A PRIMER ON DEPOSIT INSURANCE: THE FEDERAL DEPOSIT INSURANCE CORPORATION AND THE NATIONAL CREDIT UNION ADMINISTRATION

Robert Carbaugh and Peter Saunders[1]

Abstract

Although college textbooks in Money and Banking discuss the role of deposit insurance and the Federal Deposit Insurance Corporation, they tend to pay only scant attention to these topics. The purpose of this article is to fill this void by providing a primer on deposit insurance, the Federal Deposit Insurance Corporation, and the National Credit Union Administration which provide safety for banks and credit unions and public confidence in our financial system. In particular, the paper discusses the incidence of deposit insurance premiums and the merger policies of the Federal Deposit Insurance Corporation and the National Credit Union Administration. The paper is written for a general audience, including college students and the public who are interested in contemporary banking issues.

Key Words: deposit insurance, Federal Deposit Insurance Corporation, National Credit Union Administration

JEL Classification: A2, G0

Introduction

During the 2008-2009 financial crises, 165 banks failed in the United States including Washington Mutual Bank, the fifth largest bank in the country. Another 249 banks failed during 2010-2011. These failures threatened the stability of the U.S. economy. They also brought into the forefront the role that bank supervision and deposit insurance play in preserving the wellbeing of our financial system. These services are provided by the Federal Deposit Insurance Corporation (FDIC) and the National Credit Union Administration (NCUA). However, college textbooks in Money and Banking and Principles of Macroeconomics tend to pay only scant attention to the FDIC and the NCUA.

The purpose of our paper is to fill this void by providing a primer on the FDIC and the NCUA. Its intended audience is students in upper level courses in Money and Banking and Macroeconomic Principles who want to learn more about the role of the FDIC and NCUA in providing safety for banks and credit unions and public confidence in our banking system. The paper is also aimed at the general audience who is interested in our financial system. Although our paper primarily addresses the FDIC, it also discusses the role that the NCUA has in preserving the safety of credit unions.

The paper begins by describing the historical events that led to the FDIC's creation. This is followed by a discussion of the nature and operation of the FDIC. The paper uses the concepts of elasticity of supply and demand to discuss the issue of who bears the assessments (premiums)

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[1]   Professors of Economics, Central Washington University, 400 East University Way, Ellensburg, WA 98926.

that the FDIC charges on bank deposits. Finally, the paper considers the FDIC's role in resolving bank failures, including its deposit payoff approach and purchase and assumption approach. Of particular interest is the merger policy of the FDIC and the recognition that it gives to the monopoly power aspects of bank mergers and efficiencies that can result from bank mergers. The concept of deadweight loss of consumer surplus is included in this discussion to help promote student understanding. Finally, our paper outlines the history of credit unions and their role in the U.S. financial sector, as well as their supervision and regulation by the NCUA.

Events Leading Up to the FDIC's Creation

Between 1921 and 1929, about 600 banks failed per year in the United States. This was about ten times the failure rate of the previous decade. Yet these failures led to only modest alarm because they mainly consisted of small, rural banks, many of which were judged to be poorly run. The general consensus was that exit of these banks enhanced the strength of the overall banking system (Federal Deposit Insurance Corporation, 1984).

Concerning deposit insurance, it originated in the states decades prior to becoming a policy of the U.S. government. The first deposit insurance program was enacted by the state of New York in 1829, followed by 13 other states that established deposit insurance programs. The state insurance programs had several parts: (1) a deposit insurance fund that was supported by the assessments (premiums) of banks; (2) a board of commissioners which had the authority to conduct bank examinations; and (3) a defined list of investments for bank capital. Although these insurance programs initially had some success in protecting depositors, they could not deal with the economic events of the 1920s. The economic downturn of 1921, and the substantial agricultural problems that lasted throughout much of the decade, resulted in numerous bank failures. The first state deposit insurance program to terminate operations was Washington's in 1921. By early 1930, all of the state programs had shut down (Federal Deposit Insurance Corporation, September, 1998).

The Great Depression, which began in 1929, shook the U.S. banking system. It triggered a severe panic that led to numerous depositors attempting to convert their deposits into currency. However, many banks could not fulfill the deposit withdrawals and they closed. This resulted in the public's confidence in the banking system deteriorating further and bank runs increased. Moreover, during this period, the Federal Reserve did not help banks by injecting sufficient liquidity into the banking system. Critics noted that the Federal Reserve allowed the money supply to decrease, thus reinforcing the economic downturn (Friedman and Schwartz, 1963). As seen in Table 1, 1,352 banks failed in 1930, followed by 2,294 bank failures in 1931, and 1,456 bank failures in 1932. The panic had its hardest impact on small banks that were located in rural areas of the country. Simply put, it was the loss of depositors' confidence in the banking system, and the suddenness of their withdrawal demands, that triggered a panic of extraordinary magnitude. In an attempt to calm nervous depositors, many states enacted bank holidays. This was reinforced by President Franklin Roosevelt's declaring a nationwide bank holiday during March 6-10, 1933. In spite of these efforts, 4,004 banks failed in 1933.

As America's banking system deteriorated, Congress debated the possibility of federal deposit insurance. Skeptics maintained that federal deposit insurance would be a failure and they noted the inability of state deposit insurance programs to stabilize the banking system, to prove their point. They also contended that federal deposit insurance would eliminate the penalties for the bad management of banks, thus allowing them to assume too much risk. Furthermore, they felt that the cost of federal deposit insurance would be excessive and that federal deposit

insurance would involve an excessive invasion of the federal government into the economy's private sector. President Roosevelt himself was suspicious of the federal government's insuring bank deposits, saying, "We do not wish to make the United States Government liable for the mistakes and errors of individual banks, and put a premium on unsound banking in the future" (Shaw, 2015). However, the American public overwhelmingly supported the concept of deposit insurance.

On June 16, 1933, Roosevelt signed the Banking Act of 1933 into law, creating the FDIC. Its purpose is to promote public confidence and stability in the banking system. The year 1934 marked the first year of the FDIC's operation. Initially the FDIC insured deposits up to $2,500 (about $45,000 today); by 1935, the deposit insurance was increased to $5,000, and so on as noted below.

- 1934 – $2,500
- 1935 – $5,000
- 1950 – $10,000
- 1966 – $15,000
- 1969 – $20,000
- 1974 – $40,000
- 1980 – $100,000
- 2008 – $250,000

With trust in the banking system strengthening because of deposit insurance, bank runs dramatically declined. In 1934, only 61 banks failed as seen in Table 1.

Table 1. Number of Bank Failures in the United States

Year	Number of bank failures
1930	1,352
1931	2,294
1932	1,456
1933	4,004
1934	61
1934-1979	558
1980-1989	1,015
1990-1999	1,507
2000-2009	197
2010-2015	356
2016	5
2017	8

Source: Federal Deposit Insurance Corporation, *Bank Failures in Brief*, 2017 and various *Annual Reports*

Breaking Down the FDIC

As an independent agency of the U.S. government, the FDIC strives to foster public

confidence and stability in America's banking system. To achieve this goal, it protects depositors of insured banks against the loss of their deposits if their bank fails. Also, the FDIC examines and supervises banks for safety, soundness, and consumer protection. When a bank fails, the FDIC is ordinarily appointed receiver. This means that the FDIC assumes responsibility for recovering the maximum amount possible from the disposition of the failed bank's assets and the pursuit of the bank's claims. In 2016, the FDIC insured deposits of $6.8 trillion in about 600 million accounts at almost 6,000 banks, including commercial banks, mutual savings banks, and savings and loan associations (Federal Deposit Insurance Corporation, 2016). Concerning credit unions, the NCUA insures their accounts.

The FDIC provides insurance coverage for any person or entity, including Americans and non-Americans, conducting business with an insured bank. FDIC insurance is backed by the full faith and credit of the United States government. The FDIC is proud to note that, since its beginning in 1934, no depositor has ever lost a penny of deposits insured by the FDIC (Federal Deposit Insurance Corporation, 2014).

The FDIC insures all types of deposits that a bank receives throughout its daily business activities. These accounts include savings and checking accounts, negotiable order of withdrawal (NOW) accounts, time certificates of deposits (CDs), money market deposit accounts, and cashier's checks and money orders issued by a bank. However, the FDIC does not insure non-deposit investments such as stocks and bonds, mutual funds, annuities, and life insurance policies. The basic amount of deposit insurance is $250,000 per depositor, per insured bank, for each account ownership category (Federal Deposit Insurance Corporation, 2014).

To cover its operating costs, the FDIC must generate income. What are its sources of income? Rather than receiving appropriations from the U.S. government, the FDIC charges assessments (premiums) that banks must pay for deposit insurance coverage. The FDIC also receives interest income from its portfolio of Treasury securities. For example, in 2016 the FDIC's income totaled $10.6 billion; of this amount, assessment revenue was $10.0 billion and interest revenue on U.S. Treasury securities was $0.6 billion. The balance on the FDIC's Deposit Insurance Fund was $82.2 billion in 2016. Moreover, the FDIC has a $100 billion line of credit with the U.S. Treasury in the event of an emergency (Federal Deposit Insurance Corporation, 2016).

FDIC advocates contend that federal deposit insurance benefits the banking system. It guarantees small depositors that they will have immediate access to their insured funds if their bank fails. Also, it promotes public confidence in the banking system. However, skeptics argue that deposit insurance reduces the motivation for depositors to monitor the conduct of banks, thus allowing bankers to engage in risky activities.

How To Increase Your FDIC Insurance Coverage Beyond $250,000
The FDIC's basic insurance amount is $250,000 per individual account holder, per insured bank. This includes principal and accrued interest up to the $250,000 limit. Funds deposited in different branches of an insured bank are not insured separately.

In spite of this limitation, you may be able to increase your deposit insurance coverage beyond $250,000. If you have deposits in different categories of legal ownership, they are separately insured by the FDIC. For example, you may have a single-ownership account and a joint-ownership account. A family of two in this situation could obtain deposit insurance coverage of $1,000,000, as seen below.

Wife's single account	$250,000
Husband's single account	$250,000
Joint account of wife and husband	$500,000
	$1,000,000

If you have accounts at more than one bank, they will be insured separately, up to a maximum of $250,000 at each bank. But if the two banks undergo a merger, your accounts will be covered as if they had been opened at the same bank.

To find out more about deposit insurance coverage, you can visit the FDIC's web page at www.fdic.gov. Click the icon labeled *Electronic Deposit Insurance Estimator* which allows you to determine your insurance coverage. You can also phone the FDIC at 877-275-3342 to determine your coverage.

Bank Examinations: The Camels System

The FDIC conducts on-site examinations of banks to ensure that they are operating in a safe and responsible manner, thus protecting the integrity of the Deposit Insurance Fund. FDIC staff evaluate a bank's capital, assets, management, earnings, liquidity, and sensitivity to market risk—the acronym *CAMELS* represents these six components of bank examination. This system is also used by the Federal Reserve, Comptroller of the Currency, and National Credit Union Administration to examine banks and credit unions.

1. **Capital Adequacy**. Bank capital is the value of a bank's assets minus its liabilities. Assets include cash, loans, and securities while liabilities include customer checking and savings deposits and money owed to other banks and, perhaps, the Federal Reserve. Examiners expect a bank to retain capital that matches the nature and extent of its risks.
2. **Asset Quality.** Asset quality relates to a bank's portfolio of loans and securities. For example, bank managers care about the default risk of their loans since they provide earnings for the bank.
3. **Management:** Is the ability of a bank's staff to ascertain, quantify, and control the risks of the bank's actions and to safeguard that the bank is financially sound in its business operations.
4. **Earnings**: Is the income from all operations of a bank such as interest from loans and investments in securities and fees charged for a bank safe-deposit boxes.
5. **Liquidity:** Is the bank's ability to convert assets into cash**.**
6**.** **Sensitivity to Market Risk:** Indicates how changes in interest rates, commodity prices, and foreign exchange rates influence a bank's earnings and capital.

After an examination by the FDIC, a bank receives a grade in the form of a CAMELS rating, based on a numerical scale from 1 to 5. The highest rating that a bank can receive is a 1; it represents the strongest performance and risk management practices and least likelihood of bank failure. A 5 rating is the lowest grade and it represents weak risk management practices and highest likelihood of bank failure. A bank's total grade (composite rating) is based on all six components.

If the FDIC determines that a bank's CAMELS rating is unfavorable, it can demand that the bank modify its behavior. This demand is supported by the FDIC's issuing a legally

enforceable *cease and desist order,* or even closing a bank if its CAMELS rating is sufficiently low. The FDIC examines banks at least once a year.

To avoid repetition of effort, the FDIC works with other bank regulators.   This means that, state-chartered banks that are members of the Federal Reserve System are examined by the Federal Reserve, national banks with federal charters are examined by the Office of the Comptroller of the Currency, and insured state banks that are not members of the Federal Reserve System are examined by the FDIC. Also, credit unions are examined by the NCUA.

FDIC Insurance Assessments (Premiums)

The FDIC's Deposit Insurance Fund is financed by insurance premiums, known as "bank assessment," that banks pay to the FDIC. A bank's assessment is determined by multiplying its assessment base times the assessment rate (premium rate).

Bank assessment = assessment base X assessment rate

The assessment base approximately equals total domestic deposits for most banks.[1]   Concerning the assessment rate, a bank's CAMELS composite rating is used in determining the price of deposit insurance. As seen in Table 2, banks that have favorable CAMELS composite ratings of 1 and 2 are considered to be of relatively low risk to the Deposit Insurance Fund; they pay relatively low assessment rates for deposit insurance.   However, more risky banks with CAMELS composite ratings of 3-5 must pay higher assessment rates. Banks pay their insurance assessments to the FDIC four times a year; the assessment rate and assessment base are revised quarterly by the FDIC.

Also, FDIC assessment rates vary with a bank's size and complexity. Large and more complex banks, with financial derivatives as liabilities, tend to be more risky to the Deposit Insurance Fund than small banks with no financial derivatives. Therefore, in 2016 large banks had to pay an additional surcharge for deposit insurance which equaled 4.5 cents per $100 of assessment base.   These "large" banks are generally defined as those with total assets of $10 billion or more. Table 2 shows the FDIC's assessment rates for 2016.

Who Bears the Burden of Increasing Deposit Insurance Premiums?

In March, 2010 the *New Mexico Business Weekly* published an article, "Rising FDIC Premiums Bleed Lenders" (Domrzalski, 2010). The article discusses that in 2008, First Community Bank of New Mexico paid premiums of $2.3 million for FDIC deposit insurance. As the financial crisis of 2008-2009 worsened, many banks failed, thus draining the FDIC's Deposit Insurance Fund. To replenish revenues, the FDIC increased its deposit insurance rates for banks. Thus, in 2009, First Community's insurance premiums were increased to almost $9 million, a fourfold jump compared to 2008. Moreover, Century Bank in Santa Fe, New Mexico realized a sizable increase in its deposit insurance premiums. In 2007, the bank paid no premiums to the FDIC because the Deposit Insurance Fund was ample. However, Century paid

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[1]   Prior to 2010, a bank's assessment base was approximately equal to its total domestic deposits. However, in 2010 the Dodd-Frank Act modified the definition of the assessment base.   A bank's assessment base now equals its average consolidated total assets minus its average tangible equity. Therefore, for most banks the assessment base is approximately equal to total domestic deposits. Yet for large banks, that have financial derivatives as liabilities, the assessment base becomes larger.

Table 2. FDIC Assessment Rates for Established Small Banks, Insured Five or More Years (Under $10 billion in assets)*

Composite CAMELS Rating	FDIC Assessment Rate Range: (Cents per $100 of Insured Deposits)
1 or 2	1.5-16
3	3-30
4 or 5	11-30

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*Banks that are not "established" (insured less than five years) pay higher assessment rates ranging from 7 to 40 cents per $100 of insured deposits.

Source: Federal Deposit Insurance Corporation, *FDIC Assessment Rates*, July 1, 2016.

$200,000 in 2008 for deposit insurance, $700,000 in 2009, and $2 million in 2010. The increase in insurance premiums had the effect of raising the banks' costs of doing business and decreasing their profitability. To avoid this outcome, banks sought ways to pass the rising insurance assessments on to their patrons.

To pass higher insurance premiums onto its patrons, a bank might impose fees on depositors' checking or savings accounts, lower interest rates paid to depositors on their savings accounts, or increase interest rates on loans to households and businesses. Under what conditions will a bank be able to pass rising deposit insurance premiums on to its depositors in the form of lower interest rates? The concept of interest elasticity of supply helps provide an answer to this question. Consider the two extreme cases of perfectly inelastic supply and perfectly elastic supply, as discussed below.
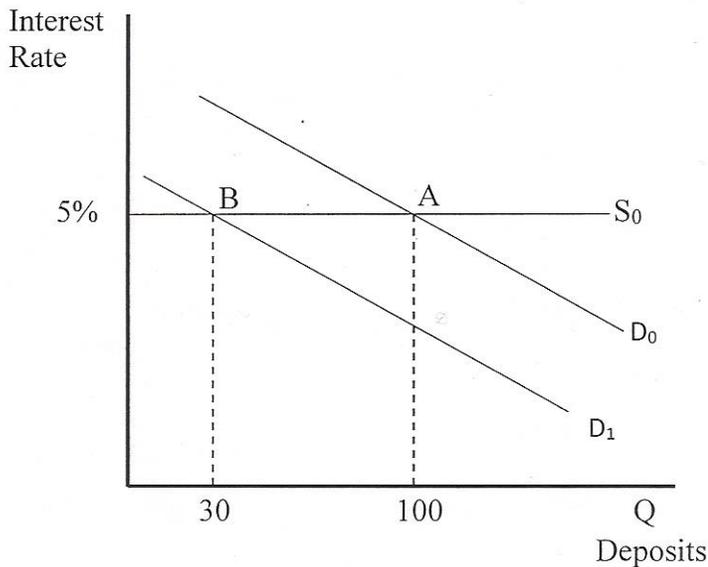
- **Perfectly Inelastic Supply of Deposits: Households Bear All of the Increase in Deposit Insurance Premiums**. Figure 1 illustrates the market for savings deposits. Assume that a household's only saving option is to maintain deposits at a particular bank. Therefore, the household's supply curve of savings deposits is perfectly inelastic (vertical), as seen in Figure *1a*. This means that the household will supply $100 of savings deposits no matter what the interest rate is on these deposits. Now suppose that the FDIC raises its premium on deposit insurance. This results in an increase in the bank's cost of doing business, a decrease in its profitability, and a decrease in its demand curve for savings deposits—the bank's demand curve for savings deposits decreases from D_0 to D_1. Therefore, the equilibrium interest rate on savings deposits decreases from 5 percent to, say, 3 percent; but the household still supplies $100 of savings deposits to the bank. The household's lack of saving alternatives means that the bank will be able to pass all of the increase in deposit insurance premiums to the household in the form of a lower interest rate on savings deposits.

Figure 1. Who Bears the Burden of Higher Deposit Insurance Premiums?

(a) Perfectly Inelastic Supply (No saving alternatives)
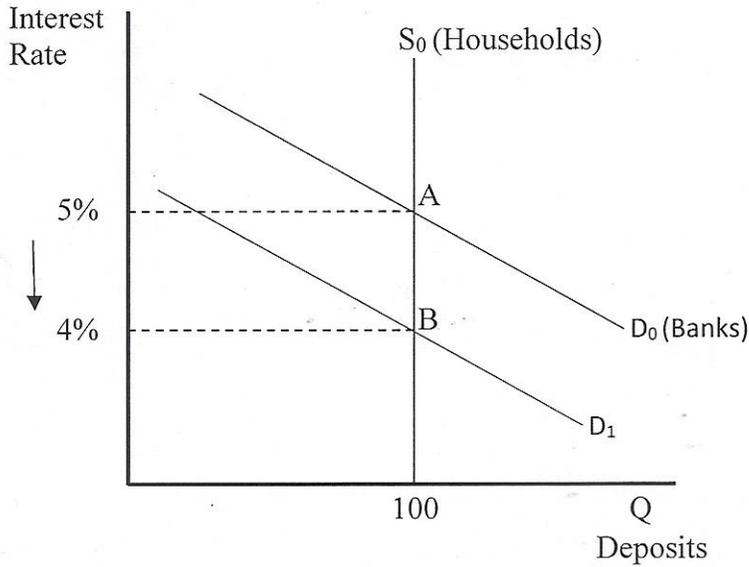
(a) Perfectly Elastic Supply (Many saving alternatives)

- **Perfectly Elastic Supply of Deposits: Banks Bear All of the Increase in Deposit Insurance Premiums**. Assume that a household has many (an infinite number of) alternatives for saving money such as Treasury securities, corporate stocks or bonds,

mutual funds, savings deposits at banks, and the like. Referring to Figure *1b*, the household's supply curve of savings deposits becomes perfectly elastic (horizontal) at the interest rate of 5 percent; that is, the household will not supply deposits at any interest rate less than 5 percent. When the FDIC raises its premium on deposit insurance, the bank's demand curve for savings deposits decreases from D_0 to D_1. However, the interest rate that the bank must pay households remains unchanged at 5 percent. Thus, the bank bears all of the premium increase in the form lower net revenues.

From these two cases, we can make the following generalizations. Given the bank's demand curve for savings deposits, the more inelastic the household's supply curve of deposits, the greater the extent that the household will bear the increase in deposit-insurance premiums in the form of a lower interest rate on savings deposits (or a higher service fee on savings deposits). Conversely, the bank will absorb more of the increase in insurance premiums out of decreasing net revenue as the household's supply curve of deposits becomes more elastic.[2]

Resolving Bank Failures: Deposit Payoffs Versus Purchase-And-Assumption Transactions
Although the FDIC strives to promote sound financial practices for insured banks, failures sometimes occur. The resolution process begins when a bank is proclaimed a failed bank by its chartering agency—the Office of the Comptroller of the Currency has the exclusive authority to issue a federal charter for a national bank while any state may issue a charter for a state-chartered bank. This results in the FDIC's becoming the receiver of the failed bank, which means that it has the authority to dispose of the bank's assets and pay off the depositors. (Federal Deposit Insurance Corporation, 2017) Table 3 provides two examples of these approaches.

As a receiver of a failed bank, the FDIC can pay off patrons directly for their deposit accounts, up to the insured limit of $250,000 per depositor for each account-ownership category, as soon as the records of the deposit accounts are determined. This is known as the *deposit payoff approach*. Depositors having accounts greater than the insurance cap become creditors of the failed bank for the amount that their deposits are greater than the insurance limit. The FDIC mails a check to each depositor on the uninsured portion of their deposits when the FDIC liquidates the assets of the failed bank, such as the bank building, office equipment, and so on. Whether depositors receive full payment on their uninsured deposits depends on the value of these assets when they are liquidated. The payments that the FDIC makes to depositors is a drain on its Deposit Insurance Fund.

An advantage of the deposit payoff approach is that it tends to promote market discipline on banks through the influence of uninsured depositors. These depositors realize that, in the event of bank failure, they may not receive the full value of their deposits. Thus, they have the incentive to monitor the activities and performance of their bank. However, there are disadvantages to the deposit payoff approach. Banking services are temporarily suspended, even for fully insured depositors who must wait several days to receive checks from the FDIC. For

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[2] It is also important to note the effects of the elasticity of a bank's demand for deposits on the incidence of insurance premiums in cases where the elasticity of supply of deposits is anywhere between the two above described examples—that is, where its numerical range is between zero and infinity. In such cases, the less elastic the demand for deposits and the more elastic the supply of deposits, the larger is the share of insurance premiums received from the bank's revenues rather than from its share paid by the bank's customers.

Table 3. FDIC Resolution of Bank Failures: Example of Purchase and Assumption Approach and Deposit Payoff Approach
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Conway Bank Assumes the Deposits of The Farmers and Merchants State Bank of Argonia
On October 13, 2017, The Farmers and Merchants State Bank of Argonia, (Argonia, Kansas) was closed by the Office of the State Bank Commissioner of Kansas, which appointed the FDIC as receiver. To protect the depositors, the FDIC entered into a purchase and assumption agreement with Conway Bank (Conway Springs, Kansas) to assume all of the deposits of The Farmers and Merchants State Bank of Argonia, thus becoming the merger partner.

The two branches of The Farmers and Merchants State Bank of Argonia reopened as branches of Conway Bank during their normal business hours. Depositors of The Farmers and Merchants State Bank of Argonia automatically became depositors of Conway Bank. Deposits continued to be insured by the FDIC, so there was no need for customers to change their banking relationship in order to retain their deposit insurance coverage up to applicable limits.

As of June 30, 2017, The Farmers and Merchants State Bank of Argonia had approximately $34.2 million in total assets and $29.6 million in total deposits. Conway Bank will pay the FDIC a premium of 2.5 percent to assume all of the deposits of The Farmers and Merchants State Bank of Argonia. Besides assuming all of the deposits of the failed bank, Conway Bank agreed to purchase essentially all of the assets.

FDIC Approves the Payout of the Insured Deposits of The Community's Bank
On September 13, 2013, the FDIC approved the payout of the insured deposits of The Community's Bank (Bridgeport, Connecticut). The bank was closed by the Connecticut Department of Banking, which appointed the FDIC as receiver.

The FDIC was unable to find another bank to take over the operations of The Community's Bank. The FDIC will mail checks directly to depositors of The Community's Bank for the amount of their insured money. As a convenience to depositors, the FDIC has made arrangements with People's United Bank (Bridgeport, CT) to accept the failed bank's direct deposits from the federal government, such as Social Security and Veterans' payments for 90 days.

As of June 30, 2013, The Community's Bank had about $26.3 million in total assets and $25.7 million in total deposits. The FDIC estimated that the resolution cost to the Deposit Insurance Fund was $7.8 million.

Source: Federal Deposit Insurance Corporation, *Bank Failures in Brief, 2017*, Washington, D.C.

 uninsured depositors, even if they receive full payment, they may have to wait a considerable period of time for the FDIC to liquidate the bank's assets. Moreover, when a failed bank closes its doors, such action is generally widely reported in newspapers and on television. This can cause fear among the banking public concerning the soundness of the banking system (Gilbert, 1985).

The other option for resolving bank failure is the *purchase and assumption approach* under which a healthy bank mergers with a failing bank. This means that the healthy bank purchases (assumes) all of the deposits liabilities of the failed bank. The depositors of the failed

bank become depositors of the healthy bank and they have immediate rights to their money. Thus, all depositors, even those having accounts in excess of the insurance limit, are fully protected. Moreover, the healthy bank may purchase some or all of the failing bank's assets, such as loans and securities, that it deems to be of good value. The FDIC provides additional cash to the healthy bank if the value of the assets of the failed bank offered for purchase is less than the deposit liabilities to be assumed. This cash payment is a drain on the FDIC's Deposit Insurance Fund.

To implement a purchase and assumption transaction, the FDIC first identifies a group of healthy banks as possible merger partners of the failing bank. It takes into account overall financial condition, competitive environment, geographic location, minority owned status, and the like.   In strict confidence, the FDIC invites healthy banks to submit bids to purchase all of the failed bank's deposit liabilities and those assets that the bidding bank considers to be of high quality. The FDIC's Board of Directors is responsible for determining the winning bid.

In a purchase and assumption transaction, an account owner's deposit contract is with the failed bank, and it is canceled upon the bank's failure. The healthy bank is not responsible for maintaining either the failed bank's interest rates or the terms of the deposit contract. However, depositors of a failed bank can establish a new account with the acquiring bank or withdraw their funds without penalty (Federal Deposit Insurance Corporation, 2014).

An advantage of the purchase and assumption approach is that the failing bank is not shut down. On the next business day following the takeover, the failing bank is open for business as usual, except that it now has a new name on its front door—the name of its acquiring merger partner.   The banking public tends to be accepting of this process and thus the public's confidence in the banking system is maintained.

So which approach should the FDIC use in resolving bank failures—the deposit payoff approach or the purchase and assumption approach? In selecting its resolution method, the FDIC currently uses the least-cost principle which means that it uses the approach that has the lowest cost to the Deposit Insurance Fund, irrespective of other factors. In practice, the purchase and assumption approach is currently used in the high majority of bank failure resolutions. For example, during 2007-2017, 516 banks failed in the United States. The FDIC resolved these failures by using the purchase and assumption approach in 97 percent of the failures and the deposit payoff approach in 3 percent of the failures (Federal Deposit Insurance Corporation, 2017). Generally, the FDIC will receive at least one bid that is less costly than the estimated cost of liquidation via the deposit payoff approach. However, if the FDIC is unable to find another bank to take over a failing bank, it will resort to the deposit payoff approach.[3]

During the Great Recession of 2007-2009, many people worried about the safety of their bank deposits. To reassure depositors about its resolution of bank failures, the FDIC provided them a rare look at how it takes over a failed bank and selects a merger partner for the bank.   In March, 2009 the FDIC allowed the staff of CBS News to film the takeover of Heritage

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[3]   In the past, the FDIC sometimes (rarely) used open-bank-assistance to prevent bank failures. This resulted in the FDIC granting a failing bank direct loans, cash contributions, asset purchases, or the assumption of liabilities including deposits. Generally, open bank assistance was used when the FDIC determined that the failing bank was so large that its closure could threaten the stability of the nation's entire financial system ("too big to fail"). This option was terminated by the FDIC in 1991, although it was temporarily used during the financial crisis of 2008 in order to keep Citigroup and Bank of America afloat. The Dodd-Frank Act of 2010 totally eliminated this option (Federal Deposit Insurance Corporation, 2017).

Community Bank of Illinois, which had bad real estate loans. The takeover occurred in secrecy on a Friday night, after the bank closed for the day, to make sure that there were no depositors at the bank who might panic. Seizing the bank on a Friday also gave the FDIC the weekend to go through the bank's books so the bank could reopen smoothly the following Monday with a new merger partner. This fascinating takeover was broadcast on CBS *60 Minutes--Your Bank Has Failed: What Happens Next?* It can be seen by going to *https://www.youtube.com/watch?v=90m1oUyeir4.*

Does FDIC Insurance Encourage Bankers' Risk Taking and Misuse of Funds?
   Since its beginnings, the FDIC has helped prevent runs on banks. However, does deposit insurance encourage risk taking and the misuse of funds by bankers?
   Without deposit insurance, depositors tend to be concerned that their bank might fail, thus providing them an incentive to monitor the bank's actions. For example, prior to making a deposit, households and businesses could analyze a bank's balance sheet and income statement to make sure that the bank is safe and sound. After making deposits, they would continue to keep track of the bank's activities and they might withdraw funds if red flags appear. Therefore, the threat of deposit withdrawals by savvy depositors can discourage a bank from taking excessive risks or misusing funds.
   However, deposit insurance reduces the incentives of depositors to police banks. Small depositors, having deposits less than $250,000, know that they will be fully reimbursed if their bank fails; so they are not unduly concerned if bankers take excessive risks. Moreover, such depositors do not generally analyze balance sheets or income statements for danger signs. This lack of attention provides bankers additional leeway to misuse deposits since they are not concerned that their excessive risk taking will be disciplined by withdrawals of deposits. However, large depositors, with deposits greater than the insured limit of $250,000, have greater concern about the behavior of bankers since they may not be fully compensated if the bank fails. Simply put, with deposit insurance, bankers tend to assume more risk than they would normally, because they realize the benefits of risky behavior while the FDIC assumes the costs. Thus, in protecting depositors, the FDIC creates what economists call moral hazard. Most economic and financial historians believe that FDIC insurance has contributed to the rise in risk taking among bankers.
   The failure of the First National Bank of Keystone (FNBK) in 1999 provides an example of excessive risk taking and misuse of bank funds (Pasley, 2016). In 1904 FNBK originated as a small community bank in the coal-mining town of Keystone, West Virginia. It served the local economy well by making loans to businesses and households and accepting their deposits. By the 1970s, the bank's business had grown beyond Keystone, and it made loans throughout West Virginia and Pennsylvania. In the early 1990s, the FNBK was characterized as one of the country's top performing banks. However, during the mid-1990s, the bank began purchasing risky loans from other banks throughout the nation. To attract deposits to fund its loan portfolio, FNBK bank provided interest rates on time certificates of deposits (CDs) that were 2 percentage points higher than the banking-industry average. This behavior put FNBK in a risky position which resulted in defaults occurring on many of the loans that the bank purchased. Moreover, the top managers of the bank embezzled tens of millions of dollars. For years, they deceived banking regulators and their depositors by forging documents and board minutes. However, in 1999, the regulators determined that FNBK was insolvent. The bank was closed on September 1, 1999 and the FDIC was named the receiver. On September 3, 1999 the FDIC reached an

agreement with Ameribank, a healthy bank, to merge with FNBK (Federal Deposit Insurance Corporation, 1999). Federal prosecutors filed criminal charges against the managers of FNBK, several of which were convicted and imprisoned.

Bank Merger Welfare Effects

The merger of Washington Mutual Bank (WaMu) and JPMorgan Chase provides an example of the possible welfare effects of bank mergers. Founded in 1889, WaMu originally served as a conservative savings bank, providing financial services to local households and businesses. By the early 2000s, WaMu aggressively offered mortgages and credit cards to customers that other banks deemed too risky. During 2007-2008, WaMu suffered sizable losses on its mortgage loans and credit card loans, and its credit rating fell. As customers' confidence in WaMu deteriorated, they withdrew almost 9 percent of the bank's deposits, $17 billion, over the course of ten days. This resulted in the bank's failure in 2008. The FDIC became the receiver and it arranged a merger between WaMu and JPMorgan Chase, thus protecting all of WaMu's depositors. The failure of WaMu resulted in JPMorgan Chase, the nation's third largest bank, merging with WaMu, the nation's fifth largest bank. This resulted in JPMorgan Chase's becoming the nation's second largest bank, with $2 trillion of assets (Grind, 2012). The merger of these financial giants had implications for antitrust policy in that it could result in additional monopoly power as well as greater operating efficiencies.

Mergers among competing banks can yield welfare gains and losses for the economy. Welfare gains stem from increasing operating efficiencies (economies of scale and economies of scope). Welfare losses arise if the merger results in monopoly power for the newly established bank–the ability to restrict output and charge a higher price for its services. Whether the economy's welfare increases or decreases depends on the magnitudes of these two opposing forces, as outlined in the following section (Williamson, 1968).

Figure 2 illustrates the market for loans offered by Bank A and Bank B, the only banks making loans in the state of Washington. Being equally efficient banks, suppose that they each operate under constant cost conditions in which $MC_0 = AC_0 = \$600$. Also, being competitive banks, suppose that they operate at their break-even points in the long run; therefore, each bank charges a price of $600 per loan and produces an output of 60 loans. Consumer surplus equals area $A+B+C$, which totals $18,000.[4]

From this starting point, we compare two cases. First, a merger of Bank A and Bank B occurs which results in the newly established bank, Bank C, becoming a monopoly; but there is no improvement in operating efficiencies. Second, a merger of Bank A and Bank B occurs which results in Bank C becoming a monopoly that realizes improvements in operating efficiencies.

Case 1: Monopoly with no Efficiency Gains. Referring to Figure 2, by operating as a monopoly, Bank C will maximize total profit by providing 30 loans, where marginal revenue (MR) equals marginal cost (MC_0), and charging a price of $900 per loan; the bank realizes a profit totaling $9,000, denoted by area B. However, because Bank C is a monopoly, it

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[4] Consumer surplus is the difference between the maximum price that a buyer is willing and able to pay for a particular quantity and the lower market equilibrium price. Geometrically, consumer surplus is the triangular area under a product's demand curve down to the equilibrium price. The dollar value of this triangle equals (base X height) / 2.

maximizes profit by restricting output below the competitive level (60 loans) and charging a higher price. This results in a deadweight loss of consumer surplus of $4,500, denoted by area A. This sum represents the cost that society bears as a result of the monopoly power of Bank C.

Figure 2. Monopoly with no Efficiency Gains
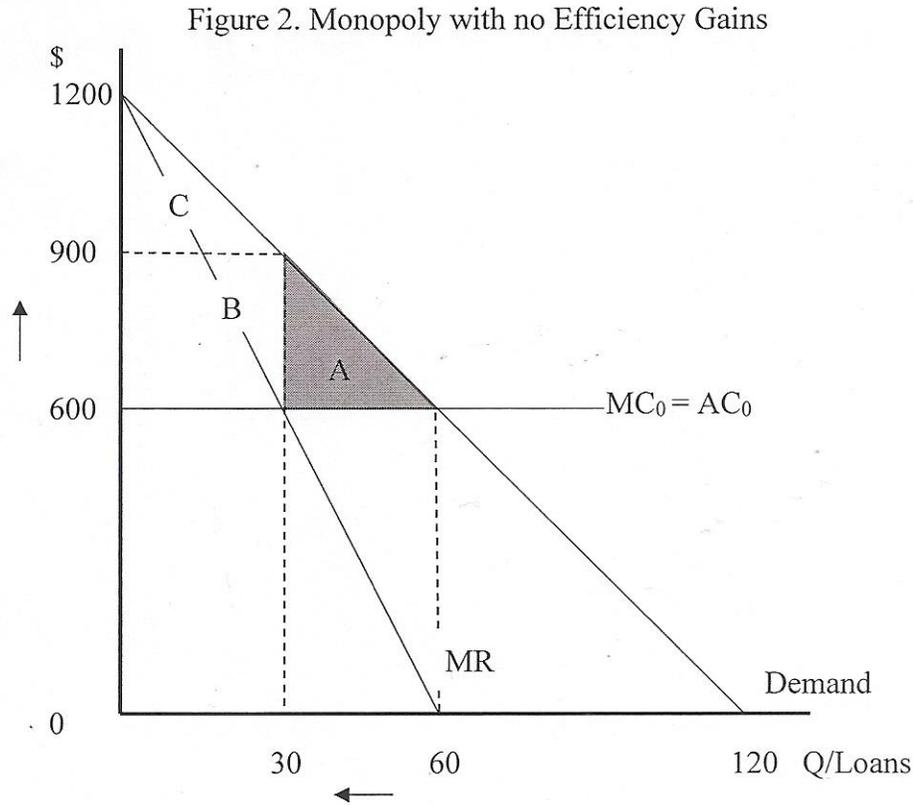
 Case 2: Monopoly with Efficiency Gains. As a result of the merger, suppose that Bank C realizes operating efficiencies that neither Bank A nor Bank B could realize by themselves. Referring to Figure 3, suppose that these efficiencies cause Bank C's cost curve to decrease to $MC_1 = AC_1$. As a monopoly, Bank C will maximize profit by providing 40 loans, where $MC_1 = MR$, and charging a price of $800 per loan. This results in a deadweight loss of consumer surplus of $2,000, denoted by area D. However, against this efficiency loss is the reduction in operating cost from $600 to $400 per loan. Therefore, Bank C can operate at its profit-maximizing output of 40 loans, at a reduction in cost totaling $8,000, denoted by area E. Comparing these opposing forces, we conclude that the merger is desirable because area E ($8,000) exceeds area D ($2,000). In in other words, there is a net efficiency gain of $6,000 as a result of the merger (DeYoung, 1991).

It has been assumed that Bank C realizes cost reductions that are caused by the merger, and they were unavailable to Bank A or Bank B. If the cost reductions stem from productivity improvements, such as technological advances or new work rules leading to increased output per worker, a welfare gain occurs for the economy because fewer resources are needed to produce a

Figure 3. Monopoly with Efficiency Gains
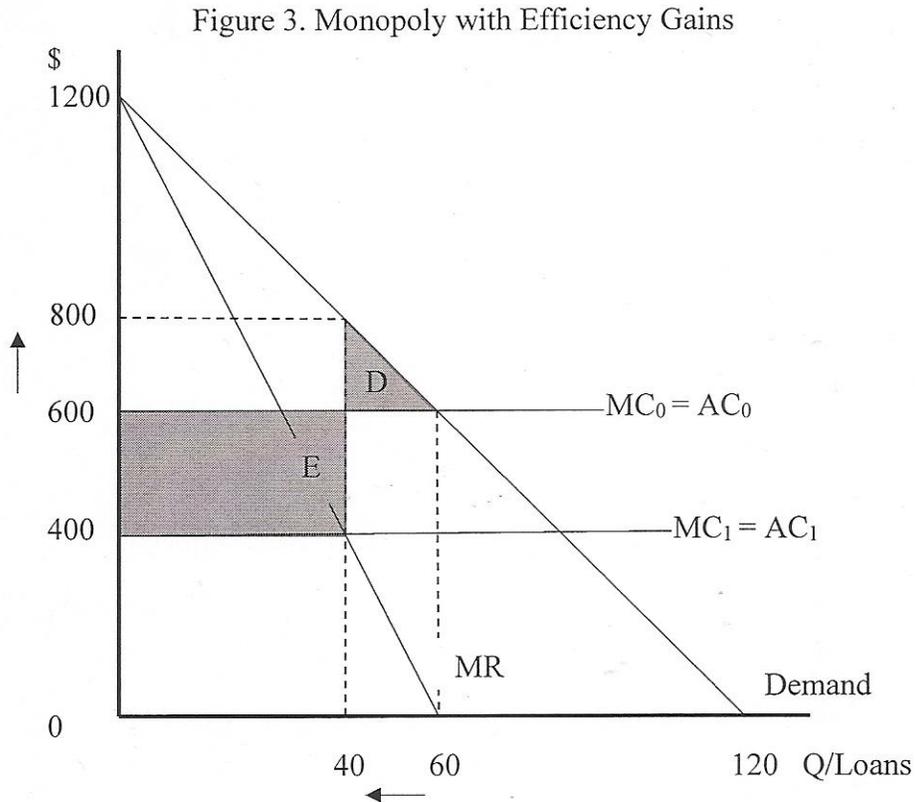
given level of output. These resources can be shifted to the production of other goods. However, cost reductions due to the formation of Bank C can be monetary in nature. Being a newly-formed bank, suppose that Bank C can extract wage concessions from its workers that could not be attained by Bank A or Bank B. Such a cost reduction represents a transfer of dollars from workers to Bank C and does not provide a welfare gain for the overall economy. In this case, the merger of Bank A and Bank B reduces the economy's welfare by the amount of the deadweight loss of consumer surplus (area D) with no welfare-increasing efficiency effect (area E). Therefore, the economy's welfare falls by the amount of the deadweight loss of consumer surplus.

According to the Bank Merger Act of 1960, mergers of federally insured banks cannot occur without the prior approval of the Comptroller of the Currency, the Federal Reserve Board, or the FDIC, depending on whether the newly created bank is a national bank, a state member bank of the Federal Reserve System, or a state bank that is not a member of the Federal Reserve System, respectively. Concerning these regulators, the Bank Merger Act forbids them from approving a proposed merger that would lead to a monopoly in any part of the United States. However, an exception can be made if the regulator determines that the anticompetitive effect of the proposed merger is dwarfed by a merger that fulfills the convenience and needs of the community to be served.[5] For example, the FDIC may approve a merger transaction in order to prevent the harm done to society if one of the banks fails. Also, the FDIC can take into account the degree to which the proposed merger would likely create a stronger, more efficient bank that

is able to compete more vigorously in the relevant geographic market (Federal Deposit Insurance Corporation, 2014). imply put, regulators consider both the monopoly power effect and efficiency effect of a bank merger[6] (U.S. Department of Justice and the Federal Trade Commission, 1997). However, it is difficult to determine how much weight regulators give to these effects when they evaluate mergers.[7]

National Credit Union Administration and Deposit Insurance

A complete analysis of the safety of our banking industry necessitates a brief outline of the history, role and regulation of credit unions in the United States. Although the total assets of the credit unions are relatively small in comparison to the combined assets of the U.S. commercial banks, there are over 5,000 credit unions currently operating in the country. Credit unions play an important role in financial intermediation, especially with respect to providing funds to small borrowers and serving particular communities where they conduct their business. Yet, in spite of their obvious contributions to the proper functioning and the wellbeing of our financial system, analyses and descriptions of these financial intermediaries in leading Money and Banking textbooks are typically more scant than those of commercial banks. Our paper attempts to remedy this omission.

The St. Mary's Cooperative Credit Association was America's first credit union. It began operating on April 6th, 1909 in Manchester, New Hampshire. On April 15th of the same year, the Massachusetts Credit Union Act was passed, thereby establishing a basic legal structure of credit unions in the United States. This legal document provided key elements for subsequent credit unions laws, including the 1934 Federal Credit Union Act. This act created the Federal Credit Union Division and placed it under the Farm Credit Administration's control. The number of credit unions grew from its humble beginnings in 1909 to 3,756 by the end of 1940. This growth continued in both the number of credit unions and their assets. By the end of 1960, there were 9,905 credit unions with $2.7 billion in assets and some 6.1 million members. By the end of 1970, the number of credit unions increased to 12,977 and their assets rose to $8.8 billion. The first decade of 2000 saw a decline in the number of credit unions combined with an increase of their asset holdings, resulting in 7,339 credit unions with $914 billion in total assets in 2010. In 2010 the membership of credit unions reached nearly 90.5 million. The upward growth trend in the credit unions membership and their combined assets continued thereafter. As of June 2017, the membership of the federally insured credit unions increased to 109.3 million and their total

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[5]   The bank regulators' recognition of possible efficiencies in bank mergers is consistent with the 1997 Horizontal Merger Guidelines of the Antitrust Division of the Justice Department and the Federal Trade Commission which state that mergers may foster efficiencies (e.g., economies of scale, technological innovation), and these efficiencies may take place in markets where they are likely to be passed on to consumers to the degree that the efficiencies outweigh any probable anticompetitive effect. (U.S. Department of Justice and the Federal Trade Commission, 1997)

[6]   Based on the authors' phone conversations with economists at the Board of Governors of the Federal Reserve System and the FDIC, we became aware of an efficient way of learning about the possible monopoly power effect and efficiency effect of a bank merger. For example, go to the home page of the Board of Governors of the Federal Reserve System. Use the search box to find Federal Reserve orders that approve the merger of various banks. Reading these orders, you can find details about the factors that the Federal Reserve considered when making a merger decision.

[7]   A more detailed outline of the history of U.S. credit unions and their oversight by the NCUA is available at the NCUA's website at www.ncua.gov.

assets reached $1.35 trillion.[8]

U.S. credit unions were granted full legal status under the 1934 Federal Credit Union Act. This congressional legislation authorized, among other legal issues, the formation of federally chartered credit unions in all 50 states. It also determined the amount of coverage and the terms of all federally insured accounts. In 1970, Congress created the National Credit Union Administration (NCUA), an independent agency that supervises and charters federal credit unions. Its structure and procedures resemble closely those of the FDIC, with a few minor differences. The same year the National Credit Union Share Insurance Fund was established. This agency provided, for the first time in the credit unions' history, share deposit insurance up to $20,000 per deposit for all federally chartered credit unions. In 1974 insurance coverage was increased to $40,000 per share deposit. This insurance coverage was increased further to $100,000 per deposit in 1979.

An important milestone in the credit union deposit insurance coverage expansion was reached in 1987, when the NCUA notified state-chartered credit unions that they could qualify for federal share insurance. This led to 432 state-chartered credit unions converting to the federal insurance program by 1991. Noteworthy is also the fact that the NCUA adopted the CAMELS rating system for evaluating credit unions. The most recent increase in the credit union share deposit insurance occurred in 2010, within the clauses of the Dodd-Frank Wall Street Reform and Consumer Protection Act, whereby the maximum amount of share insurance rose to $250,000 per deposit. At the end of June 2017, the National Credit Union Share Insurance Fund, that provides this share deposit coverage, had $13.2 billion in assets. This insurance fund is financed by the premiums of credit unions and interest income on the NCUA's holdings of government securities. It has the backing of the full faith and credit of the U.S. government. Similar to the FDIC, the NCUA resolves failures of credit unions through its deposit payoff approach and its purchase and assumption approach (National Credit Union Administration, 2016).

Conclusion

Financial institutions play a key role in our country's economic growth by facilitating flows of financial capital between savers and borrowers. The beginnings of economic recessions can often be traced to financial crises that originated in the banking sector. Therefore, the safety and the proper functioning of the banking sector is of paramount importance. Illiquidity caused by runs on banks was one of the main reasons for numerous bank failures throughout the U.S. banking industry's history. The FDIC has played a crucial role in preventing runs on banks by providing deposit insurance since its establishment in 1934. Yet, in spite of its obvious importance in our economy, its structure, functions and the role it fulfills in providing safety for banks and confidence in our banking system are typically not sufficiently analyzed in most leading Money and Banking textbooks. Similarly, most Money and Banking textbooks also do not include analyses of the NCUA, the insurer of share drafts and the regulatory agency of U.S. credit unions. Our article remedies these omissions.

The focus of our paper is on describing and analyzing the methods that the FDIC uses to prevent bank failures and to assess bank mergers. We also provide a detailed discussion of the insurance coverage that is provided by the FDIC and the NCUA. One of the key contributions of

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8. The most current information about the status of U.S. credit unions is available in *Industry at Glance* (2017) published by the NCUA.

our article with respect to the FDIC's methods of the prevention of bank failure, is our analysis of the welfare costs and benefits of bank mergers for the U.S. economy. Mergers tend to result in movement toward monopoly. We describe two possible welfare effects of such a monopoly. First our paper focuses on a monopoly with no efficiency gain, and thereafter the case of a monopoly with an efficiency gain is analyzed. These methods are used, to some extent, by regulators in their decisions concerning the approval or the denial of bank mergers. We also use micro economic concepts of the elasticity of supply and demand for insurance premiums to determine whether their incidence falls on banks or depositors. It is our hope that these contributions will provide useful information for economic classes in Principles of Economics and Money and Banking courses.

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