Assets		Liabilities	
Securities	$60m	Reserve accounts	$60m

Bank Three

Assets		Liabilities	
Loans ($750m - $60m)	$690m	Transaction deposits ($60m x 0.08)	$750m
Reserve deposits at Fed	60m		

b. Redo part (a) using a 12 percent reserve requirement.

Panel A: Initial Balance Sheets

Federal Reserve Bank

Assets		Liabilities	
Securities	$60m	Reserve accounts	$60m

Bank Three

Assets		Liabilities	
Loans	$540m	Transaction deposits	$600m
Reserve deposits at Fed	60m		

Panel B: Balance Sheet after All Changes Resulting from Decrease in Reserve Requirement

Federal Reserve Bank

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Assets		Liabilities	
Securities	$60m	Reserve accounts	$60m

Bank Three

Assets		Liabilities	
Loans ($500m - $60m)	$440m	Transaction deposits ($60m x 0.12)	$500m
Reserve deposits at Fed	60m		

38. Which of the monetary tools available to the Federal Reserve is most often used? Why?

The Federal Reserve uses mainly open market operations to implement its monetary policy. Adjustments to the discount rate are rarely used because it is difficult for the Fed to predict changes in bank discount window borrowing when the discount rate changes and because in addition to their effect on the money supply, discount rate changes often have great effects on the financial markets. Further, because changes in the reserve requirements can result in unpredictable changes in the money base (depending on the amount of excess reserves held by banks and the willingness of the public to redeposit funds at banks instead of holding cash (i.e., they have a preferred cash-deposit ratio)), the reserve requirement is rarely used by the Federal Reserve as a monetary policy tool. The unpredictability comes from at least two sources. First, there is uncertainty about whether banks will actually convert excess reserves (created from a decrease in the reserve requirement) into new loans. Second, there is uncertainty about what portion of the new loans will be returned to depository institutions in the form of transaction deposits. Thus, like the discount window rate, the use of the reserve requirement as a monetary policy tool increases the probability that a money base or interest rate target set by the FOMC will not be achieved.

39. Describe how expansionary activities conducted by the Federal Reserve impact credit availability, the money supply, interest rates, and security prices. Do the same for contractionary activities.

Expansionary Activities: We described three monetary policy tools that the Fed can use to increase the money supply. These include open market purchases of securities, discount rate decreases, and reserve requirement decreases. All else constant, when the Federal Reserve purchases securities in the open market, reserve accounts of banks (and thus, the money base) increase. When the Fed lowers the discount rate, this generally results in a lowering of interest rates in the economy. Finally, a decrease in the reserve requirements, all else constant, results in an increase in reserves for all banks. In two of the three cases (open market operations and reserve requirement changes), an increase in reserves results in an increase in bank deposits and assets. One immediate effect of this is that interest rates fall and security prices to rise. In the third case (a discount rate change), the impact of a lowering of interest rates is more direct. Lower interest rates encourage borrowing. Economic agents spend more when they can get cheaper funds. Households, business, and governments are more likely to invest in fixed assets

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(e.g., housing, plant, and equipment). Households increase their purchases of durable goods (e.g., automobiles, appliances). State and local government spending increases (e.g., new road construction, school improvements). Finally, lower domestic interest rates relative to foreign rates can result in a drop in the (foreign) exchange value of the dollar relative to other currencies. As the dollar's (foreign) exchange value drops, U.S. goods become relatively cheaper compared to foreign goods. Eventually, U.S. exports increase. The increase in spending from all of these market participants results in economic expansion, stimulates additional real production, and may cause inflation to rise. Ideally, the expansionary policies of the Fed are meant to be conducive to real economic expansion (economic growth, full employment, sustainable international trade) without price inflation. Indeed, price stabilization can be viewed as the primary objective of the Fed.

Contractionary Activities: We also described three monetary policy tools that the Fed can use to decrease the money supply. These include open market sales, discount rate increases, and reserve requirement increases. All else constant, when the Federal Reserve sells securities in the open market, reserve accounts of banks (and the money base) decrease. When the Fed raises the discount rate, interest rates generally increase in the open market. Finally, an increase in the reserve requirement, all else constant, results in a decrease in excess reserves for all banks. In all three cases, interest rates will tend to rise. Higher interest rates discourage credit availability and borrowing. Economic participants spend less when funds are expensive. Households, business, and governments are less likely to invest in fixed assets. Households decrease their purchases of durable goods. State and local government spending decreases. Finally, a decrease in domestic interest rates relative to foreign rates may result in an increase in the (foreign) exchange value (rate) of the dollar. As the dollar's exchange rate increases, U.S. goods become relatively expensive compared to foreign goods. Eventually, U.S. exports decrease. The decrease in spending from all of these market participants results in economic contraction, (depressing additional real production) and causes prices to fall (causing the rate of inflation to fall).

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