If the deposit-insurance subsidy increases as the institution takes greater risks, the perverse effects of the subsidy are magnified. As insured banks take on more risk, their deposit-insurance subsidy increases and their ability to pay a higher return (offer a lower interest rate) on their liabilities (assets) than uninsured institutions increases. A subsidy that increases with risk encourages an insured institution to adopt an even riskier portfolio than a subsidy that does not increase with risk. Allowing deposit-insurance subsidies to increase with bank risk magnifies the resource misallocations associated with mispriced deposit insurance.

In addition, a risk-related subsidy that automatically increases with the level of risk has the additional effect of giving high-risk insured institutions a competitive advantage over low-risk uninsured institutions. As with the uninsured institution, the low-risk institution’s smaller deposit-insurance subsidy does not allow it to pay as much for its assets or to offer as high a return on its deposits as a high-risk insured institution with a larger subsidy. This causes society as a whole to invest too heavily in risky projects and increases the probability of a systemic-wide failure of the federally insured banking and thrift industries.

Conclusion
The goals of federal deposit insurance are to provide depositors and to increase the stability of the banking system. Few would argue that the system has failed in its dual role of protecting small savers. No small saver has lost a penny of insured money since federal deposit insurance was established.
However, it is not clear that the current system of federal deposit insurance has achieved its second goal. The absence of bank runs on federally insured institutions is an indication that federal deposit insurance has helped stabilize the financial system. On the other hand, mispricing the deposit guarantee encourages insured institutions to adopt riskier portfolios. This effect serves ultimately to destabilize the financial system.

Whether the ultimate net effect of federal deposit insurance on the stability of the financial system is positive or negative is beyond the scope of this article. While few economists would dispute the claim that federal deposit insurance has tended to stabilize the banking system, it is clear that removal of the subsidy inherent in the current deposit-insurance system would increase the equity, efficiency, and stability of our banking and thrift industries.

Federal deposit insurance is supposed to protect savers and to help stabilize our banking system. However, if the deposit guarantees are mispriced, federal deposit insurance has unintended effects that are undesirable.

In this Economic Commentary, we examine the factors that determine the value of deposit insurance and discuss their incentives to do so.

The economic consequences of mispriced deposit insurance includes a misallocation of resources, an inequitable transfer of wealth between society and the insured institution, and an inequitable transfer of wealth between institutions within the insured industry.

Since its beginning in 1934, federal deposit insurance has provided safety for the savings and transactions balances of small savers. This role usually is justified on the basis of equity and efficiency. Providing deposit guarantees for small savers is considered equitable because the cost of obtaining information is thought to be greater for small depositors than for large depositors. If small depositors lack the communication and resources to monitor the health of their banks, then without deposit insurance they are at a disadvantage compared to large depositors. Large depositors, being better informed, usually manage to withdraw their money from a failing bank, typically leaving small savers holding the bag.

If small depositors lack information about their bank, then they will tend to overreact to whatever bad news they may hear, whether it is true or not. The rational response against a perceived threat is for small savers to attempt to protect themselves against loss by participating in a run against the bank.

By guaranteeing the deposits of small savers, federal deposit insurance removes the incentives for them to participate in bank runs. Providing deposit guarantees for small savers thus increases the efficiency of the banking system because it reduces the probability of destabilizing bank runs.

Moreover, a single federal deposit-insurance agency is likely to have lower information costs than the total cost of the combined efforts of a mass of small depositors. For this reason, provision of deposit guarantees for small depositors also increases the efficiency of deposit markets by lowering the costs of gathering information on the condition of banks.

By guaranteeing deposits, however, the federal deposit guarantor bears the risk of the deposits it is insuring, and there are costs associated with this.

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Equity, Efficiency, and Mispriced Deposit Guarantees
by James B. Thomson

Federal deposit insurance is supposed to protect savers and to help stabilize our banking system. However, if the deposit guarantees are mispriced, federal deposit insurance has unintended effects that are undesirable.

In this Economic Commentary, we examine the factors that determine the value of deposit insurance and discuss their incentives to do so.

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By guaranteeing deposits, however, the federal deposit guarantor bears the risk of the deposits it is insuring, and there are costs associated with this.

Whether or not a bank fails, for example, the federal deposit guarantor incurs the cost of gathering and evaluating information about the condition of a bank. If banks fail, the guarantor then has the additional expense of paying claims of insured depositors. If a system of deposit guarantees is to improve the equity and efficiency of deposit markets, the deposit-insurance agency must charge the insured institutions for the risk-bearing services provided by the deposit-insurance agency lest those services be overused.

Forcing individual institutions to bear the costs of the risks they place on the deposit-insurance fund makes sense because bankers will manage the risks in their portfolios more carefully if they know they will have to bear all the costs of making risky loans and investments. Such a reallocation of costs also is desirable because risk-based premiums allocate the costs of the deposit insurance system among the insured institutions on the basis of the benefits they receive from the system.

If insured institutions do not pay the full costs of the risk-bearing services they receive from the deposit-insurance agency, then the deposit-insurance system subsidizes the risk-taking behavior of the insured institutions. Since, at the margin, the subsidy reduces the
The subsidy inherent in such a deposit-insurance subsidy system can be independent of the risk of the institution or can increase with the risk of the institution. For example, Buser, Chen and Kane argue that the FDIC purposely underprices its guarantee to all banks to induce state-chartered banks (which are not members of the Federal Reserve System) to submit to federal regulation.4 The subsidy is independent of the risk of the institution. The current flat-rate deposit-insurance premium that is assessed against all institutions, regardless of risk, creates a deposit-insurance subsidy whose value increases with risk. In either case, mispriced deposit-insurance subsidies risk-taking behavior by insured institutions and encourage insured institutions to increase the risk of their portfolios.

Strategies for Increasing the Value of the Deposit Guarantee

With a guaranteed deposit, bank managers have an incentive to maximize the value of the bank to its stockholders. If deposit insurance is properly priced, the value of a bank to its owners is neutral, it is the same with and without deposit guarantees.5 If the deposit guarantee is either underpriced or overpriced, however, deposit insurance either increases or decreases the value of the bank. The difference in the value of the bank due to the deposit-insurance subsidy may be positive or negative. With an underpriced deposit insurance, the bank increases the total value of the bank. With an overpriced deposit insurance, the bank decreases the total value of the bank.


5. The social value of properly priced deposit insurance may be positive if federal deposit insurance increases the efficiency and equity of the financial system.

The value of the deposit guarantee is a function of the expected losses to the bank. The risk of the deposit guarantee arises because the bank becomes insolvent, and to the probability of the bank becoming insolvent. In either case, the subsidy is independent of the risk of the institution. The current flat-rate deposit-insurance premium that is assessed against all institutions, regardless of risk, creates a deposit-insurance subsidy whose value increases with risk. In either case, mispriced deposit-insurance subsidies risk-taking behavior by insured institutions and encourage insured institutions to increase the risk of their portfolios.
of the deposit-insurance subsidy so long as the increase in the value of the deposit-insurance subsidy more than offsets the decrease in the value of the bank.

The value of the deposit guarantee is a function of the expected losses to the deposit-insurance agency if the bank becomes insolvent, and to the probability that such an event will occur. It is also important to remember that the deposit-insurance subsidy arises because bank managers can re structure assets to increase portfolio risk by decreasing the diversification of the portfolio. The risk level of the portfolio increases as its sensitivity to any single firm, industry, country, or market increases. The difficulties faced by banks with major investments in the depressed energy sector or the farm sector, underscores the risks inherent in concentrating assets in one sector of the economy.

The value of a bank's portfolio can be raised by increasing the institution's reliance on purchased funds. In this way, the bank can double the proceeds of the debt issue to the institution, can be increased by reducing the amount of capital that the institution holds relative to its assets. One way of doing this is to increase the leverage of the institution and, hence, its growth entirely with debt. Another way is to issue debt and to distribute the proceeds of the debt issue to the stockholders as dividends, instead of purchasing additional assets.

The marked decline in bank capital ratios during the 1960's and 1970's suggests that the major banking institutions may have increased the value of the deposit-insurance subsidy by increasing their leverage during this period. Without changing the leverage of its portfolio, an institution can also increase the value of its deposit insurance by increasing its total portfolio risk. There are several ways to do this. The portfolio risk can be increased, for example, by changing the composition of the institution's assets or by changing the composition of the liabilities used to fund the assets.

An increase in the interest-sensitivity mismatch between assets and liabilities also increases the risk. If the assets are more (less) interest sensitive than the liabilities, an increase in interest rates causes an increase (a reduction) in the value of the portfolio. A decrease in interest rates has the opposite effect. Therefore, an increase in the portfolio's asset-liability interest-sensitivity mismatch increases uncertainty about earnings and, hence, the total risk of the portfolio.

The risks inherent in interest-sensitivity mismatches between assets and liabilities are illustrated by the current problems in the thrift industry. The inflationary climate of the late 1970's and early 1980's increased the cost of funds for thrifts and decreased the value of their assets (primarily fixed-rate mortgages). The losses in the thrifts' portfolios eroded the capital of these institutions, leaving one-third of them at or near the brink of insolvency on a market-value basis.

The Economic Effects of the Deposit-Insurance Subsidy

Deposit-insurance subsidies arise when the insurance premium paid by banks is less than the fair value of the deposit guarantee. It is important to remember that there is a tradeoff between risk and expected return. Bearing risk is a service provided by private sector market participants. If the risk of an asset is increased, the expected return is also increased. The risk of a project increases, the amount of risk-bearing services provided by market participants also increases. Therefore, the amount they are paid should increase as the services they provide increases. If insured institutions are able to increase the expected return to their shareholders without paying for the additional value of assets risk, then the value of the deposit-insurance subsidy increases.

An institution receiving deposit insurance has real incentives to increase the value of the subsidy by increasing either its leverage, its portfolio risk, or a combination of both. Increasing the value of the deposit-insurance subsidy increases the bank's value to its stockholders at the expense of the deposit insurance agency and to the bank's shareholders.

The deposit-insurance system can be invested in by insured institutions and insured institutions can help pay for the cost of risk to the insured institutions, thereby reducing the total cost of deposit insurance.

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6. Merton shows that deposit insurance can be free if the bank has a good track record as a good fund manager. This observation can be used as a put option. The bank has the option to show how subsidies arise from mispriced deposit insurance. For example, if the bank uses put options to value deposit insurance, see Robert C. Merton, "An Analytic Derivation of the Cost of the Deposit Insurance and Deposit Guarantees: An Application of Modern Option Pricing Theory," Journal of Banking and Finance, vol. 1, no. 1, June 1977, pp. 3-11, Robert C. Merton, "On the Cost of Deposit Insurance When There are Surplus Guarantees," Journal of Business, vol. 51, no. 2, July 1978, pp. 439-452, and James B. Thompson, "The Use of Market Information in Pricing Deposit Insurance," Working Paper, Federal Reserve Bank of Cleveland, August 1986.

7. Purchased funds are liabilities that the bank or thrift attracts from national capital markets. This list is not extensive. It includes items such as the value of the deposit-insurance agency, the value of the uninsured deposits, the value of the assets, the cost of funds for thrifts, and decreased the value of the assets. The insured institution can offer part of its insurance subsidy to depositors in order to attract deposits. Holding risk constant, the insured institution can pay higher rates on its liabilities than the uninsured institution can on equivalent debt. When competing for assets, the insured institution can give better terms on loans or pay higher prices for securities than the uninsured institution because it can offset the higher cost of assets with its deposit-insurance subsidy.

Second, mispriced deposit insurance subsidizes the institution's risk-taking and thereby allows it to hold a riskier portfolio than it would if the subsidy were properly priced. Bear in mind that the subsidy is not paid to the bank. It is paid by the insured institution and shareholders.

8. The subsidy inherent in such a deposit-insurance system can be invested in by insured institutions and insured institutions can help pay for the cost of risk to the insured institutions, thereby reducing the total cost of deposit insurance.

9. The recent moves by firms such as Merrill Lynch and Sears, to set up or purchase institutions that fund them increases the probability that the institution will be misallocated. In the absence of market failure, the probability of misallocation increases as interest rates increase. The institution or the manager of the institution will be misallocated.

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**Conclusion**

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