United States General Accounting Office

GAO

Report to the Chairman, Committee on the Budget, House of Representatives

September 1997

BUDGET ISSUES

Budgeting for Federal Insurance Programs

GAO/AIMD-97-16

GAO

United States
General Accounting Office
Washington, D.C. 20548

Accounting and Information
Management Division

B-275316

September 30, 1997

The Honorable John R. Kasich
Chairman
Committee on the Budget
House of Representatives

Dear Mr. Chairman:

This report responds to your request that we review the budget treatment of federal insurance programs to assess whether the current cash-based budget provides complete information on the government's cost and whether accrual concepts could be used to improve budgeting for these programs. As requested, we (1) identified potential approaches for using accrual concepts in the budget for insurance programs, (2) highlighted trade-offs among different approaches, including the current cash-based budget treatment, and (3) discussed potential implementation issues such as cost estimation. We have included a matter for congressional consideration and are making a recommendation to the Director of the Office of Management and Budget to develop and evaluate risk-assumed cost estimation methods for federal insurance programs.

We are sending copies of this report to the Ranking Minority Member of your Committee, the Director of the Office of Management and Budget, and interested congressional committees. We will also make copies available to others upon request. Major contributors to this report are listed in appendix VI.

If you have any questions concerning this report, please call me on (202) 512-9142.

Sincerely yours,

Susan J. Irving
Associate Director, Budget Issues

Executive Summary

Purpose

For most federal programs, the cash basis of the federal budget provides adequate information on absolute and comparative costs on which to base decisions. However, there are some programs—including federal insurance programs—in which the cash consequences of current decisions may not be seen for a number of years. For these programs, cash-based budgeting may provide not only incomplete but also misleading information as to their cost. Concern about improving the information available to policymakers about the costs of various commitments has led to questions about whether budgeting for these programs should move toward an accrual basis under which the net present value of the expected cost of the risk assumed by the government would be recognized at the time the commitment is extended.

The Chairman of the House Committee on the Budget asked GAO to review the treatment of federal insurance programs in the budget. He requested that GAO assess whether the current cash-based reporting provides complete information about these programs and whether accrual concepts—similar to those used for loans and loan guarantees under the Credit Reform Act of 1990—could be used to improve budgeting for these programs. He has stated that making the cost of these programs more visible will facilitate budget decision-making in a time when difficult funding trade-offs must be made. This report (1) examines the shortcomings of cash-based budgeting for insurance programs, (2) identifies how accrual-based budgeting could improve the recognition of insurance program costs and their economic impact, (3) examines approaches that could be used to incorporate accrual-based cost information in the budget, and (4) identifies implementation issues that can be anticipated in changing to accrual-based budgeting for these programs.

Background

The federal budget is the primary financial document of the government. The Congress and the American people rely on it to frame their understanding of significant choices about the role of the federal government and to provide them with the information necessary to make informed decisions about individual programs and the collective fiscal policy of the nation. Historically, government outlays and receipts have been reported on a cash basis, i.e., receipts are recorded when received and expenditures are recorded when paid, without regard to the period in which the taxes or fees were assessed or the costs incurred. Although this has the advantage of reflecting the cash borrowing needs of the government, over the years, analysts and researchers have raised concerns

that cash-based budgeting does not adequately reflect either the cost of some programs—such as federal credit or insurance—in which cash flows to and from the government can span many budget periods or the timing of their impact on economic behavior.[1]

These concerns led in 1990 to changes in the budgetary treatment of credit programs. Budgeting for these programs is now done on an accrual basis: the net present value of the estimated cost to the federal government over the entire life of a loan or loan guarantee is recognized in the budget at the time the credit is extended. The same concerns also led in 1992 to a proposal to change the budget treatment of deposit, pension, and other insurance programs. Although both GAO and CBO found problems with the specific proposal, which was not adopted, both agencies endorsed further exploration of accrual-based budgeting for insurance.[2]

The shortcomings of the budget's cash-based reporting for insurance programs became vividly apparent in the aftermath of the savings and loan crisis. During the 1980s, as hundreds of institutions became insolvent and the government's insurance liabilities mounted, the cash-based budget failed to provide timely information on the rising cost of deposit insurance. Although GAO and some industry analysts raised concerns about the rapidly rising deposit insurance costs that were accruing to the government, corrective action was delayed and the government's ultimate cost increased. The cash-based budget provided little incentive to address the growing problem because it did not recognize the costs until institutions were closed and depositors paid. This delayed budget recognition obscured the program's, as well as the government's, underlying fiscal condition and limited the budget process as a means for the Congress to assess the problem. These shortcomings of the cash-based budget led some analysts to suggest that the earlier recognition of costs under an accrual-based budgeting approach might have prompted quicker action to address the growing deposit insurance commitments and thus limited the government's ultimate cost.

The magnitude of federal insurance commitments shown in table 1—approximately $5 trillion in fiscal year 1995—and the risk for significant future costs make consideration of how best to provide adequate information on them important. While more than half of this

[1]The cash basis adequately measures the amount and timing of government borrowing, but for some programs, such as credit and insurance, it misstates the size and timing of the impact of the government's spending on private economic behavior.

[2]For additional detail, see Accrual Budgeting (GAO/AFMD-92-49R, February 28, 1992).

$5 trillion represented insured deposits at financial institutions, the federal government also insures individuals and firms against a variety of risks ranging from natural disasters under the flood and crop insurance programs to employer bankruptcies under the pension insurance program. Other programs include life insurance for veterans and federal employees, political risk insurance for overseas investment, and programs covering vaccine injuries and war risks.

Table 1: Major Federal Insurance Programs, Fiscal Year 1995

Dollars in billions

Program	Face value
Bank Deposit Insurance	$1,919
Private Pension Insurance	853
Savings Association Deposit Insurance	709
Veterans Life Insurance	490
Federal Employees' Group Life Insurance	353
National Flood Insurance	325
National Credit Union Share Insurance	266
Federal Crop Insurance	26
Political Risk Insurance	21
Maritime War-Risk Insurance	2
Aviation War-Risk Insurance	2
Vaccine Injury Compensation	1
Total insurance in force	**$4,967**

Source: Budget of the United States Government, Fiscal Year 1997 and the Office of Management and Budget.

Results in Brief

The cash-based budget, which focuses on annual cash flows, does not adequately reflect the government's cost or the economic impact of federal insurance programs because generally costs are recognized when claims are paid rather than when the commitment is made. In any particular year, the cost of the government's insurance commitments may be understated or overstated because the time between the receipt of program collections, the occurrence of an insured event, and the final payment of a claim can extend over many budget periods. In addition, since it is generally the issuance of insurance rather than the payment of the claim that affects economic behavior, the cash-based budget may not accurately measure the timing and magnitude of an insurance program's impact on economic behavior.

As a general principle, decision-making is best informed if the government recognizes the costs of its commitments at the time it makes them. For most programs, cash-based budgeting accomplishes this. However, for insurance programs, accrual-based budgeting, which would recognize the expected long-term cost of the insurance commitment at the time the insurance is extended, offers the potential to overcome a number of the deficiencies of cash-based budgeting by improving cost recognition. In concept, recognition in the budget of the risk assumed by the government would permit policymakers to consider these costs in relation to other funding demands and would improve the measurement of a program's impact on private economic behavior. In most cases, the risk-assumed approach to accrual would be analogous to a premium rate-setting process in that it looks at the long-term expected cost of an insurance commitment at the time the insurance commitment is extended. The risk assumed by the government is essentially that portion of a full risk-based premium not charged to the insured.

In practical terms, however, attempts to improve cost recognition occur on a continuum since insurance programs and insurable events vary significantly. For example, the extent of the improvement in information in moving from cash-based to accrual-based information would vary across programs depending on (1) the size and length of the government's commitment, (2) the nature of the insured risks, and (3) the extent to which costs are currently captured in the budget. The diversity of federal insurance programs also implies that the period used for estimating risk assumed, the complexity of the models, and the policy responses to this new information will vary.

The challenges involved in bringing accrual-based estimates into the budget are significant and dictate beginning with an informational and analytic step. Development of models to generate reasonably reliable risk-assumed estimates is made difficult by the nature of the risks insured by the government, frequent program modifications, and the sufficiency of data on potential losses. For some programs, the development of risk-assumed estimates will require refining and adapting available risk assessment models while, for other programs, new methodologies may have to be developed. The degree of difficulty in developing estimates and the uncertainty surrounding these estimates will likely be greatest for programs—such as deposit and pension insurance—that require modeling complex interactions between highly uncertain macroeconomic variables and human behavior. Even after years of research, significant debate and estimation disparity exists in the modeling for these programs.

Despite these challenges, the potential benefits of accrual-based budgeting for federal insurance programs warrant continued effort in the development of risk-assumed cost estimates. Supplemental reporting of risk-assumed estimates in the budget as they are developed over a number of years would help policymakers understand the extent and nature of the estimation uncertainty and evaluate whether a more comprehensive accrual-based budgeting approach should be adopted. In evaluating these estimates for use in the budget, the focus should not be on whether the estimates are exactly correct but rather on the improvements in the quality of budget information they provide to policymakers. Any shift in the way a program's costs are reflected in the budget has significant implications for beneficiaries and taxpayers alike. Better information about the costs of commitments will permit more informed deliberations about the appropriate design of insurance programs and about possible responses to changes in program costs. Given the large stakes involved, it will also be important that the cost estimates be perceived as unbiased and generally reliable.

Supplemental reporting of risk-assumed estimates in the budget would parallel the new accounting treatment required under accounting standards developed by the Federal Accounting Standards Advisory Board (FASAB). In requiring the disclosure of risk-assumed estimates as supplemental information to agency financial statements, FASAB recognized the usefulness of these estimates to better inform budget decisions. FASAB also recognized the difficulty of preparing reliable risk-assumed estimates and therefore did not require their recognition on the financial statements as a liability. In the interim, as work on the development of risk-assumed estimates takes place, the claims liability reported in agency financial statements provide policymakers with useful information on insurance program losses that are both probable and can be reasonably estimated as a result of events that have occurred as of a given reporting date. This information should be considered during budget decisions. However, as FASAB recognized, the risk-assumed concept would in most cases go further than the financial statement liability recognition standard since the latter does not reflect losses inherent in the government's commitment at the time the insurance is extended.

GAO's Analysis

Cash-Based Budgeting for Federal Insurance Programs Generally Provides Incomplete Information for Decision-making

Although the cash-based budget may most accurately measure the government's borrowing needs, for federal insurance it generally provides incomplete or misleading information for resource allocation and fiscal policy decisions. The annual net cash flows currently reported in the budget may obscure the government's cost for insurance programs because premium collections are not matched with the expected costs of insurance commitments. This occurs for several reasons that vary from program to program depending upon the characteristics of the risk insured and the structure of the program. The mismatch is most obvious for programs in which the government's commitment extends for many years into the future, such as for life insurance and pension guarantees. For example, from 1981 through 1992 accrued losses of the Pension Benefit Guaranty Corporation (PBGC) ballooned its accumulated deficit as reported in its financial statements from $190 million to $2.4 billion while the cash-based budget reported positive net cash flows every year.[3] Thus, PBGC appeared financially sound in the cash-based budget despite its deteriorating condition.

Even for programs in which the insurance commitment is short term, cash-based reporting may not be adequate because some risks insured by the government—e.g., flood and crop damage—result in losses that although predictable are nevertheless variable on an annual basis. In order to accumulate reserves to pay claims in high loss years, these programs need more funds than they pay out in other years. Because of their sporadic nature, these risks need to be pooled[4] over many years. The annual net cash flows for any single budget year will not accurately reflect the government's cost for operating such programs on a continuing basis. For example, from 1986 through 1995 the cash-based budget reported premium income exceeding claim payments in 6 of the 10 years for the flood insurance program. This made the program appear in good financial shape, even though a significant portion of the policies receive an unfunded subsidy and the program has not been able to build sufficient reserves to cover expected future high loss years.[5]

[3]Liability for pension benefit payments is recorded in the financial statements based on events that have occurred or are probable to occur and can be reasonably estimated.

[4]Pooling risk refers to the spreading of risk among a large number of insureds in order to reduce the cost of bearing the risk.

[5]Flood Insurance: Financial Resources May Not Be Sufficient to Meet Future Expected Losses (GAO/RCED-94-80, March 21, 1994).

The cash-based budget also generally falls short as a gauge of the economic impact of federal insurance programs. Although discerning the economic impact of insurance programs is difficult, in general, private economic behavior is affected when insurance is provided rather than when claims are paid. For example, the government may influence the overseas investment decisions of U.S. corporations when it extends political risk insurance and the planting decisions of farmers when it insures their crops.

Accrual-Based Budgeting Has the Potential to Improve Budget Information and Incentives for Federal Insurance Programs

The use of accrual-based budgeting for federal insurance programs has the potential to overcome a number of the deficiencies of cash-based budgeting. Two characteristics of federal insurance programs support the use of accrual-based budgeting: (1) the government's commitment to cover future losses that may occur beyond the current budget period and (2) the difficulty of estimating and pooling insured risk on an annual basis.

As is true of the treatment of loan guarantees under credit reform, accrual-based budgeting for insurance would recognize the estimated cost of the government's insurance commitments when they are made rather than when the cash consequences occur. Conceptually, therefore, accrual-based budgeting using risk-assumed cost estimates would improve both the opportunities and incentives to control the government's insurance costs. Policymakers might be encouraged to examine the underlying benefits and structure of insurance programs before coverage is provided—i.e., when a new program is proposed—or before large losses accumulate in existing coverage. They would also be able to make more accurate cost comparisons because risk-assumed cost estimates reflect the government's subsidy cost—the difference between expected claims and program income—regardless of when cash flows occur. Budgeting for the government's expected cost of the risk it assumes would take into account the need to pool risks over time and accumulate reserves for future high loss years. Lastly, the earlier recognition of the government's cost afforded by risk-assumed estimates would more closely coincide with the economic impact of federal insurance programs, which generally occurs when insurance coverage is provided and the risk to the insured is lowered.

In practical application, a risk-assumed approach to accrual-based budgeting may vary across programs. The diversity in federal insurance programs means that the period used for estimating risk assumed may differ due to the length of the government's commitment, the nature of the

risk insured, and the ability to estimate the risk inherent in the insurance provided. For example, in considering the appropriate method to measure risk it is worth noting the difference between uncertain and predictable but variable events. The occurrence of floods is measurable over the long term but predicting the timing of their occurrence by more than a few days or hours is considered impossible. Thus, while flood losses may be variable on an annual basis, it is possible to measure the long-term expected risk of flooding. However, determining the risk assumed for other programs may be more difficult because they insure events that are not only highly variable but also highly uncertain over the long term. For example, estimating future deposit and pension insurance costs would require assessing the long-term solvency of private firms, which is dependent on highly uncertain and volatile economic, financial, and behavioral variables.

In addition, the degree to which accrual-based budgeting would change the information and incentives provided to decisionmakers for insurance programs will vary based on the characteristics of individual programs and the specific approach taken. For example, the limitations of cash-based budgeting and the improvements achieved by shifting to accrual-based budgeting are most pronounced for the two largest programs—deposit and pension insurance. The size of these programs in relation to total federal spending and, therefore, their potential to distort resource allocation and fiscal policy choices have been central to the argument for accrual-based budgeting for federal insurance programs. The failure of the cash-based budget to adequately signal policymakers about the mounting losses from the savings and loan crisis showed that such potentially large misstatements of cost may have serious consequences for aggregate budget and fiscal policy. For other insurance programs, the implications of cash-based budgeting for aggregate budget and fiscal policy may not be as great, but accrual-based reporting could still improve cost information.

Incorporating Accrual-Based Information in the Budget Presents Estimation and Implementation Challenges

The effective implementation of accrual-based budgeting for federal insurance programs will depend on the ability to generate reasonable, unbiased estimates of the risk assumed by the federal government. Although the risk-assumed concept itself is relatively straightforward (the recognition of the difference between the full risk premium and the actual premiums charged for the insurance at the time coverage is extended), how to implement it for the wide range of federal insurance programs raises complex issues, such as the appropriate period over which to estimate risk. In addition, substantial effort will be required to improve

available risk assessment models and, in some cases, develop new methodologies. The extent of these difficulties varies significantly across the programs. While, in some cases, generating risk-assumed estimates may not be problematic, in other cases, the difficulties faced may be considerably more challenging than those currently faced for some loan programs under credit reform.

Estimating the risks inherent in most federal insurance programs is difficult for a number of reasons. Many federal insurance programs cover complex, case-specific, or catastrophic risks that the private sector has historically been unwilling or unable to cover. As a result, the development and acceptance of risk assessment methodologies for individual insurance programs vary considerably. Lack of sufficient historical data for some federal insurance programs also constrains risk assessment. While private insurers generally rely on historical data on losses and claim costs to assess risk, data on the occurrence of insured events over sufficiently long periods under similar conditions are generally not available for federal insurance programs. For some programs, such as the war-risk programs, insured events are extremely rare. For others, such as crop and flood insurance, the variation in possible outcomes is large, requiring several decades of data to adequately estimate risks. Frequent program modifications as well as fundamental changes in the activities insured further reduce the predictive value of available data and complicate risk estimation.

Because insurance program costs are dependent on many economic, behavioral, and environmental variables that cannot be known with certainty in advance, there will always be uncertainty in reported accrual-based estimates. This will be true even as models are developed and improved. It will be important for policymakers to understand the extent and nature of this uncertainty and to have assurance that the estimates are unbiased. In addition, as is true for loan programs under credit reform, budgeting for federal insurance programs would be more complex under an accrual-based budgeting approach.

In most cases, use of risk-assumed estimates in budgeting for federal insurance programs, would be more forward looking than the liability recognition standards traditionally used to prepare financial statements. For programs with short duration policies, such as crop and flood insurance, the use of financial statement liability recognition standards may not yield information very different from what is currently reported on a cash basis in the budget. For other programs with long-term

commitments, such as pension and life insurance, the use of financial statement liability recognition standards would improve the information available in the budget compared to the cash basis. However, accrual-based budgeting using traditional financial statement liability recognition standards, in most cases, would not provide recognition of the risks inherent in the government's commitment at the time insurance is extended and, thus, would not be as useful for budgeting as the risk-assumed concept. Nevertheless, until risk-assumed estimates are fully developed, and the new accounting standards developed by FASAB are implemented, insurance programs' financial statements, which are included in the budget appendix, provide policymakers with valuable information on insured events (losses) that are probable and measurable as of a given date and should be considered in budget discussions.

Although the characteristics of the risk assumed by the government under the various federal insurance programs make risk estimation difficult, continued research and development of estimation techniques could improve information on and increase attention given to the cost of the government's commitments. For example, the Office of Management and Budget's effort to develop methodologies to estimate the future costs of pension guarantees has helped focus attention on the risk assumed by the government for this program.

Supplemental Reporting of Risk-Assumed Estimates in the Budget Would Help

Although the potential for risk-assumed accrual-based budgeting for federal insurance programs to address the shortcomings of the current cash-based approach argues for its implementation, the analytic and implementation issues involved argue for beginning with supplemental information. Supplemental reporting of these estimates in the budget as they are developed over a number of years could help policymakers understand the extent and nature of the estimation uncertainty and evaluate the desirability and feasibility of adopting a more comprehensive accrual-based budgeting approach.

Once several years of data have been reported as supplemental information in the budget, these estimates should be evaluated to determine their reliability. In evaluating these estimates, the focus should not be on whether the estimates are exactly correct but rather on how they improve the quality of the information and incentives provided to policymakers in the budget. If the risk-assumed estimates develop sufficiently so that their use in the budget will not introduce an unacceptable level of uncertainty, policymakers could consider whether to

move beyond supplemental information and incorporate risk-assumed, accrual-based estimates into budget authority. Beyond that, full integration of accrual-based estimates into budget authority, outlays, and the deficit could follow if it seemed appropriate and helpful.

Supplemental reporting of risk-assumed cost estimates in the budget would allow time to

- develop and refine estimation methodologies,
- assess the reliability of the risk-assumed estimates,
- gain experience and confidence in the risk-assumed cost measures,
- evaluate the feasibility of a more comprehensive accrual-based budgeting approach, and
- formulate cost-effective reporting procedures and requirements.

During this period, policymakers should continue to draw on information provided in audited financial statements. As noted above, financial statements provide earlier recognition of accruing liabilities than does the cash-based budget for insurance commitments. Where applicable, agency efforts to comply with accounting standards recently developed by FASAB, which require disclosure of the risk-assumed estimates as supplemental information to agency financial statements, could facilitate the reporting of risk-assumed estimates in the budget. In addition, the ongoing efforts of various interagency working groups to identify ways to comply with credit reform at the lowest possible cost, improve and standardize audit requirements, and use credit reform data and concepts for internal management purposes may be helpful in addressing challenges faced in implementing accrual-based budgeting for federal insurance programs.

Matter for Congressional Consideration

The Congress may wish to consider encouraging the development and subsequent reporting of annual risk-assumed cost estimates in conjunction with the cash-based estimates for all federal insurance programs in the President's budget. The Congress may also wish to consider periodically overseeing and assessing the reliability and usefulness of these estimates, making adjustments, and determining whether to move toward a more comprehensive accrual-based budgeting approach for insurance programs.

Recommendation

GAO recommends that the Director of the Office of Management and Budget develop risk-assumed cost estimation methods for federal

insurance programs and encourage similar efforts at agencies with insurance programs. As they become available, the risk-assumed estimates should be reported annually in a standardized format for all insurance programs as supplemental information along with the cash-based estimates. A description of the estimation methodologies used and significant assumptions made should be provided. To promote confidence in risk-assumed cost measures, the estimation models and data should be available to all parties involved in making budget estimates and be subject to periodic external review. As data become available, OMB should undertake and report on evaluations of the validity and reliability of the reported estimates.

Agency Comments

OMB officials reviewed a draft of this report and agreed with GAO's conclusion that budgeting for insurance programs should be based on the government's long-term expected cost of the insurance extended—the risk assumed by the government. OMB also concurred with the report's findings that the challenges involved in bringing risk-assumed estimates into the budget are significant and that additional effort to improve estimation methods is required. OMB officials noted that they would like to pursue such improvements but are not doing so because they do not currently have the additional expertise that would be required.

OMB officials expressed concern about GAO's use of the terms "cash" and "accrual" in this report to describe different approaches to budgeting for insurance programs. OMB officials suggested that the current federal budget system is better characterized as commitment-based or obligation-based budgeting and that the use of risk-assumed cost estimates is consistent with this concept. While GAO agrees that this is a useful way of thinking about potential changes in budgeting for insurance programs, it uses the term "cash-based" because cash is the measurement basis for the amounts shown in the budget for budget authority, obligations, outlays, and receipts. The estimates for these amounts generally are made in terms of cash payments to be made or received. The term "accrual-based" is used in the report because the term "accrual" is generally understood as a basis of measuring cost rather than cash flows.

GAO modified relevant sections of the report to clarify its explanation of OMB's views on the budget treatment of deposit insurance under an accrual-based approach. GAO also dropped from chapter 1 a brief discussion of early budget commissions' recommendations regarding accrual accounting in the federal government which was not necessary to

convey its message. Lastly, OMB officials provided a number of technical comments, which were incorporated into the report as appropriate.

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Abbreviations

AID	Agency for International Development
BEA	Budget Enforcement Act of 1990
BFE	base flood elevation

BIF	Bank Insurance Fund
CAMEL	capital adequacy, asset quality, management practices, earnings, and liquidity
CBO	Congressional Budget Office
CCC	Commodity Credit Corporation
CEC	Current Exposure to Claims
CFO	Chief Financial Officer
CRP	Conservation Reserve Program
CUSIF	Credit Union Share Insurance Fund
DELV	damage by elevation
DOD	Department of Defense
DOJ	Department of Justice
DOT	Department of Transportation
ERISA	Employee Retirement Income Security Act of 1974
FAA	Federal Aviation Administration
FASAB	Federal Accounting Standards Advisory Board
FASB	Financial Accounting Standards Board
FCIC	Federal Crop Insurance Corporation
FDA	Food and Drug Administration
FDIC	Federal Deposit Insurance Corporation
FDICIA	FDIC Improvement Act of 1991
FEGLI	Federal Employees' Group Life Insurance
FEMA	Federal Emergency Management Agency
FFB	Federal Financing Bank
FIA	Federal Insurance Administration
FICO	Financing Corporation
FIRM	flood insurance rate map
FIRREA	Financial Institutions Reform, Recovery, and Enforcement Act of 1989
FRS	Federal Reserve System
FSLIC	Federal Savings and Loan Insurance Corporation
GATT	General Agreement on Tariffs and Trade
GPRA	Government Performance and Results Act of 1993
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
HUD	Housing and Urban Development
IBNR	incurred but not yet reported
MARAD	Maritime Administration
NAP	Noninsured Assistance Program
NCUA	National Credit Union Administration
NFIP	National Flood Insurance Program

OBRA '90	Omnibus Budget Reconciliation Act of 1990
OCC	Office of the Comptroller of the Currency
OMB	Office of Management and Budget
OPIC	Overseas Private Investment Corporation
OPM	Office of Personnel Management
OTS	Office of Thrift Supervision
PAYGO	pay-as-you-go
PBGC	Pension Benefit Guaranty Corporation
PELV	probability of elevation
PIMS	Pension Insurance Modeling System
RIS	Retirement and Insurance Service
RMA	Risk Management Agency
RPA	Retirement Protection Act of 1994
RTC	Resolution Trust Corporation
SAIF	Savings Association Insurance Fund
SBA	Small Business Administration
SDVI	Service-Disabled Veterans Insurance
SFAS	Statement of Financial Accounting Standards
USDA	Department of Agriculture
VA	Department of Veterans Affairs
VBA	Veterans Benefit Administration
VICP	Vaccine Injury Compensation Program
VMLI	Veterans Mortgage Life Insurance

Introduction

During the last 50 years, many analysts and researchers have raised concerns that cash-based budgeting does not provide complete information on the cost of some federal programs. Concerns that the cash-based budget badly distorted information on credit programs led to the inclusion of accrual-based costs in the budget for credit programs as the result of the Federal Credit Reform Act of 1990. Similar concerns have been raised about other programs—most notably insurance and federal employee pensions. In 1992, the Bush administration proposed to change the budget treatment of insurance programs from a cash basis to an accrual basis. Although the proposal was not enacted, analysts continue to assess the merits of accrual-based budgeting for such programs.

Because of his concern that for some federal programs, the cash-based budget does not provide a complete picture of the consequences of the government's actions, the Chairman of the House Committee on the Budget asked us to evaluate the use of accrual-based budgeting for federal insurance programs. He believes that making the government's cost of these programs more visible will improve budget decision-making.

Background

The federal budget serves as the primary financial plan of the government. As such, difficult decisions concerning resource allocation and fiscal policy are framed by the information provided in the budget. Historically, government outlays and receipts have been reported on a cash or cash-equivalent basis.[1] Receipts are recorded when received and expenditures are recorded when paid, without regard to the period in which taxes and fees were assessed or the costs incurred. For most federal programs, cash-based reporting provides adequate information on and control over the government's spending commitments because the time between when a liability is incurred and when it is paid is short. Costs to the government are known at the time the decision is made to provide budget authority, and cash outlays generally capture the fiscal effects of the government's spending. However, for certain programs, such as federal insurance in which the government's commitment can involve cash flows to and from the government over many years, the actual cost to the government may not be fully recognized with cash-based reporting.

The failure of the cash-based budget to provide timely signals to policymakers on the rapidly deteriorating financial condition of the nation's deposit insurance system and growing federal commitments for

[1]A long-standing exception to this is interest on public issues of public debt, which is recorded as it accrues.

deposit insurance during the 1980s has been widely cited as a vivid illustration of the shortfalls of cash budgeting for federal insurance programs. Although GAO and some industry analysts raised concerns about the rapidly rising deposit insurance costs that were accruing to the government, corrective action was delayed and the government's ultimate cost increased. If the budget had recognized the government's expected cost of deposit insurance, the government's ultimate cost might have been lower if such recognition had prompted earlier actions by policymakers to limit losses. Instead, the budget did not report these costs until institutions were closed and depositors paid. In addition, by not reflecting the government's deposit insurance liabilities as they accrued, the cash-based budget proved to be a poor gauge of the program's economic impact. Delay in recognizing these costs obscured the government's underlying fiscal condition during and after the crisis. Furthermore, not only was the cash-based budget slow to recognize these costs, but it may have also created incentives to delay closing insolvent institutions (to avoid increasing the annual deficit), which increased the ultimate cost to the government.[2] This experience with deposit insurance heightened concerns that the cash-based budget was not providing adequate information on the potential cost of other federal insurance commitments.

In a series of reports in the 1980s on managing the cost of government, GAO advocated the use of some accrual cost measures in the budget.[3] Specifically, we reported that due to the budget's exclusive focus on cash transactions, the costs of some programs, including retirement, insurance, and credit, may not be accurately reflected in the budget. However, given the limitations of governmentwide accounting systems, we suggested that budget reporting could be improved by recording annual accrued costs for selected programs. Since then, budget reporting has gradually been modified using accrual measures to recognize the government's cost for certain programs. For example, in 1985, budgeting for military retirement costs was moved to an accrual basis reflecting—at the program level—the government's expected costs for retirement benefits as they are earned. These program level accrued amounts are offset so that total budget outlays and the deficit are not affected by this change. Similarly, beginning in 1987, accruing retirement benefit costs not covered by employee contributions are now charged to employing agencies for civilian employees covered under the Federal Employees Retirement System.

[2]Budget Issues: 1991 Budget Estimates: What Went Wrong (GAO/OCG-92-1, January 15, 1992).

[3]Managing the Cost of Government: Building an Effective Financial Management Structure (GAO/AFMD-85-35, February 1985) and Managing the Cost of Government: Proposals for Reforming Federal Budgeting Practices (GAO/AFMD-90-1, October 1989).

More recently, the Federal Credit Reform Act of 1990 changed the method of controlling and accounting for credit programs to an accrual basis.

Credit Reform Marked a Significant Departure From Cash-Based Budgeting

On November 5, 1990, the Federal Credit Reform Act was signed into law, as Title 13B of the Omnibus Budget Reconciliation Act of 1990 (Public Law 101-508). The act, which legislated changes GAO and others advocated,[4] addressed many of the concerns raised by various analysts by changing the budget reporting of the cost of credit programs from a cash basis to an accrual basis. Because the federal government uses loans and loan guarantees to achieve numerous policy objectives, the scope of this change was far-reaching. In fiscal year 1996, for example, the federal government entered into commitments to make or guarantee loans totaling approximately $200 billion.

Prior to credit reform, outlays for credit programs were reflected in the budget only when cash was disbursed. The full amount of a direct loan was reported as an outlay, ignoring the fact that many would be repaid. In the case of loan guarantees, initially no outlays were reported. This ignored the fact that some of the guaranteed loans would be defaulted upon and thus require future outlays. Consequently, the cash basis of reporting overstated the cost of direct loans in the year they were made because it ignored repayments and understated the cost of loan guarantees in the year they were issued by ignoring defaults. This deficient reporting skewed cost comparisons between programs with similar purposes but different funding approaches (i.e., direct loans, loan guarantees, or grants). Further, the relative cost of such programs in comparison to other federal spending was also misrepresented. By incorporating accrual cost measures in the budget for loan and loan guarantee programs, credit reform improved these cost comparisons.

Credit reform addressed the shortfalls of cash-based reporting for credit program costs by requiring the budget to include the estimated cost to the federal government over the entire life of the loan or loan guarantee, calculated on a net present value basis.[5] For purposes of the Credit Reform Act, the estimated cost of a direct loan or loan guarantee is now the sum of all expected costs—including interest rate subsidies and

[4]Budget Reform for the Federal Government (GAO/T-AFMD-88-13, June 7, 1988) and Budget Issues: Budgetary Treatment of Federal Credit Programs (GAO/AFMD-89-42, April 10, 1989).

[5]Present value is the worth of a future stream of returns or costs in terms of money paid today. A dollar today is worth more than a dollar at some date in the future because today's dollar could be invested and earn interest in the interim.

estimated default losses—and all expected payments received by the government over the life of the commitment, discounted by the interest rate on Treasury securities of similar maturity to the loan or guarantee. Reestimation of the cost of loans disbursed or guaranteed in a given year is required over the life of the commitment. This more accurate reporting of credit program costs allows for more efficient allocation of budget resources and improved measurement of these programs' economic impact.

Credit Reform Requires Recognition of Estimated Costs When the Government Enters Into a Commitment

Credit reform was significant not only because it changed the budget reporting for credit programs from a cash basis to an accrual basis but also because it prescribed a more prospective form of accrual measurement than required by generally accepted accounting standards used in financial statements prepared prior to credit reform.[6] Traditional accounting standards required the recognition of all losses and expenses incurred during a reporting period, including those that have occurred but have not yet been reported. In other words, a cost would be accrued when it was more likely than not that a borrower had defaulted on his or her loan. In contrast, credit reform requires recognition of the expected costs of new loans and guarantees (on a net present value basis) at the time the credit is extended. This "risk-assumed" approach recognizes the expected cost to the government before the government commits itself to future losses inherent in the credit issued.

For example, prior to credit reform, if the government decided to provide $3 million in direct loans, the cash budget would have shown an outlay in the first year of $3 million. Repayments by borrowers would be recorded when received in future years, and, when some borrowers defaulted, net payments received by the government would simply be lower. Under traditional accrual accounting no cost would be shown in the first year since repayment is expected, but in subsequent years when some borrowers defaulted, the unpaid principle would be recognized as a cost. Thus, in neither case was the government's cost recognized correctly at the time the decision was made to authorize the loans. In contrast, using the risk-assumed basis of credit reform, an estimate of the government's cost would be recorded when the government made the commitment to provide the loans.

[6]The Federal Accounting Standards Advisory Board (FASAB) subsequently developed accounting standards for credit programs that reflected and supported the prospective accrual measures called for under credit reform.

Recognizing that the shortcomings of the cash budget are not unique to credit programs, the Congress in the Credit Reform Act directed OMB and the Congressional Budget Office (CBO) to study the possible application of accrual budget reporting for federal deposit insurance programs. In May 1991, CBO reported that the current cash-based budgeting approach for deposit insurance could be improved either through the use of accrual concepts or other reporting alternatives.[7] CBO concluded the following:

> Adopting a full credit reform approach to deposit insurance has one major advantage and one major disadvantage . . . . The advantage is that only the accrual recognition of costs will provide an early warning of financial disaster in the budget. The disadvantage is that estimating the cost of deposit insurance—when cost is incurred—is very difficult.

OMB also reported that accrual-based budget reporting for deposit insurance could be an improvement over the current approach and outlined specific financial and econometric models that could be used to estimate deposit insurance costs as they arise. OMB recommended that these cost measures be further developed, tested, and validated before deciding whether or how to bring accrual-based estimates into the budget.[8]

The Bush Administration Proposed Extending Credit Reform Principles to Insurance Programs

In the President's fiscal year 1993 budget, less than a year after OMB and CBO reported on the budget treatment of deposit insurance, the Bush administration proposed applying credit reform principles to budgeting for deposit insurance and pension guarantees. Under the proposal, other insurance programs would be moved to an accrual basis the following year. The administration emphasized earlier concerns that cash-based budgeting for insurance programs did not provide clear and timely measurement of their cost to the government. It maintained that budget reporting for these programs on an accrual basis would provide policymakers with the information and incentives necessary to control their costs.

The similarities between loan guarantees and federal insurance were noted in the administration's proposal. In both cases the government commits to paying some or all of future costs under specified conditions in exchange for a fee or premium. As with the new treatment of credit programs, the proposal called for the recognition of the government's cost

[7] Budgetary Treatment of Deposit Insurance: A Framework for Reform, Congressional Budget Office, May 1991.

[8] Budgeting for Federal Deposit Insurance, Office of Management and Budget, June 1991.

of new or expanded insurance coverage at the time the insurance is extended. The cost of the risk assumed by the government would be estimated on a net present value basis and would include all expected costs and collections related to the coverage extended. OMB showed estimates of the new accrual-based measures in the budget for deposit insurance and pension guarantees. These measures were based on complex, newly developed estimation methodologies using options pricing models.[9] Legislation to effect the new budget reporting was introduced in the Congress.

Despite continued concern about the cash basis of reporting for insurance programs, both GAO and CBO objected to the administration's proposal at the time.[10] GAO affirmed its long-standing support of reporting accrual-based costs in the budget but concluded that the proposal made at that time was flawed. GAO and CBO questioned the sufficiency of available data and estimation methodologies necessary to make reasonably accurate accrual cost estimates. Both agencies expressed concern about the rush to implement a major conceptual and technically challenging change in budget reporting without thorough study. CBO also reported that by changing the way shortfalls in program funding would be financed, the proposal could have increased taxpayer liability for these programs.

Another major concern surrounding the initiative was the budget treatment of savings stemming from deposit and pension insurance program reforms that were also proposed. On a cash basis, these savings would not have been recognized for several years in the budget, but, by recording their effects on an accrual basis, the administration was able to show savings in fiscal years 1992 and 1993 to offset revenue lost from proposed tax reductions. CBO concluded that the savings achieved by the administration's program reforms should not be available to pay for other policy initiatives. As a result, most observers viewed the accrual-based budgeting proposal as an accounting gimmick rather than a way to improve budget reporting for insurance programs. The merits of accrual-based reporting for these programs were overshadowed by these concerns. No action was taken by the Congress on the legislation.

Since the Bush administration's proposal for changing the budget treatment of insurance programs, OMB has continued work on developing

[9]Options pricing models are mathematical models that employ probabilistic functions to value contracts that give the owners the right to buy or sell an asset (such as a stock) at a fixed price on or before a given future date. For an additional discussion of options pricing see figure 5.1 in chapter 5.

[10]See Accrual Budgeting (GAO/AFMD-92-49R, February 28, 1992) and An Analysis of the President's Budgetary Proposals for Fiscal Year 1993, Congressional Budget Office, March 1992.

methodologies to estimate the risk-assumed cost of deposit insurance and pension guarantees. At the request of the Chairman of the House Committee on the Budget and because of continued interest in this area, we undertook this study to more thoroughly develop the issues involved in changing the budget treatment of insurance programs.

Objectives, Scope, and Methodology

The Chairman of the House Committee on the Budget asked us to review the budget treatment of federal insurance programs to assess whether the current cash-based budget provides complete information and whether accrual concepts could be used to improve budgeting for these programs. Specifically, we were asked to (1) identify approaches for using accrual concepts in budgeting for insurance programs, (2) highlight trade-offs among different approaches, including the current budget treatment, and (3) discuss potential implementation issues, such as cost estimation.

We limited the scope of our study to programs previously identified by OMB and FASAB as federal insurance programs. Programs included in our study are shown in table 2.1. OMB's list forms the basis of its annual analysis of credit and insurance programs, which, in recent years, has been part of the Analytical Perspectives volume of the President's budget. We added one program to the OMB list—the Federal Employees' Group Life Insurance program. This program was included by FASAB as federal insurance in its recommended accounting standards for federal liabilities. Of the veterans life insurance programs underwritten by the federal government, we include only those which are still open to new participants.

In undertaking this study, we acknowledge that there is not universal agreement on which programs constitute federal insurance. The programs we included in our analysis share some, but not necessarily all, the characteristics of private insurance. Conversely, some programs not on our list have some of the characteristics of programs on our list. The diversity of the programs undertaken by the federal government could result in disagreement about what constitutes a federal insurance program. Valid arguments may be made for additions to or deletions from the list of insurance programs to consider for an accrual-based budgeting approach. This is but one of many issues policymakers face in incorporating accrual concepts in the budget.

To accomplish our objectives, we focused our analysis on the sufficiency of information provided for resource allocation and fiscal policy with the recognition that budget reporting must be understandable and facilitate

budget control and accountability. This premise is grounded in the work of the 1967 President's Commission on Budget Concepts, which stressed that resource allocation and fiscal policy outweigh all other uses of the budget, such as the cash and debt management activities of the Treasury and analyses of the impact of federal activity on the financial markets. To assess the sufficiency of information in the budget for these purposes, we reviewed the programs' current budget treatment, consulted with budget experts, and analyzed historical data on budgeted and actual insurance outlays.

To develop approaches for using accrual concepts in the budget and to identify trade-offs among approaches, we began by reviewing the Bush administration's 1992 proposal to adopt accrual accounting for federal insurance programs. We surveyed existing research on the budget treatment of insurance programs conducted by OMB, CBO, and other budget analysts. We examined various reports and documents pertaining to the accrual-based approach for loan and loan guarantee programs prescribed by the Federal Credit Reform Act of 1990. We studied the accounting standards for insurance activities promulgated by the Financial Accounting Standards Board (FASB) for private sector entities and FASAB for the federal government.

To identify potential implementation issues, we convened panels of federal insurance agency officials and staff to gather information on the operation of the programs and the agencies' risk assessment capabilities. We also obtained their views on the potential benefits and drawbacks to the use of accrual-based budgeting. When we could not convene a panel or when key agency personnel were unavailable, we obtained written responses to our questions. We also discussed potential implementation issues with budget experts familiar with the implementation of accrual-based budgeting for credit programs.

To identify issues related to developing risk-assumed cost estimates, we interviewed agency actuaries, economists, and other staff responsible for risk assessment. We also analyzed documentation supplied by the agencies and prior GAO reports on individual programs. In addition, we retained the services of an independent contractor to assist us in reviewing OMB's options pricing models for deposit insurance and pension guarantees. As part of the contractor's review, it assessed the validity of using options pricing concepts and techniques to estimate insurance liabilities, the technical sophistication and data requirements of OMB's models, and the reliability of OMB's model estimates for budget and policy decision-making.

We did not test or validate (1) any of the other estimation methodologies currently used by the agencies for risk assessment or rate-setting or (2) any of the methodologies that could potentially be used for these purposes.

We performed our work in Washington, D.C., from September 1995 through November 1996 in accordance with generally accepted government auditing standards. We requested written comments on a draft of this report from the Director of OMB or his designee. The Deputy Assistant Director, Budget Analysis and Systems, provided comments, which are discussed in chapter 8 and are reprinted in appendix V.

Overview of Federal Insurance Programs

Federal insurance programs are a diverse set of programs covering a wide range of risks that the private sector has traditionally been unable or unwilling to cover. From a federal budgeting perspective, these programs present significant challenges because the insured events tend to be catastrophic or volatile in nature and may not occur for years after the government's commitment is extended. Although several financial measures are available for insurance programs, estimates of the risk assumed by the federal government—the key information for budget decision-making—have been limited. Despite some common elements, these programs vary significantly in several respects, including size, length of the government's commitment, frequency of activation, and financing. These differences warrant consideration in determining the appropriate budget treatment for these programs.

Federal Insurance Programs Cover a Wide Variety of Risks

The federal government insures individuals and firms against a wide variety of risks ranging from natural disasters under the flood and crop insurance programs to bank and employer bankruptcies under the deposit and pension insurance programs. Other federal insurance programs provide life insurance for veterans and federal employees and political risk insurance for overseas investment activities. The federal government also provides protection against war-related risks and adverse reactions to vaccinations. Further, in recent years, proposals have called for extending federal insurance activities to cover natural catastrophes, such as earthquakes and volcanic eruptions.[1]

Some federal insurance programs have a statutory intent to provide subsidized coverage while others do not. In some cases, the government subsidizes insurance programs in order to achieve a public policy objective. For example, catastrophic coverage under the crop insurance program is fully subsidized in an attempt to reduce reliance on ad hoc disaster assistance. The Service-Disabled Veterans Insurance Program provides life insurance coverage to veterans with service-connected disabilities based on rates for healthy individuals or free to totally disabled veterans. In other cases, as noted later in this chapter, the federal government may intend to provide unsubsidized insurance. However, regardless of statutory intent, whenever federal insurance is underpriced relative to its long-run cost, those who are insured receive a subsidy

[1]Natural Disaster Insurance: Federal Government's Interests Insufficiently Protected Given Its Potential Financial Exposure (GAO/T-GGD-96-41, December 5, 1995); Federal Disaster Insurance: Goals Are Good, but Insurance Programs Would Expose the Federal Government to Large Potential Losses (GAO/T-GGD-94-153, May 26, 1994); and Bipartisan Task Force on Funding Disaster Relief, Federal Disaster Assistance, S. Doc. No. 4, 104th Congress, 1st Sess. (1995).

because premiums will not cover program costs. Table 2.1 provides an overview of the programs included in our study. More detailed program summaries are provided in the appendixes to this report.

Table 2.1: Overview of Federal Insurance Programs Reviewed

Program	Description	Statutory intent for government subsidy
Aviation War-Risk Insurance	Insures against losses resulting from war, terrorism, and other hostile acts when commercial insurance is unavailable on reasonable terms and conditions and continued air service is in the interest of U.S. policy.	No; expectation of legislation was that it would probably be self-financing from premiums for assumption of anticipated risks.
Bank Deposit Insurance	Insures deposits at commercial banks and some savings banks against losses in the event of insolvency.	Intent unclear; deposits backed by the full faith and credit of the U.S. government.
Federal Crop Insurance	Insures against crop damage from unavoidable risks associated with adverse weather, plant diseases, and insect infestations.	Yes.
Federal Employees' Group Life Insurance	Provides life insurance to federal employees, annuitants, and their families for accidental death and dismemberment.	No.
Maritime War-Risk Insurance	Insures losses resulting from war, terrorism, and other hostile acts when commercial insurance is unavailable on reasonable terms and conditions and continued service is in the interest of U.S. policy.	No; expectation of legislation was that it would probably be self-financing from premiums for assumption of anticipated risks.
National Flood Insurance	Insures buildings and contents against losses due to flooding in communities nationwide that enact and enforce appropriate flood plain management measures.	Yes; implicit subsidy by statutory design.
National Credit Union Share Insurance	Insures member shares (deposits) at credit unions against losses in the event of insolvency.	Intent unclear; deposits backed by the full faith and credit of the U.S. government.

(continued)

Program	Description	Statutory intent for government subsidy
OPIC's Political Risk Insurance	Insures the investments of U.S. companies in developing countries against several political risks, including expropriation, currency inconvertibility, and political violence.	No; statutory intention for self-financing but guaranteed by the full faith and credit of the U.S. government.
PBGC's Pension Insurance	Insures retirement benefits of workers and beneficiaries covered by private sector defined benefit pension plans.	No; statutory intent for self-financing from premiums paid by employers on behalf of their employees.
Savings Association Deposit Insurance	Insures deposits at savings and loans and savings banks against losses in the event of insolvency.	Intent unclear; deposits backed by the full faith and credit of the U.S. government.
Service-Disabled Veterans Insurance	Provides life insurance to veterans with service-connected disabilities.	Yes.
National Vaccine Injury Compensation	Provides compensation for vaccine-related injury and death.	No.
Veterans Mortgage Life Insurance	Provides life insurance to disabled veterans who have received grants for specially-adapted housing.	Yes.

Characteristics of Federal Insurance Programs Complicate Budget Treatment

The budget treatment of federal insurance programs is complicated by the characteristics of the risks covered. In general, these programs assume risks that the private sector has historically been unable or unwilling to undertake. Ideally, individual risks should be independent and of sufficient number to reasonably project losses and adequately pool risk[2] to be insurable. In addition, the occurrence of losses should be accidental or unintentional in nature and capable of being measured.[3] Many of the risks undertaken by the federal government lack these key conditions for ideal insurability. Without these insurable conditions, establishing an actuarially

[2]Pooling risk refers to the spreading of risk among a large number of insureds in order to reduce the cost of bearing the risk.

[3]Additional factors, such as the ability to diversify risk, are likely to affect the private sector's willingness to provide certain types of coverage.

sound rate structure is difficult and the likelihood of adverse selection[4] and moral hazard increases.[5] From a federal budget perspective, the lack of these insurable conditions presents significant challenges.

The risks insured by the government are often hard to predict and catastrophic in size. In general, the lack of an actuarial base,[6] an ever-changing environment, and low participation rates make it difficult to assess risk assumed and set premiums commensurate with the risk insured. For example, officials at the Overseas Private Investment Corporation (OPIC) cited the lack of an actuarial base as a factor in the limited availability of private sector political risk insurance.[7] Further, some risks assumed by the federal government are not independent in that losses may strike a large number of insureds at the same time. For example, weather-related events may reduce crop yields over large areas of the nation in the same year. Similarly, changes in macroeconomic conditions may have widespread effects on banks and pension plans covered under the deposit and pension insurance programs.

Achieving adequate participation to spread risks may also be problematic. For example, our previous work found that the majority of federal crop insurance policies are in the contiguous areas of the Midwest and the Plains States.[8] Similarly, those living in concentrated areas with the greatest risk of flooding are most likely to buy flood insurance while those with lower risk are not. Finally, according to agency officials, the war-risk and political risk insurance programs provide only a limited number of policies covering diverse events with strong individual and case-specific identities.

The catastrophic nature of these risks and the impediments to broad-based participation reduce the ability of an insurer to pool risk—an important way insurers reduce the costs of bearing risk. When insured events affect a

[4]Adverse selection is the tendency for those with the highest probability of loss to purchase insurance and those with the least risk of loss to opt not to purchase insurance.

[5]Moral hazard is the incentive for those insured to undertake greater risk than if they were uninsured because the negative consequences of such actions are passed through to the insurer. For example, in the 1980s when government regulators allowed thrifts to remain open with low levels of capital, the temptation of moral hazard was increased. Thrifts with nearly depleted capital had little to lose by making very risky loans in the hope of large profits.

[6]An actuarial base is an historical pattern of insured events under similar conditions that is of sufficient number to reasonably project losses and pool risks.

[7]For a description of political risk insurance, see appendix IV.

[8]Crop Insurance: Additional Actions Could Further Improve Program's Financial Condition (GAO/RCED-95-269, September 28, 1995).

large number of the insured population at the same time, the likelihood that the insurer would have to make large claim payments in a relatively short period of time increases. When there are only a few insured, the insurer is unable to pool risk and thus may be subject to virtually the same uncertainties of random experience as the insured.

OMB has cited the government's size and sovereign power as providing it with the unique ability to offer insurance when the private market is unable or unwilling to do so. Some analysts contend that the size of the government makes it better able to absorb large losses if insurance reserves are not sufficient. Over time, by providing ongoing insurance, the government may be able to recoup some of these losses with future premium collections, thus in effect pooling risks over time. In addition, the government can attempt to spread the cost of these risks by providing insurance nationwide and/or mandating participation. Further, some analysts cited the government's unique status as advantageous in monitoring and mitigating these types of risks. For example, for a community to participate in the flood insurance program, it must enact and enforce minimum flood plain management standards. Similarly, federally insured banks and thrift institutions must adhere to numerous regulations and periodic examinations.

Whatever the merits of the federal government as an insurer, the same characteristics that inhibit private insurance firms from covering these risks also complicate budgeting for them at the federal level. In some cases, the volatile and/or catastrophic nature of the insured risks make pooling risk and estimating claims on an annual basis difficult, if not impossible. For some programs, such as life and pension insurance, claims may not be expected to occur for years or even decades after the government's commitment is made. Thus, a key budget consideration is how and when the government's costs for these programs should be recognized in the budget.

Key Information for Budget Decision-making—the Risk Assumed by the Government—Is Not Readily Available

As a general principle, decision-making is best informed if the government recognizes the costs of its commitments at the time it makes them. However, despite numerous financial measures, in most cases, the expected cost of the government's insurance commitments is not readily available. Table 2.2 provides several financial measures for the programs in our study including face value, net outlays, liability for claims, and net position. As discussed in the following sections, each of these measures provides useful information but, in most cases, does not adequately

capture and isolate the cost of the risk assumed by the federal government at the time the insurance is extended. However, to the extent practicable, the government's ultimate cost is key information that ought to be considered in making budget decisions.

Table 2.2: Federal Insurance Programs

Dollars in millions

Program	Face value[a] Fiscal year 1995	Net outlays[a] Fiscal year 1995	Claims liability[b] September 30, 1995	Net position[b] September 30, 1995
Aviation War-Risk Insurance	2,000	–2	0[a]	60[a]
Bank Deposit Insurance	1,919,000	–6,916	493	25,454
National Credit Union Share Insurance	266,000	–297	122	3,250
Federal Crop Insurance	26,000	387	1,237	915
Federal Employees' Group Life Insurance	353,000	–916	20,090	–3,472
Maritime War-Risk Insurance	2,000	–2	0[a]	24[a]
National Flood Insurance	325,000	459	162	–1,027
OPIC's Political Risk Insurance	21,300[c]	–208	79	2,462[d]
PBGC's Pension Insurance	853,000	–430	10,398	–123
Savings Association Deposit Insurance	709,000	–1,101	111	3,358
Service-Disabled Veterans Insurance	1,500	62	516[a]	–463[a]
National Vaccine Injury Compensation	700	51	n.a.[e]	945[a]
Veterans Mortgage Life Insurance	200	n.a.[e]	n.a.[e]	n.a.[e]

[a]Budget of the United States Government, Fiscal Year 1997 and OMB. GAO did not independently verify.

[b]Agency audited financial statements, unless otherwise noted.

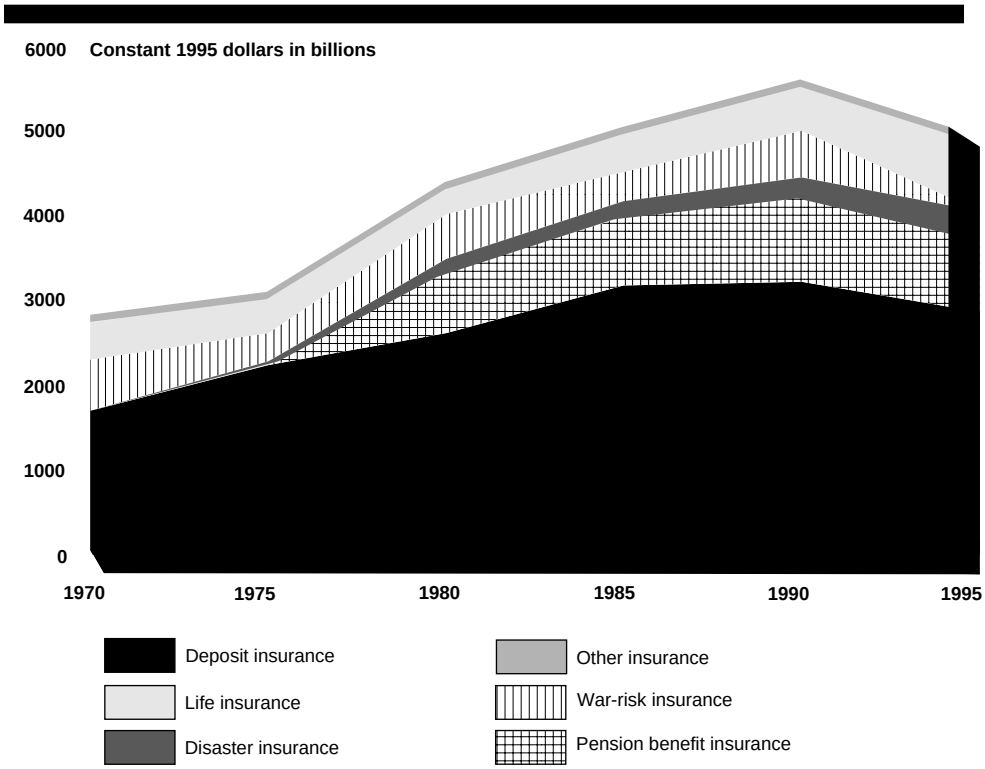
[c]Under most outstanding insurance contracts, investors and lenders may obtain three different types of insurance coverage, but aggregate claim payments may not exceed the single highest coverage amount. In addition, face value includes a provision for standby coverage for which OPIC is currently not at risk. OPIC calculated its "Current Exposure to Claims" for 1995 as $6.6 billion.

[d]Capital and retained earnings.

[e]Not available.

Face value represents the total amount of insurance outstanding. For example, the face value of deposit insurance is the total insured deposits held by financial institutions. As such, it provides a measure of the maximum exposure undertaken by the federal government. As shown in figure 2.1 and table 2.3, the face value of federal insurance (in constant dollars) grew substantially between 1975 and 1990. The majority of this increase is attributable to the two largest insurance programs, pension and deposit insurance. For fiscal year 1995, the estimated face value of major federal insurance programs was approximately $5 trillion—more than half of which was deposit insurance. Figure 2.1 shows the trend in the face value of major federal insurance programs.

Figure 2.1: Face Value of Major Federal Insurance Programs by Type



While face value provides one measure of program size, it overstates the potential cost to the government. The probable cost to the government is most likely some percentage of the total face value. However, a single fixed percentage cannot be used as a proxy for exposure since the

government's risk varies based on a variety of factors, such as the nature of insured risk and the extent to which premium collections offset costs. Thus, a self-supporting insurance program with a relatively high face value may have a lower potential cost to the government than a subsidized insurance program with lower face value.

Table 2.3: Face Value of Major Federal Insurance Programs

Dollars in billions

	Constant fiscal year 1995 dollars					
Program	**1970**	**1975**	**1980**	**1985**	**1990**	**1995**
Federal Deposit Insurance	1,707.2	2,256.7	2,637.0	3,212.6	3,250.5	2,894.0
Pension Benefit Guaranty Corporation[a]	[b]	n.a.	734.6	820.4	1,008.1	853.0
National Flood Insurance	n.a.	36.2	160.3	183.5	234.9	325.0
Federal Crop Insurance	2.9	3.2	4.9	9.1	14.8	26.0
Aviation War-Risk Insurance	190.3	125.9	335.1	251.0	547.5	2.0[c]
Maritime War-Risk Insurance	60.9	66.0	39.3	n.a.	12.7	2.0[c]
Veterans Life Insurance[d]	319.0	273.1	191.1	212.6	247.6	490.1
Federal Employees' Group Life Insurance	141.2	157.5	136.6	273.0	318.7	353.0
Overseas Private Investment Corporation	28.0[e]	15.3	9.8	15.1	11.4	21.3
National Vaccine Injury Compensation[f]	[b]	[b]	[b]	[b]	n.a.	0.7
Nuclear Risk Insurance	358.4	154.4	162.1	96.7	[b]	[b]
Total insurance in force	**2,807.9**	**3,088.3**	**4,410.8**	**5,074.0**	**5,646.2**	**4,967.1**

Source: OMB data adjusted for inflation. GAO did not independently verify.

[a]Established in 1974.

[b]Not in existence.

[c]Methodology for calculating face value changed in 1995 to more realistically reflect program operation.

[d]Includes all veterans' life insurance programs. Only the Service-Disabled Veterans Life Insurance program and the Veterans Mortgage Life Insurance program are included in our study.

[e]Includes insurance issued by the Agency for International Development (AID). The Foreign Assistance Act of 1969 established OPIC and transferred AID's insurance and credit programs to OPIC.

[f]Program established in 1986.

Other financial measures may also be of limited help in assessing the cost of the risk assumed by the government at the time the insurance

commitment is extended. For example, the outlays recorded in the President's budget provide a measure of an insurance program's estimated and actual annual cash flows but, in most cases, does not capture the government's cost of insurance commitments at the time they are extended. In addition, cash outlays may be subject to significant volatility due to the irregular and catastrophic nature of some insured risks, such as natural disasters. Chapter 3 discusses in detail the shortcomings of the current cash-based budget reporting for federal insurance programs.

Further, while the claims liability and net position reported in the financial statements for federal insurance programs provide useful measures of the programs' financial condition based on insured events that have occurred, these measures do not, in most cases, capture the expected cost of claims inherent in the government's commitment. In general, the financial statement liability is an estimate of the amount needed to settle unpaid and expected claims related to insured events that have occurred on or before the reporting date. Net position is the difference between an entity's assets and liabilities. The Federal Accounting Standards Advisory Board (FASAB)[9] recently developed standards calling for the supplemental disclosure of estimates of the risk assumed by the federal government for its insurance programs. This action, which is discussed in greater detail in chapter 4, will help improve information on these costs.

Snapshot of Current Budget Treatment

All the federal insurance programs reviewed record collections and payments in net outlays on a cash basis and thus influence the deficit in the year cash flows occur, regardless of when the commitments are made. With one exception,[10] the premiums and fees paid by participants are held in revolving funds—trust or public enterprise—and, in most cases, administrative expenses are also paid out of these funds. To the extent that the budget authority in these funds exceeds current cash outlay needs and remains available for future claims, most insurance programs have some level of reserves. Six of the 13 programs have permanent borrowing authority to cover the cost of claims, and 4 have received general fund appropriations within the last 10 years to pay claims in excess of available resources.

[9]FASAB was established in October 1990 by the Secretary of the Treasury, the Director of the Office of Management and Budget, and the Comptroller General. The nine-member Board was created to consider and recommend accounting principles for the federal government.

[10]Veterans Mortgage Life Insurance is included in the Veterans Insurance and Indemnities account, which is a general fund account.

Budgetary characteristics, such as the classification of a program's spending under the Budget Enforcement Act of 1990 (BEA),[11] will affect the extent to which an accrual-based approach would change the information and incentives provided to policymakers. An examination of the programs included in our study shows that the majority are classified as mandatory[12] spending under BEA. Claim payments for only 3 of the 13 programs—Aviation War-Risk Insurance, Maritime War-Risk Insurance, and OPIC's political risk insurance—are classified as discretionary spending.[13] Table 2.4 summarizes key budget information for the insurance programs reviewed.

The programs also differ in the extent to which costs are currently recognized in budget authority and obligated based on accrual concepts.[14] For example, two programs—the Federal Crop Insurance Program and OPIC's political risk insurance program—currently obligate budget reserves based on accrual concepts. According to OMB, the crop insurance program obligates funds based on an estimate of claims incurred or expected to be incurred for outstanding policies at the end of the fiscal year. OPIC currently obligates budget reserves for its insurance program based on an estimate of the losses inherent in insurance outstanding.

[11]Title XIII of Public Law 101-508.

[12]Under BEA, mandatory spending (also known as direct spending) is subject to pay-as-you-go (PAYGO) provisions. PAYGO provisions do not set limits on mandatory spending but rather control the enactment of new authorizing legislation for mandatory spending. Under PAYGO provisions, legislation enacted during a session of the Congress that increase mandatory spending or decrease revenues must be at least deficit neutral in the aggregate. Deposit insurance spending was specifically exempted from PAYGO restrictions.

[13]The aviation and maritime war-risk programs have permanent authority to spend offsetting collections.

[14]Under some accrual-based budgeting approaches, expected costs would be recorded in budget authority and obligated when the insurance is extended. (See chapter 6.)

Table 2.4: Budget Information for Major Federal Insurance Programs

	BEA classification	
Program	**Claim payments**	**Administrative costs**
Bank Deposit Insurance	Mandatory	Mandatory
Savings Association Deposit Insurance	Mandatory	Mandatory
National Credit Union Share Insurance	Mandatory	Mandatory
PBGC's Pension Insurance	Mandatory	Mandatory
National Flood Insurance	Mandatory	Discretionary
Federal Crop Insurance	Mandatory	Discretionary[b]
Aviation War-Risk Insurance	Discretionary	Discretionary
Maritime War-Risk Insurance	Discretionary	Discretionary
Service-Disabled Veterans Insurance	Mandatory	Mandatory
Veterans Mortgage Life Insurance	Mandatory	Mandatory
Federal Employees' Group Life Insurance	Mandatory	Mandatory
OPIC's Political Risk Insurance	Discretionary	Discretionary
National Vaccine Injury Compensation	Mandatory	Mandatory, Discretionary

Fund type	Sources of financing	General appropriations in last 10 years	Borrowing authority
Public enterprise	Premiums, recovery of assets acquired in receivership, deposit assumption transactions, and interest earnings	No	$30 billion
Public enterprise	Premiums, recovery of assets acquired in receivership, deposit assumption transactions, and interest earnings	Yes	$30 billion
Public enterprise	Premiums, interest earnings, and 1-percent deposit from insured credit unions	No	$100 million
Public enterprise	Premiums, assets from terminated plans, and investment income	No	$100 million
Public enterprise	Premiums, collection of program expenses, and interest earnings	No	$1 billion[a]
Public enterprise	Premiums and appropriations[c]	Yes	No
Public enterprise	Premiums, interest earnings, and one-time registration fees for nonpremium insurance	No	No
Public enterprise	Premiums, interest earnings, binder fees, and claim reimbursements	No	No
Public enterprise	Premiums, interest on policy loans, policy loan repayments, and appropriations	Yes	No
General	Premiums, interest on policy loans, policy loan repayments, and appropriations	Yes	No
Trust	Premiums and interest earnings	No	No
Public enterprise	Premiums, insurance claim recoveries, and interest earnings	No	$100 million
Trust	Excise tax on manufacturers and interest earnings	No	No

[a]For fiscal year 1997 only, the program is authorized to borrow $1.5 billion.

[b]Before fiscal year 1994, administrative and operating expenses were classified as discretionary spending. Under the 1994 crop insurance reforms, these expenses were classified as mandatory for fiscal year 1995 and fiscal year 1996 and discretionary spending for fiscal year 1997. However, the most recent Freedom to Farm legislation classifies these expenses as mandatory for fiscal year 1997 and then splits them between mandatory and discretionary for the years thereafter.

[c]The Federal Crop Insurance Corporation is authorized under the Federal Crop Insurance Act, as amended, to use funds from the issuance of capital stock, which provides working capital for the corporation.

A Budget Perspective on Federal Insurance

Budget reporting influences decision-making because it determines how critical choices are framed and how the deficit is measured. The method of budget reporting reflects choices about the uses and functions of the federal budget. Ideally, budget reporting should fully inform resource allocation and fiscal policy choices. Unfortunately, the current budget's focus on annual cash flows provides potentially incomplete and misleading information on the cost of federal insurance programs. As a result, the information and incentives for sound resource allocation decisions and information on the timing and magnitude of the economic impact of these programs may be distorted. However, the impact of these shortcomings on budget decision-making varies significantly across the federal insurance programs we reviewed.

Budget Reporting Reflects Choices About the Uses and Functions of the Budget

In practice, the federal budget serves multiple functions. The budget is used to plan and control resources, assess and guide fiscal policy, measure the government's borrowing needs, and communicate the government's policies and priorities. The budget is both an internal management tool of the government and a public policy statement. The many uses of the budget lead to multiple and often conflicting objectives for budget reporting. For example, the budget should be understandable to policymakers and the public yet comprehensive enough to fully inform resource allocation decisions. Since no one method of budgetary reporting can fully satisfy all uses, the choice ultimately reflects a prioritization of the budget's various uses.

The method of budget reporting influences decision-making because the way budget transactions are recorded determines how critical choices are framed and how the deficit is measured. For example, suppose the federal government extends insurance for which it collects $1 million in premiums and expects total losses of $3 million to be incurred in future years. If the primary objective of the budget is to track annual cash flows, then it is appropriate to record the $1 million cash inflow and to offset the aggregate deficit accordingly, as is currently the case. However, if the objective is to provide information on the government's cost when program decisions are made then it is appropriate to recognize a net cost of the present value of $2 million in the year the insurance is extended. Clearly, the two methods of reporting provide policymakers with very different information and so may affect budget choices differently. While both methods provide useful information and can be tracked

simultaneously, only one can be the primary basis upon which budget decisions are made.[1]

Budget Reporting Should Fully Inform Resource Allocation and Fiscal Policy Decisions

An essential step in assessing the adequacy of a program's budget treatment is determining the information necessary for sound decision-making. Although the federal budget has multiple functions, it is generally recognized that the allocation of resources and measure of fiscal policy are primary. In 1967, the President's Commission on Budget Concepts first identified resource allocation and fiscal policy as the primary purposes of the budget.[2] In doing so, the Commission acknowledged that no one method of budget reporting can adequately serve all possible purposes of the budget or all users' needs but concluded that these other uses were subordinate to the needs of resource allocation and fiscal policy. The Commission reported that

> Of the various purposes for which the President's budget is prepared, two closely related purposes outweigh the rest. . . . In short, the budget must serve simultaneously as an aid in decisions about the efficient allocation of resources among competing claims and economic stabilization and growth.[3]

Our assessment of the budget treatment of federal insurance programs focuses on the adequacy of budget information for resource allocation and fiscal policy. However, to support these purposes, budget reporting must be understandable and provide for budget control and accountability.[4] As a result, implementation issues, such as estimation uncertainties and reporting complexities, may offset or even negate the potential benefits of some changes that would seem to support resource allocation and fiscal policy decisions. That is, decisions on budget treatment must balance the ideal of better information with the realities of implementation.

Information on the cost of the government's commitments is vital for sound resource allocation decisions. In an environment of limited

[1]For additional discussion, see Budgetary Treatment of Deposit Insurance: A Framework for Reform, May 1991, Congress of the United States, Congressional Budget Office.

[2]Report of the President's Commission on Budget Concepts, President's Commission on Budget Concepts, U.S. Government Printing Office, October 1967.

[3]Ibid., p.12.

[4]For additional information on the objectives of the budget process, see Budget Process: History and Future Directions (GAO/T-AIMD-95-214, July 13, 1995).

resources, decisions are based on the relative budgetary cost[5] of each potential use. To permit fully informed choices and provide for budget control, the cost for each alternative use of federal resources must be clear and directly related to the commitments undertaken by the government. Full cost information in the budget not only allows policymakers to make relative cost comparisons but can also warn of estimated increases in costs when they are still controllable. To do this, budget reporting ideally would provide reliable information on the cost of commitments made in a given year. However, in practice, there is often no clear bright line at which this commitment point is made for any particular program.

For federal insurance programs, key information relevant to policymakers is the balance between collections and costs over time flowing from a commitment. Amounts not covered by program collections represent the government's subsidy cost for the program. Because of the wide variety of risks covered by different federal insurance programs, the application of the risk-assumed concept is likely to differ depending on the nature of the program. For example, the extent to which a model can capture the full long-term expected cost of the government's deposit insurance commitments, including rare catastrophic events such as the savings and loan crisis, is open to debate.

Fiscal policy decisions require information on the timing and magnitude of the economic impact of the government's actions. Economic impact is generally considered to be the impact on aggregate demand and the allocation of resources between private and public markets. In general, the budget deficit (or surplus) is considered to be an appropriate measure of the macroeconomic impact of aggregate federal fiscal policy on the economy and for most programs cash-based reporting adequately captures the fiscal impact of budget decisions. However, for insurance programs cash-based reporting may misstate the economic impact of the government subsidy by recording cost when cash flows occur rather than when the insurance commitment is made. Although discerning the economic impact of insurance programs can be difficult, private economic behavior generally is affected when the government commits to providing insurance coverage and thus lowers the risk to the insureds. Therefore, to fully inform decision-making, the budget recognition of an activity's expected costs ideally should coincide with the timing and magnitude of its economic effects. Similarly, financial transactions that have no impact

[5]Relative budgetary cost refers to the cost recorded in the budget for one federal program in relation to another. To the extent that the method of budget reporting does not measure program costs on a comparable basis, relative costs and thus resource allocation decisions will be distorted.

on the cost to the government—such as temporary working capital needs—should not be recognized in the budget.

Cash-Based Budgeting Generally Provides Incomplete Information on Federal Insurance Programs

In general, the information provided by cash-based budgeting for federal insurance programs may be incomplete or misleading for both resource allocation and fiscal policy decisions. In most cases, the cash-based budget does not adequately reflect on a timely basis either the government's cost or the economic impact of these programs because costs are recognized when claims are paid rather than when the commitment is made and when economic behavior is generally changed. Thus, the budget may provide neither complete cost information for budget decision-making nor the incentives necessary to control costs or ensure that adequate resources are available for future claims at the time the decision to extend the insurance is made.

In general, cash-based budgeting for insurance programs presents several problems. In most instances, it focuses on single period cash flows that may distort the program's cost to the government and thus may

- distort the information and incentives for resource allocation decisions,
- not accurately reflect the program's economic impact, and
- cause deficit fluctuations unrelated to long-term fiscal balance.

However, the magnitude of this problem and the implications for budget decision-making vary significantly across the insurance programs. This is due primarily to differences in the size and length of the government's commitment, the nature of the insured risk, and the extent to which costs are currently recognized in the budget at the time decisions are made.

Single Period Cash Flows Distort the Government's Cost for Federal Insurance Programs

With limited exceptions, current budget reporting focuses on annual cash flows. Collections for insurance programs are recorded in the budget when received and costs are recorded in outlays and the deficit when claims are paid. Yet the focus on annual cash flows may not adequately reflect the government's cost for federal insurance programs because the time between the extension of the insurance, the receipt of program collections, the occurrence of an insured event, and the payment of claims may extend over several budget periods. As a result, the government's cost may be understated in years that a program's current collections exceed current payments and overstated in years that current claim payments

exceed current collections. These distortions occur even if the collections and payments for an insurance commitment balance over time.

The timing differences between an insurance activity's collections and payments on a cash basis are complicated by combining, in a single account, transactions that represent a cost to the government and transactions that merely represent cash flows that net out over time. A key feature of credit reform was the separation of the government's cost, called the subsidy cost, from unsubsidized program costs. Similarly, federal insurance programs that do not set premiums high enough to cover expected future claims represent a cost to the government. Claim payments to the extent covered by collections and temporary transactions,[6] such as the acquisition and sale of assets obtained in settlements, are examples of cash flows that over time, do not impose a cost to the government. However, since the current budget treatment focuses on annual cash flows rather than a program's long-term financial balance, the cost to the government—the key information that should be used in budget decision-making—may be obscured. The cost of current decisions is further obscured because single period cash flows often reflect a mix of old and new insurance business.

As shown in table 3.1, the timing differences between cash flows for insurance programs occur for several reasons that vary across the programs. The length of the government's commitment (policy duration) or the time between the occurrence of an insured event and the payment of claims (the claim settlement period) may extend over several years. In addition, erratic cash flows may result from temporary (working capital) transactions or from the nature and timing of insured events. The different reasons for the time lags between collections and payments among the various insurance programs are important because they influence both the extent to which cash-based budgeting is a deficient measure of program costs and the effectiveness of alternative accrual cost measures in overcoming these deficiencies.

[6]For purposes of this report, temporary transactions are defined as transactions that result in offsetting cash flows that net over time and, consequently, do not impose a cost on the government.

Table 3.1: Reasons for Mismatch Between Program Collections and Payments

	Policy duration	Loss pattern	Claim settlement	Offsetting transactions
Program	**Government's commitment extends over several years**	**Insured events tend to be sporadic or catastrophic**	**Time between insured event and claims payment extends over several budget periods**	**Cash flows resulting from offsetting transactions such as working capital needs**
Aviation War-Risk Insurance		X		
Deposit Insurance	X	X	X[a]	X
Federal Crop Insurance		X		
Federal Employees' Group Life Insurance	X			
Maritime War-Risk Insurance		X		
National Flood Insurance		X		
OPIC's Political Risk Insurance	X	X	X	
PBGC's Pension Insurance	X	X	X	
Service-Disabled Veterans Life Insurance	X			
National Vaccine Injury Compensation		[b]	X	
Veterans Mortgage Life Insurance	X			

[a]Based on the experience in the late 1980s in which financial institutions were allowed to remain open for months or years after becoming insolvent. Future experience may be different. The Federal Deposit Insurance Corporation Improvement Act of 1991 requires the prompt closure of severely undercapitalized financial institutions.

[b]Program information insufficient to determine claim pattern.

A mismatch between collections and payments may occur when the government's commitment extends over multiple years or budget periods. As table 3.1 shows, several federal insurance programs—those offering multiyear fixed term, renewable term, or noncancelable coverage—commit the government for extended periods. For example, OPIC provides multiyear political risk coverage for up to 20 years. In addition, some budget and financial experts view PBGC's pension guarantee as a long-term, renewable, or noncancelable commitment. In all these cases, the extension of the insurance and the collection of premiums may occur years, even decades, before the insured event occurs and claim payments come due. As a result, there can be years in which an insurance program's current cash collections are estimated to exceed current cash payments, and the program appears to be profitable regardless of its expected long-term cost to the government.

Time lags between the occurrence of an insured event and the payment of claims may also result in a mismatch between collections and payments. While some insurance programs pay claims within one or two budget cycles, several do not. For example, during the savings and loan crisis, a number of factors, such as inadequate regulatory oversight and the insurance fund's lack of cash, delayed action to close failed institutions and pay depositors. A different set of factors create a delay in the pension guarantee program. Benefit payments of terminated plans assumed by the PBGC may not be made for years, even decades, because plan participants generally are not eligible to receive pension benefits until they reach age 65. Once eligible, these benefits are paid over a period of years or even decades. Payment of claim awards under the Vaccine Injury Compensation Program (VICP) may not be made for several years after the injury occurs or not at all. The total time lag is the sum of (1) the time between the occurrence of the adverse event and the filing of a petition for payment, (2) the time taken to reach a judicial decision with respect to the petition, and (3) the time between the decision to grant an award and payment. As of May 1994, the average time between vaccination and payment for VICP cases arising from 1989 vaccinations was 1,053 days.

In some cases, temporary transactions that occur over time may impede the proper matching of insurance collections and payments on a cash basis. During the savings and loan crisis, large temporary cash flows (working capital) resulting from the acquisition and sale of assets from failed institutions distorted the government's cost for deposit insurance in the cash-based budget. In years that assets were acquired, the full amount of cash required was recorded as an outlay; later, when the assets were sold, the proceeds were recorded as income. As a result, the cash-based budget overstated the cost of the deposit insurance in some years and understated it others.

The catastrophic or uneven occurrence of some insured events also increases the difficulty in achieving the proper matching of insurance collections and payments on an annual cash flow basis. The focus on annual cash flows generally is not compatible with budgeting for these types of events because it is difficult to estimate the occurrence of the insured events and pool risk on an annual basis. This is true even when it is possible to estimate the long-term expected cost of the program. For example, while it is possible to estimate with a fair degree of accuracy the probability that floods will occur over a considerable number of years, predicting the timing and magnitude of any particular flood by more than a few days is considered impossible. Thus, even if long-term flood losses are

correctly estimated, losses in a considerable number of years may deviate significantly from the long-term average.[7] This means that in some years cash flows shown in the budget may neither adequately reflect the program's cost to the government nor recognize the need to establish reserves over time to cover costs in high-loss years.

Failure to Reflect the Government's Cost Distorts the Budget Information and Incentives Necessary for Sound Resource Allocation Decisions

When insurance costs measured on an annual net cash flow basis do not capture the cost of the government's insurance commitments, policymakers may be basing decisions on incomplete or misleading information. The failure to isolate and recognize the government's cost—the key information that should be used for resource allocation—at the time decisions are made can have significant implications. Generally speaking, cash-based budgeting for federal insurance programs may provide neither the information nor incentives necessary to signal emerging problems, make adequate cost comparisons, control costs, or ensure the availability of resources to pay future claims.

Cash-Based Budgeting Neither Provides Complete Cost Information When Decisions Are Made Nor Signals Emerging Problems

In most cases, the cash-based budget does not prompt decisionmakers to consider an insurance program's actuarial soundness.[8] When costs are not recognized and fully funded in the budget, policymakers may not receive adequate information on a program's relative budgetary cost or incentives to address emerging problems. As a result, the government's subsidy costs may be obscured until claim payments come due.

For example, the National Flood Insurance Program (NFIP) provides subsidized coverage without triggering recognition of potential subsidy costs to the government. Under current policy, the Congress has authorized the Federal Insurance Administration (FIA) to subsidize a significant portion (approximately 38 percent) of the total policies in force without providing annual appropriations to cover these subsidies. Although FIA has been self-supporting since the mid-1980s—either paying claims from premiums or borrowing and repaying funds to the Treasury—the program has not been able to establish sufficient reserves to cover catastrophic losses[9] and, therefore, cannot be considered

[7]Insurance and Other Programs for Financial Assistance to Flood Victims: A Report from the Secretary of the Department of Housing and Urban Development to the President, as Required by the Southeast Hurricane Disaster Relief Act of 1965, Senate Committee on Banking and Currency, 89th Congress, 2nd Session, September 1966.

[8]In order to be actuarially sound, a program's funding would need to be sufficient to cover expected future payments for claims and administrative expenses.

[9]The Federal Insurance Administration estimates that a catastrophic loss year resulting in $3 billion to $4 billion in claim losses has a 1 in 1,000 chance of occurring each year.

actuarially sound. Similarly, the two veteran's life insurance programs included in our study—Service-Disabled Veterans Insurance (SDVI) and Veterans Mortgage Life Insurance (VMLI)—also provide subsidized coverage without accruing the annual cost of the subsidy in the budget in the year the coverage is extended.[10]

The implications of the failure of cash-based budgeting to recognize potential costs and signal policymakers of emerging problems was most apparent during the 1980s and early 1990s as the condition of the two largest federal insurance programs—deposit insurance and pension insurance—deteriorated while the budget continued to present a favorable scenario. For decades, the deposit insurance program appeared to provide an efficient and self-financing form of protection. During this period, the program had positive cash flows and reduced the federal budget deficit. Yet, in the 1980s and early 1990s, over 1,600 banks and nearly 1,300 thrifts failed, resulting in direct costs to taxpayers of $125 billion. Although GAO and others raised concerns about these rapidly growing costs, corrective actions were delayed. The cash-based budget was slow to recognize the government's mounting cost of resolving insolvent institutions because cash outlays were not required until actions were taken to close them and protect depositors. These costs had already been incurred by the time they were disclosed in the budget. Furthermore, the cash-based budget may have also created an incentive to delay closing insolvent institutions (to avoid increasing the annual deficit), which increased the government's ultimate cost of resolving the crisis. Since the crisis, the condition of the deposit insurance funds has improved dramatically. Once again, the deposit insurance programs appear healthy and are generating budgetary cash income[11]—approximately $8.4 billion for fiscal year 1996—that offset the aggregate deficit.

In a similar pattern, the cash-based budget did not signal the deteriorating financial condition of PBGC. As shown in figure 3.1, the cash-based budget consistently has reported collections exceeding payments (negative outlays), while the program's financial statements, which take into account the present value of insured benefits the government has incurred, reported an accumulated deficit.[12] For example, in 1981 when

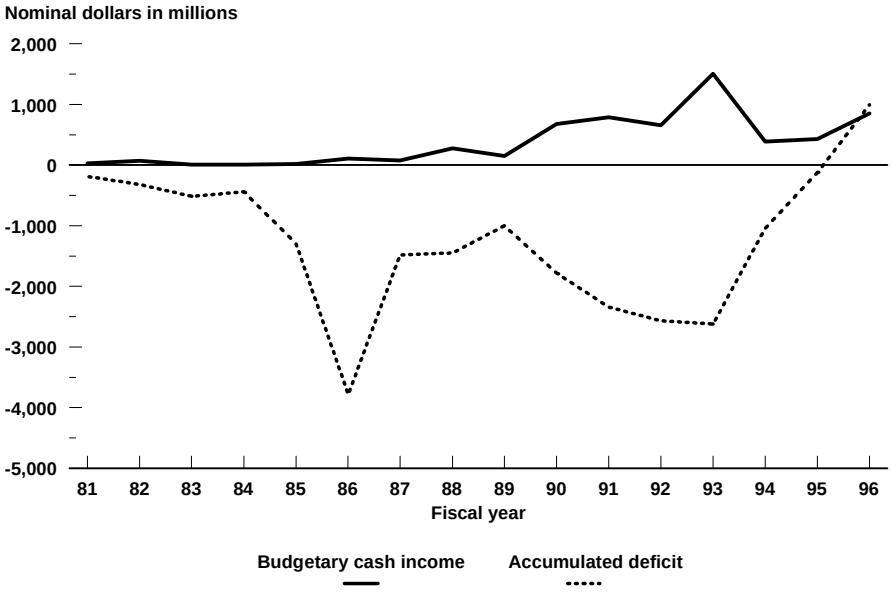
[10]The SDVI and VMLI programs reported accrual-based deficits of $457 million and $93 million, respectively, as of September 30, 1996.

[11]Budgetary cash income refers to the cash flows shown as negative net outlays in the budget.

[12]The liability includes an estimate for future pension benefits that PBGC is or will be obligated to pay with respect to trusteed plans and terminated plans pending trusteeship. In addition, it includes an estimate of the liabilities attributable to plans that are likely to terminate in a future year based on conditions that exist at the end of the fiscal year.

the account containing PBGC's cash flows was put on-budget, the cash-based budget showed cash income of $29 million while the financial statements showed an accumulated deficit of about $190 million. Over a decade later, in fiscal year 1992, the cash-based budget continued to provide an optimistic picture, showing cash income of $654 million, while the financial statements reported a larger accumulated deficit of about $2.4 billion.

Figure 3.1: Budgetary Cash Flows Versus Accumulated Deficit



The cash-based budget has continued to be a poor gauge of PBGC's financial condition in recent years. In fiscal year 1996, PBGC reported a surplus for the first time in its history of $993 million. This surplus contrasts sharply with the $2.6 billion accumulated deficit reported in fiscal year 1993. The cash-based budget, however, did not reflect this turnaround. In fact, cash income reported in the budget during this period was, on average, lower than in the previous 4 years when PBGC's financial condition was deteriorating. Further, despite the improvement in PBGC's financial condition, OMB's more prospective estimate of the program's future cost, included in the Analytical Perspectives of the President's

Fiscal Year 1997 Budget, ranges from $30 to $60 billion.[13] Most important, if the program's condition were to worsen in the future, the cash-based budget may not provide timely warning of the program's deteriorating condition.

The Federal Employees' Group Life Insurance program also demonstrates the disparity in the signals provided to policymakers from cash basis versus accrual basis data. For example, in fiscal year 1993, when the program's financial condition shifted on an accrual basis from having a surplus to a deficit, the cash-based budget failed to signal this change in the program's financial condition. While the program's accrual-based net position shifted from a surplus of about $1.6 billion to a deficit of $5.8 billion,[14] the cash-based budget showed cash income of just over $1 billion. More recently, the fiscal year 1998 budget year estimates show cash income of $1.2 billion, while the program's balance sheet provided in the budget appendix reveals an increase in the actuarial liability[15] of approximately $1 billion and a deficit of about $3.1 billion.

In addition, the Aviation War-Risk Program appears financially sound on a cash basis while exposing the government to potentially large unfunded claims when insurance is in force.[16] Despite a current fund balance of approximately $67 million, the program's resources may not be sufficient to cover potential insurance claims. One major loss—such as a Boeing 747-400, which can cost over $100 million—could liquidate all the available funds and leave a substantial portion of the claim unfunded. If a loss exceeded the available funds, the Federal Aviation Administration (FAA) would have to seek supplemental funding to cover the claim.[17]

[13]Unlike the financial statement liability, OMB's estimate includes costs resulting from expected future terminations of underfunded plans sponsored by currently healthy firms.

[14]According to agency officials, an unfunded liability of about $5 billion resulted from an unexpected increase in the number of enrollees in option B—the most costly option—during an open season for both basic and optional coverage in fiscal year 1993. The accumulated deficit is based on statutory reporting requirements, which, according to agency officials, might overstate the program's liability.

[15]The actuarial liability represents the excess of the present value of estimated benefits to be paid less the present value of estimated premiums.

[16]The Aviation Program is only activated when commercial insurance is unavailable on reasonable terms and conditions and continued service is in the interest of U.S. policy. This limited and sporadic operation may reduce the feasibility of accrual-based budgeting for this program. See appendix IV for a more detailed description of the program.

[17]For additional information on the Aviation War-Risk Program, see Aviation Insurance: Federal Insurance Program Needs Improvements to Ensure Success (GAO/RCED-94-151, July 15, 1994).

Cash-Based Budgeting Generally Provides Neither the Information Nor the Incentives to Control Costs

Because the cash-based budget delays recognition of emerging problems, it may provide little or no incentive to address potential funding shortfalls before claim payments come due. Policymakers may not be alerted to the need to address programmatic design issues because, in most cases, the budget does not encourage them to consider the future costs of federal insurance commitments. Thus, reforms aimed at reducing costs may be delayed. In most cases, by the time costs are recorded in the budget, policymakers do not have time to ensure that adequate resources are accumulated or to take actions to control costs. Delayed recognition of these costs can reduce the number of viable options available to policymakers, ultimately increasing the cost to the government.

Further, in some cases, the cash-based budget not only fails to provide incentives to control costs, it may also create a disincentive for cost control. Deposit insurance is a key example. Many analysts believe that the cash-based budget treatment of deposit insurance exacerbated the saving and loan crisis by creating a disincentive to close failed institutions. Since costs were not recognized in the budget until cash payments were made, leaving insolvent institutions open avoided recording outlays in the budget and raising the annual deficit but ultimately increased the total cost to the government.

In the past, the cash-based budget treatment and budget scoring rules also have been cited as creating disincentives for implementing pension insurance reforms. For example, CBO reported that the Bush administration's 1992 program reform proposals would have reduced PBGC's funding shortfall and enhanced the financial stability of the program.[18] However, these reforms—specifically the one raising the minimum contributions required of sponsors of insured pension plans—would have reduced income tax revenues (because contributions are tax deductible) and added to the federal deficit in the near term. Thus, under the pay-as-you-go (PAYGO) provisions of BEA,[19] these reforms would have required reductions in other spending or increases in other revenues.

Failure to Recognize Cost and Signal Emerging Problems May Distort Resource Allocation and Constrain Fiscal Policy

To the extent that the cash-based budget fails to capture the cost implicit in the government's commitment and signal emerging problems, the relative budgetary costs of an insurance program will be distorted. In some cases, this may simply result in the delayed recognition of intended choices, but, in other cases, it may lead to unintended resource allocation

[18]CBO Testimony, Congressional Budget Office, August 11, 1992.

[19]Under PAYGO provisions of BEA, legislation enacted during a session of the Congress that increases mandatory spending or decreases revenues must be at least deficit neutral in the aggregate.

and fiscal policy. For example, by the time claims come due the government may be faced with little choice but to increase the deficit, raise taxes, or cut other spending in order to honor these commitments. The lack of cost recognition may delay programmatic changes aimed at reducing costs at a point when they are manageable. In summary, the failure to recognize these costs when decisions are made may not only distort current budget choices among competing uses, but may also reduce options for cost control and future budget flexibility when bills come due.

Cash-Based Budgeting May Not Reflect the Economic Impact of Federal Insurance Programs

In addition to not providing sufficient information and incentives for resource allocation, the cash-based budget also may not be a very accurate gauge of the economic impact of federal insurance programs. Although discerning the economic impact of federal insurance programs can be difficult, private economic behavior generally is affected when the government commits to providing insurance coverage. It is at this point that insured individuals or organizations alter their behavior as a result of insurance. However, as noted above, the current cash-based budget records costs not at that point but rather when payments are made to claimants. Federal payments for insurance claims may have little or no macroeconomic effect because these payments generally do not increase the wealth or incomes of the insured. They are merely intended to restore the insured to the approximate financial position he or she would have been in absent the occurrence of the insured event.

For example, most analysts agree that the cash-based budget provided misleading information on the timing and magnitude of the economic effects of deposit insurance. A 1992 CBO study of the economic effects of the savings and loan crisis concluded that the economic impact of deposit insurance is more directly related to the accrual of new federal obligations for deposit insurance than to cash payments made under the program.[20] While federal costs, on an accrual basis, mounted steadily during the 1980s as hundreds of thrift institutions became insolvent, the budget did not record any costs until institutions were closed and depositors paid. Although unrecognized in the budget, these accruing liabilities had economic effects at the time similar to conventional expansionary policy in that aggregate demand was maintained at a higher level than it would

[20]The Economic Effects of the Savings and Loan Crisis, Congressional Budget Office, January 1992.

have been if the depositors had sustained losses.[21] Conversely, the budget outlays made to restore saving and loan depositors' accounts had little effect on overall demand because the wealth or income of depositors was not increased. Further, many analysts have concluded that unlike most spending on other federal programs, the federal borrowing to fund the payments for deposit insurance did not significantly increase interest rates because it did not lead to any increase in the demand for goods or services. Instead, interest rates tended to increase as the government's deposit insurance liabilities accrued.

Cash-Based Budgeting for Insurance May Produce Fluctuations in the Federal Deficit Unrelated to Long-Term Fiscal Balance

Uneven cash flow patterns of some federal insurance programs can result in fluctuations in the federal deficit unrelated to the budget's long-term fiscal balance. As noted earlier, uneven cash flows may result from both the erratic nature of some insured risks or temporary (working capital) transactions. For example, natural disasters, such as severe floods and droughts, may create spikes in spending patterns that are not indicative of long-term fiscal balance. In addition, the working capital used to resolve failed institutions under the deposit insurance program resulted in large temporary cash flows that distorted the aggregate deficit as a measure of the government's long-term fiscal imbalance.

Insurance programs with long-term commitments, such as PBGC and life insurance programs, also may distort the budget's long-term fiscal balance by looking like revenue generators and reducing the aggregate deficit in years that collections exceed payments without recognizing the programs' expected costs. On a cash basis, premium income can divert attention from such programs' financial condition. For example, although the PBGC reforms that were enacted in 1994 as part of the General Agreement on Tariffs and Trade (GATT) legislation will likely improve the financial condition of the program, they were adopted at least in part because on a cash basis they raised revenues. The increase in revenue, primarily resulting from the phase-out of the cap on premiums charged underfunded plans, was necessary under PAYGO budget rules to offset revenue lost from changes in various tariffs affected by the trade agreement. This budget accounting, however, does not recognize that these premiums will be needed to pay PBGC's costs in the future.

[21]In general, conventional expansionary fiscal policy raises the income of some groups, leading to increased consumption and aggregate demand. Since deposit insurance protects the wealth of depositors in the event of a bank or thrift failure, it increases the consumption of insured depositors and raises overall demand.

The Implications of Cash-Based Budgeting for Decision-making Vary Across Programs

While annual cash flows for federal insurance programs generally do not provide complete information for resource allocation and fiscal policy, the magnitude of the problem and the implications for budget decision-making vary across the insurance programs reviewed. Specifically, the size and length of the government's commitment, the nature of the insured risk, and the extent to which these costs are currently captured in cash-based budget estimates influence the degree to which cash-based budgeting is incomplete or misleading for a particular federal insurance program.

The size of a program relative to total federal spending and the potential magnitude of unrecognized costs are key factors in judging the severity of the shortcomings of cash-based budgeting. For example, the implications of the shortcomings of the current budget treatment appear greatest for the largest insurance programs, pension and deposit insurance. The large size of these programs means that incomplete or misleading information about their cost could distort resource allocation and fiscal policy significantly, making the limitations of cash-based budgeting more pronounced than for other federal insurance programs.

The limitations of cash-based budgeting are most apparent when the government's commitment extends over a long period of time—e.g., life or pension insurance— and/or the insured events are infrequent or catastrophic in nature, such as severe flooding or depository losses. As discussed earlier, the cash-based budget may not provide timely recognition of the government's costs for these commitments because of the time lags between the extension of the insurance and the payment of claims as well as the difficulty in estimating and pooling risk on an annual basis. As a result, the cash-based budget may provide misleading or incomplete cost information for extended periods, thus not signaling policymakers of emerging problems when costs are controllable. In these cases, both the direction—positive or negative—and the magnitude of the government's costs may be distorted on an annual cash flow basis.

Conversely, the deficiencies of cash-based budgeting may not be as problematic when the length of the government's commitment is short and claims occur relatively frequently, such as the occurrence of normal losses under crop and flood insurance programs. In these cases, because the length of time between the government's commitment and the occurrence and payment of claims is relatively short, the accumulation of unrecognized losses over an extended period of time is less likely.

In addition, the implications for budget decision-making may be less severe if relatively frequent claim payments prompt policymakers to consider the financial condition and funding needs of the program. For example, some insurance programs, such as flood and crop insurance, use the average or normal annual loss to make annual budget estimates. Even so, this approach does not isolate and may not completely capture the programs' full costs, including the need to establish reserves for catastrophic losses. While these estimates provide policymakers some signals about potential costs at the time decisions are made, the programs' relative costs may still be understated. For example, in the case of flood insurance, premiums based on the historical average loss year may not be sufficient to establish reserves to cover catastrophic losses because the loss experience period used does not include a catastrophic loss year. As a result, the program's cost is understated and the government's cost may not be recognized until the bills come due.

Accrual-Based Budgeting Has the Potential to Improve Budget Information and Incentives for Most Federal Insurance Programs

Several characteristics of federal insurance programs support the use of accrual-based budgeting. Two general approaches for measuring accrual-based costs of insurance programs are (1) the risk-assumed concept, which recognizes the cost of claims inherent in the government's commitment at the time of commitment,[1] and (2) traditional financial reporting standards for claims liabilities, which generally recognize the cost of claims inherent in events that have already occurred. The risk-assumed basis would be more useful for budgeting because it looks further ahead at the time the commitment is made rather than waiting for claims-producing events. Thus, the information and incentives for resource allocation and fiscal policy could be improved—assuming it is possible to make reasonable cost estimates. While moving to accrual-based budgeting based on the risk-assumed concept would offer several benefits, the magnitude of the change in information and incentives provided to policymakers varies across insurance programs and depends on the design of the accrual-based budgeting approach used.

Characteristics of Federal Insurance Programs Support Use of Accrual Concepts

As discussed in the previous chapters, several characteristics of federal insurance programs complicate their budget reporting. In some respects, the difficulties in budgeting for insurance programs are similar to those for loan guarantees. Both insurance and guarantees commit the government to pay future losses inherent in the coverage provided. Both represent contingent liabilities[2] that generally are not adequately reflected on a cash basis because the government's full cost is not recognized when the commitment is made. While credit reform dealt with this problem for loan guarantees and improved the budget recognition of their cost, the cost of most federal insurance programs is not fully recognized in the budget at the time the insurance commitment is extended.

The analogy to credit programs suggests that some form of accrual-based budgeting could improve the budget treatment of federal insurance programs. Specifically, two features of federal insurance programs support the use of accrual-based budgeting for these programs: (1) the promise to cover future losses that may occur beyond the current budget period and (2) the difficulty in estimating and pooling some risks on an annual basis. Accrual-based budgeting would allow for the recognition of future costs at the time commitments are made. However, insurance is dissimilar to loan

[1]As discussed in chapter 7, the extent to which administrative and other operating expenses should be included in the calculation of the risk-assumed accrual cost needs to be determined.

[2]Contingent liabilities are obligations that are dependent upon the occurrence or nonoccurrence of one or more future events.

guarantees in some ways that present additional challenges for cost estimation and budget control. These issues need to be dealt with carefully before accrual-based budgeting can be applied to federal insurance programs. For example, the benefits of accrual-based budgeting depend heavily on whether reasonable cost estimates are currently available or can be developed. In some cases, estimating the risk assumed by insurance programs may be a greater challenge than for some credit programs.

Accrual-based reporting recognizes transactions or events when they occur regardless of when cash flows take place. An important feature of accrual-based reporting is the matching of expenses and revenues whenever it is reasonable and practicable to do so. In the case of insurance, accrual concepts would recognize the cost for future claim payments and the establishment of reserves to pay those costs. Thus, the use of accrual concepts in the budget has the potential to overcome the time lag between the extension of an insurance commitment and the payment of claims that currently distorts the government's cost for these programs on an annual cash flow basis. To the extent practicable, the government's ultimate cost is the key information for budget decision-making.

The Federal Accounting Standards Advisory Board (FASAB) has done significant work to develop financial reporting standards to meet the needs of the various users of federal financial statements.[3] The accounting principles developed by FASAB provide a sound foundation for federal financial statements that are useful and relevant to needs of the federal environment. FASAB's work also provides a useful framework for understanding the use of accrual cost measures for budgeting for federal insurance programs. As such, efforts to apply accrual-based budgeting for federal insurance should build on and further adapt this work for budget purposes.

[3]For a detailed discussion of uses, user needs, and objectives of federal financial reporting, see Objectives of Federal Financial Reporting: Statement of Recommended Accounting and Reporting Concepts, Federal Accounting Standards Advisory Board, July 1993.

The Risk-Assumed Concept Is Most Appropriate for Budgeting for Federal Insurance Programs

The focus and purpose of federal budget reporting argues for the use of forward-looking cost measures for federal insurance programs if reasonably reliable ones can be developed. In order to support current and future resource allocation decisions and formulate fiscal policy, the federal budget needs to be a prospective document that enables and encourages users to weigh the future consequences of current decisions. To do this, the budget should provide the information and incentives necessary to assess the future implications of various choices. For federal insurance programs, the information needed for budgeting is roughly analogous to the insurance rate-setting process because the relevant question in assessing the government's ultimate cost is whether premiums over the long term will be sufficient to cover losses and, if not, what subsidy the government is agreeing to provide. That is, when the federal government decides to undertake the role of the insurer, policymakers need information on the cost of the risk inherent in the government's commitment.

The risk-assumed cost measure[4] would provide the prospective information necessary for budget decisions about insurance programs. For insurance programs, risk assumed generally refers to the portion of the full risk premium based on the expected cost of losses inherent in the government's commitment that is not charged to the insured.[5] As a result, the government's subsidy cost—the difference between the full-risk premium and actual premiums charged—may be more visible in the budget process. Thus, the use of risk-assumed estimates in the budget would provide the information necessary for assessing the cost of establishing reserves and the ability of an insurance program to pay future losses. This approach is similar to that used under credit reform to measure the cost of direct loans and loan guarantees. However, because of the wide variety of risks covered by federal insurance programs, the risk-assumed concept may be interpreted differently depending on the nature of the program. For example, the time horizon used to estimate the risk assumed by the government under deposit insurance may be shorter than that used to estimate the risk assumed in providing life insurance coverage to federal employees.

[4]As noted earlier, there are two general ways that measure the cost of future claim payments for budgeting purposes: a measure based on the risk inherent in the insurance and a measure based on the occurrence of an insured event. The latter measure is used to record claims liability in financial statements for most federal insurance programs.

[5]As will be discussed in chapter 5, the concept of risk assumed—losses inherent in the government commitment—is consistent for all federal insurance programs, but how risk assumed is calculated, such as the time period considered, may vary across insurance programs. In some cases, estimating the full-risk premium might prove to be prohibitively difficult and modifications to the risk-assumed concept may be necessary.

The risk-assumed concept expands upon the standards used for financial statement reporting. Except in the case of life insurance, the risk-assumed concept takes a longer look forward than standards used to recognize insurance liabilities in financial statements. Under standards developed by FASAB, the financial statements for all federal insurance programs must recognize a financial statement liability based on insured events that have been identified by the end of the accounting period.[6] The standard requires recognition of the expected unpaid net claims inherent in insured events that have already occurred, including (1) reported claims, (2) claims incurred but not yet reported,[7] and (3) any changes in contingent liabilities that meet the criteria for recognition.[8] Life insurance programs are required to recognize a liability for future policy benefits[9] in addition to the liability for unpaid claims. This means that except for life insurance, no liability for an insurance cost is recognized in the financial statements until it is probable that a cost has actually been incurred and the amount of the cost can be reasonably estimated. These liability reporting requirements closely parallel the liability reporting requirements for private sector insurance companies[10] and are based on the principles that are essential to support the purposes of financial statement reporting.[11]

[6]Statement of Federal Financial Accounting Standards No. 5, Accounting for Liabilities of the Federal Government.

[7]Claims relating to insured events that have occurred but have not yet been reported to the insurer as of the date of the financial statements.

[8]Under FASAB standards, contingent losses are only reported as a liability and charged to expenses if a past transaction or event has occurred and the loss is both probable (events are likely to occur) and measurable.

[9]The liability for future policy benefits represents the expected present value of future outflows paid to, or on behalf of, existing policyholders, less the expected present value of future net premiums to be collected from those policyholders.

[10]Standards for private sector entities are promulgated by the Financial Accounting Standards Board (FASB). Applicable standards include Statement of Finanical Accounting Standards (SFAS) No. 5: Accounting for Contingencies, SFAS No. 60: Accounting and Reporting by Insurance Enterprises, and SFAS No. 97: Accounting and Reporting by Insurance Enterprises for Certain Long-Duration Contracts and for Realized Gains and Losses From the Sale of Investments. FASB considered and rejected catastrophic reserve accounting for property and casualty insurance. A key consideration in this decision was the ability of private sector insurance companies to recoup losses in premiums charged to policyholders. FASB viewed the long-run nature of pricing premiums as separate from and not a determinant of when a liability should be recorded. This reflects the different requirements and needs of traditional accrual liability recognition and the needs of federal budgeting. As noted earlier, accrual-based budgeting for insurance programs is more closely related to the premium rate-setting (internal management) process of private sector companies than to their external (liability) reporting process.

[11]Examples of these principles include reliability, relevance, consistency, comparability, and materiality.

In developing these standards, FASAB also recognized the importance of the risk-assumed measure for federal insurance programs. Because the risk-assumed measure provides important information beyond that included in the financial statement liability, FASAB recommended and the final standards require that this information be disclosed as supplemental information beginning with financial statements for fiscal year 1997.[12] However, concerns about the measurability and the exact nature of some risks assumed by the government dissuaded FASAB from recommending the use of risk-assumed estimates as the basis for liability recognition in the financial statements. Disclosure of risk-assumed estimates provides users with a broader and prospective cost measure that FASAB believes is relevant in assessing whether future budget resources will be sufficient to sustain public services and meet obligations.

The accrual-based cost measures appropriate for the budget differ from those appropriate for financial statements largely because of differences in the primary purposes of the information, the nature of the federal budget environment, and differences in the acceptable level of uncertainty for financial statements and budget projections. In the past, CBO[13] and OMB[14] have expressed concerns about the limitations of traditional financial reporting standards for assessing future budgetary costs of insurance programs. Generally speaking, traditional financial statement reporting is of limited use for budget purposes because, in most cases, it does not recognize the potential costs of claims that have not yet been incurred[15] or the present value of future premiums[16] that offsets future budgetary costs. Federal accounting standards requiring supplemental disclosure of an estimate of the risk assumed should improve the recognition of these potential costs in federal financial statements.

[12]Risk-assumed estimates for all insurance and guarantee programs will be reported as required supplementary stewardship information. For insurance programs administered by government corporations, which follow FASB (private sector) accounting standards, risk-assumed estimates will be reported only when financial information on the government corporation is consolidated into general purpose financial reports of a larger federal reporting entity.

[13]Budgetary Treatment of Deposit Insurance: A Framework for Reform, Congressional Budget Office, May 1991.

[14]Budgeting for Federal Deposit Insurance, Office of Management and Budget, June 1991.

[15]In 1991, the Federal Deposit Insurance Corporation adopted a somewhat more prospective view of what constitutes an accountable event for the purpose of recognizing estimated future deposit insurance losses. It now includes an estimated loss from institutions that are solvent at year-end, but which have adverse financial trends and will probably become insolvent in the future.

[16]Under traditional financial accounting standards, revenue generally cannot be recognized until it is earned.

The benefits achieved by budgeting using financial statement liability recognition standards would vary across the insurance programs. The benefits achieved depend primarily on the length of time between the occurrence of insured events and payment of claims. For some programs, the traditional liability recognition standards may yield information not very different from what is currently reported on a cash basis in the budget. However, for programs with long time lags between the occurrence of the insured event and the payment of claims, such as pension and deposit insurance,[17] budgeting based on financial statement liability standards might provide earlier budget recognition of the costs incurred than does cash-based budgeting. In these cases, the earlier recognition could reduce the incentive to delay the payment of claims and would allow for some earlier action to reduce future costs. In most cases, however, this approach would not be as forward-looking as the risk-assumed concept and, therefore, would not provide recognition of the risks inherent in the government's commitment at the time that the insurance is extended. It is at that time that decisions can be made to change the extent of the risk being assumed by the government. Since the financial statement liability standards generally report costs that have been incurred as the result of past decisions, using that standard for estimating the government's cost in the upcoming budget year may not provide signals of the government's risk exposure early enough so as to maximize options available for limiting program costs. This is true because the range of options for changing the program to reduce the government's costs may be more limited after the cost has been incurred than it would have been when the insurance was extended. Nevertheless, until risk-assumed estimates are fully developed, insurance programs' financial statements, which are included in the budget appendix, provide policymakers with valuable information on insured events (losses) that are probable and measurable as of a given date and should be considered in budget discussions.

Table 4.1 compares the potential benefits of accrual-based budgeting using these two cost recognition standards. The potential benefits of accrual-based budgeting based on the risk-assumed concept included in table 4.1 are discussed in the following section.

[17]This is based on the experience in the late 1980s in which financial institutions were allowed to remain open for months or years after becoming insolvent. Future experience may be different. The Federal Deposit Insurance Corporation Improvement Act of 1991 requires the prompt closure of severely under-capitalized financial institutions.

Table 4.1: Usefulness of Cost Recognition Approach for Improving Budget Treatment

	Life insurance[a]	
Benefit of change in budget treatment	**Financial statement liability recognition**	**Risk assumed**
Recognizes the risk assumed by the government at the time the commitment is made	X	X
Improves the information and incentives for managing insurance costs	X	X
Provides comparable cost information at the time decisions are made	X	X
Establishes “reserve” for sporadic/catastrophic events	X	X
Reflects the timing and magnitude of the program’s economic impact	X	X

PBGC		Deposit insurance		Other insurance	
Financial statement liability recognition	Risk assumed	Financial statement liability recognition	Risk assumed	Financial statement liability recognition	Risk assumed
	X		X		X
[b]	X	[b]	X	[b]	X
	X		X		X
	X		X		X
	X		X		X

Note: Assumes that reasonably reliable risk-assumed cost measures can be developed.

[a]The financial statement liability for life insurance is measured on a risk-assumed basis.

[b]Method may improve information provided in the budget but not to the extent of risk-assumed information.

Accrual-Based Budgeting Has the Potential to Improve Resource Allocation and Fiscal Policy Decisions

Accrual-based budgeting for federal insurance programs based on the risk-assumed concept[18] has the potential to improve the information and incentives for resource allocation and fiscal policy by overcoming many of the deficiencies of cash-based budgeting. Specifically, the potential benefits of accrual-based budgeting for federal insurance programs include

- providing more accurate and timely recognition of the government's cost of insurance commitments,
- improving the information and incentives for managing insurance costs,
- making cost information for insurance programs more readily comparable to other federal programs,
- providing a mechanism to establish reserves for high or catastrophic loss years, and
- reflecting more accurately the economic impact of insurance programs.

However, the extent to which a shift to accrual-based budgeting will change the information and incentives varies across insurance programs.

[18]In the remainder of this report, all references to accrual-based budgeting assume the use of the risk-assumed measurement basis.

This is due primarily to differences in the size and length of the government's commitment, the nature of the insured risk, and the extent to which costs are currently recognized in budget authority and obligations at the time the budget decisions are made. In addition, the approach used to incorporate risk-assumed estimates into the budget will affect the degree to which each achieves these benefits. Three general approaches to using accrual-based estimates in the budget will be discussed in chapter 6.

Accrual-Based Budgeting Would Provide More Timely Recognition of the Government's Cost for Insurance Commitments

Accrual-based budgeting for federal insurance programs has the potential to reduce the cost distortions that occur in the cash-based budget by improving the match between estimated revenues and claims of insurance commitments. By doing so, accrual-based budgeting would recognize any imbalance or net cost to the government—the key information that should be considered in budget decision-making—in the year the insurance is extended.

The prospective recognition of insurance costs is the key advantage of accrual-based budgeting for federal insurance programs. Unlike the current cash-based budget, accrual-based budgeting would recognize and report the government's costs for insurance commitments at the time decisions are made and costs are controllable. As a result, the adoption of accrual-based budgeting for federal insurance programs would shift the focus of the budget from retrospective reporting to prospective cost estimation.

Accrual-Based Budgeting May Improve the Information and Incentives for Managing Insurance Costs

The prospective focus of accrual-based budgeting has the potential to improve both the opportunities and incentives for controlling insurance costs by providing more timely warning of emerging problems. Under accrual budgeting, the subsidy costs—the difference between expected losses and expected income—would be included in the budget and serve as a gauge of the government's risk exposure. Thus, policymakers would be encouraged to examine the underlying benefits and structure of insurance programs before large losses accumulate. Since policymakers are prompted to take action to reduce costs when costs are still controllable, the potential for unintended subsidies may be reduced. For example, according to OMB, the subsidy conveyed by deposit insurance rises with increased exposure, such as an increase in the number of weak institutions, and falls as policies are put in place that effectively limit risk-taking with insured funds. Thus, if properly recognized in the budget,

the growing subsidy cost for deposit insurance would have signaled policymakers in the 1980s that thrifts and banks were undertaking greater risks and depending more heavily on deposit insurance guarantees.

In cases where the Congress intends to provide a subsidy in order to achieve some public policy objective—as is the case for some veterans life insurance programs and the flood insurance program—accrual-based budgeting would prompt recognition of the subsidy cost at the time the coverage is extended. Thus, the cost recognition in the budget would be more clearly linked to the decision to provide subsidized coverage rather than merely reflecting the unfunded bills when they come due.

The earlier reporting of costs on an accrual basis not only changes the information available to policymakers but also changes budget incentives if actually incorporated into outlays and/or budget authority. Unlike cash-based budgeting that delays cost recognition and does not encourage early action to control cost, the earlier cost recognition provided by an accrual basis shifts the budget incentives in favor of reforms aimed at controlling costs. For example, under some accrual-based budgeting approaches, policymakers would be faced with a choice of providing additional government funding to cover shortfalls, raising premiums, or otherwise reducing program benefits to reduce future costs. However, the extent to which budget incentives are changed depends on the nature of the particular insurance program, the accrual-based budgeting approach used, and the extent to which budget recognition leads to choices between additional funding and programmatic changes. These issues are discussed in more detail in chapters 6 and 7.

Accrual-Based Budgeting May Improve Relative Cost Information

The use of accrual-based budgeting for federal insurance programs also has the potential to improve the information available to make relative cost comparisons. As discussed in chapter 3, the cash-based budget may misstate the government's cost for insurance commitments. On a cash basis, some insurance programs may appear profitable while subjecting the government to long-term costs. As a result, cost comparisons with programs whose costs are fully reflected on a cash basis will be distorted. Accrual-based budgeting allows for better relative cost comparisons by recognizing the government's expected costs for insurance commitments at the time decisions are made. For example, for fiscal year 1993, an accrual-based budget would have shown that PBGC had a potential future cost to the government rather than being an income generator as reflected in the cash-based budget. As a result, pension insurance would have

competed for budget resources with other federal programs based on the government's expected cost rather than appearing to be a source of income in budget terms.

Accrual-Based Budgeting for Insurance Programs Would Provide a Mechanism for Establishing Program Reserves

In addition to improving cost recognition and resource allocation, accrual-based budgeting for insurance programs would provide policymakers with a mechanism for establishing program reserves for expected insurance losses. One outcome of budgeting based upon the full risk assumed by the government would be that in some years premiums collected and subsidies provided by the government would exceed cash payments for insured losses. This would occur because losses for some programs are highly variable from year to year and for other programs may not occur for many years. As a result, when premiums and the government subsidy exceed claim payments, funds could be held in reserve for expected future claims.

The establishment of reserves may be particularly important given that many of the risks insured by the federal government are catastrophic in size and/or erratic in occurrence. The uneven occurrence of these risks makes estimating funding needs on an annual basis difficult because actual losses in any particular year may vary, in some cases significantly, from the estimated annual cost based on the long-term expected risk. For example, a widespread drought can result in claim payments in a single year to a large proportion of farmers insured under the crop insurance program. Charging premiums sufficient to cover a catastrophic loss in any one year would be prohibitively expensive. As a result, in order for the program to be financially sound, amounts sufficient to cover high or catastrophic losses need to be accumulated over a number of years. Other federal insurance programs, such as life and pension insurance, commit the government to making payments many years in the future. As a result, premiums collected over the duration of the policy must be held in reserve to pay the promised benefits at some future date. If, over time, sufficient reserves are accumulated to pay expected costs, the program would be fully funded.[19] However, a program could require additional funds—or borrowing authority—if significant losses occur before sufficient reserves are accumulated even if annual funding is based on the long-term expected cost.

[19]The government's cost would be funded from the perspective of the program but not of the government as a whole since under current practice reserves are held in Treasury securities (i.e., borrowed by the Treasury to finance other government spending).

While accrual-based budgeting for insurance programs would recognize any government subsidy at the time insurance is extended and hold such amounts in reserve,[20] the government's financing needs would not change. As is the current practice with insurance and many other funds, when a program's collections exceed its cash needs for payments, reserves are held in Treasury securities (i.e., lent to the government), which, from a governmentwide perspective, satisfies some of the government's borrowing needs. Under accrual-based budgeting, federal borrowing (or a reduction in other spending) would still be necessary when the insurance fund redeemed its Treasury securities to make cash payments if insurance claims exceeded premiums collected from the public in a given year. However, under accrual-based budgeting, the government's cost for the program would have already been recognized in the budget when the commitment was extended.

Accrual-Based Budgeting May Improve the Information on the Fiscal Impact of Insurance Programs

In addition to improving the information and incentives for resource allocation, accrual-based budgeting would better reflect the fiscal impact of federal insurance programs. Although accrual-based reporting would lessen the extent to which the budget reflects the government's borrowing needs, it would generally reflect the effects of an insurance program on the economy closer to the time when they occur by incorporating a prospective estimate of the program's accruing cost. Discerning the economic impact of insurance programs can be difficult, but private economic behavior generally is affected when the government commits to providing insurance coverage and thus lowers the risk to the insureds. Therefore, accrual-based budgeting, which, by recognizing the government's costs at the time the insurance is extended, would better reflect the timing and magnitude of the economic impact of these programs than the current cash-based reporting of outlays in the budget. Further, approaches to accrual-based budgeting that recognize accrued cost in net outlays would remove the uneven cash flow patterns of insurance programs from the budget deficit. By removing temporary working capital needs of deposit insurance programs and large sporadic payments for disaster insurance claims, accrued cost measures would provide a truer measure of the government's underlying fiscal condition.

[20]The degree to which the government's cost is recognized in budget authority, outlays, and the deficit depends on the approach used to incorporate accrual-based measures in the budget. The advantages and disadvantages of different approaches are discussed in chapter 6.

Benefits of Accrual-Based Budgeting for Individual Federal Insurance Programs Will Depend on Several Factors

Although the use of accrual-based budgeting for federal insurance programs has the potential to overcome a number of the shortcomings of cash-based budgeting for these programs, a number of factors influence the extent to which the information and incentives for a particular insurance program would be changed. These factors include individual program characteristics, a program's BEA spending classification, the extent to which costs are already recognized in cash-based estimates, and the approach used to incorporate accrual measures in the budget. Further, the effective implementation of an accrual-based budgeting approach depends on the ability to generate reliable risk-assumed estimates.

The characteristics of individual insurance programs will influence the potential benefits achieved under accrual-based budgeting. As noted in chapter 3, the larger the government's commitment relative to total federal spending, the greater the potential for budget and fiscal policy distortions and the greater the need to capture the government's cost at the time the commitment is made. Thus, the larger size of the deposit and pension insurance programs make the benefits of accrual-based budgeting more pronounced than for other smaller programs.

In general, the effects of shifting to an accrual-based approach would be beneficial for long-duration insurance programs with large subsidies. In these cases, the shift to accrual-based budgeting may affect the magnitude of the reported program cost in the budget, or whether the program is reported as having a cost rather than cash income. However, it does not appear that the benefits of accrual-based budgeting would be as great for programs that offer short-duration insurance coverage and experience relatively frequent claims, such as crop or flood insurance. For these programs, the benefits of accrual-based budgeting primarily would be in recognizing the cost of less frequent catastrophic losses and eliminating the effect of programs' uneven cash flows on the budget deficit.

As discussed later in the report, whether the program is classified as mandatory or discretionary under BEA will also influence the degree to which increased cost recognition is likely to influence budget incentives.[21] For mandatory programs, accrual-based budgeting's effect on decisions would be most apparent when legislated program changes—such as an increase in benefits—are considered. For discretionary programs, accrual-based budgeting may have a more significant influence on budget

[21]Under BEA, budgetary resources are classified as either discretionary or mandatory. Discretionary refers to program spending that is controllable through annual appropriation acts. Mandatory refers to program spending that is relatively uncontrollable without changing existing substantive law.

incentives, as their full cost becomes apparent and must be provided for each year.

The extent to which costs are currently recognized in budget authority and obligations also influences the degree to which budget information will change due to a shift to accrual-based budgeting. For example, according to OMB, the crop insurance program currently estimates annual funding needs based on the normal loss year at the time decisions are made. In addition, OPIC currently receives budget authority for and obligates loss provisions in the year the provisions are recognized. In both cases, program officials and analysts believe that the current budget treatment adequately reflects the program's expected costs at the time budget decisions are made.

If accrual-based budgeting were to be undertaken, the approach used to incorporate accruals into the budget will also have an impact on the extent to which budget information and incentives are changed by a shift from cash-based budgeting to accrual-based budgeting. As will be discussed in chapter 6, different approaches to accrual-based budgeting incorporate these costs into the primary budget data—budget authority, net outlays, and the deficit—to varying degrees. Finally, the feasibility of accrual-based budgeting will depend on whether reasonable unbiased estimates of the risk assumed by the government for the various programs are available or can be developed. Estimation challenges and other implementation issues that will have to be addressed in order to achieve the potential benefits of accrual-based budgeting will be discussed in the chapters that follow.

Estimation Limitations at Center of Accrual Budgeting Debate

A crucial component in the effective implementation of accrual-based budgeting for federal insurance programs is the ability to generate reasonable, unbiased estimates of the risk assumed by the federal government. Although in most cases the risk-assumed concept is relatively straightforward, generating estimates of these costs is considerably more complex. The development and acceptance of methodologies to estimate the risk assumed by the government varies significantly across the federal insurance programs we reviewed. The following sections discuss some limitations of existing risk assessment approaches that might be used to generate risk-assumed cost estimates under an accrual-based budgeting approach.

Calculation of Risk Assumed by the Government Is Complex

The risk assumed by the government is most easily thought of as the difference between the actual premiums paid by the insured and the premiums necessary to fully cover losses inherent in the coverage provided. This difference between the full risk premium and the actual premium charged—the "missing premium"— represents the government's subsidy cost for the insurance program. In general, decision-making is best informed if this subsidy cost is known at the time a commitment is made. This would suggest that to the extent practicable, the budget ought to reflect this subsidy cost. Under an accrual-based budgeting approach, it would be recognized[1] at the time the government extends insurance coverage. The ability to assess the risk covered by the various insurance programs is central to being able to determine the subsidy cost to the government. This task is made difficult by the nature of the risks insured by the government and the methodological and data limitations discussed below.

For insurance, the accuracy of estimated future claims is determined by the extent to which the probability of all potential outcomes can be determined. Unfortunately, these probabilities are not known with certainty for most activities more complex than the toss of a fair coin. However, for activities in which data on actual outcomes exist, the underlying probabilities can be estimated based on the law of large numbers.[2] When these conditions are understood and the probabilities of future events can be inferred, estimates are said to be made under the

[1]The question of whether the subsidy is included as supplemental information, budget authority only, or in both budget authority and outlays is discussed in the next chapter.

[2]The law of large numbers holds that as the number of independent observations increases, the proportion of times a certain outcome occurs tends to approach the underlying probability assuming that the same conditions exist. If statistical evidence is available, changes in underlying conditions can be taken into account.

condition of risk. In other words, since the possibility of each outcome can be estimated, the risk undertaken by the insurer can be measured. However, when underlying conditions are not fully understood estimates are made under uncertainty. For most federal insurance programs, this latter case holds due to the nature of the risks insured, program modifications, and other changes in conditions that affect potential losses. Thus, estimating the government's subsidy cost, including the time period considered, may vary by program out of necessity.

Complete data on the occurrence of insured events over a sufficiently long period and under similar conditions are generally not available for many federal insurance programs. Frequent program modifications as well as fundamental changes in the activities insured reduce the predictive value of historical data and further complicate risk estimation. For example, the crop insurance program has been modified a number of times by the Congress in the last 15 years affecting key conditions, such as participation rates. Similarly, advances in technology and new competitive pressures have significantly transformed the banking and thrift industries.

These factors, which limit the ability to predict losses and the potential for catastrophic losses, have been cited as preventing the development of commercial insurance markets for the risks covered by federal insurance programs. As a result, private sector comparisons are generally unavailable to aid in the risk estimation process for these programs. For example, although several private sector companies offer aviation war-risk insurance, the coverage is generally limited to random acts of terrorism and often excludes areas of military conflict. Federal war-risk insurance is only made available when commercial insurance cannot be obtained or is available only on unreasonable terms and conditions and it is in the national interest to provide air service to a particularly risky area. The risk inherent in these two situations is not comparable.

Some have suggested the use of simple historical loss averages as an alternative to the complex estimation methodologies. However, the same conditions discussed above that make risk estimation difficult may reduce the usefulness of this alternative. Losses incurred under most of the federal insurance programs over a 10- or 20-year period may not adequately capture the risk inherent in the insurance because such relatively short experience periods do not encompass the full range of possible outcomes, including infrequent catastrophic events. Historical averages also may not be reflective of future losses if there have been

program changes or changes in underlying conditions that may affect outcomes.

Ability to Estimate the Risk Assumed by the Government Varies Across Programs

The extent to which risk assessment methodologies are currently developed and accepted varies significantly across federal insurance programs. Some federal insurance programs, such as the life insurance programs, cover risks that are commonly insured by the private sector and are based on widely accepted actuarial science. However, as discussed in earlier chapters, most federal insurance programs cover catastrophic or case-specific risks that the private sector has been unwilling or unable to cover. Risk assessment for these programs is considerably more challenging. For some insurance programs, such as deposit insurance, several quantitative risk assessment techniques have been developed but there is no strong consensus supporting any particular technique. For other federal insurance programs, such as the war-risk insurance programs and OPIC's political risk insurance, risk assessment currently relies heavily on expert judgment rather than highly quantitative or standardized risk assessment methods.

Given these estimation challenges and the shortcomings of cash-based budgeting, consideration of the adequacy of risk-assumed estimates for budget purposes is likely to be most beneficial when the focus of the discussion is on whether these estimates would provide policymakers with more timely information and signals about the underlying insurance programs. For these purposes, what is important is that the estimates are based on the best information available at the time the insurance commitment is extended. In this sense, it may be most important that the budget information and incentives provided to policymakers be "more approximately right rather than precisely wrong."[3]

The remainder of this chapter discusses risk assessment for the various types of federal insurance programs we reviewed:

- life insurance;
- disaster insurance (flood and crop insurance);
- deposit insurance;
- pension insurance; and
- other insurance (war-risk, political risk, and vaccine injury insurance).

[3]The Congressional Budget Office used this phrase to characterize the difference between accrual-based cost estimates and cash-based reporting in advocating accrual-based budgeting for credit programs. See Credit Reform: Comparable Budget Costs for Cash and Credit, Congressional Budget Office, December 1989.

The sections that follow are ordered approximately according to the current level of the development and acceptance of methodologies that could be used to estimate the risk assumed by the government. The first programs discussed—life insurance—have a methodology that is well established in actuarial science. Next, we discuss disaster insurance programs for which methodologies have been developed and used to set risk-related premiums. These methodologies may provide a useful foundation for estimating the risk-assumed costs for these programs. For the large programs—deposit and pension insurance—competing methodologies exist or are under development that potentially could be used to estimate risk-assumed costs; however, little consensus exists on any one model. The remaining programs—overseas private investment, vaccine injury, and war-risk insurance—present significant estimation challenges and rely heavily on expert judgment.

Risk Assessment for Life Insurance Has Its Foundation in Actuarial Science

The methodology for measuring the risk assumed by the government under life insurance programs for government employees and service-disabled veterans is well established in actuarial science. The certainty of death and the compilation of extensive data on mortality have made it possible to estimate future life insurance claims with a high level of accuracy. The Department of Veterans Affairs (VA) and the Office of Personnel Management (OPM) currently use actuarial approaches that are the standard practice of the life insurance industry. Although modifications are made to reflect the unique characteristics of the insured groups, the basic assumptions used are comparable to those used by commercial life insurance companies.

By applying the laws of probability to mortality statistics, actuarial science provides a methodology to estimate future rates of death. A basic principle of actuarial science states that by studying the rate of death within any large group of people and gathering information on all factors that may affect that rate, it is valid to anticipate that any future group of persons with approximately the same factors will experience the same rate of death. Mortality tables are constructed to reflect probabilities of death at each age. The accuracy with which the estimated future claims approximate actual experience depends upon two key factors: (1) the accuracy and appropriateness of the underlying mortality statistics and (2) the number of observations the estimate is based on and the number of individuals insured.

Most mortality tables in use today are based upon the experience of commercially insured individuals. Because the mortality experience of federal employees appears to be different from the experience used to construct these tables, OPM constructs its own mortality tables based on program experience to more accurately capture the insurance risk. VA also conducts periodic studies of mortality and disability to ensure that its assumptions are sufficiently conservative. The information on mortality, together with data on policy benefits and interest rate assumptions, makes it possible to calculate the present value of future insurance claims. The extent to which this amount differs from premium and investment income would constitute the risk assumed by the government or the government subsidy. However, as is the case with most long-term forecasts, estimates of a life insurance program's income are sensitive to interest rates. For example, interest earnings on funds collected from policyholders are a significant source of revenue in the Federal Employees' Group Life Insurance program. OPM officials cited the difficulty in forecasting fluctuations in interest rates over the long term as a weak point in the estimation process.

Disaster Insurance Programs Have Established Rate-Setting Methodologies

The two disaster insurance programs we reviewed—the National Flood Insurance program and the Federal Crop Insurance program—currently have established methodologies for setting risk-related premium rates. These methodologies and the corresponding agency risk assessment experience should provide a useful foundation for estimating the cost of the risk assumed by these programs if an accrual-based budgeting approach is adopted. However, some modifications and refinements to the methodologies and other implementation challenges should be expected. Further, as is the case with all modeling efforts, professional judgment and underlying assumptions are necessary components of these methodologies.

Flood Insurance Losses Are Erratic but Measurable Over the Long Term With a Fair Degree of Accuracy

The Federal Insurance Administration (FIA) has an established rate-setting model, which, according to FIA, could be used to assess the risk assumed for policies issued by the National Flood Insurance Program (NFIP).[4] FIA officials told us that this model is based on generally accepted actuarial principles and has been used by the agency for years to set premium rates

[4]For additional information on the Flood Insurance Program and its rate-setting methods, see Flood Insurance: Financial Resources May Not Be Sufficient to Meet Future Expected Losses (GAO/RCED-94-80, March 21, 1994) and Flood Insurance: Information on Various Aspects of the National Flood Insurance Program (GAO/T-RCED-93-70, September 14, 1993).

for unsubsidized insurance policies.[5] They told us that the model and its output, however, do not undergo regular external reviews. In addition to the rate-setting methodology, the FIA has worked on developing catastrophic loss estimates that may prove useful in assessing the appropriateness of reserve levels under an accrual-based budgeting approach. As an alternative to the detailed rate-setting model, some budget experts suggested that historical averages—which do not include catastrophic losses unless they have occurred during the chosen experience period—may provide a sufficient basis for measuring the program's accrual-based costs.

Flood hazards have several characteristics that are important in considering risk assessment and budgeting for the NFIP. Although the timing and magnitude of floods is considered unpredictable by more than a few days or hours, the probability that they will occur is measurable with a fair degree of accuracy. Flood losses are very predictable in that they occur in well-defined areas and are inevitable in these areas over the long run. However, as noted in chapter 3, the erratic nature of floods can have serious implications for risk assessment and budgeting. A Department of Housing and Urban Development (HUD) study points out that while most property and casualty insurance is based on realized losses over a period of time, this approach is not applicable to flood insurance because of the highly skewed nature of flooding losses.[6] Rather than following the normal bell-shaped statistical curve, there are many small to moderate floods, some larger floods, and a few extremely large ones. As a result, an average of even a considerable number of years may differ significantly from the true long-term average.

The NFIP illustrates this point. The NFIP is not actuarially sound even though it has achieved a goal of collecting premium income sufficient to at least cover expenses and expected losses for an average historical loss year. This is because the historical experience period, beginning in 1978, does not include any loss years that can be considered to be of a

[5]NFIP flood insurance premiums are either based on actuarial principles or are subsidized depending on when the insured structure was built. Subsidized rates are available for structures built before rate maps were prepared for the areas in which they are located. Premiums for properties constructed after the rate maps were prepared must be set in relation to risk. See appendix IV for a more detailed description of the program.

[6]Insurance and Other Programs for Financial Assistance to Flood Victims: A Report From the Secretary of the Department of Housing and Urban Development to the President, as required by the Southeast Hurricane Disaster Relief Act of 1965, Senate Committee on Banking and Currency, 89th Congress, 2nd Session, September 1966.

catastrophic level for the program.[7] As a result, the average historical loss year involves fewer claim losses than the expected per annum claim losses in future years. Thus, the premium income currently collected by the program may not be sufficient to build reserves for potential catastrophic losses.

Despite this limitation, some budget experts indicated that they thought it acceptable to use historical averages as the basis for measuring the program's accrual cost in the budget while providing some additional funding mechanism, such as the program's borrowing authority, to cover catastrophic losses. Funding this amount would allow for the accumulation of reserves during years where losses are less than the historical average.[8] According to the FIA, this level of funding in conjunction with the program's borrowing authority of $1 billion should be sufficient to cover costs approximately 85 percent to 90 percent of the time. Further, the average historical loss year is not a static measure and could be expected to move toward the long-term average as the experience period increases over time. Nevertheless, if the objective of adopting accrual-based budgeting is to recognize the currently unrecognized government subsidy and/or to accumulate reserves to cover future losses, including catastrophic losses, then the program's long-term expected cost is the most appropriate measure to use as the basis for measuring the government's cost in the budget.

FIA officials told us that they were reasonably confident that the actuarial rate-setting method currently used to establish premium rates for unsubsidized polices could be used to generate reasonable estimates of the expected long-term risk for all policies. The difference between the program's expected long-term risk and the actual premium rates would then provide an estimate of the risk assumed by the government. The FIA estimated this difference or "missing premium" at approximately $520 million per year.[9]

[7]According to FIA, the probable maximum loss resulting in $4.5 billion to $5 billion in claim losses has a 1 in 1,000 chance of occurring. For comparison purposes, Hurricane Hugo resulted in claims of $0.4 billion.

[8]FIA officials told us that in any particular year, there is about a 40-percent to 45-percent chance that flooding losses will be less than the historical average and about a 50-percent to 55-percent chance that flooding losses will exceed the historical average.

[9]According to FIA, $520 million represents the amount of annual general fund appropriations necessary to build reserves to cover catastrophic losses. FIA told us that if the shortfall was covered by an increase in premiums, then the annual amount needed would be larger due to corresponding increases in commission payments and other expenses.

FIA's method for establishing rates for unsubsidized policies follows a hydrological method based on studies performed by the U.S. Army Corps of Engineers and private engineering companies. These rates are based on available hydrological data, flood insurance claims and simulations, as well as engineering and actuarial judgment.[10] According to FIA officials, the key components of the method are (1) probability estimates of the frequency with which floods of different severity will occur and (2) estimates of associated structural property damage incurred due to different types of floods. Program expense items, such as administrative costs, are also accounted for in the actuarial rates. These rates are based on actual risk exposures and generally vary according to risk-related features, such as the flood zone, the elevation of the structure, and the amount of insurance purchased.

As is often the case in modeling, professional judgments and assumptions are necessary to overcome data limitations. For example, the flood histories used to develop the original estimates of the probability of floods of different severity were generally not very long. Consequently, modifications had to be made to prevent statistical bias. In our discussions, FIA officials described the measurement of flood frequency as "good as the state of the art" but noted that not every area has been studied in depth due to resource constraints. Agency officials said that in these cases, the frequency estimates are based on various histories and statistical analysis which ad hoc studies have shown to yield reliable results. In addition, the original estimates of the structural damage caused by floods of various depths were based on engineering studies and available flood claims. According to agency officials, these estimates are regularly updated with claims data, and credibility analysis[11] is used to check validity. Appendix IV provides a more detailed description of the model and its key data elements.

According to FIA, additional assumptions and judgments would be necessary if the model were to be used for the entire program because there is currently a lack of information on pre-flood insurance rate map (FIRM) properties.[12] FIA said that a current study on the impact of charging actuarial rates for pre-FIRM properties will be gathering additional

[10]We have not independently reviewed the studies on which FIA's data for actuarial rate-setting are based.

[11]Credibility analysis is a statistical technique used to determine the degree to which the accuracy of the experience can be relied on.

[12]Pre-FIRM properties are structures that were constructed before the initial mapping studies for the FIRMs were completed. The rates for these properties are currently subsidized.

information on these properties. Agency officials also noted that a trade-off exists between the benefits of more precise estimates and the cost of making these improvements. While factors such as the frequency of remapping and rezoning may affect the quality of the model's estimates, the costs of these studies should also be considered. For example, agency officials stated that even if sampling were done to get more precise estimates of the evaluations for pre-FIRM properties, the cost of this type of refinement could outweigh the potential benefits of improved estimates.

FIA has also done some work on developing catastrophic loss estimates that may be useful in assessing the program's appropriate reserve levels under an accrual-based budgeting approach.[13] According to FIA, the method used to estimate catastrophic funding levels uses additional statistical analysis and simulations in conjunction with the hydrologic method and is more complex than the actuarial rate-setting method alone. An FIA official estimated that catastrophic reserve levels of $4.5 billion to $5 billion should be sufficient 99.9 percent of the time. In recent years, FIA has been unable to establish reserves and has had to borrow funds from and repay funds to the Treasury to cover excess losses. These estimates of catastrophic reserve requirements were described as orders of magnitude, suitable for program planning purposes, rather than precise estimates. The FIA official explained that the closer the actual reserve funding level gets to the estimated amount, the more important data limitations and underlying assumptions become.

In summary, FIA has an established method for setting risk-related premiums for its unsubsidized policies. According to FIA, this methodology could be extended to generate risk-assumed estimates for the entire program. In addition, FIA's work on catastrophic reserve requirements may prove useful in assessing the appropriateness of reserve levels under an accrual-based budgeting approach. However, while this work should provide a useful foundation for developing risk-assumed estimates, FIA indicated that some modifications and refinements would be desirable before these estimates are used for accrual-based budgeting purposes and fully funding a reserve level target. One FIA official noted that this may involve considerable effort.

[13]As discussed in chapter 7, reserve levels are an important consideration because, in order to cover future losses, reserves need to be based on the long-term expected risk of an insurance program rather than policies issued in a given year.

Crop Insurance Program Has an Established Rate-Setting Methodology

The Federal Crop Insurance Corporation (FCIC) has an established premium rate-setting methodology and considerable experience assessing crop risk. According to FCIC, the basic rate-setting methodology used by the agency—the loss cost ratio method[14]—is commonly used in the insurance industry. Within agriculture, it is used by the rating bureaus that support the crop-hail insurance industry. Although this methodology could be used as the basis for measuring the program's cost in an accrual-based budget, several implementation issues stemming largely from the diversity of crop risks and timing differences between the budget cycle, the rate-setting process, and the exposure period would have to be overcome. In addition, some limitations in the methodology's underlying data and assumptions have been identified. According to the FCIC, internal reviews of the model and its key assumptions are ongoing and an external review of the model by an actuarial firm is underway. This external review should provide additional insights to help evaluate the model's ability to generate risk-assumed estimates for accrual-based budgeting and identify areas for continued improvement. The last comprehensive review of the methodology was completed in 1983 by the same firm.

The nature of crop losses makes risk assessment challenging. In prior reports, we have identified inherent problems in the ability to pool and assess the risk of crop losses.[15] Crop losses are not normally independent—some perils are likely to strike a large number of insured farmers in the same crop year. Further, it is difficult to align premium rates directly with risk because the risk associated with growing a particular crop varies by county, farm, and farmer. For example, the risk associated with a particular farmer is influenced by a variety of factors, including farm management practices, soil type, and the productivity of individual tracts of land. Monitoring these individual risks may be neither feasible nor cost-effective. In addition, crop risks are volatile. The performance of any specific crop or any area of the country is subject to wide variations depending on the state of nature. In general, the performance of any particular crop in a county is characterized by relatively infrequent catastrophes of moderate to extreme severity and a number of annual spot losses resulting from noncatastrophic events, such as hail.

[14]The loss cost ratio is calculated by dividing total claim payments by the total insurance in force.

[15]See Crop Insurance: Federal Program Faces Insurability and Design Problems (GAO/RCED-93-98, May 24, 1993) and Crop Insurance: Additional Actions Could Further Improve Program's Financial Condition (GAO/RCED-95-269, September 28, 1995).

As a result, the program's rate-setting methodology is complex. To align crop insurance premium rates with the associated risk, FCIC establishes rates that vary by crop, location (county), farm, and farmer. Because of all the combinations involved, literally hundreds of thousands of premium rates are in place. These rates are adjusted annually using a multistep process involving considerable computer analysis and professional judgment. FCIC begins the process each year by looking at crop insurance experience over the past 20 years (if available) for each county and state. On the basis of county and state historical experience, FCIC sets basic rates for each crop in each county at the 65-percent coverage level for average production. These basic rates are adjusted for specific risk classifications including each farming type (such as whether the insured acreage is irrigated or dry land) and for each crop type (such as winter wheat or spring wheat). Using these basic rates, FCIC makes several adjustments to establish rates for other coverage levels and for farmers whose production levels differ from the county's average. FCIC's rate-setting methodology is described in more detail in appendix IV.

FCIC agreed that this methodology could be used to estimate the program's expected risk but noted that data for detailed rate-setting are not available at the time the budget year submission is prepared. Because the risk of crop damage is closely aligned with specific characteristics of the crop, county, and individual farming practices, detailed information on the composition of coverage extended is necessary to provide projections of the full risk assumed for policies issued in any given year. However, detailed information on the composition and volume of policies and updated premium rates are not available at the time the budget year submissions are made. FCIC said that reasonable projections of insurance coverage can be made on a national scale at a higher level of aggregation, such as by crop type, but considerable uncertainty surrounds more detailed projections of specific policy coverage, such as crop-county combinations. Since estimates based on the actual composition of policies provide a more appropriate measure of the risk assumed, adjustments based on more detailed information may have to be made when the information becomes available.

According to FCIC's senior actuary, FCIC currently bases its budget estimate on current year sales data adjusted for several factors, such as projections of commodity prices, planted acres, and anticipated changes in premium rates. He agreed that this more aggregated approach would provide a sufficient basis for an accrual-based budget year estimate, even though the data for detailed rate-setting, including crop/county level data, are not

available when the budget submission is prepared. He said that the more detailed rate-setting methodology could subsequently be used to re-estimate the government's risk for actual policies issued during the year by "repricing" these polices using the full risk premium rates when sufficient information becomes available. The difference between the full risk premium for policies issued and actual premium collections would constitute the government's subsidy costs for policies issued in a given year. He agreed that the full risk premiums, which take into account specific risk and generally include amounts for catastrophic losses, are probably the appropriate basis for establishing reserves under an accrual-based budgeting approach. Even with this, there are decisions to be made about the confidence placed in these estimates, which—like other risk assessment models—depends on the acceptance of the methodology's underlying assumptions and data limitations.

A key assumption of the FCIC's rate-setting methodology is that the 20-year base period is sufficient to assess the program's future costs. The FCIC's senior actuary acknowledged that the appropriate period to use is debatable and that any finite number of years is inadequate to observe all possible states of nature or to assess the probability of each state of nature. He explained that the 20-year rolling average has been used primarily due to concerns about the availability, quality, and applicability of data from the early years of the program.

Our previous work found that premium rates depend heavily on the number of years included in the experience period and the weight assigned to each year. For example, in 1983 USDA's consultant suggested changing from the current methodology of giving equal weight to each of the 20 years' experience to giving greater weight to more recent years' experience. We found that the consultant's approach had a significant impact on the premium rates for three crops of the six major crops we reviewed.[16] The USDA consultant is evaluating whether the trend in losses in recent years requires a change in the methodology.

Another key assumption is that the sample of previous buyers of crop insurance is adequately representative of future buyers. Recent changes in the program have resulted in changes in the characteristics of the buyer population. As such, there is considerable uncertainty surrounding the future composition of the insurance portfolio. The model is also based on a number of secondary assumptions. These include the choice of

[16]Crop Insurance: Additional Actions Could Further Improve Program's Financial Condition (GAO/RCED-95-269, September 28, 1995).

parameters used to (1) allocate basic rates to the various components of risk, such as crop type and planting practice, and (2) adjust the basic rates for different coverage and production levels.

Our previous work raised concerns about the adjustments made to the basic rate level to arrive at rates for coverage and production levels that differ from those of the basic rate. These adjustments are important because the majority of all crop insurance is purchased at rates for coverage and production levels that differ from those covered under the basic rates. However, our previous work found that these adjustments did not result in rates that are aligned with risk. For example, to set the rates for the 75-percent and 50-percent coverage levels, FCIC applies preestablished mathematical factors to the basic rate.[17] According to our analysis of six major crops, the rates for this insurance were too high at the 75-percent coverage level and too low at the 50-percent coverage level in relationship to the basic rates. FCIC, using a mathematical model that sets rates according to preestablished relationships between production levels, also adjusts the basic rates for production for farmers whose historical production levels are above or below the county's average. However, as with the varying rates for coverage levels, we found that these adjustments did not result in rates that accurately reflect the risk involved at each production level.[18] In the past, agency officials cited a lack of time and resources as a barrier to revising the formulas applied to the basic rates to calculate these other rates. Currently, however, FCIC and its consultant are reviewing these factors and FCIC anticipates making adjustments in the future. Further, the FCIC noted that these differences may be offsetting in the aggregate and thus may not be as important for budget purposes as for setting individual farmers' premium rates.

Additional modeling techniques to aid in assessing the risk of crop losses may become available in the future. For example, FCIC said it is doing some work with multistage econometric models and OMB suggested that options pricing[19] could potentially be used to estimate the risk assumed by the government. However, these methods are only in the conceptual or early stages of development. The FCIC's senior actuary told us that the

[17]FCIC multiplies the basic rate at the 65-percent level by 154 percent to arrive at the rate for 75-percent coverage and by 72 percent to arrive at the rate for 50-percent coverage.

[18]According to the FCIC's senior actuary, recent analysis by FCIC's actuarial consultant show there is considerable variation in these relationships by crop and area of the county. There also is debate about appropriate methodology—experience-based, as done by the GAO, or yield-based, as done by the consultant.

[19]For a discussion of options pricing, see figure 5.1.

alternative models the FCIC is working on may provide useful supplemental information but are not reliable or useful enough for budget purposes. In addition, the use of these methods would require a significant upgrade in staff skills.

In summary, the FCIC has an established rate-setting method that could serve as the basis for estimating the risk assumed by the government. However, risk assessment for crop insurance is complicated by the variation of risk associated with different combinations of crops, counties, and farming conditions and practices. Detailed information to estimate the risk assumed based on specific characteristics of the insureds is not known at the time of the budget year submission. Therefore, a higher level of aggregation—perhaps similar to what is used for current budget estimates—could be used for the budget year estimates. Reestimates for the risk assumed based on actual polices issued in a particular year could then be achieved by repricing the polices based on the full risk premium when necessary information becomes available. Many of the methodology's assumptions and underlying data limitations are currently under review. This review should provide additional insights into the reasonableness of the methodology and its use for accrual-based budgeting.

Lack of Consensus on Risk Assessment Methodology for Deposit Insurance

The historic number of thrift and bank failures in the late 1980s and early 1990s and the costs associated with resolving these institutions motivated the development of methodologies to estimate future failures and their expected costs to the government's deposit insurance funds. In a prior report, we reviewed methodologies used by various federal agencies and private forecasters.[20] We found that different estimation approaches produced widely disparate results due in part to heavy reliance on professional judgment in specifying critical assumptions, such as estimates of market value, and the historical period used to project expected future losses. An analysis by staff of the Office of the Comptroller of the Currency (OCC) concluded that different estimation methodologies have strengths and weaknesses but no one approach appears to be superior.[21] Appendix II contains a description of six loss estimation methodologies.

[20]Bank Insurance Fund: Review of Loss Estimation Methodologies (GAO/AIMD-94-48, December 9, 1993).

[21]A Comparison of Different Approaches to Projecting Bank Resolutions, Draft Working Paper, Thomas J. Lutton, Robert DeYoung, and David Becher, Office of the Comptroller of the Currency, November 1993.

The health of the bank, thrift, and credit union industries is subject to many variables that are extremely difficult to predict. These include variables related to local and national economic conditions, behavior of regulators and management, and structural changes in the industries. Thus, attempting to predict the future prospects of financial institutions and estimate future losses to the insurance funds is an intrinsically uncertain proposition. In preparing loss estimates, there is no empirical formula for forecasters to follow that would enable them to know with certainty what approach or assumptions can most accurately reflect both present and future conditions and events that can play a significant role in the solvency of a financial institution. Only by making many assumptions can the available methodologies generate estimates of the impact of changes in the economy, industries, or regulatory behavior on the government's cost of providing deposit insurance. In addition, small changes in these key assumptions can produce large changes in cost estimates.

Determining the value of an institution's assets is one of the most challenging steps in estimating the government's cost of deposit insurance losses from failed institutions. Economic insolvency of a financial institution occurs and costs accrue to the insurance funds when the value of the institution's liabilities exceeds the market value of its assets. While the value of an institution's liabilities—primarily deposits—is generally known, the value of its assets—primarily loans—is much more uncertain. Most loss estimation methodologies rely on unaudited financial data that financial institutions are required to report—in call reports—to regulatory agencies. Experience has shown that these data do not always provide an accurate picture of the value of an institution's assets. For example, in 1991 we reported that asset valuations prepared by FDIC for 39 failed banks revealed $7.3 billion in additional deterioration in asset values (losses) compared to the last quarterly call reports filed by the institutions.[22] As a result, most estimation approaches adjust call report data in an attempt to approximate the market value of an institution's assets.

Estimating the market value of an institution's assets allows for earlier recognition of the government's deposit insurance losses than does reliance on historical book value measures reported in call reports. However, the use of market-value accounting is still controversial. Market values are not readily available for all categories of bank and thrift assets and liabilities. Analysts are divided over whether market-value accounting is precise enough for financial statements or whether it provides better

[22]Failed Banks: Accounting and Auditing Reforms Urgently Needed (GAO/AFMD-91-43, April 22, 1991).

estimates than book-value accounting. In addition, some models, such as OMB's, include a closure rule as a policy variable defined in terms of the asset-to-liability ratio of an institution. This variable can (1) be set based on observed behavior of regulators in a given period or (2) reflect prompt closure as mandated by the Federal Deposit Insurance Corporation Improvement Act of 1991. Delay in closing an institution after it has become insolvent has been shown to increase resolution costs.

Because of the nature of deposit insurance and the significant challenges associated with estimating the program's full long-term risk described previously, some departure from the pure risk-assumed cost concept may be appropriate in calculating risk-assumed estimates. For example, experts we consulted with held differing views on the degree to which OMB's model accounts for the full range of possible future outcomes, such as the catastrophic losses associated with the savings and loan crisis. However, the model's market-value-based accrual cost estimates would have provided policymakers with earlier recognition of deposit insurance costs than cash-based reporting.

The following sections discuss some of the limitations of the various types of models that are currently used by different forecasters to project losses to the deposit insurance funds. An assessment of the applicability and accuracy of any model for estimating the government's cost for deposit insurance can only be made in the context of alternative models so that the benefits and limitations of different approaches can be compared. The first section highlights some of the limitations of OMB's options pricing model, which the Bush administration proposed using for accrual-based budget reporting. The second section discusses some of the weaknesses of other loss estimation methodologies. A description of each of the methodologies is included in appendix II.

OMB's Options Pricing Model

Although any of the methodologies described in appendix II could be adapted to estimate the government's annual costs of deposit insurance, the focus has been on OMB's options pricing model because it provides a direct computation of accruing deposit insurance costs. Under OMB's estimation approach, deposit insurance is treated as giving the owners of a bank or thrift institution the option to transfer its liabilities to the government if the value of its assets falls below that of its liabilities. A brief overview of options pricing theory is provided in figure 5.1. OMB's deposit insurance model has two distinct components. The first part attempts to estimate the financial condition, or market value, of every

institution with liabilities over $100 million and then simulate their financial condition for future years. The second part uses options pricing techniques to calculate the expected costs of deposit insurance.

Figure 5.1: Options Pricing Theory and Federal Insurance

An *option* is a legal contract between two parties where the seller and the buyer of the option enter into an agreement to conduct specified transactions contingent on certain conditions. The party that buys and owns the option contract is called the *holder* of the option. The party that sells an option contract is called the *writer* of the option. A *call option* gives the holder a right, but not an obligation, to buy a specified asset at a predetermined price called the *exercise or strike price*. Similarly, a *put option* gives the holder a right, though not an obligation, to sell the specified asset at a specified exercise price. An *American option* can be exercised at any time during the length of the contract, whereas a *European option* can only be exercised at the end of the specified period.

Options pricing theory is used in a variety of applications to estimate the outcome or value of uncertain future events. In general, these types of models have two defining features: (1) one or more stochastic processes[1] which describe possible outcomes from one time period (state) to another and (2) a formulation of the outcome (or pay-off) in each state, given the prior sequence of states. Determining the value or price of an option is complicated because it is dependent on five factors. These factors are: (1) the time to expiration of the option, (2) the exercise price of the option, (3) the current asset price, (4) the risk-free interest rate of corresponding duration, and (5) the volatility of the asset price.

The price of an option is directly related to the probability that it will be exercised. Various mathematical and simulation methods have been developed to estimate the probability that an option will be exercised and the corresponding value of the option. In the case of stock options, the price of a put option reflects the expected cost to the seller of the probability that the option will be exercised by the buyer. Thus, the price of the put option is analogous to insurance premiums for a policy that protects the holder of stock against a fall in price below a specified threshold during a specified time period. In competitive markets, the price of the put option should reflect the actuarially fair premium for the implied insurance.

The use of an options pricing framework for valuing the government's deposit insurance commitments was pioneered by Robert Merton and later extended by Alan Marcus to estimate the government's liabilities resulting from pension guarantees.[2] Deposit insurance can be thought of as a put option purchased by a financial institution from the government in exchange for the payment of insurance premiums. The put option gives a bank or thrift the right to sell its deposit insurance liabilities to the government when the value of its assets falls below the value of its liabilities. Pension insurance can similarly be viewed as a put option giving firms the right to sell their pension liabilities to the government. The OMB models use the options pricing framework to estimate the net government liability, defined as the difference between the value of the put option (or the actuarially fair premiums) and the actual premiums collected, which are established legislatively.

[1]A stochastic process is one in which only chance factors determine the particular outcome of a single run through the process or trial. The possible outcomes are known in advance, but not the exact outcome of any one trial. The process does have some regularity which allows a probability to be assigned to possible outcomes.

[2]See Merton, Robert C., "An Analytical Derivation of the Cost of Deposit Insurance and Loan Guarantees: An Application of Modern Options Pricing Theory," Journal of Banking and Finance, June 1977, and Alan Marcus, "Corporate Pension Policy and the Value of PBGC Insurance," Issues in Pension Economics, ch. 3, Z. Bodie, J. Shoven, and D. Wise, eds., University of Chicago Press, 1987.

OMB's model is conceptually sound and OMB's efforts have made a significant contribution in extending the use of options pricing theory to estimate government insurance costs. However, a number of modifications to the model should be considered in order to improve its ability to estimate the government's deposit insurance cost. These refinements are geared toward addressing some of the concerns raised by experts about the model, including (1) the approach used to value financial institutions' assets, (2) the treatment of interest rate risk, and (3) the sensitivity of estimates to the specification of model assumptions and parameter values.

A key assumption of options pricing theory is that asset values are observable, measurable, and vary randomly over time. For assets for which there are efficient, well-developed markets, such as stocks, bonds, agricultural commodities, and foreign currencies, this assumption is not problematic. However, the value of a financial institution's assets is not readily observable or measurable. Although stocks of the very largest banks are traded actively, adequate market value data are not available for the many smaller and non-publicly-traded institutions. As such, the unavailability of market value data on bank and thrift assets is a limitation of OMB's options-based approach to estimating deposit insurance costs. In order to calculate the government's cost for insuring all institutions, OMB uses call report data to estimate the market value and volatility in the rate of return of bank and thrift assets.

OMB's use of estimated asset values and its method for calculating these estimates have been criticized. Some financial economists we spoke with questioned the practical application of options theory in the absence of observable and measurable market data that are generally available in more common uses of options theory. The use of an estimate of asset values is problematic because it may introduce measurement errors if the input data are not unbiased and efficient estimates of market value. The lack of an explicitly stated and observable exercise price of the option makes it difficult to determine when the option would be exercised. In the OMB model, the exercise price—economic insolvency—is expressed as a ratio of an institution's estimated assets and liabilities. The valuation of assets and liabilities is often difficult and depends on the measurement basis used, thus identifying the timing of when a firm's liabilities exceed its assets can be problematic.

Other financial economists argue that the lack of observable and measurable market value data for many financial institutions makes the use of call report data to infer market values a reasonable approach. OMB

bases its estimate of market value on an institution's current cash flow[23] from call report data and a set of econometrically determined variables. This approach, however, has been criticized because cash flows are very sensitive to business cycles, which may result in overestimating or underestimating the market value of an institution. Furthermore, in estimating the cash flows for individual banks, OMB divides all banks into four groups and estimates parameters, such as cash flow volatility and loan chargeoffs, for each group. These group parameters are applied to individual bank earnings in order to project future cash flows. This introduces correlation among banks in each of the groups when none in fact may exist. The limitations of OMB's asset valuation process were evident from its initial estimates of the parameters, which implied a negative net worth for all banks. This occurred because the estimation period included a banking recession. To correct for this, OMB adjusted its estimates of market values using stock market data on the largest publicly traded bank holding companies.

The OMB deposit insurance model has also been criticized because it does not explicitly take into account interest rate risk. The profitability of banks, thrifts, and credit unions is heavily dependent on both short- and long-term interest rates. The OMB model implicitly incorporates interest rate risk and other risks that affect an institution's profitability through assumptions made about asset value and volatility of asset earnings. However, the financial economists we consulted with suggested that because of the importance of interest rates to the financial health of a depository institution, explicit modeling of interest rates would be desirable. Some recent research in the options pricing area incorporates interest rate risk in an options pricing framework to estimate the government's deposit insurance liability.[24]

Another concern raised by experts is the sensitivity of the deposit insurance cost estimates generated by OMB's model to changes in key assumptions and parameters. Although the sensitivity of a model's output to changes in parameter values is not necessarily a negative attribute of a model, it heightens the need for unbiased assumptions and parameter estimates. For example, insurance cost estimates generated by OMB's model are particularly sensitive to assumptions about the future value of financial institutions' assets. Two key assumptions affecting estimates of

[23]Cash generated and used in operations.

[24]See, for example, Jin-Chuan Duan, Arthur F. Moreau, and C. W. Sealey, "Deposit Insurance and Bank Interest Rate Risk: Pricing and Regulatory Implications," Journal of Banking and Finance, vol. 19, no. 6, September 1995, pp. 1091-1108.

future asset values are asset volatility[25] and mean-reversion of earnings.[26] Analysis of OMB's model using alternative values for these assumptions produced significant changes in the estimated cost of deposit insurance. Using an Office of Thrift Supervision (OTS) estimate of mean-reversion reduced the government's estimated 5-year accrued costs by 49 percent compared to the estimated cost using OMB's assumptions. Using OTS estimated standard deviation of thrift assets increased the estimated 5-year cost by 56 percent. The differences in assumptions made by various financial institution experts and the resulting impact on the cost estimates demonstrates that additional research on the appropriate assumptions and parameter values is desirable.

Cost estimates generated by OMB's deposit insurance model are also highly sensitive to initial period financial data on depository institutions. OMB's model uses only the most recent four quarters of data on an institution's earnings to estimate its market value. The model projects the existing financial condition of institutions into the future and does not account for wide swings in the general financial health of the industry. As a result, input data from relatively good economic times will tend to underestimate future costs, while input data from an economic downturn will overestimate future costs. For example, using financial data from 1992, a recessionary year, the OMB model estimated that in 1994 the government would assume liabilities of $51 billion from failed banks with the cost to the government being a percentage of this amount. Actual liabilities from failed banks in 1994 were approximately $1 billion. Forecasting turning points in the economy is difficult for all forecasters—not only OMB's options model—but is one of the major hurdles to generating risk-assumed estimates for deposit insurance.

Financial economists at bank regulatory agencies were divided in their views on the use of OMB's model for accrual-based budgeting. An official at one agency stated that he did not believe that the model estimates are valid and reliable enough for budget and policy decisions. Some banking agency officials expressed concern that the complexity of OMB's model made it difficult to replicate and analyze the reliability of the cost estimates. On the other hand, an official at another banking agency stated that the concept of accrual-based budgeting makes sense given that once the government extends the insurance it has already accrued a cost. He stated further that some estimation uncertainty may be acceptable in the

[25]Asset volatility is the fluctuation over time of the value of an institution's assets—primarily loans. Assumptions about future asset volatility are generally based on observed historical volatility.

[26]Mean-reversion of earnings is the tendency of very high or low earnings to revert toward the industry's long-term average rate of return.

reported accrual-based cost for deposit insurance in the budget as long as there is a general understanding of the limitations involved. In contrast, he suggested that the same level of uncertainty would not be appropriate for setting insurance premium rates for individual banks.

Other Loss Estimation Methodologies for Deposit Insurance

Although the OMB options pricing model is the only methodology that directly provides an estimate of the government's accrued cost of deposit insurance, alternative models exist that provide forecasts of future bank insolvencies. These forecasts could be used to estimate the government's accruing costs. Appendix II provides a brief summary of the actuarial, transition matrix, asset markdown, proportional hazards, and pro forma projection models currently being used by various researchers to estimate bank and thrift institution losses.

All of the estimation models are limited by their high degree of reliance on professional judgment in setting assumptions and in their use of unaudited call report data. For example, actuarial models generate loss estimates based solely on historical incidence of resolution. Accordingly, the model estimates are highly sensitive to the choice of the historical period used to set these probabilities. For example, at the same time that the financial condition of the bank and thrift industries was improving in recent years, expected future loss estimates based on resolutions during the 1987 through 1992 period tended to be very high because they reflected the dismal performance of the industry during this period.

Actuarial approaches are also limited in that the effects of only two or three variables can easily be incorporated into the model. Estimates are thus highly sensitive to analysts' choice of the variables used and the grouping of institutions by these variables. Transition matrix models, a variation of actuarial models, implicitly incorporate more information into loss estimates by using regulatory ratings of financial institutions to estimate the probability of resolution for different categories of institutions. Regulators assign financial institutions a rating to reflect their financial and operating condition, determined through on-site examinations and examiners' assessment of risk. However, in addition to the limitations described above for all actuarial-based approaches, transition matrix models assume that regulatory ratings are the sole determinant of an institution's failure.

Asset mark-down approaches to estimating the cost of bank and thrift insolvencies are based on the premise that the market value of an

institution's assets and equity can be used to identify potentially insolvent institutions. These types of approaches are limited in that they are very data intensive, relying heavily on call report data and other data not readily available for all institutions. For example, some asset mark-down approaches attempt to discount the cash flows of several categories of an institution's assets and liabilities over their expected lives. In addition to detailed call report data, this process requires information, such as the maturity or duration of different types of loans, differences between loan contract and market interest rates, and expected prepayments. Other less rigorous approaches simply use analysts' judgments to adjust reported asset values and earnings growth. Even if these assumptions appear reasonable, it is difficult to reproduce or verify the adjustments.

Proportional hazard models, another type of econometric approach, attempt to predict the failure of an institution based on financial characteristics, regulatory ratings, and economic indicators. As with other methodologies, the analyst's ability to identify and measure the variables is fundamental. Central to proportional hazard models are historical data on failed institutions and the timing of regulatory action to close the institutions. Measuring time to failure can be problematic due to the history of delay in closing many insolvent institutions in the late 1980s. Use of this type of an approach has generally been limited to short-term forecasts although some recent research has attempted to forecast failures over a 5-year period.

Forecasts based on simple projections of current income and capital levels—pro forma projections—are also highly sensitive to assumptions and limitations of call report data. Such approaches assume that an institution's earnings are its only source of funds and therefore are highly sensitive to reported income and capital.

The existence and diversity of alternative loss estimation methodologies for deposit insurance provide a rich body of experience to draw upon in estimating costs under an accrual-based budgeting approach. However, such significantly different designs and the widely disparate cost estimates highlight the difficulty and uncertainty inherent in estimating deposit insurance costs. The current use of different approaches by federal agencies will also complicate efforts to reach consensus on the appropriate method to use to accrue costs in the budget. The uncertainties and limitations of the various estimation methodologies also underscore the need to have well-capitalized insurance funds to absorb losses from

failed institutions that are intrinsically difficult to estimate over a long-term period.

Risk-Assumed Estimation Methodologies for Pension Insurance Not Fully Developed and Tested

Methodologies that could be used to estimate the full risk assumed by the government in insuring private pension plans are not fully developed and validated. However, considerable research and development has been invested in two potential approaches—an options pricing approach and a simulation approach. OMB has built upon the work of several academic researchers and applied options pricing theory to estimate the government's liability for pension insurance. The Pension Benefit Guaranty Corporation has extended the research of Federal Reserve Bank of New York economists to simulate funding necessary for future plan terminations. Appendix III provides a brief overview of these two estimation approaches.

Estimating the cost to the government for the risk assumed in the pension insurance programs is a difficult exercise primarily because it entails forecasting the failure of firms with underfunded pension plans. Firm failure is dependent on a number of economic, industry-specific, and behavioral factors, which are highly uncertain and interrelated. In addition to forecasting firm bankruptcy, estimating the cost of pension insurance is complicated by the need to forecast the financial condition of pension plans. The health of a pension plan is greatly affected by the value of its assets, which depend upon uncertain market conditions and interest rates. In addition, the financial condition of the firm also affects the liabilities of the plan through factors such as employment and benefit levels as well as statutorily defined minimum funding requirements. Under current law, PBGC is allowed to charge plan sponsors a variable premium based only on its level of unfunded vested benefits.

OMB's Options Pricing Approach

In recent years, OMB has invested significant effort in using options pricing theory[27] to estimate the government's cost of federal pension guarantees. The Bush administration's 1992 accrual budgeting initiative proposed using options pricing methodologies for estimating the accrual costs for both deposit insurance and pension guarantees. In OMB's pension model, the government's guarantee is treated as giving the owners of a firm the option to transfer the pension plan liabilities to PBGC when the firm becomes insolvent. This is similar to the concept used by OMB for estimating the cost of deposit insurance. However, since the cost to the

[27]See figure 5.1.

government for the pension guarantee is contingent on the financial conditions of both the pension plan and the plan's sponsoring firm, OMB's pension model specifies a probabilistic process for deriving the future value of both the pension plan's and the sponsoring firm's assets and liabilities.

OMB's options pricing model for estimating the government's cost of pension guarantees requires certain modifications and assumptions that go beyond common applications of options theory. In most applications of options pricing, the time to expiration of the option is typically short. As such, assuming that the value of assets, liabilities, or interest rates will change at a constant rate over time is not problematic. However, for pension insurance, the duration of the option is long, making such standard assumptions unrealistic. For example, the OMB model assumes that the value of a firm's assets will vary in the future but always at the same rate. This assumption is important in determining the future value of firm and pension assets and, ultimately, the value of the option and the government's cost. Experts with whom we consulted pointed out that common applications of options pricing for long-lived options typically use probabilistic functions, which allow for large changes in asset values. Thus, the OMB model potentially could be improved by specifying a probabilistic process that would allow greater volatility in future asset values. PBGC officials also noted that OMB's model does not take into account Internal Revenue Code rules that specify minimum and maximum pension plan funding that may dampen actual volatility in the growth of pension plan assets.

Modifications to the OMB model with regard to its treatment of interest rates could strengthen its estimation capability. The values of pension liability are dependent on prevailing and future interest rates because these liabilities are due in the future. The assumption that future interest rates are determined today, as assumed in OMB's model, will cause inaccuracies—especially in a long-term estimate. The experts that we consulted also recommended that since interest rate risk has significant implications for pension liabilities, a separate recognition of interest rate risk within the OMB model should be considered. Modeling variations in future interest rates using an appropriate probabilistic process would introduce variation in a firm's future pension fund liabilities and potentially improve estimates of the government's liability.

Sensitivity analysis performed on the OMB model demonstrated that assumptions about how much the value of firm and pension plan assets

will vary over time have significant impact on the model estimates. For example, PBGC's net liability decreased 80 percent when the volatility of a firm's assets assumed by OMB was cut in half. When volatility estimates derived by other researchers were plugged into the model, the government's estimated net liability dropped by 92 percent. Such significant differences in the model estimates indicate that additional research on key model parameters and assumptions should be undertaken. Other parameter assumptions, such as the level of net worth at bankruptcy, have also been questioned and should be grounded in empirical research.

In addition to the modifications described previously, additional research and development would be necessary before estimates from OMB's model could be used for accrual-based budgeting. In its current form, the OMB model only generates an estimate of the government's cost of pension insurance over an indefinite period. In order to use this cost estimate in an annual budget context, a methodology to amortize the cost on a yearly basis is necessary.

In discussing OMB's model with PBGC officials, concerns about the complexity of the model were raised. Even though OMB's research has been published, and officials have been open in providing researchers access to the model, PBGC's chief economist characterized the OMB model as a black box. He noted that the model is too complex for most analysts and economists to fully understand and does not provide an intuitive understanding of the factors influencing the government's cost. In part, these concerns led PBGC to pursue a simulation-based approach to model the financial condition of its insurance program under a range of economic scenarios. PBGC officials asserted that less restrictive computer simulation models are increasingly taking the place of options pricing approaches in financial markets as financial instruments have become more complex and computing power less expensive.

PBGC's Simulation Approach

Over the last several years, PBGC has been developing a computer simulation model, called the Pension Insurance Modeling System (PIMS), to improve its capacity to estimate future claims and evaluate the impact of proposed legislative or regulatory changes on its financial condition. PIMS allows PBGC to model a large number of firm and pension plan attributes, including interest rates, asset returns, and bankruptcy rates, over a wide set of possible economic scenarios. PBGC believes that its simulation approach is a better tool for policy analysis than OMB's options pricing

model, but agency officials we spoke to were divided over its use for accrual budgeting. OMB has indicated that it would like insurance program agencies to have responsibility for developing accrual-based budget estimates and views PBGC's PIMS research efforts as a step in that direction.

Opinions about the usefulness of PIMS for accrual-based budgeting purposes differ. PBGC's chief economist expressed concern about using PIMS or any model for accrual-based budgeting purposes. He said that the future expected cost of PBGC's pension insurance is very sensitive to changes in key assumptions. For example, he said using interest rate experience from the period 1926 to 1991 produces a considerable change in the expected cost compared with using the experience of the 1970 to 1991 period. Although the information provided by different simulations is very useful for policy analysis, he does not think it is stable enough for budgeting or accounting. The chief economist suggested that some of his concern could be alleviated if assumptions were set by a neutral body to minimize the potential for manipulation of the cost estimates.

PBGC's chief actuary stated that actuaries look for the best estimate and not the "right" number. He pointed out that all budget estimates are imperfect and PIMS has real value as an estimating tool. Estimating the exposure undertaken by the government is self-correcting—gains and losses over time offset each other. However, if over a number of years gains or losses start adding up and exceed a certain level, then the methodology would have to be reassessed. He stated that this approach has been used by insurance companies to estimate risk-based reserves.

Other Insurance Programs Also Present Estimation Challenges

The other insurance programs we reviewed—the war-risk insurance programs, the Overseas Private Investment Corporation's (OPIC) political risk insurance, and the Vaccine Injury Compensation Program (VICP)—will likely present significant estimation challenges under an accrual-based budgeting approach. The unique role of these programs, the subjective or volatile nature of the insured risks, or a lack of relevant historical data complicate risk assessment. According to agency officials, none of these programs currently rely on heavily quantitative or systematic risk assessment tools.

OPIC's Risk Assessment Process Relies Heavily on Expert Judgment

OPIC relies heavily on expert judgment to assess the risk it undertakes in insuring investments of U.S. companies abroad against expropriation, currency inconvertibility, and political violence. Although the use of more

quantitative methods, such as econometric modeling or options pricing, has been suggested by some budget experts, no specific comprehensive models have been developed. Further, OPIC officials and some analysts expressed skepticism about the usefulness of this type of modeling for OPIC's insurance activities.

The complexity and subjectivity of political risks along with a lack of relevant data make risk assessment difficult. Political risks tend to be country-, industry-, company-, and project-specific. Political risks are subject to many variables that are inherently difficult to predict, such as the political stability of governments, long-term macroeconomic conditions, changes in future foreign relations, or the acceptability of a given project or industry to the host country. Thus, a risk for one industry may not be relevant for another industry in the same country. Further, because there is a lack of empirical evidence, assessment of the potential implications of various events and conditions is based on primarily subjective evaluation. An OPIC official stressed that there can be considerable uncertainty surrounding the business environment and other factors that influence the risk associated with a particular project. For example, agency officials stressed that many of the countries covered by OPIC do not have an extensive history of private sector development and economic reform programs that would be necessary to develop a useful model. One official noted that in some areas, such as Eastern Europe and Russia, there is no historical experience to draw on. Agency officials said that for these reasons, there are no effective quantitative models or actuarial tables for OPIC's political risk insurance.

Currently, the risk assessment methods used by OPIC to set premium rates and establish insurance reserve levels rely heavily on expert judgment. However, according to OPIC officials, while the risk assessment process is not highly quantitative, efforts are made to establish premium rates based on the risk assumed for a particular project. In determining the risk associated with a given project, OPIC considers the project-specific risk, such as the structure of the project and the experience of the project's sponsors, and country-based risk, such as projections of the country's general economic condition, including balance of payments and foreign exchange reserve levels. According to OPIC officials, each investment is negotiated and underwritten individually. They stressed that this process is important in controlling OPIC's risk exposure precisely because predicting political risk over long periods[28] is so difficult.

[28]According to OPIC officials, the majority of contracts are written for 20 years.

OPIC establishes general reserves based on losses inherent in its entire portfolio. For budget purposes, budget authority is obligated for these reserves when identified. Reserve levels are developed by OPIC's management in consultation with the agency's independent auditors and are based on historical experience and an assessment of other factors, including changes in the composition and volume of the insurance outstanding and worldwide economic and political conditions. However, according to agency officials, there is little historical data or 20-year trend information that can be used to develop actuarial tables to accurately predict risk. They noted that the program's entire historical experience is considered because claims have been sporadic over the life of the program and no discernable patterns exist. Further, they emphasized that although historical data provides a starting point, adjustments are made to account for OPIC's new business and other factors that affect the level of risk undertaken. As a result, OPIC officials stressed that management's judgment is a key factor in determining the appropriate reserve levels.

OPIC officials expressed serious concerns about the feasibility and usefulness of generating risk-assumed estimates for budget outlays on either a project-specific or annual cohort basis. They pointed out that since only a few (about 150) policies for an even fewer number of projects are issued each year, adequately pooling risk in any year is extremely difficult. According to agency officials, a primary concern in minimizing overall risk is maintaining an appropriate balance across clients, business sectors, and countries. They stressed that in their opinion, the focus of management's efforts and decision-making should be on "good portfolio management," such as using contract provisions and client diversification to mitigate the aggregate risk undertaken by the program. Agency officials did not believe that a focus on annual cohorts—rather than on OPIC's entire portfolio—was conducive to this broad management focus.

Agency officials also noted that a number of factors make determining the net cost to the government at the time insurance is extended difficult. For example, they explained that the amount of recoveries associated with specific projects is very uncertain but not including these amounts would overstate the government's potential cost. They also said that it would be very difficult to determine how to account for and allocate the benefits of contract provisions that limit total covered losses for multiple projects by the same company. Overall, OPIC officials said that they strongly opposed the use of cohort-based budget estimates and were skeptical of whether a comprehensive risk assessment model for their insurance activities could be developed. They maintain that their current practice of obligating

reserves based on losses inherent in their portfolio when identified is a reasonable approach.

Unique Role of the War-Risk Programs Complicates Risk Assessment

The unique role of the maritime and aviation war-risk insurance programs complicates risk assessment. The war-risk insurance programs provide insurance to commercial airlines and ship owners during extraordinary circumstances, such as war and other hostilities, in order to support the foreign policy interests of the United States. Both programs provide coverage only when commercial insurance is not available or is available only on unreasonable terms and conditions. This unique role complicates risk assessment because by design (1) the insured risks tend to be case-specific and highly variable, (2) historical program data are limited, and (3) commercial sector war-risk insurance data are unlikely to be directly applicable to the risk assumed by these federal programs. Currently, risk assessment for both programs relies heavily on expert judgment. Neither program uses quantitative modeling or standard risk assessment procedures.

Officials from both agencies told us that because of the programs' infrequent activation and extremely rare losses, there is a lack of historical program data for risk assessment. For example, according to Federal Aviation Administration (FAA) officials, aviation war-risk insurance has only been issued during a few brief periods since 1975. Maritime Administration (MARAD) officials also stated that their war-risk insurance is activated very infrequently and remains active for short durations, usually less than a year. Claims under the programs are also extremely rare. In addition, agency officials told us that historical information from commercial war-risk insurance may not be useful in assessing the risk undertaken by their war-risk insurance programs because commercial information often is not readily available or applicable. For example, officials at both agencies told us that premium information is generally not released by commercial sector war-risk insurers.

Because of the above limitations, risk assessment for the federal war-risk programs currently relies heavily on expert judgment. Premiums for both programs are set in consideration of the risk involved and U.S. policy interests and to encourage the participation of commercial insurers. In general, risk assessment involves the subjective evaluation of the numerous factors associated with a particular flight or voyage. For example, according to FAA officials, they consider factors such as (1) the hull value, (2) the potential liability for passengers, crew, cargo, and losses

on the ground, and (3) the apparent danger associated with flights into the area(s) excluded by commercial insurers. They told us that in assessing the risks associated with a particular area, they consider available information on potential dangers, such as intelligence information on terrorist groups and the types of weapons involved in the conflict. MARAD officials also described their risk assessment process as ad hoc and subjective. They said that a number of factors are considered in assessing risk, such as (1) the destination of the vessels, (2) the extent of the military threat, (3) the current commercial rates, and (4) the value of the vessels. According to agency officials, an outside consultant, the American War-Risk Agency, has provided advice on risk assessment.

Overall, officials from both war-risk programs expressed concerns that accrual-based budgeting may not be feasible for their programs. Officials at both agencies described the infrequent and limited issuance of insurance and the resulting lack of historical experience as key obstacles to developing risk-assumed estimates and using accrual-based budgeting for these programs. The emergency—or stand-by—nature of the programs makes it difficult to know in advance when they will be activated and limits the time available for risk assessment. FAA officials stated that in their opinion it was not feasible to generate reliable risk-assumed estimates for the budget. MARAD officials provided a similar assessment for their war-risk program, stating that given the nature of the program, reliable estimates of the risk assumed could not be developed.

Vaccine Injury Compensation Program's Limited Historical Experience May Impede Risk Assessment

According to Health Resources and Services Administration (HRSA) officials within the Department of Health and Human Services (HHS), systematic risk assessment is not currently undertaken for VICP. The program's limited historical experience was cited as a key factor in the uncertainty surrounding its future costs. HRSA officials stressed that in their opinion, there is not sufficient historical evidence on the cost of claims to produce meaningful estimates of the program's future costs because the program has only been in operation since 1989. A 1994 Treasury report also concluded that VICP had not been in existence long enough to project future outlays with confidence.[29]

The lack of scientific evidence linking adverse events to vaccines and the dynamic or subjective nature of some variables, such as the amount of settlement awards, have also been cited as factors complicating risk

[29]National Vaccine Injury Compensation Program: Financing the Post-1988 Program and Other Issues, Department of the Treasury, August 1994.

assessment. According to the Treasury study, "the scientific literature indicates that most injuries and deaths of the type compensable under VICP cannot be said with certainty to be caused by vaccinations."[30] In addition, HRSA officials expressed concern that the dynamic or subjective nature of some variables make it difficult, if not impossible, to generate reasonable projections of the program's future claims. For example, the introduction of new vaccines and the increasing use of combined antigens in a single vaccination make it more difficult to determine risk. Also, HRSA officials described settlement amounts awarded by the courts as case-specific and subjective.

Overall, HRSA officials expressed serious reservations about the feasibility of producing reasonable projections of the program's future costs and the use of accrual-based budgeting for VICP. The Treasury report concurred that until the program matures, program outlays cannot be estimated with confidence, but noted that "as the program matures sufficient program data will become available to permit more sophisticated methods of estimating future outlays to be used."[31] For example, a Treasury analyst noted that it may not be necessary to establish causation between the vaccine and the adverse event in order to establish an estimate of the program's future outlays. As more cases are settled, it may be possible to establish a pattern between adverse events and award amounts based on historical data. However, changes in variables over time, such as injury coverage and the introduction of new vaccines, will have an impact on the usefulness of cost estimates based on historical data.

Estimation Challenges Are the Critical Factor in Use of Risk-Assumed Estimates

The ability to generate reasonable, unbiased estimates of the risk assumed by the federal government is of primary importance in the effective implementation of accrual-based budgeting for federal insurance programs. However, as the discussion in the preceding sections shows, the current development and acceptance of risk assessment methodologies varies significantly across these programs. This variation reflects the diversity and nature of the risks insured by the federal government. For some programs, such as the Service Disabled Veterans Life Insurance program, estimates are sufficiently established so that the government's cost—"the missing premium"—can be reasonably estimated. For other programs, such as deposit insurance, alternative models with different theoretical and practical approaches result in an array of estimates of the government's costs. Other insurance programs, such as the war-risk

[30]Ibid., v.

[31]Ibid., v.

insurance and vaccine compensation programs, have no or limited systematic risk assessment experience. To date, no formal or quantitative risk assessment methodologies have been established for these programs. All risk assessment approaches, regardless of their technical sophistication, are based upon many judgments and the quality and quantity of available data. As such, assumptions and the process used to arrive at estimates need to be well documented. In this regard, the use of econometrics or other quantitative methods can facilitate the replication of estimates by other analysts and auditors.

The estimation challenges highlighted in this chapter are at the center of the accrual-based budgeting debate. Within the budget community, there are a variety of views on the acceptable level of uncertainty and complexity to introduce into the federal budget. As discussed in chapter 7, consideration of these issues is likely to be most beneficial when the focus of the discussion is on whether or not the inclusion of risk-assumed estimates would provide policymakers with more accurate information and signals about the underlying insurance programs, rather than on whether an estimate is the "right" number. It may be most important that the budget information and incentives provided to policymakers be "approximately right rather than precisely wrong."

Approaches for Incorporating Accrual-Based Estimates Into the Budget for Insurance Programs

The way in which accrual-based cost information for federal insurance programs is incorporated into the budget will influence the extent to which budget information and incentives are changed and the limitations of cash-based budgeting are overcome. A key issue surrounding the use of accruals in the budget is the extent to which earlier cost recognition is linked to increased cost control. It is clear that risk-assumed estimates are not yet sufficiently developed to be incorporated directly into the primary budget data—budget authority, outlays, and the deficit. Supplemental reporting of these estimates as they develop would provide policymakers additional information and serve as the basis for future evaluation of whether to incorporate the estimates into the primary budget data. If, over time, reasonable unbiased estimates are developed and a decision is made to use them in the primary budget data, approaches to doing so need to be considered. In this chapter, we examine three general ways of using accrual-based estimates in the budget and their respective advantages and disadvantages.[1] In chapter 7, we discuss other issues related to the implementation of accrual-based budgeting for insurance programs.

Three General Approaches Offer Progressive Integration of Accrual-Based Information Into the Budget

Three general approaches to using accrual-based estimates in the budget demonstrate how these measures might be progressively integrated into the primary budget data—budget authority, net outlays, and the budget deficit. Each approach would have a different effect on the aggregate budget totals.

Supplemental Approach: Under this approach, accrual-based cost measures would be included as supplemental information in the budget documents. The current basis of reporting budget authority, net outlays, and the budget deficit would not be changed.

Aggregate Budget Authority Approach: Under this approach, accrual-based cost measures would be included in budget authority for the insurance program account and in the aggregate budget totals. Net outlays—and hence the budget deficit—would continue to be reported on a cash basis.

Aggregate Outlay Approach: Under this approach, accrual-based cost measures would be incorporated into both budget authority and net outlays for the insurance program account and therefore in the aggregate

[1]CBO and OMB discuss several options for incorporating accrual cost measures into the budget for deposit insurance in their respective studies, Budgetary Treatment of Deposit Insurance: A Framework for Reform, Congressional Budget Office, May 1991, and Budgeting for Federal Deposit Insurance, Office of Management and Budget, June 1991.

budget totals. Thus, unlike the other approaches, the budget deficit would include the accrual-based cost for federal insurance programs. This approach is the most comprehensive and would be similar to the approach used for credit programs under credit reform.[2]

Supplemental Approach Would Retain Current Basis of Budget Reporting for Federal Insurance Programs

Under the supplemental approach, estimates of the risk assumed by the government would be included in the budget documents as additional information. Given the existing state of the art in making accrual-based estimates, this approach is the most feasible at this time. The current basis of reporting budget authority, net outlays, and the deficit would not be changed. Including accrual-based information in the budget to supplement the traditional cash-based budget reporting for federal insurance programs would increase the information available to decisionmakers by helping to highlight the potential costs of these programs. This approach would also allow time to test and improve estimation methodologies and increase the comfort level of users before considering whether to move to a more comprehensive approach. In a similar fashion, information on federal credit programs and estimates of the government's subsidy costs were reported for years in the Special Analyses volume of the President's budget prior to the enactment of credit reform.

However, this approach might not have a significant impact on the budget decision-making process because the accrual-based cost information would not directly affect the budget totals and the budget allocations to congressional committees. Furthermore, there may be little incentive to improve cost estimates and/or risk assessment methodologies for the various insurance programs since this information would not be the basis for budget decisions. Figure 6.1 provides a summary of the key advantages and disadvantages of the supplemental information approach.

[2]Appendix I provides an overview of the treatment of direct loans and loan guarantees under credit reform.

Figure 6.1: Advantages and Disadvantages of the Supplemental Approach

Advantages

- Provides earlier disclosure of insurance costs in budget documents.
- Retains the current basis of reporting, which is relatively straightforward and understandable.
- Uses the same reporting basis for federal insurance programs as most other federal programs.
- Allows time to develop, test, and improve estimation methodologies.
- May be used to smooth transition to more comprehensive approach.

Disadvantages

- May not significantly influence the budget decision-making process because accrual-based costs are not incorporated directly into primary budget data.
- May not prompt sufficient efforts to improve cost estimates because accrual-based costs are not the basis of budget decisions.

Accrual-based costs for federal insurance programs could be presented as supplemental information in the budget in a number of ways. In recent years, OMB has provided some risk-assumed cost information on insurance programs in the Analytical Perspectives volume of the President's Budget.[3] This presentation could be continued and enhanced by developing a consistent format for reporting the risk assumed by each program.

Useful information for this type of presentation, some of which has been presented in previous budgets, includes (1) the annual risk-assumed cost for each program, (2) summaries of the methodologies used to generate cost estimates, and (3) explanations of any changes in estimates from year

[3]For example, see chapter 8, "Underwriting Federal Credit and Insurance," Analytical Perspectives, Budget of the United States Government, Fiscal Year 1997.

to year. Two key advantages of this type of presentation are (1) a more detailed narrative discussion is possible than in the account-level presentation of the budget appendix and (2) all federal insurance programs are discussed in one place.

Such a discussion could be further supplemented if accrual-based cost information was also displayed at the insurance program account level in the budget appendix even though it would not be included in the budget totals. For example, the cost of insurance programs could be shown on an accrual basis in one table for display purposes and on a cash basis in another table for the same account. Although only the cash-based amount would be included in the budget totals, this presentation may increase attention paid to risk-assumed cost estimates at the time budget decisions are made. Such a display would highlight the differences in the type of information provided on a cash basis versus an accrual basis for the various insurance programs without changing the reporting basis of total budget authority, net outlays, or the budget deficit.

Aggregate Budget Authority Approach Would Introduce Some Accrual Amounts Into the Budget

The aggregate budget authority approach moves further along the continuum from cash-based budgeting to full accrual-based budgeting. This would incorporate accrual-based cost measures into budget authority but would stop short of adopting the full credit reform approach. The full cost of the risk assumed by the government would be recognized in the budget authority for the insurance program and the aggregate budget authority totals. Net outlays and the budget deficit would continue to be reported on a cash basis. Budget authority would be obligated at the time an insurance commitment was made and would be held as a reserve in the program account earning interest. Future claims would be paid from the authority in these reserves.

A key advantage of the aggregate budget authority approach is that it provides earlier recognition of insurance costs directly in the budget (in budget authority) while preserving cash-based reporting for net outlays and the deficit. Recognizing accrual cost estimates in budget authority may increase attention to these costs without potentially subjecting outlays and the deficit to estimation uncertainty. This increased attention may also focus efforts on improving cost estimates. However, since the accrual-based cost would not be reflected in the budget deficit, it is unclear how much more this approach would affect the budget decision-making process than the supplemental information approach.

Figure 6.2 presents a summary of the key advantages and disadvantages of the aggregate budget authority approach.

Figure 6.2: Advantages and Disadvantages of the Aggregate Budget Authority Approach

Advantages

- Recognizes cost directly in the budget as budget authority at the time insurance commitments are made.
- Retains cash-based reporting for net outlays and budget deficit, which is relatively straightforward and understandable.
- Increases budget recognition and the likelihood of controlling annual program costs as compared to the supplemental approach.
- Removes program cost distortions and perverse budget scoring incentives for budget authority.
- May be used to recognize the cost of establishing reserves for high or catastrophic loss years and reduce the possibility of unintended subsidy costs.
- May be used to smooth the transition to a more comprehensive aggregate outlay approach.

Disadvantages

- Recognition of costs in budget authority alone may not significantly influence the budget decision-making process.
- Recognition of cost in budget authority does not address the cost distortions and perverse scoring incentives for outlays that can occur on a cash basis.
- Outlays and the deficit will continue to reflect cash flows rather than focusing attention on the cost of new insurance commitments.
- Impact of temporary or sporadic cash flows on the deficit would not be moderated.
- There may be an incentive to divert reserves to other purposes (see chapter 7).
- The reporting of budget authority on a risk-assumed basis and outlays on a cash basis may be confusing.

The influence of this approach is likely to be further limited by the fact that most federal insurance programs are classified as "mandatory" under BEA.[4] This means that only increases in budget authority caused by changes in legislation must be addressed by the Congress. Although this is also true for automatic increases in outlays, the fact that changes in outlays increase the deficit could prompt action. The budget authority only approach does not offer this incentive. The potential impact of this approach on the decision-making process would likely be greater for insurance programs that are classified as discretionary spending because accrued costs would be included under the discretionary budget authority spending caps. As discretionary budget authority totals near the discretionary spending limits, this approach may prompt the Congress to specifically address the costs of these programs.[5]

A Discretionary Feature Combined With Aggregate Budget Authority Approach Could Prompt Action to Address Costs

Actions to control costs under the aggregate budget authority approach could be prompted by requiring a discretionary appropriation for the government's subsidy cost. For insurance programs classified as mandatory, a separate discretionary account would be created to record the government's subsidy costs. A general fund appropriation to the discretionary account would be required to cover any subsidy costs in the year the insurance is extended, unless alternative actions were taken to reduce the government's cost, such as increasing program collections or reducing future program costs. Amounts appropriated to the discretionary account would then be paid to a mandatory program account. The mandatory program account would handle all other cash flows including premium collections and claim payments. This account would also hold the program's reserves for future claims. As a result, the government's accrual-based costs would be reported in the budget authority and net outlays for the program's discretionary account and in the budget authority totals for the government. Total net outlays and the budget deficit would continue to be recorded on a cash basis.

Figure 6.3 demonstrates how the cost of a hypothetical insurance program would be recorded under this approach, assuming that a funding

[4]As noted in chapter 2, claim payments for 10 of the 13 programs reviewed are classified as mandatory spending.

[5]CBO estimates that the President's fiscal year 1998 discretionary spending proposals will be approximately $4 billion below the budget authority spending caps.

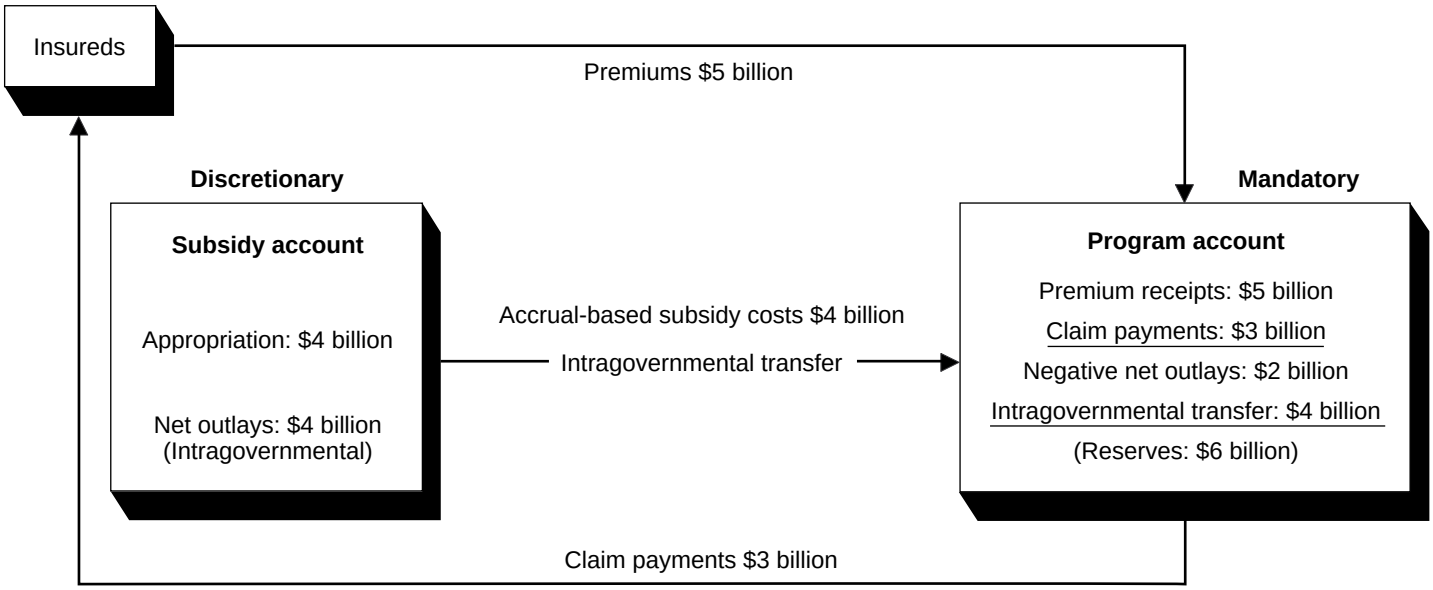
deficiency exists on an accrual basis. The insurance program is assumed to have the following activity:[6]

(1) premium collections of $5 billion;

(2) claim payments of $3 billion; and

(3) an accrual-based subsidy cost to the government of $4 billion, i.e., an estimated funding shortfall between the risk assumed and estimated collections.

Figure 6.3: Reporting Flow for the Budget Authority Approach With Discretionary Option



As shown in Figure 6.3, the mandatory program account would record cash flows, including $5 billion in premium collections and cash outlays of

[6]Administrative costs have been omitted for simplicity. In practice, some insurance programs are designed to cover administrative costs while the administrative costs of others are paid from general fund appropriations. The treatment of administrative costs should be considered in the development and implementation of accrual-based budgeting for these programs. For example, if the intention is for the program to be completely self-supporting, then administrative costs should be covered by program collections and could be paid from the financing account to the program account. Alternatively, if administrative costs are covered by general funds, they could be separately appropriated to the program account.

$3 billion for claim payments. The accrual-based subsidy cost of $4 billion would be appropriated to the discretionary account and then transferred to the mandatory account. As a result, the subsidy cost of $4 billion would be scored against the discretionary spending caps and, negative outlays of $2 billion would be recorded in the mandatory program account and included in the deficit. Reserves of $6 billion would be held in the program account as obligated budget authority invested in Treasury securities.

A key advantage of this approach is that it prompts budget decisionmakers to address explicitly the government's cost while preserving the more straightforward cash-based reporting for net outlays and the budget deficit. Since the appropriation would be discretionary, and thus subject to BEA caps (assuming their extension), decisionmakers would have an incentive to reduce the government's costs. Despite this advantage, however, there are broader policy considerations involved with creating a discretionary aspect for programs originally funded as mandatory spending.[7] In most cases, such a step would go beyond simply changing the reporting of program costs in the budget by shifting the locus of decisions to the annual appropriation process thereby possibly changing program operations. Figure 6.4 summarizes the key advantages and disadvantages of this feature.

[7]Claim payments for 10 of the 13 insurance programs included in this study are classified as mandatory spending under BEA.

Figure 6.4: Advantages and Disadvantages of the Aggregate Budget Authority Approach With Discretionary Outlay Feature

Advantages

- Recognizes cost directly in the budget at the time insurance commitments are made.
- Provides an additional level of budget control.
- Reports net outlays and the budget deficit on a cash basis, which tends to be straightforward and easy to understand.
- All cash flows from insurance programs would be included in budget totals.
- Improves the relative cost information for federal insurance programs.
- May be used to smooth the transition to a more comprehensive approach.

Disadvantages

- Requires a fundamental change in the nature and operations of most federal insurance programs.
- May increase incentive for manipulating cost estimates due to pressure of discretionary spending caps.
- Does not eliminate the distorting effects of temporary or erratic cash flows on the deficit.
- Increases the complexity of the program's budget treatment.

Aggregate Outlay Approach Incorporates Accruals Into the Primary Budget Data

The aggregate outlay approach is the most far-reaching of the three general approaches outlined. This approach is similar to both the treatment of credit programs under credit reform and the approach proposed by OMB for federal insurance programs in the fiscal year 1993 budget. Under this approach, accrual-based costs would be recorded in both budget authority and outlays for the program and in the aggregate budget totals, including the budget deficit.

Like credit reform, two key features of this approach include (1) the use of a program account and a financing account[8] and (2) the separation of insurance program activities into transactions that represent a cost to the government and transactions that are merely cash flows with no cost to the government, such as working capital transactions. The government's accrual-based subsidy cost for an insurance activity would be recorded in the program account while all other cash flows would be handled in a separate financing account. Similar to credit reform, the program account would be budgetary and thus included in the calculation of the budget deficit. The financing account, on the other hand, would be a nonbudgetary account[9] and thus not included in the deficit calculation. Table 6.1 illustrates the relationship between these accounts, the budget deficit, and the government's borrowing needs.

Table 6.1: Relationship Between Budgetary and Nonbudgetary Accounts

Budgetary accounts	**Total Governmental Receipts**
	minus
	Net Outlays
	equals
	Deficit (or Surplus)
Nonbudgetary accounts	minus
	Means of Financing
	equals
	Borrowing From the Public

Source: Budgetary Treatment of Deposit Insurance: A Framework for Reform, Congressional Budget Office, May 1991.

Under this approach, the accrued cost to the government would first be recognized in the program account and then outlayed to the nonbudgetary financing account. This transaction will cause the government's accrual-based subsidy cost to be included in the deficit at the time the insurance is extended. Therefore, the measurement basis of outlays for the program account and deficit would be changed from the current cash

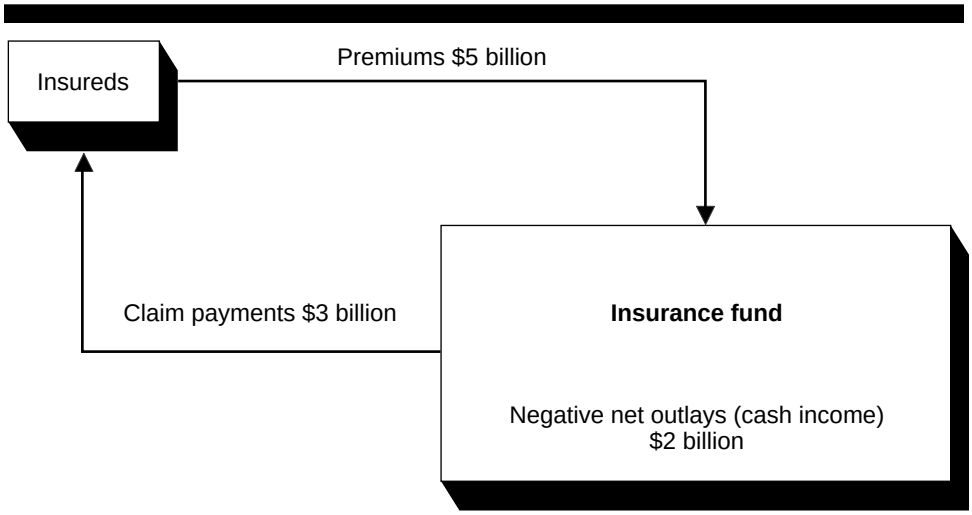
[8]A third account, a liquidating account, may be used for some insurance programs to handle transactions that occur prior to changing to the new budget treatment. Chapter 7 discusses the use of a liquidating account.

[9]Nonbudgetary accounts appear in the budget document for information purposes but are not included in the budget totals for budget authority or outlays. They account for transactions of the government that do not belong within the budget because they are means of financing and do not represent a cost to the government. Nonbudgetary transactions include deposit funds such as state and local income taxes withheld from federal employee salaries, direct and guaranteed loan financing accounts, and seigniorage.

basis to an accrual-based estimate of the government's subsidy cost for an insurance activity. An appropriation would cover the government's cost unless other actions were taken to eliminate the funding shortfall, such as increasing collections or reducing program costs. Since most insurance programs are mandatory, this appropriation[10] would occur automatically unless additional control mechanisms, as discussed previously, were adopted. Even without this additional feature, the fact that increases in outlays would be reflected in the deficit could prompt action to address the causes of such increases. Key factors involved in implementing this general approach, including reestimation, funding sources, and reserve levels, are discussed in chapter 7.

Figures 6.5 and 6.6 compare how the cost for the hypothetical insurance program outlined above would be recorded under the current cash-based approach versus the aggregate outlay approach.

Figure 6.5: Reporting Flow for the Current Cash-Based Approach

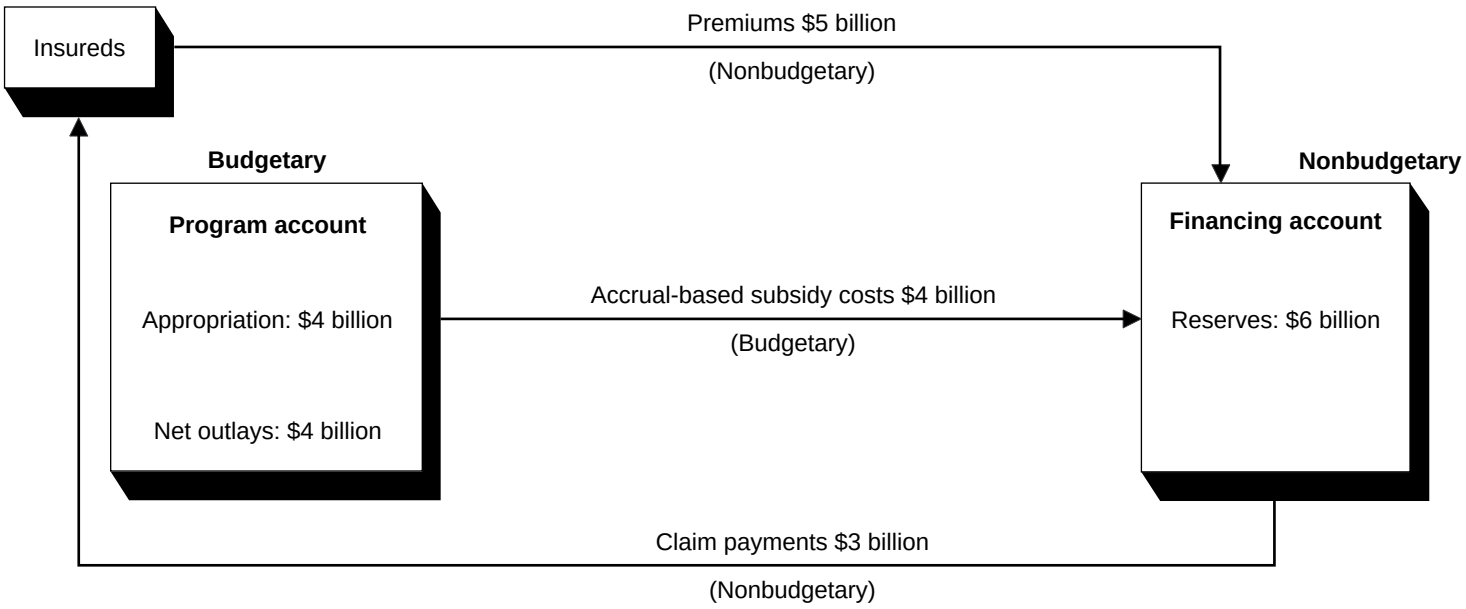


As shown in figure 6.5, the current cash-based budget would record cash inflows of $5 billion and cash payments of $3 billion, resulting in negative net outlays (income) of $2 billion. Total net outlays and the budget deficit would be reduced by this amount in the current budget period. Conversely, as shown in figure 6.6, under the aggregate outlay approach, the insurance program would receive an appropriation to reflect the

[10]For mandatory programs, this would be a permanent appropriation.

subsidy on a risk-assumed basis, unless some alternative actions are taken to eliminate the funding shortfall. An appropriation of $4 billion would be received by the program account and outlayed to the financing account.[11] This amount would be included in total net outlays and the budget deficit. The financing account would also record nonbudgetary cash flows, including premium income of $5 billion and claim payments of $3 billion. As a result, under this approach, the insurance program would increase the budget deficit by $4 billion rather than reducing it by $2 billion, as was the case on a cash basis.

Figure 6.6: Reporting Flow for the Aggregate Outlay Approach



[11]In the past, OMB and CBO have differed on the treatment of premiums in discussing a credit reform approach for deposit insurance. Under OMB's approach, premium collections flow into the financing account as described above. This approach is justified because these funds are a means of financing deposit insurance and are not available to fund other federal programs. Under CBO's approach, premiums would be credited to the program account and then transferred to the financing account. CBO argues that this approach adheres more closely with the budget's current treatment of insurance premiums as offsetting collections. In addition, CBO notes that if premiums are credited to the financing account, then the program account would only report activity when it received an appropriation for accrual-based losses in excess of program funding sources. We believe that if the aggregate outlay approach were adopted, the current treatment of premiums would need to be changed, similar to the changes made by credit reform for the reporting of loan repayments.

Without fundamentally changing the nature of most federal insurance spending, the aggregate outlay approach is the most comprehensive of the three approaches outlined and has the greatest potential to achieve many of the conceptual benefits of accrual-based budgeting. The isolation and recognition of the government's full cost when budget decisions are being made would permit more fully informed resource allocation decisions. By recognizing the government's cost in the budget deficit at the time decisions are made, the incentives for managing insurance costs may be improved. Furthermore, recognizing costs in net outlays and the deficit at the time insurance commitments are made would better reflect their fiscal effects. In some cases, such as for the deposit insurance programs, accrual-based budgeting using the aggregate outlay approach may smooth spending patterns and reduce cost distortions created by temporary or sporadic cash flows.

Despite these potential advantages, the aggregate outlay approach has several disadvantages. A primary concern is the uncertainty surrounding the estimates of the risk assumed by the federal government for federal insurance programs. To the extent that estimates are unreliable, resource allocation may be distorted and the potential for manipulation increased. As discussed in chapter 5, risk-assumed cost estimates for most insurance programs are either currently unavailable or not fully accepted and thus the uncertainty surrounding these estimates presents a key obstacle to the successful implementation of this approach. In addition, the aggregate outlay approach adds a layer of complexity to an already complex budget process. As was the case with credit reform, the use of accrual-based budgeting for federal insurance programs will result in new complexities and implementation challenges.

Further, unlike the majority of programs covered under credit reform, most federal insurance spending is classified as mandatory under BEA. As discussed above, under BEA for mandatory programs, only legislated changes that increase the level of the government's commitment would have to be offset by spending reductions or revenue increases. Increases in existing spending for mandatory federal insurance programs would not require action to address these costs, but the inclusion of accrued costs in the deficit calculation may provide more incentive to address them than the aggregate budget authority approach. Figure 6.7 summarizes the key advantages and disadvantages of the aggregate outlay approach. If additional budget control is desirable, a discretionary appropriation could be required to fund the government's accrued subsidy cost unless other corrective action is taken. But doing so would go beyond merely changing

the reporting of program costs in the budget by shifting the locus of decisions to the annual appropriation process, thereby possibly changing program operations.

Figure 6.7: Advantages and Disadvantages of the Aggregate Outlay Approach

Advantages

- Recognizes the government's cost for insurance activities in outlays and the deficit at the time commitments are made.
- Permits better informed budget decisions by isolating the cost of the government's commitments when budget decisions are made.
- Removes perverse budget scoring incentives and may improve incentives for managing program costs by recognizing the government's cost in the budget deficit at the time decisions are made.
- Better reflects the timing and magnitude of the fiscal impact of federal insurance programs.
- May be used to establish reserves for high or catastrophic loss years and thus reduces the possibility of unintended subsidy costs.
- May smooth spending patterns and reduce distortions created by temporary or sporadic cash flows, in some cases by recognizing annual accrual-based costs.
- May increase the difficulty of diverting reserves for other budget purposes by using a nonbudgetary financing account.

Disadvantages

- Budget totals, including the budget deficit, would include cost measures based on complex calculations that are not as well understood as cash.
- Using estimates in the “actual” budget totals would increase the uncertainty surrounding these numbers and would require that a process be established to make future reestimates.
- In some cases, estimation uncertainty and volatility may lead to swings in the budget deficit.
- Budget reporting would be more complex.
- If premiums are credited to the financing account, then the budgetary program account would only record activity when the program receives a subsidy.
- The difference between the reported budget deficit and the government's borrowing needs would increase.
- The degree of change in budget incentives would depend on the link between the cost recognition and budget control mechanisms, such as premium increases, because the majority of the programs are classified as mandatory spending.

Different Approaches to Accrual-Based Budgeting Have Different Impact on Information for Budget Decisions

The various approaches to incorporating accrual-based information into the budget have different effects on the information and incentives provided to decisionmakers. As noted previously, earlier cost recognition under any of the three general approaches would not necessarily mean that action would be taken to address costs. In fact, the supplemental approach may have little, if any, effect on budget decision-making. The extent to which earlier cost recognition under the other two general approaches prompts action to address accruing cost depends primarily on whether the program has permanent budget authority[12] and is classified as mandatory spending. Since most insurance programs have permanent budget authority and are classified as mandatory, even the most comprehensive general approach—the aggregate outlay approach—would not necessarily require any action to be taken without the adoption of additional budget control mechanisms. It would, however, make more visible any increase in costs.

While earlier reporting of accrual-based costs in net outlays and the budget deficit might prompt deficit reduction efforts, nothing in the current budget process would require that the cost of insurance programs specifically be addressed as long as permanent authority was available to cover these costs. The earlier recognition would, however, increase control over legislated changes that increase future costs because, under PAYGO, legislation enacted during a session of the Congress affecting mandatory programs must be at least deficit neutral in the aggregate. Under both the budget authority and outlay approach, mechanisms could be developed to increase the link between earlier cost recognition and budget control. For example, requiring the accrued cost to be funded by discretionary appropriation[13] would increase budget control because these costs would be forced to compete for limited resources under the discretionary spending caps. Alternatively, mechanisms that link funding shortfalls to premium increases or program coverage reductions could also be adopted.

Whether it is desirable for cost recognition automatically to trigger congressional action is a policy question. Consideration of the varied purposes and characteristics of these programs should inform the discussion on whether to adopt a trigger mechanism, and if so, how to

[12]Permanent budget authority refers to authority derived from previous authorizing legislation rather than annual appropriation acts.

[13]Under BEA requirements, discretionary spending is subject to spending limitations, referred to as "caps." As noted earlier, claim payments for only three of the insurance programs reviewed—Aviation War-Risk, Maritime War-Risk, and OPIC's political risk insurance—are classified as discretionary spending. Claim payments for all of the other federal insurance programs are mandatory.

design it. For example, requiring a discretionary appropriation would result in a fundamental change in the nature and operation of the majority of federal insurance programs that were originally classified as mandatory spending. The various approaches reflect trade-offs between changing budget incentives and other policy considerations. Table 6.2 provides an assessment of the relative potential of each approach to influence budget decision-making.

Table 6.2: Assessment of Accrual-Based Budgeting Approaches to Influence Budget Decision-making

	Approaches to accrual-based budgeting				
Influence of change in budget treatment on budgeting	**Supplemental**	**Aggregate budget authority**	**Aggregate budget authority with discretionary appropriation**	**Aggregate outlay**	**Aggregate outlay with discretionary appropriation**
Better cost information would be available for potential use	X	X	X	X	X
Reserves would be established for future costs		X	X	X	X
Recognition would prompt action to address accruing program costs			X	X[a]	X

[a]Unlike the approaches requiring a discretionary appropriation, this approach would not achieve direct budget control for mandatory insurance programs but rather would influence budget decision-making through its impact on the deficit.

In summary, the supplemental approach would improve and provide more consistent disclosure of estimates of risk-assumed costs in the budget documents than is currently the case and might cause discussion, but it would not directly influence the budget incentives for these programs. The aggregate budget authority approach goes a step further and begins to incorporate accrual-based costs into the budget process by requiring the provision of budget authority at the time decisions are made. However, because accrual-based costs do not affect the "bottom line" or the budget deficit, the impact of this approach on budget decision-making is unclear. The aggregate outlay approach goes even further by incorporating costs directly into the deficit calculation and therefore is more likely to influence budget decisions than the aggregate budget authority approach. But direct budget control is not achieved for the majority of federal insurance programs, which are classified as mandatory spending. Under either the aggregate budget authority or the aggregate outlay approach, requiring a discretionary appropriation for the government's subsidy costs would provide direct budget control.

As shown in table 6.2, the aggregate outlay approach and the two approaches using a discretionary control option are most likely to prompt action to address accruing program costs. However, under current budget rules, the incentives provided by each differ. Requiring a discretionary appropriation under the aggregate outlay approach would have the most influence on budget decision-making by affecting both the deficit and the discretionary spending caps. Under the aggregate budget authority approach with a discretionary control option, cost would have to be included under the discretionary spending caps but would not affect the deficit. As discussed earlier, if changing the locus of budget decision-making for these programs and thereby possibly affecting program operations is undesirable, then the aggregate outlay approach, through its impact on the deficit, has the greatest potential to influence budget decision-making.

Approaches Reflect Differing Views on the Use of Accrual-Based Information in Budgeting for Federal Insurance Programs

Within the budget community there exists a range of views about the appropriate balance between the need to change budget information and incentives for federal insurance programs and the increased uncertainty and complexity introduced by the use of accrual-based estimates directly in the budget. The various approaches to incorporating accrual-based information in the budget discussed above represent a spectrum of views about the uses of the federal budget and the trade-offs faced in using accrual-based information in budgeting for federal insurance programs.

The aggregate outlay approach reflects the opinion of some budget experts that the only way to influence budget decision-making significantly is to have a direct impact on the "bottom line" or the budget deficit. The key argument is that since the primary focus of the budget debate is the deficit, accrual-based reporting will not significantly influence budget decisions unless these costs are part of the deficit calculation. The use of a financing account to separate costly transactions and noncostly cash flows[14] focuses reporting on the government's subsidy cost. And, in the opinion of some budget experts, this increases the difficulty of diverting to other uses the funding accumulated as reserves.

The aggregate budget authority approach reflects both general concerns about the use of the nonbudgetary financing mechanisms and specific concerns that the aggregate outlay approach may not be necessary for

[14]As discussed in chapter 3, most federal insurance programs have costly and noncostly transactions. For example, while claim payments in excess of program collections for an insurance activity represent a cost to the government, other cash flow imbalances may be temporary and net out over time.

some federal insurance programs. Despite the potential benefits of accrual-based information, a key reservation surrounding the adoption of the aggregate outlay approach is its use of nonbudgetary financing accounts. As a general point, some experts believe that all cash transactions should be included in the budget totals and that cash is a superior measure for the deficit because it is understandable and relatively transparent. Specifically, concerns have been expressed that the use of nonbudgetary financing accounts introduces new risks and may increase the incentive for cost manipulation. For example, estimates could be manipulated to obscure the potential program costs or the deficit if estimation methodologies are not widely accepted and documented. The uncertainty surrounding the risk-assumed cost estimates for some insurance programs increases these concerns. Thus, until estimation techniques are developed sufficiently to allay most of these concerns, the aggregate budget authority approach may be the most appropriate way to implement accrual-based budgeting for federal insurance programs.

In addition, some agency officials, budget experts, and analysts expressed concerns that the use of the aggregate outlay approach would increase the complexity of the budget reporting. According to some budget experts, budget authority and obligations are more appropriate than outlays for recognizing potential costs that have not yet materialized and that for some programs the costs of implementing the aggregate outlay approach would outweigh the potential benefits. Budget experts also differ on the use of discretionary spending mechanisms to increase budget control. One budget expert emphasized that requiring a discretionary appropriation for subsidy costs under the budget authority approach would increase budget control while preserving cash-based reporting of outlays and the deficit. However, other budget experts cautioned against changing the fundamental nature of mandatory federal insurance spending by requiring a discretionary appropriation under either the budget authority or outlay approach. For example, OMB has stressed that the goal of its previous proposal was not to change the nature of the spending but rather to improve the budget reporting for these programs.

Finally, the supplemental approach reflects the view that cash is the superior measure for budget decision-making or that the shift to accrual-based budgeting for federal insurance programs is premature or unnecessary. A key argument is that supplemental information can be used to improve budget decisions without subjecting the budget to any additional uncertainty or complexity. However, with this approach, there

is no guarantee that the information will be used since it is not a part of the formal budget process.

Any choice among these approaches or variants of them is further complicated by the fact that the relative implementation difficulties—and the benefits achieved—vary across federal insurance programs. The trade-offs and implementation challenges associated with adopting accrual measures in the budget are discussed in the next chapter.

Implementing Accrual Budgeting for Federal Insurance Programs

Although accrual-based budgeting for federal insurance programs has the potential to improve the information available for resource allocation and fiscal policy decisions, implementing an accrual-based approach will present policymakers, budget professionals, and agency managers with many challenges. As discussed in chapter 5, the key implementation issue is whether reasonable, unbiased risk-assumed cost estimates can be developed for the insurance programs. However, generating cost estimates is only the first step in implementing accrual-based budgeting. Other significant challenges exist that would need to be addressed in implementing an accrual-based budgeting approach. These challenges fall into three broad categories: (1) issues inherent in the use of risk-assumed estimates in the budget, (2) short-term implementation issues that may be reduced or eliminated over time, and (3) issues related to the design and structure of an accrual-based budgeting system.

Issues Inherent in the Use of Accrual Estimates in the Budget

One of the major benefits of accrual-based budgeting is the recognition—when programmatic and funding decisions are being made—of the cost of future insurance claims related to the government's insurance commitment. This earlier recognition of costs improves the information available to policymakers about their decisions and may improve the ability and incentives to manage these costs. However, as discussed, this earlier recognition of program cost is dependent upon reasonable, unbiased estimates of the risk assumed by the government in undertaking the insurance commitment. Because insurance program costs are dependent upon many economic, behavioral, and environmental variables, which cannot be known with certainty in advance of the insured loss, there will always be uncertainty in the reported accrual-based estimates. In addition, the use of risk-assumed cost estimation methodologies that attempt to capture the effects of these variables and new budget mechanisms to report estimates and reestimates will add complexity to budget reporting for these programs.

Earlier Cost Recognition Increases Estimation Uncertainty

While budgeting based on estimates of the full cost of the risk assumed by the government for federal insurance programs has the potential to improve the information available to policymakers at the time budget decisions are being made, actual claims paid in any one year will differ from the estimated cost of the commitments reported in the budget. This is an expected condition of using risk-assumed accrual cost estimates in the budget for insurance programs. Although estimates may get more accurate over time due to improvements in estimation methodologies,

available data, and assumption specification, some error will always remain. Policymakers need to understand the nature and extent of the uncertainty in risk-assumed cost estimates and have assurances that the estimates are unbiased and based on the best available information and estimation methodologies.

The uncertainty embedded in estimates of the risk assumed by federal insurance programs is unavoidable. As discussed in earlier chapters, the nature of the risks covered by some federal insurance programs require that the risks be pooled over time. As a result, the expected long-term cost of the program reflected in the risk-assumed cost estimates will differ from the cash paid out in any given year. Reestimates will probably also be required over time if the program's claim experience differs significantly from the previously calculated expected long-term cost. Improved program data could also lead to reestimates.

The uncertain nature of risk-assumed cost estimates must be weighed against potential improvements in budget reporting and cost control. A similar trade-off was made in budgeting for credit programs under the Federal Credit Reform Act of 1990. Although the accrual-based cost estimates of some loan and loan guarantee programs have significantly changed and their actual cost may not be known for 20 or more years, most budget experts believe that the budgeting for these programs has been improved. Specifically, by improving information and the recognition of program costs, accrual-based budgeting for credit programs has increased control over credit program costs, improved comparisons of the costs of credit program with that of other programs, and subjected credit programs to the competitive allocation of resources in the budget process. An accrual-based budgeting approach for insurance programs also has the potential to provide an opportunity to consider the appropriate or desired amount of government funding—or subsidy—provided to a particular program. Risk-assumed cost estimates would also allow policymakers, oversight agencies, and program managers to monitor the government's risk exposure and to take timely steps to control program costs.

Uncertainty in the estimation of insurance program costs must be evaluated in terms of the direction and magnitude of the estimation errors. For budgeting purposes, decisionmakers would be better served by information that is more approximately correct on an accrual basis, than they are by cash-based numbers that are exactly correct but misleading. For example, industry analysts estimated that the accruing liabilities of insolvent thrift institutions exceeded the resources of the insurance fund

in the early 1980s, years before the full magnitude of losses began to be recognized on a cash basis in the budget. Although estimates of the growing cost of the savings and loan crisis were not exact, the magnitude of the estimated losses proved to be correct. At the same time, the President's budget request for the insurance fund prior to its collapse in 1989 estimated that cash collections would exceed cash losses in all but one year in the 1980s. Despite the uncertainty in the estimates of the government's accruing cost—the exact cost of the savings and loan crisis is still not known with complete certainty—policymakers would have had better budgetary information and incentives for decision-making if the budget had reported such accrual-based estimates.

A key implementation challenge in adopting accrual-based budgeting for insurance programs is the difficulty in producing risk-assumed cost estimates. Although analogous to the implementation of credit reform, the estimation challenges for some insurance programs may be greater than those faced for most credit programs. For example, the cost of the government's deposit and pension insurance commitments is dependent upon the ability to model complex interrelationships among highly uncertain variables such as interest rates, market risks, and the solvency of private companies. Estimation uncertainty will dictate continual evaluation of the risk estimation methodologies used to generate risk-assumed cost estimates for federal insurance programs.

For two programs in our study—Aviation War-Risk and Maritime War-Risk insurance—the uncertainty in the risk-assumed cost estimates and other implementation complexities probably outweigh the potential benefit from an accrual-based budget treatment. Given the emergency or stand-by nature of these programs, it is difficult to even know when they will be activated. As a practical matter, the infrequent and sporadic issuance of insurance, the resulting lack of historical experience, and the extraordinary circumstances surrounding activation of the programs may make the development of reliable risk-assumed estimates and the use of accrual-based budgeting for these programs infeasible.

Accrual Budgeting Will Increase the Complexity of Budget Treatment

Earlier recognition of insurance program costs under an accrual-based budgeting approach will add to the complexity of the budget treatment of these programs compared with the current cash-based reporting. Complexity is increased through the use of (1) sophisticated estimation models, (2) multiple budget accounts and/or presentations, and (3) procedures for reestimating costs reported as budget authority and/or

outlays. Although recognition of insurance program costs may be improved under an accrual-based budgeting approach, general understanding of budget data and the budget process may decline. All of this must be assessed in relation to the adequacy and often misleading nature of cash budgeting for insurance programs.

As discussed in chapter 3, cash-based budgeting for insurance programs generally does not provide adequate information for resource allocation and fiscal policy decision-making. Although cash-based budgeting is readily understandable to policymakers and the public, it generally does not provide full information on insurance program costs at the time the government's commitment is extended and thus may impair resource allocation and fiscal policy decision-making. Under credit reform, many budget experts agree that despite the complexity of credit reporting, decisions regarding a program's structure—direct loans versus loan guarantees versus grants—and funding have been improved. A similar increase in complexity may be a necessary element to improving the budget information on the cost of insurance programs. Discomfort with and skepticism of these new measures could be alleviated by complete documentation of the estimation and reestimation procedures.

The complexity of the budget treatment of credit programs was significantly increased under the Federal Credit Reform Act of 1990. Very few people really understand the details of budgeting and accounting for credit programs. Although policymakers generally understand the concept behind budgeting for credit programs—setting aside funds for future losses—many still consider estimates of such costs as coming from a "black box." Such lack of understanding of the estimation and reporting processes risks a loss of confidence in budget data. An accrual-based approach to budgeting for federal insurance would entail many of the same complexities, such as prospective cost estimation, multiple budget accounts, and periodic reestimation of reported costs. To provide confidence in the budget data, documentation and clear reporting are crucial.

Approaches for Incorporating Accrual Concepts Into the Budget Reflect Trade-Off

The three general approaches for incorporating accrual concepts into the budget for insurance programs discussed in the previous chapter illustrate the fundamental trade-off between earlier cost recognition on the one hand and increased uncertainty and complexity of budget reporting on the other. The degree of integration of accrual estimates in the budget—whether in budget authority alone or also in outlays—will

determine the impact of this information on decision-making. While supplemental reporting of accrual-based costs would improve the information available for resource allocation and fiscal policy decisions, the actual impact on budget decisions is uncertain since the primary budget data would be unaffected. However, integration of accrual estimates into the budget beyond the supplemental approach also increases the complexity of the budget treatment and the uncertainty in the budget numbers.

The inherent uncertainty and complexity of accrual-based budgeting approaches for insurance programs heightens the need for careful consideration in the design and implementation of accrual-based budgeting for these programs. Policymakers face a trade-off between the need to improve information and incentives for decision-making and the acceptable level of uncertainty and complexity in budget reporting. Some budget experts believe that to have the most influence on budget decisions, accrued costs should be recognized in budget authority and outlays so that costs are reflected in the deficit. Others expressed concern about increased complexity and the use of nonbudgetary financing mechanisms such an approach would entail. This concern was heightened by the uncertainty surrounding risk-assumed estimates for some insurance programs. Further, some budget users stated that accrual-based information is already available to policymakers—in supplemental budget schedules and financial statements—and could be used in budget decision-making without the added complexity of putting accrual estimates into the budget numbers. The design and implementation of accrual-based budgeting needs to address these concerns if the potential benefits of accrual-based budgeting are to be achieved.

Short-Term Implementation Issues

In implementing any of the three general approaches for accrual-based budgeting for insurance programs, several short-term transitional issues would need to be addressed. First, as discussed in detail in chapter 5, the current capacity to generate reliable risk-assumed estimates varies considerably across insurance agencies. Difficulty in developing risk-assumed cost estimates should be anticipated. Second, many agencies expressed concern about the skills and resources necessary to implement accrual-based budgeting and comply with new reporting requirements. Experience gained in implementing an accrual-based budgeting approach for credit programs could help guide the transition to accrual-based budgeting for insurance programs. Supplemental reporting of risk-assumed estimates would provide additional information for

policymakers while providing time to evaluate a more comprehensive approach.

Difficulty in Developing Risk-Assumed Cost Estimates Should Be Anticipated

Agency capacity to generate reasonably reliable risk-assumed cost estimates for budget purposes varies considerably across programs. Indeed, the ability to generate reasonable cost estimates of the risk assumed by the government was a primary concern expressed by the insurance program agency officials and budget experts we spoke with. At present, risk-assumed estimates of insurance losses related to coverage extended in a budget year do not exist for all programs and are not reported on a regular basis. Time and experience in developing these estimates will be required. Credit agencies have had difficulties in calculating reasonably accurate accrual cost estimates; similar and in some cases greater difficulties can be anticipated for insurance programs. However, experience also indicates that the focus placed on these estimates in the budget has led to their improvement.

Agency capacity to generate risk-assumed cost estimates for insurance programs will take time to develop. To implement accrual-based budgeting for insurance programs would require refining and adapting the models discussed in chapter 5. For example, an amortization process must still be developed and tested to take the total estimated cost to the government of pension insurance commitments generated by OMB's model and convert it to an annual basis for budgeting. Modifications that are likely to be necessary to adapt the flood and crop insurance premium rate-setting models for use in generating risk-assumed cost estimates for the budget will also require time and resources. Agencies will require specialized professional staff such as actuaries, economists, and statisticians to develop and refine estimation models and produce the accrual cost estimates on a regular basis. Some agency officials we spoke with expressed concern about their ability to generate such estimates given current staff resources.

In implementing credit reform, we found that agencies experienced difficulty accurately estimating accrual-based cost estimates for three principle reasons: (1) future economic conditions are uncertain, (2) the government often is the lender of last resort, making it difficult to judge the risk, and (3) agencies' historical data were nonexistent or unreliable.[1] These same factors will complicate estimating risk-assumed cost estimates

[1]For additional information see Federal Credit Programs: Agencies Had Serious Problems Meeting Credit Reform Accounting Requirements (GAO/AFMD-93-17, January 6, 1993).

for insurance programs. In addition, differences between insurance commitments and loan guarantees will add to the complexity of generating accrual cost estimates for insurance programs. Unlike most credit programs which are limited by discretionary appropriations, the majority of insurance programs are mandatory and thus are not limited to a specific amount of insurance. Estimation is therefore complicated by the need to forecast demand for insurance—for example, the number of farmers opting for crop insurance coverage or the amount of deposits flowing into banks as opposed to other investment opportunities.

Improvements in the estimation of the government's cost of insurance extended can be expected if accrual-based budgeting is adopted for these programs. Advocates of accrual-based budgeting point to the credit reform experience and argue that requiring estimates of the full cost of insurance programs in the budget would provide the incentive necessary to improve the quality of the estimates. For example, in response to credit reform reporting requirements, the Small Business Administration (SBA), in conjunction with OMB, recently completed an extensive analysis of its loan records dating back to fiscal year 1983. Prior to this study, SBA had been unable to validate its subsidy estimates or provide reestimates as required by credit reform. As a part of this analysis, SBA developed a model which allows it to take into account various loan and borrower characteristics in its subsidy estimates. Refined estimates of historical default and recovery rates were used to generate fiscal year 1997 budget estimates and reestimate prior year subsidy estimates.

The accuracy and reliability of estimates will also improve as a result of refinements in methodologies and the collection of additional data on program experience. For example, OMB has made several refinements to its deposit insurance model since it first applied options pricing theory to estimate the accruing costs of the program in 1990. The availability of data necessary for estimating accrual costs for some programs should improve over time, which in turn should improve the reliability of the risk-assumed cost estimates. For example, in its model for estimating costs of thrift deposit insurance, OMB has used data from small commercial banks to estimate various parameters. Although significant differences exist between bank and thrift institutions, the data OMB needed for its model do not exist for thrifts before 1990. Data available since 1990 are biased due to the recovery of the thrift industry during this period after the savings and loan crisis. As thrift data encompassing periods of both economic growth and contraction become available, OMB will be able to incorporate them into its thrift deposit insurance model. Similarly, risk assessment for

the National Vaccine Injury Compensation program has been hampered by the relatively short existence of the program. Claims from 1989, the program's first year of operation, have not all been settled. The reliability of estimates of the program's potential costs will be difficult to judge until data from at least several years of program operation are available.

Agencies Raised Concerns About Their Ability to Implement Accrual-Based Budgeting

Agencies expressed concern about the staff and system resources necessary to implement an accrual-based budgeting approach similar to the outlay approach described in the previous chapter. They stated that additional resources would likely be necessary to generate cost estimates, collect the necessary data, and comply with new reporting requirements. Some agencies question whether the benefits of this type of an approach would be worth the resources required. Smaller agencies expressed concern that new requirements under an accrual system could divert resources from program operations and management. For example, the National Vaccine Injury Compensation program is administered by a staff of 25, 12 of whom are medical examiners. According to the agency, an increase in resources would be necessary to develop risk-assumed estimates for the budget.

As with credit reform, agencies would be faced with significant implementation challenges. While the characteristics of insurance programs may add additional complexity, experience gained from implementing credit reform could mitigate some of the agencies' concerns. Some agencies that administer insurance programs also administer credit programs. Officials and staff at these agencies expressed strong concerns about the expanded reporting and data requirements of accrual-based budgeting, which were required under credit reform. For example, officials at the Veterans Benefits Administration (VBA), which oversees veterans' life insurance programs as well as several loan guaranty programs, were generally supportive of an accrual-based budgeting approach for insurance. However, they stated that they would not be supportive of an accrual-based approach modeled after the treatment of loan guarantees under credit reform. They said that they did not believe that the outcome would be worth the cost needed to achieve it. In particular, they cited greatly expanded reporting requirements for VBA's loan guaranty programs that required a large increase in resources needed to prepare the budget and track all the necessary data. Officials and staff of the Overseas Private Investment Corporation expressed similarly strong concerns. These concerns were based on their experience implementing credit reform for OPIC's loan and loan guarantee programs.

Some agency officials suggested that accrual-based information is already available in the budget. Officials at OPIC expressed the opinion that the agency uses accrual-based estimates in the budget to the extent appropriate. OPIC currently obligates funds as a general reserve for the risk inherent in its insurance activities in the period it is estimated. OPIC officials stressed that the tools necessary to recognize insurance program costs already exist within the current budget process. Improved recognition of insurance program costs could be achieved by requiring agencies to obligate budget authority as a reserve when costs are estimated. This is essentially the aggregate budget authority approach outlined in the previous chapter. OPIC officials said that such an approach would improve cost recognition for federal insurance programs without adding to the complexity and burden of a system similar to credit reform. Officials of the Office of Personnel Management Retirement and Insurance Service also stated that currently, information on the assets and accrued liabilities of the Federal Employees' Group Life Insurance fund is provided as part of the budget presentation. They said that they would be uncomfortable using accrual concepts more extensively in the budget due to the many factors involved in estimation and the uncertainty of such estimates.

Lessons learned from the implementation of credit reform could help address agency concerns about accrual-based budgeting for federal insurance programs. In the 5 years since credit budgeting and accounting reforms were implemented, OMB and the Department of the Treasury have been working with credit agencies to simplify requirements. Several interagency working groups have been formed to identify ways to comply with credit reform at the lowest possible cost, improve and standardize audit requirements, and utilize credit reform data and concepts for internal management purposes.[2] Recommendations to streamline a number of data reporting and reestimation requirements have been partially implemented. The experience and recommendations of these work groups could aid in the development of rational procedures and reporting requirements for an accrual-based budgeting approach for insurance programs.

[2]These groups include the Federal Credit Policy Working Group, Credit Reform Committee of the Chief Financial Officers Council, and a GAO, OMB, and Treasury task force on auditing guidance.

Supplemental Reporting of Risk-Assumed Estimates Would Allow Time to Evaluate a More Comprehensive Accrual-Based Budgeting Approach

The potential for accrual-based budgeting based on estimates of the risk assumed by the government to improve budget information and incentives for federal insurance programs argues for its implementation. However, the need to build capacity to generate risk-assumed cost estimates and the complexity of the implementation issues involved indicate that it is not feasible at this time to integrate risk-assumed cost estimates directly into the budget. Since risk-assumed estimates have not been produced and reported on a regular basis for most insurance programs, supplemental reporting of these estimates over a number of years could help policymakers understand the extent and nature of the estimation uncertainty and allow time to evaluate the feasibility of adopting a more comprehensive accrual-based budgeting approach.

If evaluation of the risk-assumed estimates demonstrates that estimation has developed sufficiently so that use of risk-assumed data in the budget will not introduce an unacceptable level of uncertainty, policymakers could consider a second phase of implementation—incorporating risk-assumed estimates into budget authority. The final phase would be the use of risk-assumed estimates in budget authority, outlays, and the deficit.

Supplemental reporting of risk-assumed cost estimates in the budget would allow time to:

- develop and refine estimation methodologies,
- assess the reliability of risk-assumed estimates,
- gain experience and confidence in cost measures for budget purposes,
- evaluate the feasibility of a more comprehensive accrual-based budgeting approach, and
- formulate cost-effective reporting procedures and requirements.

During this period, policymakers should continue to draw on information provided in audited financial statements. As noted in the report, financial statements can provide earlier recognition of accruing liabilities than does the cash-based budget for insurance commitments.

The Government Performance and Results Act (GPRA) of 1993, which laid out a series of steps to better integrate performance measures into the budget, could be used as a model for incorporating accrual cost measures in the budget. Statutorily-required evaluation of risk-assumed estimates would focus attention on improving cost estimation and provide an opportunity to assess the practicality of incorporating such estimates

directly into budget authority, outlays, and the deficit. In the case of credit programs, estimates of interest rate subsidies were reported in the budget for 20 years prior to the implementation of accrual-based budgeting for those programs. The current capacity to generate risk-assumed estimates for insurance programs suggests that the additional focus and time allowed under a phased-in approach is warranted. Experience gained from this period would also be helpful in evaluating whether additional control mechanisms, such as discretionary funding of subsidies, are needed or desirable.

An alternate strategy would be to implement accrual-based budgeting on a program-by-program basis with consistent treatment of all insurance programs as the ultimate goal. Programs which have well-developed or established estimation methodologies would immediately be switched to an aggregate outlay accrual approach. Programs for which estimation methodologies do not exist or are not widely accepted would be required to develop or refine models. This would allow for the benefits of accrual-based budgeting to be realized immediately for some programs while other programs develop the necessary estimation methodologies and expertise.

Such a program-by-program approach has several drawbacks. First, it would introduce a lack of comparability among insurance programs in the budget—perhaps even skewing their apparent relative costs—and increase confusion about the information provided on insurance program costs. Second, a program-by-program approach fails to establish a standard for new insurance programs. Without such a standard, the long-term expected cost of any new insurance program may not be fully considered when the decision is made to establish it since only the program's initial years' cash flows would be reported in the budget. Finally, programs for which accrual-based budgeting holds the greatest benefits, such as deposit insurance and pension guarantees, are the ones for which implementation will be most difficult. Focusing time and resources on implementing accrual-based budgeting where the potential benefits are greatest offers the greatest potential for improved information. Implementing accrual-based budgeting for those programs where the benefits are low but not for other programs may lead to a situation in which efforts exceed the benefits and this could make it more difficult to sustain the effort necessary to proceed where potential benefits are greatest.

Technical Design Issues

The design and structure of an accrual-based budgeting approach for insurance programs will be a critical factor in its acceptance and effectiveness. Although accrual-based budgeting for these programs has the potential to improve budget information and incentives, individual program characteristics, differences in the government's commitment, and the ability to generate reasonably reliable accrual cost estimates will require considerable effort in the design of processes and reporting requirements. The increased uncertainty and complexity involved in incorporating accrual measures into the budget heightens the need for careful consideration of technical design issues before moving to a more comprehensive accrual-based budgeting approach. These issues include the treatment of loss reserves, reestimation and funding shortfalls, previously accumulated program deficits, and administrative costs.

Establishing and Maintaining Insurance Reserves

Under a risk-assumed accrual-based budgeting approach for insurance programs, premium income in some years will exceed claim payments, while in other years income will be lower than claims. Because the insured risks cannot be diversified or pooled over a large enough number of participants with different potential for losses, reserves cannot be tied to commitments made in a given year. Instead, a general reserve would be established based on the risk inherent in the type of insurance provided. This would be a major difference between reserves for insurance programs and credit programs. In general, for credit programs, the large volume of loans or guarantees issued in any single year allows for sufficient diversification of risk and permits reserves to be set aside for each annual "book of business." These reserves are reestimated annually over the life of each book of business.

Establishment of program reserves sufficient to cover the long-term cost of the insurance extended will take time and involve significant program funds. If premium rates were set to cover the long-term expected cost of the insurance extended, sufficient reserves could be established over time. However, until such reserve levels are reached, appropriations or borrowing authority may be necessary to cover claims in high loss years. Assuming that the program's risk is adequately estimated, premium income would be sufficient in the long-term to repay any borrowing or appropriation and build reserves.

Maintaining funds set aside for insurance program reserves was a concern raised by several budget professionals. Because insurance reserves must be accumulated over several years and since the reserves are not tied to

any specific year's insurance commitments, funds could potentially be diverted to fund other program priorities, particularly given current budget constraints. This may be more of an issue under the budget authority approach than the outlay approach described in the previous chapter. Reserves held in nonbudgetary financing accounts under credit reform have thus far been maintained for their intended purpose. On the other hand, officials at the Federal Emergency Management Agency (FEMA) stated that when the flood insurance program began to accumulate reserves in the late 1980s, the Congress used the surplus to fund flood studies, flood plain management, and program salaries.

Reestimation and Funding Shortfalls

Periodic reestimation of the expected cost of the government's insurance commitments will be necessary. Upward reestimates of the cost of the risk insured should be reflected in premium rates for new insurance commitments and/or the government's subsidy. More complicated will be the funding of increases in the estimated costs of outstanding insurance commitments. Under credit reform, agencies are given permanent, indefinite authority to cover upward reestimates of the government's costs related to credit commitments made in prior years. The architects of credit reform contend that this authority is necessary to encourage unbiased cost estimates and because some factors that affect costs—such as the economy—are beyond an agency's control. Agencies are required to incorporate the factors that prompted a reestimation into the estimates of future subsidy costs. Conversely, some budget experts contend that the provision of permanent authority has created the potential for bias in original estimates since funding for any additional cost is provided automatically outside the appropriation process.

The nature of the government's insurance commitment and the sensitivity of the largest insurance programs—deposit and pension insurance—to fluctuations in interest rates and general business conditions may make limiting the costs of reestimates and funding shortfalls difficult. Most federal insurance programs are open-ended, providing as much insurance as demanded. Unlike most federal credit programs in which the number of loans or loan guarantees can be specified and funding provided, it is neither practical nor desirable to directly limit insurance coverage—for example, by limiting the number of children vaccinated or the vesting of pension benefits. Thus, in changing the budget treatment of these programs, consideration must be given to the impact changes may have on the programs' operations.

The Bush administration's 1992 accrual budgeting proposal would have required the Congress to provide a mandatory appropriation when an insurance program's costs exceeded its available resources on an accrual basis. The administration argued that, given the nature of the insurance commitments and their current budget treatment, this would have only explicitly authorized what was implicit under existing law. Other methods of handling shortfalls in a program's funding could be considered. For example, a funding shortfall could trigger a premium increase unless the Congress acted to implement program reforms aimed at reducing program costs. Alternatively, premium increases or program coverage reductions could be implemented if reserves fell below certain specified levels. The impact on program participants could be mitigated by spreading the premium increase over several years.

Additional control mechanisms must be carefully designed or they could risk increasing overall costs to the government due to program interactions. For example, if a funding shortfall were to develop in the flood insurance program leading to a premium increase, this could cause participation in the program to fall. Ultimately, diminished participation could potentially lead to increased future costs to the government in the form of disaster relief.

Previously Accumulated Program Deficits

Some federal insurance programs that provide coverage for an extended or indefinite period of time, such as the Federal Employees' Group Life Insurance program, currently report program deficits as measured under traditional accounting standards. The deficit for FEGLI at the end of 1996 was $3.4 billion. How costs incurred prior to conversion to accrual-based budgeting should be treated would have to be determined.

Several options exist for the reporting and funding of these costs. If estimates of the accrued costs at conversion can be made, under an accrual outlay approach these costs could be reported as a separate line in the program account. If the information necessary to estimate the future cash flows resulting from the previously accrued costs is unavailable or if the population insured changes significantly from year to year, a separate liquidating account could be used. If a liquidating account is used, funding of accrued costs could remain on a cash basis and simply be paid as claims come due. Alternatively, accumulated deficits could be amortized over a reasonable period of time and funded through appropriations or premium increases. These funds would be outlayed to the financing account and paid out for claims as necessary.

Administrative Costs

The treatment of insurance programs' administrative costs will need to take into account the intended financing of such expenses. Currently, most programs fund administrative costs out of premium income, although some receive appropriated funds to cover these expenses. If a program is intended to be self-supporting, then an amount to cover administrative costs should be included in the risk-based premiums charged to participants. Under an accrual outlay approach, premium income would flow into the financing account and an amount would be transferred to the program account to cover administrative costs. The reported cost to the government would be zero. If a program is not self-supporting, an appropriation to the program account to cover administrative costs would be required. Administrative costs would be charged to the program account along with any premium subsidy. Outlays from this account would equal the total cost to the government for the insurance extended.

Conclusions, Recommendation, and Agency Comments

To support current and future resource allocation decisions and be useful in the formulation of fiscal policy, the federal budget needs to be a forward-looking document that enables and encourages users to consider the future consequences of current decisions. As such, the budget should clearly reflect the financial consequences of decisions made and provide the information and incentives necessary to assess the future implications of these choices. The current cash-based budget, however, generally provides incomplete and misleading information on the cost and fiscal impact of federal insurance programs. The use of accrual concepts in the budget for these programs has the potential to better inform budget choices. However, technical and practical challenges exist which will require careful and deliberate consideration in the design and implementation of an accrual-based budgeting approach for insurance programs.

Cash-based budgeting for federal insurance programs is limited for resource allocation and fiscal policy decisions because its focus on single-period cash flows does not usually reflect the government's cost at the time the decisions are made to provide insurance coverage. The cash-based budget may misstate the cost of the government's insurance commitments in any particular year because the time between receipt of program collections, the occurrence of an insured event, and the final payment of a claim can extend over several budget periods. As a result, current and future resource allocations may be distorted. Cash budgeting also is generally not an accurate gauge of the economic impact of federal insurance. While these shortcomings of cash-based budgeting exist for all insurance programs, the degree to which cash-based information is misleading varies significantly across programs.

The use of accrual-based budgeting for federal insurance programs has the potential to overcome a number of the deficiencies of cash-based budgeting. Accrual-based reporting would recognize the cost of the insurance commitment when the decision is made to provide the insurance, regardless of when cash flows occur. This earlier recognition of the cost of the government's commitment would (1) allow for more accurate cost comparisons with other programs, (2) provide an opportunity to control costs before the government is committed to making payments, (3) build budget reserves for future claims, and (4) better capture the timing and magnitude of the impact of the government's actions on private economic behavior. The degree to which accrual-based measures would improve cost recognition in the budget for insurance programs will vary based on the size and length of the

government's commitment, the nature of the insured risks, and the extent to which costs are currently captured in the budget. Further, whatever the conceptual benefits of risk-assumed cost measurement, the effective implementation of accrual-based budgeting on this basis is dependent on the ability to generate reasonable unbiased estimates of these costs.

In the past, concerns over the limitations of cash-based budgeting and the benefits of a shift to accrual-based budgeting have been driven by the financial condition of the two largest programs—deposit and pension insurance. These two programs remain central to the argument for accrual-based budgeting for insurance programs. The size of these programs in relation to total federal spending, and therefore their potential to distort resource allocation and fiscal policy, make the limitations of cash-based budgeting and the benefits of accrual-based budgeting more pronounced. The case for using accrual-based budgeting for other federal insurance programs varies in strength. Their smaller size and the degree to which cost information is currently considered by policymakers reduce to a varying degree the extent to which information and incentives would be improved under an accrual-based budgeting approach.

The ability to generate reasonable, unbiased estimates of the risk assumed by the government is critical to the successful implementation of accrual-based budgeting for insurance programs. As described in this report, the development and acceptance of estimation methodologies varies considerably across programs. The characteristics of the risks insured by the federal government, frequent program modifications, and the absence of sufficient data on possible losses have hampered the development of risk-assumed estimates. The use of risk-assumed estimates in the budget will require the refinement and adaptation of existing models and, in some cases, the development of new methodologies. Because risk-assumed estimates for the various insurance programs have not been produced and reported on a regular basis, it should be expected that agencies will need time to develop the capacity to generate these estimates for the budget. During this time period, the information on insurance losses contained in the programs' financial statements, which are included in the budget appendix, provide policymakers with a valuable resource in monitoring these programs.

Improvements in estimation methodologies, available data, and assumption specifications may, over time, lead to more accurate cost estimates, but because insurance program costs are dependent upon many variables, some uncertainty in the reported accrual estimates is

unavoidable. The use of sophisticated estimation models, new budget presentations, and the need for periodic reestimates will add complexity to the budget process. As a result, understanding of budget data and the budget process may decline. However, this increased complexity should be assessed in relation to the adequacy of cash-based budgeting for insurance programs. Although cash-based budgeting is readily understandable to policymakers and the public, it generally provides incomplete or misleading information on insurance program costs and thus may impair resource allocation and fiscal policy decision-making.

We believe that the potential benefits of an accrual-based budgeting approach for federal insurance programs warrant continued effort in the development of risk-assumed cost estimates. The complexity of the issues involved and the need to build agency capacity to generate risk-assumed cost estimates suggest that it is not feasible to integrate accrual-based costs directly into the budget at this time. Supplemental reporting of these estimates in the budget over a number of years could help policymakers understand the extent and nature of the estimation uncertainty and permit an evaluation of the desirability and feasibility of adopting a more comprehensive accrual-based approach. The value of reporting risk-assumed estimates was also endorsed by FASAB in accounting standards it developed, which require disclosure of risk-assumed cost estimates as supplemental information for insurance programs beginning with financial statements for fiscal year 1997. However, the Board also recognized the difficulty of preparing reliable risk-assumed estimates and, therefore, did not require their recognition on the financial statements as a liability.

Supplemental reporting of risk-assumed cost estimates in the budget has several attractive features. It would allow time to (1) develop and refine estimation methodologies, (2) assess the reliability of risk-assumed estimates, (3) formulate cost-effective reporting procedures and requirements, (4) evaluate the feasibility of a more comprehensive accrual-based budgeting approach, and (5) gain experience and confidence in risk-assumed estimates. At the same time, the Congress and the executive branch will have had several years of experience with credit reform, which can help inform their efforts to apply accrual-based budgeting to insurance. During this period, policymakers should continue to draw on information provided in audited financial statements.

If risk-assumed estimates develop sufficiently so that their use in the budget will not introduce an unacceptable level of uncertainty,

policymakers could consider incorporating risk-assumed estimates directly into the budget. While supplemental reporting of risk-assumed estimates would improve the information on the cost of insurance commitments, the actual impact on budget decisions is uncertain since the primary budget data—budget authority and outlays—would be unaffected. Directly incorporating accrual-based cost estimates in both budget authority and outlays would have the greatest impact on the incentives provided to decisionmakers but would also significantly increase reporting complexity and introduce new uncertainty in reported budget data. Between these two approaches is one of incorporating accrual-based costs in budget authority alone, which has fewer of the disadvantages of the full accrual approach but also less impact on decision-making incentives. If an action-causing budget mechanism is desired, requiring a discretionary appropriation for the accrual-based cost of the government's subsidy could provide additional incentive to control the government's cost but—by changing the locus of decisions to the annual appropriation process—would go beyond merely changing the reporting of program costs and change the nature of federal insurance.

Matter for Congressional Consideration

The Congress may wish to consider encouraging the development and subsequent reporting of annual risk-assumed cost estimates in conjunction with the cash-based estimates for all federal insurance programs in the President's budget. The Congress may also wish to consider periodically overseeing and assessing the reliability and usefulness of these estimates, making adjustments, and determining whether to move toward a more comprehensive accrual-based budgeting approach for insurance programs.

Recommendation

We recommend that the Director of the Office of Management and Budget develop risk-assumed cost estimation methods for federal insurance programs and encourage similar efforts at agencies with insurance programs. As they become available, the risk-assumed estimates should be reported annually in a standardized format for all insurance programs as supplemental information along with the cash-based estimates. A description of the estimation methodologies used and significant assumptions made should be provided. To promote confidence in risk-assumed cost measures, the estimation models and data should be available to all parties involved in making budget estimates and should be subject to periodic external review. As data become available, OMB should undertake and report on evaluations of the validity and reliability of the reported estimates.

Agency Comments and Our Evaluation

Officials from OMB agreed with this report's conclusion that budgeting for insurance programs should be based on the government's long-term expected cost of the insurance extended—the risk assumed by the government. Furthermore, OMB agreed that the challenges involved in bringing risk-assumed estimates into the budget are significant and that additional effort to improve estimation methods is required. OMB officials noted that they would like to pursue such improvements but are not doing so because they do not currently have the expertise that would be required.

OMB officials expressed concern about GAO's use of the terms "cash" and "accrual" in this report to describe different approaches to budgeting for insurance programs. GAO chose to use the term "cash-based" because cash is the measurement basis for the amounts shown in the budget for budget authority, obligations, outlays, and receipts. The estimates for these amounts generally are made in terms of cash payments to be made or received. Under current budget concepts, these amounts reflect the cash flows associated with the insurance program activities—paying claims for events that have already occurred and collecting premiums for new commitments. GAO uses the term "accrual-based" to describe the use of risk-assumed cost estimates as the basis for reporting an insurance program's budget authority, obligations, and outlays. Although, as OMB noted and discussed in chapter 4 of this report, the term "accrual" can be applied to a range of concepts and measures, GAO uses the term in the report because it is generally understood as a basis of measuring cost rather than cash flows.

OMB officials also suggested that the current federal budget system can be thought of as commitment-based or obligation-based budgeting and that the use of risk-assumed cost estimates is consistent with this concept. GAO agrees that this is a useful way of thinking about the potential changes in budgeting for insurance programs described in this report. As discussed in the report, using accrual-based cost information rather than cash-based information for reporting budget authority, obligations, and outlays could improve the recognition of the cost of the government's commitments at the time it makes them. OMB officials made this same point saying that "cash does not carry out the principle of recognizing the cost of commitments at the time they are made."

GAO modified relevant sections of the report to clarify its explanation of OMB's views on the budget treatment of deposit insurance under an accrual-based approach. According to OMB officials, it was not OMB's intent

to treat deposit insurance differently from other insurance programs under the Bush administration's 1992 insurance budgeting proposal. OMB agrees with GAO that for all programs what should be measured is the long-term expected cost of loss-generating events less premiums collected. However, given the nature and complexity of deposit insurance, the extent to which the OMB model—or any model—would be able to capture the full long-term expected cost of the government's commitments is open to debate. This is due, in part, as OMB acknowledges, to the very difficult conceptual and measurement problems associated with accounting for rare catastrophic events, such as the savings and loan crisis, in a risk-assessment model.

Based on OMB officials' suggestions, GAO dropped from chapter 1 a brief discussion of early budget commissions' recommendations regarding accrual accounting in the federal government which was not necessary to convey our message that the current system of budgeting for insurance programs is deficient and may be improved with the use of risk-assumed measures.

OMB officials also provided a number of technical comments, which were incorporated into the report as appropriate.

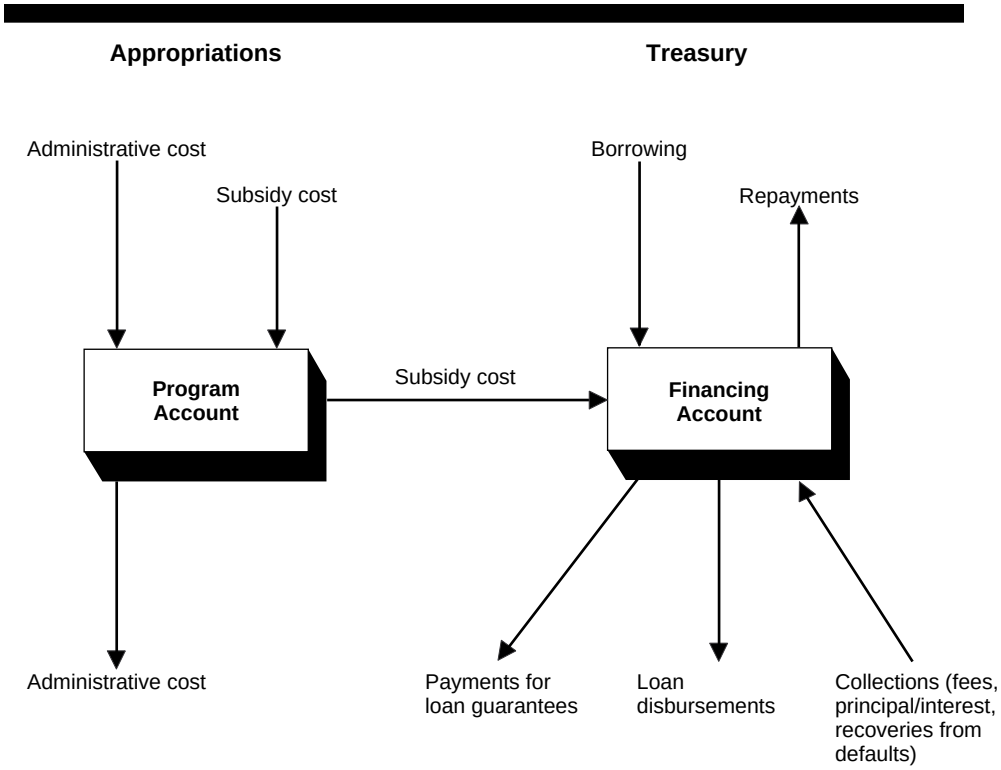
Budget Account Structure and Reporting Flows for Credit Programs

The Credit Reform Act set up a special budget accounting system to record the budget information necessary to implement credit reform. It provides for three types of accounts—program, financing, and liquidating—to handle credit transactions.

Credit obligations and commitments made on or after October 1, 1991—the effective date of credit reform—use only the program and financing accounts. The program account receives separate appropriations for the administrative and subsidy costs of a credit activity and is included in budget totals. When a direct or guaranteed loan is disbursed, the program account pays the associated subsidy cost for that loan to the financing account. The financing account, which is nonbudgetary,[1] is used to record the cash flows associated with direct loans or loan guarantees over their lives. It finances loan disbursements and the payments for loan guarantee defaults with (1) the subsidy cost payment from the program account, (2) borrowing from the Department of the Treasury, and (3) collections received by the government. If subsidy cost calculations are accurate, the financing account will break even over time as it uses its collections to repay its Treasury borrowing. Figure I.1 diagrams this cash flow.

[1]Nonbudgetary accounts may appear in the budget document for information purposes but are not included in the budget totals for budget authority or outlays. They do not belong in the budget because they show only how something is financed and do not represent the use of resources.

Figure I.1: Simplified Credit Reform Cash Flow



Direct loans and loan guarantees made before October 1, 1991, are reported on a cash basis in the liquidating account. This account continues the cash budgetary treatment used before credit reform and has permanent, indefinite budget authority[2] to cover any losses. Excess balances are transferred periodically—at least annually—to the Treasury.

In addition to the three accounts specified in the Credit Reform Act, OMB has directed that credit programs or activities with negative subsidies must have special fund receipt accounts to hold receipts generated when the program or activity shows a profit.

[2]Permanent budget authority is available as a result of permanent legislation and does not require annual appropriation. Indefinite budget authority is budget authority of an unspecified amount of money.

Deposit Insurance

Purpose

Federal deposit insurance was initiated in the 1930s to help restore confidence in the nation's banking system after thousands of financial institutions failed and millions of dollars in deposits were lost during the Great Depression. The Banking Act of 1933 established the Federal Deposit Insurance Corporation (FDIC) to provide protection for bank depositors and to foster sound banking practices. A year later, the Housing Act of 1934 extended federal deposit insurance to thrift institutions. Federal insurance for credit unions was established in 1970. Federally insured deposits are explicitly backed by the full faith and credit of the U.S. government.

Federal deposit insurance is administered by two federal agencies—FDIC and the National Credit Union Administration (NCUA). Pursuant to the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA), FDIC oversees both the Bank Insurance Fund (BIF), which insures deposits at commercial banks and some savings banks,[1] and the Savings Association Insurance Fund (SAIF), which insures deposits at savings and loan institutions and savings banks not covered by BIF.[2] The Deposit Insurance Funds Act of 1996 (Title II, Subtitle G of Public Law 104-208) makes provisions for the merger of BIF and SAIF into a single deposit insurance fund effective January 1, 1999, provided that the Congress enacts legislation to merge the bank and thrift charters and to eliminate differences in powers and ownership structures between banks and savings associations. NCUA administers the Credit Union Share Insurance Fund (CUSIF), which insures credit union accounts.

[1]State-chartered mutual savings banks—those owned by depositors rather than shareholders—were included among the institutions eligible for deposit insurance from FDIC when it was established in 1933. In recent years, many of these savings banks have converted from mutual ownership to stock ownership and are simply referred to as savings banks. Historically, these savings banks have operated like savings and loan institutions in that they channelled savings from individuals to make residential mortgages, but have had broader lending and investment powers than savings and loans.

[2]Prior to August 9, 1989, federal deposit insurance for thrift institutions was provided through the Federal Savings and Loan Insurance Corporation (FSLIC). FIRREA abolished FSLIC and transferred its assets, liabilities, and contracts to a newly created FSLIC Resolution Fund and established SAIF as the new thrift insurance fund. FDIC was designated the administrator of both funds. In addition, FIRREA created the Resolution Trust Corporation to resolve all troubled institutions placed into conservatorship or receivership from January 1, 1989, through August 8, 1992. This period was later extended to June 30, 1995.

Bank and Thrift Deposit Insurance

Budget Accounts: Bank Insurance Fund (BIF)
(51-4064-0-3-373)
Savings Association Insurance Fund (SAIF)
(51-4066-0-3-373)

Agency: Federal Deposit Insurance Corporation (FDIC)

Coverage

Domestic deposits in commercial banks, savings banks, savings associations, and other thrift institutions are insured up to $100,000 per account. The insured amount has been raised six times since 1934 with the current limit of $100,000 set by the Depository Institutions Deregulation and Monetary Control Act of 1980. At the end of 1995, over $1.9 trillion in deposits at approximately 10,000 commercial banks and savings banks were insured by BIF, while SAIF insured more than $700 billion in deposits at approximately 1,700 thrift institutions.

Eligibility Requirements

Banks and savings institutions can only conduct business if they obtain a charter (license to operate) from either the federal or state government. The laws and regulations underlying charters specify the activities in which institutions may engage and the supervisory requirements they must meet. Federal charters are granted by two offices within the Department of the Treasury. The Office of the Comptroller of the Currency (OCC) is responsible for chartering federal (national) banks and the Office of Thrift Supervision (OTS) approves charters for federal savings associations.

In evaluating an application to organize a new bank, OCC considers the institution's earning prospects, the adequacy of its capital, its anticipated community services, the ability of its management, and the safety and soundness of intended operations. In issuing charters to operate thrift institutions, OTS is required to give primary consideration to the best practices of thrift institutions in the United States, which generally means the same factors applied by OCC for banks. Chartering requirements for state banks and savings associations vary by state. However, most if not all states now require that new banks and thrifts obtain federal deposit insurance, which effectively provides FDIC with veto power over the granting of state charters.

In extending deposit insurance, FDIC is required by law to consider (1) the financial history and condition of the depository institution, (2) the adequacy of its capital, (3) the future earnings prospects of the institution,

(4) the general character and fitness of its management, (5) the risk presented by the institution to the insurance fund, (6) the needs of the community to be served, and (7) whether the institution's corporate powers are consistent with the purposes of the Federal Deposit Insurance Act. Successful applicants for national charters qualify immediately for federal deposit insurance.

All federally insured banks and thrifts are subject to federal supervision and examination whether they are state or federally chartered. Federal oversight is split among four regulatory agencies based on the type of institution. OCC supervises all national banks. OTS serves as the primary regulator for thrift institutions and thrift holding companies. The Federal Reserve Board has oversight authority for state-chartered banks that are members of the Federal Reserve System (FRS) and bank holding companies. FDIC is the primary federal regulator of state-chartered banks that are not members of FRS. By law, federal regulators are required to conduct annual on-site examinations of all federally insured institutions except for certain well-managed and financially strong institutions with assets of less than $250 million, which must be examined every 18 months.

Program Financing

Federal deposit insurance for banks and thrift institutions is financed from annual premium assessments. Other sources of funds include interest earned on investments in U.S. Treasury obligations, income from the management and disposition of assets acquired from failed institutions, and U.S. Treasury and Federal Financing Bank (FFB) borrowing.[3] Specifically, under the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), FDIC is authorized to borrow up to $30 billion from the Treasury to cover BIF and SAIF losses. The Omnibus Budget Reconciliation Act of 1990 (OBRA '90) authorized FDIC to borrow funds from FFB to finance the acquisition of failed bank and thrift assets. Additional sources of financing available to SAIF include (1) borrowing from the Federal Home Loan Banks, (2) up to $8 billion in Treasury funds for losses sustained by SAIF in fiscal years 1994 through 1998, contingent upon appropriations, and (3) unused funds appropriated to the Resolution Trust Corporation (RTC) for 2 years following the termination of the RTC.

[3]Funding to resolve the savings and loan crisis was provided primarily from taxpayers in the form of general fund appropriations. We estimate the total direct and indirect cost of resolving the savings and loan crisis to be $160 billion, of which approximately $132 billion (83 percent) will have been paid using taxpayer funding sources. For a detailed analysis, see Financial Audit: Resolution Trust Corporation's 1995 and 1994 Financial Statements (GAO/AIMD-96-123, July 2, 1996).

OBRA '90 removed the caps on deposit insurance premium rate increases and authorized FDIC to set BIF and SAIF premium rates semiannually. In 1991, a provision of FDICIA required FDIC to implement a risk-related premium system and to build BIF and SAIF reserves to a minimum of 1.25 percent of total insured deposits within 15 years. BIF reached the statutorily required reserve level in May of 1995. A special one-time assessment of 68 cents per $100 of deposits in SAIF-insured institutions was mandated by the Deposit Insurance Funds Act of 1996 to fund SAIF to the required reserve level.[4]

Since January 1993, FDIC has assessed risk-related insurance premiums. FDIC calculates risk-related assessments for individual banks and thrifts by placing each institution in one of nine risk categories based on capital ratios and supervisory ratings. Under this system, institutions will pay assessment rates in 1997 of between 0 and 27 cents per $100 of insured domestic deposits based on risk category. The average annual assessment rate for BIF-insured institutions will be 0.17 cents per $100 insured deposits and 0.6 cents per $100 insured deposits for SAIF members.

Current Budget Treatment

BIF and SAIF are reported separately but treated similarly in the budget. All administrative and insurance expenses as well as revenue from premium assessments, interest earnings, asset sales, and other fees flow through a single budget account for each fund. All expenses of these accounts, including administrative expenses and the expenses of FDIC's Office of Inspector General, are classified as mandatory under the Budget Enforcement Act of 1990 (BEA). However, deposit insurance revenue and spending are exempt from BEA pay-as-you-go restrictions. As such, any additional spending necessary to maintain the safety and soundness of the government's deposit insurance commitment does not need to be offset by tax increases or spending cuts in other direct spending. Similarly, increases in insurance premiums or other deposit insurance collections cannot be used to offset increased spending for other mandatory programs. Budgeted and actual bank insurance outlays for fiscal years 1973 through 1996 are shown in figure II.1. Figure II.2 displays comparable information for thrift insurance.

[4]The act also spread responsibility for interest payments on bonds held by the Financing Corporation (FICO) that were issued in 1987 through 1988 to finance the resolution of failed thrift institutions. Previously, FICO interest payments were borne entirely by SAIF assessments. Beginning January 1, 1997, BIF-insured institutions will pay 1.29 cents and SAIF-insured institutions will pay 6.44 cents per $100 of covered deposits. In the year 2000, all banks and thrifts will pay 2.43 cents per $100 of deposits.

Figure II.1: Bank Deposit Insurance Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996

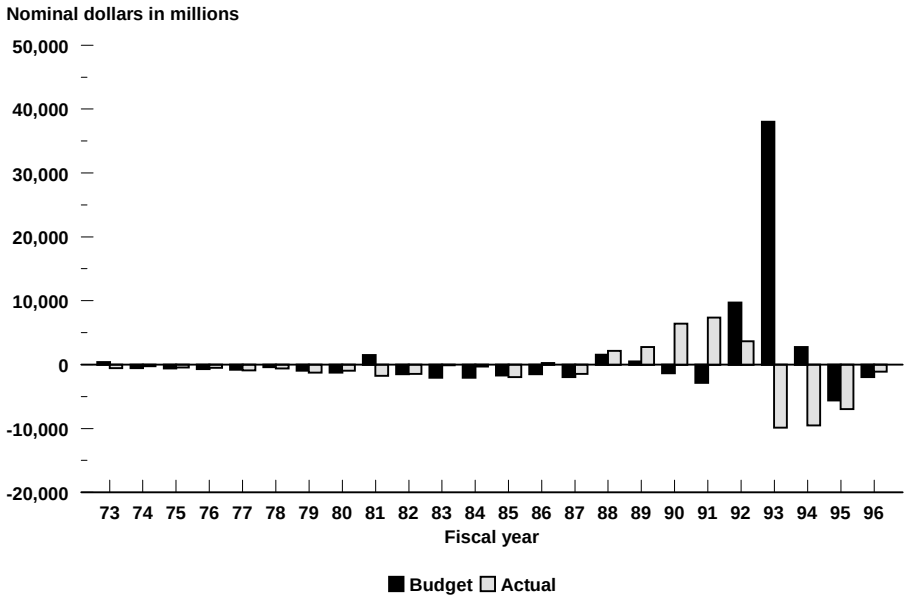
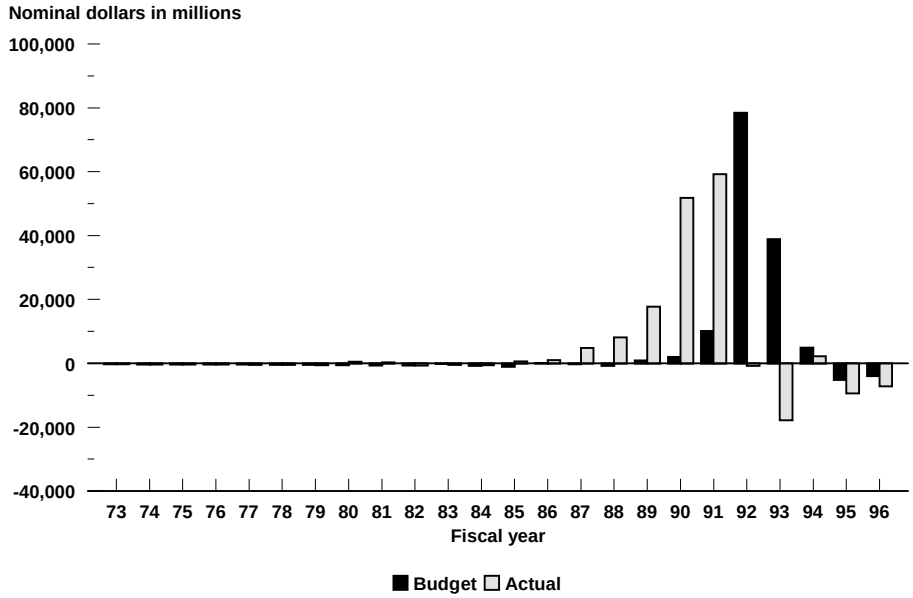


Figure II.2: Thrift Deposit Insurance Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Credit Union Share Insurance

Budget Account: Credit Union Share Insurance Fund (CUSIF) (25-4468-0-3-373)

Agency: National Credit Union Administration (NCUA)

Coverage

The National Credit Union Administration insures members' shares (deposits) up to $100,000 per shareholder account in federal and state-chartered credit unions that qualify for insurance. In fiscal year 1995, NCUA insured $266 billion in deposits in approximately 12,000 credit unions.

Eligibility Requirements

All federally chartered credit unions are required to be federally insured. Most states prohibit credit unions from operating without any insurance but allow nonfederally backed private insurance in lieu of federal insurance. To be eligible for federal insurance, each applicant must be approved by the NCUA board and agree to comply with all statutory and regulatory requirements. These requirements include: the reporting of financial and statistical information on a quarterly or semiannually basis to NCUA, periodic examination as determined by NCUA, and the payment of premium assessments. The NCUA board assesses each application for share insurance based on (1) the history, financial condition, and management policies of the applicant; (2) the economic advisability of insuring the applicant without undue risk to the fund; (3) the general character and fitness of the applicant's management; (4) the convenience and needs of the credit union's members to be served; and (5) whether the applicant is a cooperative association organized for the purpose of promoting thrift among its members and creating a source of credit for provident or productive purposes.

Program Financing

CUSIF is structured to be entirely self-supporting through monies provided by member credit unions. The insurance program is financed primarily from insurance premiums that may be assessed annually and from mandatory credit union deposits in the insurance fund. The assessment rate is set in statute (Public Law 91-468) at one-twelfth of 1 percent of a credit union's total member share accounts. Title VIII of Public Law 98-369 (July 18, 1984), which provided for the capitalization of the insurance fund, requires each insured credit union to deposit and maintain in the insurance fund an amount equal to 1 percent of its insured member accounts. Other sources of funds include income generated from the

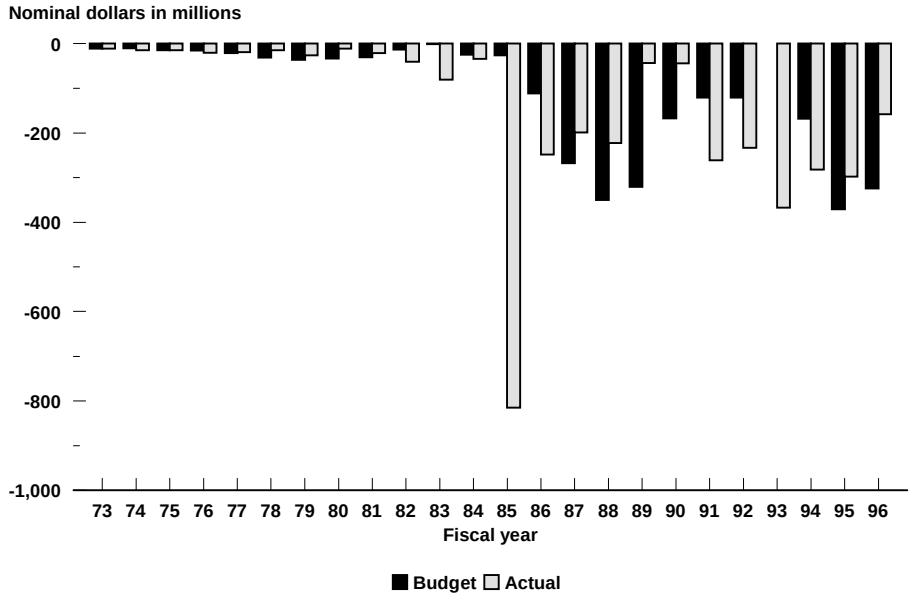
investment of monies received from the insured credit unions and funds received from the management and disposition of assets acquired from failed institutions. CUSIF is authorized to borrow $100 million from the Treasury at any time for the purpose of carrying out the insurance program.

Public Law 98-369 also requires that the CUSIF balance be maintained at a normal operating level to be determined by the NCUA board. The board has determined this level to range from 1.25 percent to 1.3 percent of insured shares. Since the recapitalization of the insurance fund in 1985, credit unions have been assessed premiums in only 1 year, 1992. In 1996, CUSIF paid a $106 million dividend to federally insured credit unions because the fund balance exceeded the 1.3 percent reserve requirement.

Current Budget Treatment

All administrative and insurance expenses as well as revenue from assessments, investment earnings, asset sales, and other fees flow through a single budget account, the Credit Union Share Insurance Fund. All expenses of this account including administrative expenses are classified as mandatory under BEA. Like the funding provided through BIF and SAIF, cost resulting from the government's current insurance guarantee is exempt from BEA controls. The CUSIF account reimburses NCUA's Operating Fund budget account for its share of the agency's administrative costs. The reimbursement percentage, which is reviewed and adjusted periodically, is currently 50 percent. Budgeted and actual credit union insurance outlays for fiscal years 1973 through 1996 are displayed in figure II.3.

Figure II.3: Credit Union Share Insurance Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Methods for Assessing Risk Assumed Under Deposit Insurance

Numerous methodologies have been developed that attempt to forecast the future financial condition of the bank and thrift industries which affects the condition of the deposit insurance funds. Subsequent sections summarize the following major types of models:

- OMB's options pricing,
- actuarial,
- transition matrix,
- asset markdown,
- proportional hazards, and
- pro forma projection.

Only one of the methodologies—options pricing—provides accrued cost estimates for the funds in its present form. In general, the alternative models provide forecasts of future bank and thrift insolvencies which can be used to estimate accrued costs. However, the options pricing approach developed by OMB estimates the accruing cost to the insurance funds by drawing the analogy between the price of a put option and actuarially fair insurance premiums.

The methodologies described in this section have been developed and/or used by various federal agencies and private forecasters. For example, OMB has been using its options-based methodology for several years to project the condition of the bank and thrift insurance funds and to develop budget estimates. OMB does not rely exclusively on the estimates generated by its options approach. It consults with FDIC, Treasury, and the Federal Reserve on their near and long-term projections. FDIC, in turn, relies on several methodologies in preparing loss estimates for purposes of updating the recapitalization schedules of the insurance funds and the agency's financial statements. Methodologies used by FDIC include actuarial models, pro forma analyses, and proportional hazard models.

While the methodologies differ considerably in their approach and assumptions, they all rely to some extent on financial data supplied by institutions to their federal regulator (call report data). We have reported on several occasions that these data cannot always be depended upon to provide an accurate picture of the value of an institution's assets.[5] Because of this, most loss estimation methodologies adjust call report data to attempt to approximate the economic or market value of an institution's assets. Based on this estimated asset value and the value of an institution's deposit and other liabilities, the solvency of an institution is calculated as are resulting losses to the government insurance funds from failed institutions. In a prior review of loss estimation methodologies, we emphasized that long-range estimates of bank failures and their impact on the insurance fund is a highly subjective process dependent on many variables, such as interest rates, which are extremely difficult to predict.[6]

OMB's Options Pricing Model

OMB has developed a model based on options pricing theory[7] to estimate the government's cost of deposit insurance. In the options pricing framework, the government's cost of deposit insurance is dependent on the probability that a financial institution will exercise its option to transfer its deposit liabilities to the government. This occurs only if the value of the institution's assets is lower than the value of its liabilities, at which point the institution is technically insolvent. In other words, the

[5]For additional discussion see Failed Banks: Accounting Reforms Urgently Needed (GAO/AFMD-91-43, April 22, 1991), Credit Unions: Reforms for Ensuring Future Soundness (GAO/GGD-91-85, July 10, 1991), and Credit Unions: Both Industry and Insurance Fund Appear Financially Sound (GAO/T-GGD-94-142, September 29, 1994).

[6]Bank Insurance Fund: Review of Loss Estimation Methodologies (GAO/AIMD-94-48, December 9, 1993).

[7]See figure 5.1 for a description of options pricing theory.

cost of the government's deposit insurance commitment is directly related to the probability that an institution will go bankrupt. Using options pricing techniques, OMB is able to estimate the full risk-based premium of deposit insurance based on a relatively few variables. These are (1) the current value of the institutions' assets, (2) the volatility in the value of the assets, (3) the ratio of the institutions' assets to liabilities in the future—the exercise price of the option, (4) the time to expiration of the option, and (5) the risk-free interest rate of corresponding duration. The government's cost of the deposit insurance commitment is then calculated as the difference between the actuarially fair premium (price of the option) and the actual premiums collected.[8]

The general application of options pricing theory presumes that current asset values can be readily observed and measured. In practice, most common applications of options pricing models rely on asset market prices to compute the value of the option. However, there is no active market for the assets—loans—of financial institutions. Some researchers have used stock prices of large publicly traded institutions, however, the stock of many insured institutions is not actively traded. Therefore, in order to estimate the government's cost of insuring all institutions, OMB must first infer the market value of individual institutions from call report data.

OMB uses call report data to estimate the market value of each depository institution with assets over $100 million and subsidiaries of bank and thrift holding companies with assets over $500 million. The market value of each institution's assets is estimated by capitalizing[9] its adjusted gross earnings net of taxes and interest earned but not collected. OMB makes two adjustments to reported earnings before estimating the market value. First, because an institution's provision for loan losses tends to be erratic and subject to lags, OMB substitutes an estimated loss provision for each bank based on recent loss experience of similar institutions. Second, earnings are adjusted to account for the tendency of very high or low reported earnings to revert toward the industry's long-term mean rate of return. OMB uses a simple regression model, with estimated coefficients for

[8]For a detailed description of the model, see Richard L. Cooperstein, George G. Pennacchi and F. Stevens Redburn, "The Aggregate Cost of Deposit Insurance: A Multiperiod Analysis," Journal of Financial Intermediation, vol. 4, no. 3 (July 1995), pp. 242-271.

[9]Capitalization refers to a method of valuing a firm based on the cash it generates. First, future earnings over a reasonable number of years must be estimated. Second, estimated earnings are adjusted for non-cash consuming or generating items, such as depreciation, to determine annual cash flows. Third, capital outlays required to support the current level of earnings are estimated. The resulting cash flows are discounted at an appropriate interest rate. The resulting net present value represents an estimate of the value of the firm.

four classes of banks, to forecast future cash flows. The resulting estimate of an institution's current asset value, less the face value of its deposits and other liabilities, provides an estimate of net worth.

OMB uses the estimated net worth of approximately 3,000 insured institutions as input to its options pricing model. As mentioned above, the estimated current and future net worth of an institution are key variables in determining the value of the option—and ultimately the government's cost of deposit insurance. For future periods, OMB uses a stochastic[10] simulation process to forecast the future net worth of individual institutions. The simulation does not project the performance of actual institutions. Instead, OMB takes the actual measured distribution of economic net worth of the banking or thrift industries and breaks up the distribution into 8,000 equal-sized fictitious institutions. This is the statistical equivalent of averaging many independent projections.

Over a chosen simulation period, such as a 5- or 7-year budget horizon, the financial condition of some institutions improves and others declines. Assumptions about the volatility of asset earnings and expected trends in average industry earnings are significant determinants of the value of the option and simulated flow of costs. OMB assumes constant volatility of assets across banks of the same size and stability over the simulation period based on the experience of a sample of banks from 1984 through 1990. The simulation yields annual estimates of the volume of financial institution assets that will be closed if the regulators continue to follow recent or other specified closure behavior. Closure is defined in terms of the asset to liability ratio of an institution. The government's cost of deposit insurance is calculated as losses resulting from newly insolvent institutions, additional deterioration in previously identified insolvent institutions, and increases in the risk of failure of solvent firms—offset by improvements in the financial condition of any institutions. These costs less premiums collected constitute the net cost to the government.

Actuarial Models

Actuarial models use historical frequencies of resolution for categories of banks as an estimate of the probability of resolution for the current population of banks in some future period. This approach assumes that recent failure rates will continue in the future. Actuarial models do not identify specific banks that are likely to fail nor do they provide the

[10]A stochastic or random process is one in which only chance factors determine the particular outcome of a single run through the process or trial. The possible outcomes are known in advance, but not the exact outcome of any one trial. The process does have some regularity, which allows a probability to be assigned to possible outcomes.

specific timing of resolutions. These models are a top-down descriptive statistical approach to estimating future resolutions.

Using an actuarial approach, a table is constructed to categorize the entire population of banks or thrifts based on characteristics such as size (value of assets), capitalization ratios, nonperforming assets, loan loss reserves, and geographic location. The probability of resolution over a finite time period for each category of institutions is estimated from the incidence of resolution during a historical period of similar length. A separate loss distribution function is used to make annual projections of resolved bank or thrift assets.

Transition Matrix Models

Transition matrix models are a variation of actuarial models that use the relative incidence of the movement of the number and assets of banks or thrifts across CAMEL[11] categories to determine subsequent year CAMEL ratings and resolutions. Like actuarial models, transition matrix models do not identify individual bank or thrift failures but simply project a future distribution of failed institutions.

Asset Markdown Models

Asset markdown models attempt to estimate the net worth of every institution in the industry. This is accomplished by (1) using asset deflators to explicitly value assets and equity of individual banks or (2) discounting cash flows after adjusting for potential loan losses, nonperforming loans, expenses, and reserves. Banks with negative net worth based on the estimated market value of assets and equity are identified. The results are used to produce an estimate of embedded (future) losses to the insurance fund. The data-intensive nature of this approach limits its application.

Proportional Hazards Models

Proportional hazards models are based on the premise that certain financial and economic variables determine a financial institution's risk of failure and thus affect its time-to-failure. This type of an approach attempts to estimate the time-to-failure using bank attributes and other variables in a regression model. The model generates the probability that a bank will survive beyond any given time period. A probability distribution of an institution's expected life can be plotted for a range of future time

[11]CAMEL ratings are a numerical index of financial condition used by bank regulators based on on-site examinations and examiners' assessment of risk. The five components of a CAMEL rating are capital adequacy, asset quality, management practices, earnings, and liquidity. CAMEL ratings range from 1 for financially sound banks to 5 for unsound banks.

periods. A proportional hazards model developed by FDIC analysts used seven bank and economic variables.[12] These variables were two regulatory indicators of a bank's financial stress and measures of a bank's capital level, riskiness of assets, asset quality relative to reserves, profitability, and a leading economic indicator—the annual percentage change in housing permits at the state level.

Pro Forma Projection Models

This type of model projects individual bank or thrift income and capital based on current conditions. An institution's earnings are based on returns to current earning assets. Assumptions are made regarding the movement of nonperforming assets based on the expected macroeconomic conditions. Liabilities can be modeled under optimistic or pessimistic scenarios. Assumptions are also made about earnings retention and nonperforming loans and charge-offs.

Implementation Considerations for Deposit Insurance

Adequacy of Current Budget Reporting

The cash-based budget's focus on cash flows can make deposit insurance look profitable when costs are rising or look more costly when there has been no change in actual costs. This is because:

- Cash-based budget reporting does not recognize the cost of a failed institution until cash is required to pay off depositors, which may not occur until months or years after an institution becomes insolvent.
- The cost of new or growing deposit insurance commitments are not recognized in the budget when they occur.
- The government's cost for deposit insurance is obscured by the recording of financing (working capital) transactions. When the government closes an institution and pays its depositors, it acquires assets which are subsequently sold. The cash-based budget records the cash needed to acquire the assets as an outlay and the proceeds of asset sales as offsetting collections. The government's cost—the difference between what it paid

[12]For more information, see Gary S. Fissel, "Risk Measurement, Actuarially-Fair Deposit Insurance Premiums and the FDIC's Risk-Related Premium System," FDIC Banking Review, vol. 7, no. 1 (Spring/Summer 1994), pp. 16-27.

for the assets and what it was able to sell them for—is not shown in the budget.

Issues in Implementing an Accrual-Based Budgeting Approach for Deposit Insurance

- Estimates of future bank failures and their impact on the deposit insurance funds are inherently uncertain due to their dependence on uncertain economic conditions, firm behavior, and industry changes.
- Methodologies currently available for estimating the accrual cost of deposit insurance are generally based on recent program experience and may not capture the long-term risk to the government.
- The uncertainty inherent in accrual cost estimates and reestimates for deposit insurance could potentially introduce new volatility in the annual reported program cost and the budget deficit.

Pension Insurance

Budget Account: Pension Benefit Guaranty Corporation Fund (16-4204-0-3-601)

Agency: Pension Benefit Guaranty Corporation (PBGC)

Purpose

The Pension Benefit Guaranty Corporation (PBGC) was established by Title IV of the Employee Retirement Income Security Act of 1974 (ERISA) to protect the retirement income of participants and beneficiaries covered by private sector, defined benefit pension plans. These plans provide a specified monthly benefit at retirement, usually based on salary or a stated dollar amount and years of service. PBGC usually assumes responsibility for paying insured retirement benefits when a plan sponsor experiences severe financial stress and cannot pay all promised benefits. This generally occurs only when an employer is being liquidated or, if after filing for bankruptcy protection, it is determined that termination of the pension plan is necessary for the company's survival. Under certain circumstances, PBGC can also terminate a plan and assume responsibility for plan benefits if, for example, the plan fails to meet minimum funding requirements or cannot pay current benefits.

Coverage

At the end of fiscal year 1996, PBGC insured the pension benefits of nearly 42 million workers and retirees in approximately 50,000 private sector, defined benefit pension plans. Defined contribution plans, such as 401(k) plans, are not insured. PBGC administers two legally distinct programs, one for pension plans sponsored by a single employer and one for plans to which several companies make payments. These multiemployer plans are collectively bargained by industry or trade groups and generally cover a particular geographical area. Multiemployer plans account for approximately 2,000 of the 50,000 plans insured by PBGC.

PBGC guarantees the basic monthly retirement benefit of insured workers. The guarantee includes benefits beginning at normal retirement age (usually 65), certain early retirement and disability benefits, and benefits for survivors of deceased plan participants. PBGC guarantees only vested benefits.[1] In addition, ERISA sets a limit for guaranteed benefits based on a formula which is adjusted periodically for growth in wages. For pension plans taken over by PBGC in 1997, the maximum annual pension guarantee is $33,136. Once the insured benefit amount is determined, it is not

[1]Vested benefits are those to which an employee is entitled as the result of having met certain requirements, such as length of employment, even if the employee ceases employment prior to retirement.

subsequently adjusted for inflation. In fiscal year 1996, PBGC paid benefits of $792 million to approximately 200,000 retirees.

Eligibility Requirements

Under ERISA, employers who provide defined benefit pension plans must meet minimum standards and provide prudent management of pension funds. The standards specify who must be covered, how long a person has to work to be eligible for benefits, and how much money must be contributed annually by the employer to the plan. ERISA excludes certain defined benefit plans from coverage. These include professional service plans that cover fewer than 26 participants, plans of fraternal societies financed entirely by member contributions, and plans maintained exclusively for substantial owners of a business.

Program Financing

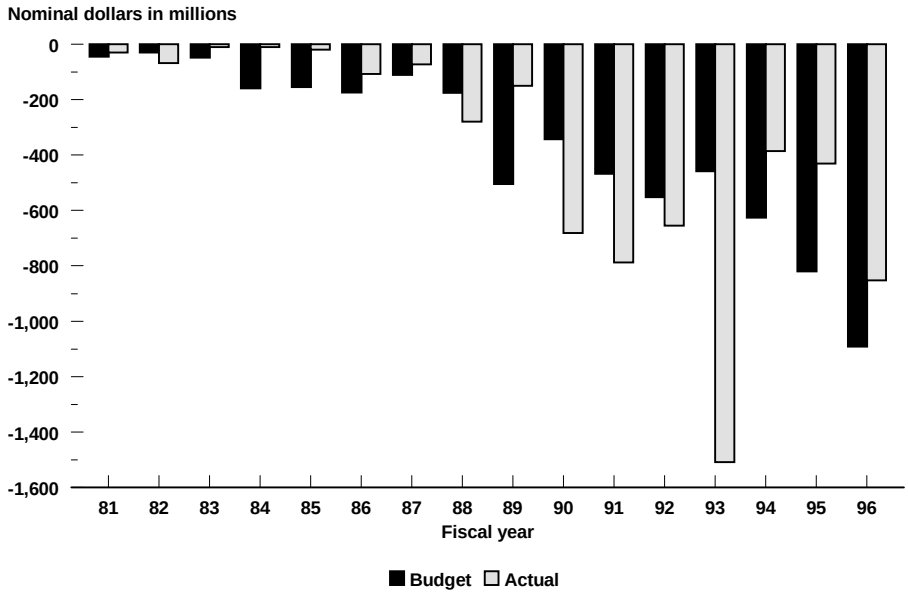
PBGC is required by ERISA to be self-financing on an actuarial basis. PBGC receives funds from premiums collected from ongoing pension plans, investment income, terminated plan assets, and recoveries from sponsors of terminated plans. PBGC is also authorized to borrow up to $100 million from the U.S. Treasury in the event that its resources are insufficient to pay guaranteed benefits. At the end of fiscal year 1996, PBGC's financial statements reflected a surplus $993 million. This was the first time since it was created that the agency has posted a surplus.

Annual premiums for the single-employer programs are $19 per participant for a fully funded plan. Underfunded single-employer plans pay an additional variable rate of $9 per participant for each $1,000 of unfunded vested benefits. Prior to passage of the Retirement Protection Act of 1994 (RPA) the variable rate was capped at $53 per participant. The cap is being phased out under RPA over a 3-year period which began July 1, 1994. The multiemployer plan premium is $2.60 per participant.

Current Budget Treatment

Prior to 1981, PBGC was treated as an off-budget federal entity and as such its transactions were excluded from the budget totals. Beginning in 1981, Public Law 96-364 required that PBGC's receipts and disbursements be included in the budget. The on-budget activities of PBGC are reported in a single account. Outlays from this account are classified as mandatory under BEA with the exception of administrative expenses, which are discretionary. Figure III.1 shows the budgeted and actual outlays of PBGC's on-budget account since 1981.

Figure III.1: Pension Benefit Guaranty Corporation Budget Estimates Versus Actual Outlays, Fiscal Years 1981-1996



The budget treatment of PBGC is complicated by the use of a second account for some activities which is not included in the federal budget. This account records the assets and liabilities that PBGC acquires from terminated plans. As a result, the budget only reports PBGC's net annual cash flows between its on-budget account and all other entities—including the other PBGC account. It does not provide information on liabilities PBGC incurs when it takes over an underfunded plan or other changes in PBGC's assets and liabilities.

Methods of Assessing Risk Assumed for Pension Insurance

Calculation of the risk-assumed cost of the government's pension insurance has focused on two methods. The first, developed by OMB staff, uses a mathematical model based on options pricing theory. The second method is a simulation approach based on the research of two economists at the Federal Reserve Bank of New York and developed and refined by PBGC staff.

OMB's Options Pricing Model

As part of the Bush administration's 1992 proposal to implement accrual-based budgeting for federal insurance programs, OMB staff developed an options pricing approach to estimate PBGC's risk-assumed

liability and annual accruing cost. Options pricing is commonly used by financial markets to estimate the future value of various types of assets. A brief overview of options pricing theory is provided in figure 5.1. In OMB's model, the pension guarantee is treated as giving the owners of a firm the option to transfer their pension plan liabilities to PBGC when the firm becomes insolvent. However, since the cost to the government is contingent on the financial conditions of both the pension plan and the plan's sponsoring firm, OMB's model specifies stochastic processes for projecting the value of the assets and liabilities of the pension plan and the sponsoring firm.[2]

OMB's model uses actual stock and financial data on sponsoring firms and their pension plans. Data used include company stock price information and pension plan assets and liabilities. Data from approximately 1,800 individual companies representing approximately 70 percent of the single-employer pension liability insured by PBGC is used. OMB's model is limited to publicly traded firms that sponsor defined benefit pension plans. Assumptions are made about the growth rates of pension assets and liabilities, PBGC recovery rates from bankrupt firms, and plan participation rates. In addition, a number of parameters are estimated based on recent experience to characterize changes in the asset-to-liability ratios of the firms and pension plans.

Using data on the current financial conditions of pension plans, plan sponsors, and information on recently observed changes, OMB's model solves a series of simultaneous differential equations to estimate the probability of bankruptcy and plan underfunding for individual insured pension plans. The model then calculates the cost of PBGC's potential losses resulting from the projected terminated underfunded plans and the value of the potential insurance premiums that PBGC will collect. Together, these calculations provide the net cost to the government of the pension guarantee or subsidy extended to the pension plans in the model. A separate amortization schedule is used to spread this cost on an annual basis based on the increase in vested guaranteed benefits.

PBGC's Pension Insurance Modeling System

Around the time that OMB unveiled its model, PBGC began developing a simulation approach to forecast its exposure to future claims under a wide range of possible future economic conditions. PBGC's efforts built upon

[2]For a detailed description of the model, see George G. Pennacchi and Christopher M. Lewis, "The Value of Pension Benefit Guaranty Corporation Insurance," Journal of Money, Credit, and Banking, vol. 26, no. 3 (August 1994, part 2), pp. 735-753.

earlier research of economists at the Federal Reserve Bank of New York.[3] The model, which PBGC calls the Pension Insurance Modeling System (PIMS), is designed to simulate pension funding and bankruptcy rates over a 30-year period. The model, which is still under development, generates estimates of average expected claims and probability measures of the uncertainty surrounding the estimates under various economic and policy scenarios.[4] PBGC expects to use this information to analyze its exposure to future losses and evaluate various legislative changes in the pension insurance program and related laws.

The heart of PIMS is the simulation of a series of dynamic relationships that characterize the growth of firm assets and liabilities, the number of plan participants, the assets and liabilities of the pension plan, and the normal cost associated with the plan. The pension plan and the sponsoring firm are treated as separate but related entities. The future financial condition of the firm and plan are interdependent and also dependent on current financial conditions, legal and regulatory restrictions, and uncertainty of future economic conditions. Stochastic variables are used to model this uncertainty. The model simulates these dynamic relationships over a specified period of time. In order to forecast future expected claims, the model is run a large number of times to produce a distribution of possible outcomes. This provides an estimate of the average expected future claims and a measure of the probability that actual claims will be within a certain range around the estimate.

PIMS is data-intensive, using numerous attributes of individual pension plans and sponsoring firms. The model is run using a stratified sample of firms. PBGC currently has data on 266 plans representing approximately 50 percent of the government's liability and 50 percent of plan underfunding in PIMS. Model results can be extrapolated to account for the entire population of plan sponsors. For each plan in PIMS, Internal Revenue Service funding requirements are modeled. The probability of firm bankruptcy is also modeled and is dependent upon several factors, including company size, industry, and firm characteristics. All parameters in the model are empirically based. PBGC, working with outside reviewers, has been conducting extensive testing of PIMS over the past year.

[3]Arturo Estrella and Beverly Hirtle, "Estimating the Funding Gap of the Pension Benefit Guaranty Corporation," Federal Reserve Bank of New York Quarterly Review, vol. 13, no. 3 (Autumn 1988), pp. 45-59.

[4]For a detailed discussion, see Richard Ippolito and William Ross eds., Pension Insurance Modeling System, draft report presented at the Pension Research Council, PIMS Technical Review Panel, at the Wharton School of the University of Pennsylvania, November 1996.

Implementation Considerations for Pension Insurance

Adequacy of Current Budget Reporting

- PBGC's annual net cash flows reported in the budget reduce the annual budget deficit while its growing long-term commitment to pay pension benefits has no effect on the deficit.
- Liabilities from terminated, underfunded pension plans taken over by PBGC are not recognized in the budget.
- The government's exposure to future claims from insuring currently healthy firms—the risk assumed by the government—is not recognized in the budget.
- Changes in the government's exposure to future claims due to the annual growth in insured benefits or program changes are not recognized in the budget as they occur.

Issues in Implementing an Accrual-Based Budgeting Approach

- Estimates of PBGC's exposure to the future costs of pension benefits are inherently uncertain due to its sensitivity to changes in interest rates and the difficulty of projecting firm bankruptcies.
- Potentially large annual swings in the accruing cost of pension guarantees due to changes in economic conditions could introduce new volatility in the annual budget deficit.
- Development, testing, and documentation of both the OMB model and PBGC's PIMS is not yet complete.

Other Insurance Programs

Federal Life Insurance

The federal government provides life insurance coverage to employees, retirees, and veterans.[1] The following sections provide an overview of the three life insurance programs included in our study:

- Federal Employees' Group Life Insurance
- Service-Disabled Veterans Insurance
- Veterans Mortgage Life Insurance

Federal Employees' Group Life Insurance

Budget Account: Employees' Life Insurance Fund (24-8424-0-8-602)

Agency: Office of Personnel Management (OPM)

Bureau: Retirement and Insurance Service (RIS)

Purpose

The Federal Employees' Group Life Insurance (FEGLI) program was established in 1954 (Public Law 83-598) to provide federal employees the opportunity to obtain low-cost term life insurance comparable to that widely offered by private sector employers. The establishment of the program was seen as an essential element of a well-rounded personnel program for the federal government. The Office of Personnel Management (OPM) manages FEGLI, sets and collects insurance premiums, and invests program funds. The Metropolitan Life Insurance Company, under contract with OPM, settles and pays insurance claims. Prior to the establishment of FEGLI, life insurance coverage was offered to groups of federal employees by beneficial associations. With the creation of FEGLI, membership in these associations was closed.[2]

Coverage

FEGLI covers 90 percent of eligible employees and retirees of the executive, legislative, and judicial branches of the federal government as well as many of their family members. Basic coverage is automatic upon eligibility unless declined by the employee. At the end of fiscal year 1996, $484 billion[3] in life insurance coverage was provided under FEGLI to 2.4 million

[1]Only veterans' life insurance programs underwritten by the federal government and still open to new participants were included in this study.

[2]In 1955, the Congress authorized OPM to purchase a qualified insurance policy to insure agreements assumed from the beneficial associations. This very small program is underwritten by the Shenandoah Life Insurance Company.

[3]Includes $113 billion for accidental death and dismemberment (AD&D) coverage. In prior years, OMB excluded AD&D coverage from the reported FEGLI face value.

active employees and about 1.6 million annuitants. Total insurance in force is projected to increase to $496 billion by the end of fiscal year 1998.

The FEGLI program provides basic life insurance coverage equal to the employee's annual salary rounded to the next higher $1,000, plus $2,000. The minimum coverage is $10,000 and the maximum is limited to the amount based on the Level II Executive Schedule salary. For accidental death, the amount is doubled. One-half the basic benefit is payable for accidental dismemberment—the loss of one hand, one foot, or one eye—while the full benefit is paid for the loss of two or more such members. Employees age 35 or under receive insurance coverage equal to twice the basic amount at no additional cost to them. This extra benefit decreases by 10 percent each year until at age 45 there is no extra benefit. This extra benefit does not apply to the accidental death and dismemberment benefit. Effective July 25, 1995, the FEGLI Living Benefits Act of 1994 (Public Law 103-409) established a new provision allowing terminally ill enrollees with life expectancies of 9 months or less to elect to receive a lump-sum payment equal to their basic insurance amount with some adjustments. Employees with basic FEGLI coverage are eligible to purchase additional optional insurance coverage.

If certain conditions are met, full basic coverage is provided to retirees until age 65. After age 65, three levels of coverage are available. If no action is taken, the basic coverage amount is reduced by 2 percent each month until 25 percent of the original coverage remains. However, retirees may elect to purchase one of two alternatives for post-age 65 coverage. They can elect (1) coverage that is reduced by 1 percent each month after age 65 until it reaches 50 percent of the original amount or (2) no reduction in coverage after age 65. If basic life insurance coverage is continued into retirement, the optional insurance coverage may also be continued at an additional cost to the retiree. Accidental death and dismemberment coverage stops at retirement.

Eligibility Requirements

Most civilian employees of the federal government (and individuals first employed by the District of Columbia government before October 1, 1987) are eligible to participate in the FEGLI program. Basic life insurance coverage is effective on the first day of pay and duty status unless waived by the employee. Employees are also eligible for optional coverage at this point, but it is not effective until elected by the employee. Employees working under temporary appointments are not eligible.

Program Financing

The FEGLI program is financed by insurance premiums and interest earned on Treasury securities held by the insurance fund. Employees pay two-thirds of the insurance premium for basic insurance coverage and agencies pay the remaining third except for the Postal Service which pays the full premium for its employees. The cost of optional insurance is paid entirely by the employee or annuitant. Federal retirees, including Postal Service retirees under age 65 who retired after 1989, also pay two-thirds of the basic premium. After age 65, retirees pay nothing for coverage equal to 25 percent of the original basic benefit. The retiree pays premiums to continue coverage at the full basic benefit level or at the 50-percent level.

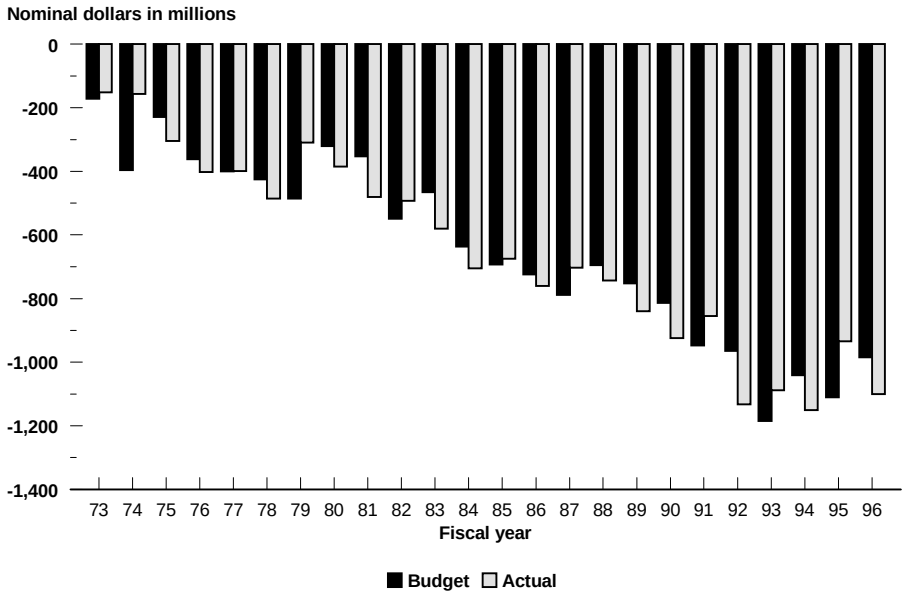
In fiscal year 1996, the Employees' Life Insurance Fund collected premiums of approximately $1.5 billion and had investment income of over $1.2 billion. During this period, the program paid approximately $1.6 billion in insurance benefits. Although the FEGLI program is expected to continue to have a positive cash flow for the next 15 years, the program reported a $3.4 billion unfunded liability at the end of fiscal year 1996.

Current Budget Treatment

All administrative and insurance outlays as well as collections from insurance premiums and earnings on invested funds are reported on a cash basis in the Employees' Life Insurance Fund—a trust revolving fund. Associated with this fund is a payment account: Government Payment for Annuitants, Employees' Life Insurance. This payment account is used to transfer to the fund appropriations received from the Congress to cover the government's share (one-third of the cost) of basic life insurance premiums for certain federal annuitants.[4] All FEGLI program costs are classified as mandatory spending and all administrative costs are classified as discretionary. Figure IV.1 shows budgeted and actual outlays for the fund since 1973.

[4]Annuitants under age 65 retiring after December 31, 1989.

Figure IV.1: Employees' Life Insurance Fund Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Service-Disabled Veterans Insurance

Budget Account: Service-Disabled Veterans Insurance Fund (36-4012-0-3-701)

Agency: Department of Veterans Affairs (VA)

Bureau: Veterans Benefits Administration (VBA)

Purpose

Service-Disabled Veterans Insurance (SDVI) was established in 1951 under the Serviceman's Indemnity Act to provide life insurance coverage to veterans having service-connected disabilities at the same rates available to nondisabled veterans.

Coverage

Under the SDVI program, life insurance is available to service-disabled veterans in multiples of $500 with minimum coverage set at $1,000 and the maximum set at $10,000. Under Public Law 102-568, totally disabled veterans may purchase supplemental insurance coverage not to exceed $20,000. Policyholders may borrow up to 94 percent of the cash value of their policies. Insurance in force at the end of fiscal year 1996 totaled approximately $1.5 billion covering 163,053 veterans.

Eligibility Requirements

Any person who is released from active military service, under conditions other than dishonorable, on or after April 25, 1951, and is found by the Secretary of Veterans Affairs to be suffering from a service-connected disability or disabilities, is eligible to apply for coverage. A disabled veteran must complete a written application within 2 years from his or her discharge date to be granted coverage. Veterans who are determined to be totally disabled are eligible to apply for supplemental insurance.

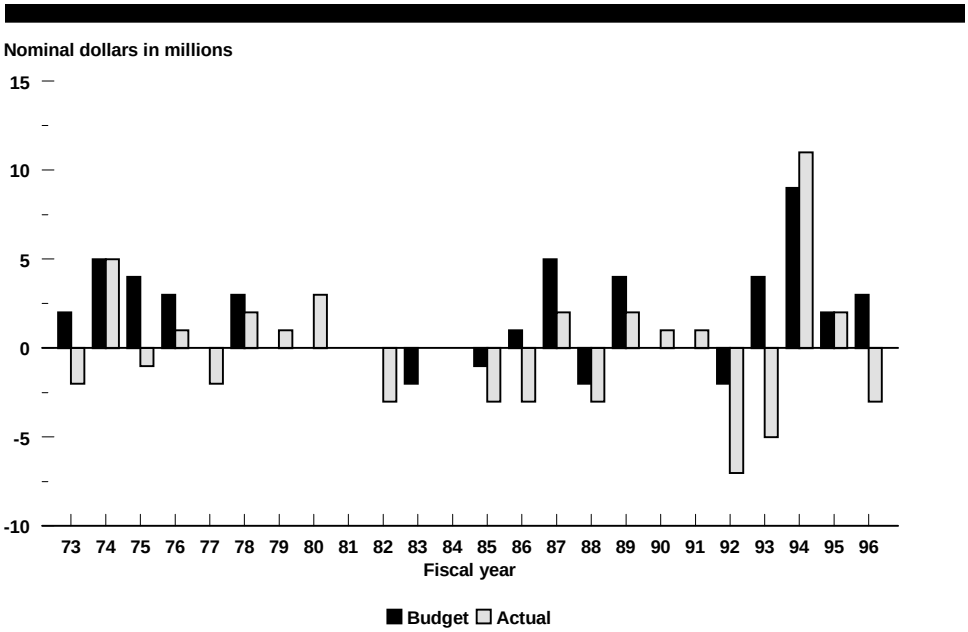
Program Financing

The program is financed from premiums, interest on policy loans, and general funds received by transfer from the Veterans Insurance and Indemnities appropriation. The premiums charged for this coverage are based on standard rates for nondisabled individuals. Premiums for totally disabled veterans are waived. Totally disabled veterans who apply for supplemental insurance pay premiums for the additional coverage. Because of these provisions, premiums are not actuarially sound and the program is not self-sufficient. At the end of fiscal year 1996, the program's liability for future benefits exceeded available assets by $457 million. This deficit is expected to remain approximately at this level through the end of fiscal year 1997.

Current Budget Treatment

All cash flows of the program with the exception of administrative expenses are reported on a cash basis in the Service-Disabled Veterans Insurance Fund. These cash flows include premium collections, payment of death claims, payment of cash value of policies surrendered, disbursement of policy loans, interest on loans, and repayment of loans. This account also receives a transfer of funds from the Veterans Insurance and Indemnities appropriation account as needed to cover outlays. All activity of this account is classified as mandatory under BEA. The program's administrative expenses are paid out of the Department of Veterans Affairs (VA) General Operating Expenses appropriation and are discretionary. Figure IV.2 shows budgeted and actual outlays for the SDVI fund since 1973.

Figure IV.2: Service-Disabled Veterans Insurance Fund Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Veterans Mortgage Life Insurance

Budget Account: Veterans Insurance and Indemnities (36-0120-0-1-701)

Agency: Department of Veterans Affairs (VA)

Bureau: Veterans Benefits Administration (VBA)

Purpose

Veterans Mortgage Life Insurance (VMLI) was established in 1971 (Public Law 92-95) to provide mortgage protection life insurance to severely disabled veterans who are granted VA assistance in securing specially adapted housing.

Coverage

The amount of insurance provided to a veteran under this program is the lesser of $90,000 or the amount of the loan outstanding on the housing unit. The amount of insurance is reduced according to the amortization schedule of the loan and may not at any time exceed the amount of the outstanding loan with interest. If there is no loan outstanding on the housing unit, no insurance is available under this program.

Eligibility Requirements

Severely disabled veterans who have received VA grants for specially adapted housing are automatically insured against death unless the

veteran declines coverage in writing to the Secretary of the VA or fails to provide the VA with the necessary information on which to calculate the insurance premium. A veteran who elects not to be insured can subsequently obtain insurance upon submission of an application.

Program Financing

The program is financed by premiums paid by policy holders and general fund appropriations. Under law, the premium rates charged to eligible veterans are based on mortality data that are appropriate to cover only the cost of insuring nondisabled persons. As a result, the program is not self-supporting and requires appropriated funds to pay claims to mortgage holders. At the end of fiscal year 1996, VA estimated that the VMLI program's liability for future benefits exceed available assets by $93 million.

Current Budget Treatment

All activities including premium collections and claim disbursements of the VMLI program are recorded on a cash basis in the Veterans Insurance and Indemnities appropriation account. The program has permanent authority and appropriations are made as needed to cover claims. This account is classified as mandatory under BEA. The program's administrative expenses are paid out of the VA's General Operating Expenses appropriation and are discretionary.

Methods of Assessing Risk Assumed for Life Insurance

Officials at VA and OPM currently use actuarial approaches that are the standard practice of the life insurance industry. Measurement of the risk assumed in insuring lives is well established in actuarial science. Mortality tables, which are mathematical models based on the laws of probability and mortality statistics, provide the basis for estimating the occurrence of future deaths. This information together with assumptions about interest rates and contractual policy benefits allow for the calculation of expected insurance claims.

A basic principle of actuarial science holds that, by studying the rate of death within any large group of people and gathering information on all factors that may affect that rate, it is valid to anticipate that any future group of persons with approximately the same factors will experience the same rate of death. Mortality tables are constructed to reflect probabilities of death at each age. The accuracy with which the estimated future claims approximates the actual experience depends upon two factors: (1) the accuracy and appropriateness of the underlying mortality statistics and (2) the number of observations the estimate is based on and the number of individuals insured. Most mortality tables in use today are based upon the

experience of insured individuals because of the accuracy and completeness of data on these lives.

In the construction of mortality tables, adjustments are generally made to the observed mortality rates. For example, actuaries have derived mathematical formulas that attempt to explain mortality rates. These formulas, which have gained general acceptance in the field, are used to smooth unexplained deviations in observed mortality data. These formulas are also used where data are limited, such as for very young or old lives. Adjustments are also made to mortality tables to provide a margin of financial safety in insurance contracts and are considered sound practice in the insurance industry.

Mortality tables used for the FEGLI program have been developed internally by OPM actuaries based on the demographic composition of the federal civilian workforce and the historic mortality rates of insured employees. According to the OPM actuaries, this is done because the characteristics of the federal civilian workforce appear to be different from the population at large. OPM has constructed separate mortality tables for male and female employees, active employees, retired employees, and disabled persons. For SDVI, VA is required to use the Commissioners 1941 Standard Ordinary Table of Mortality. For VMLI, VA is directed by law to use mortality data appropriate to cover only the cost of insuring nondisabled lives.

An estimate of the expected cost of future insurance benefits can be derived based on the expected rates of death, assumed rate of interest, and policy benefits. This information is used by insurance companies to establish premium rates such that the present value of the future premiums less operating expenses equals the present value of future benefits. If the present value of future benefits exceeds the present value of future premiums plus any previously accumulated premiums held in reserve, the program would have an unfunded liability. As such, mortality tables and interest rate assumptions are generally fairly conservative to ensure sufficient resources to pay future benefits. In the SDVI and VMLI programs, the Congress has chosen to subsidize the premiums of disabled veterans through the use of mortality assumptions for nondisabled individuals. Premiums collected are not sufficient to cover expected future benefits and an unfunded liability exists.

Implementation Considerations for Life Insurance Programs

Adequacy of Current Budget Reporting

- Increases in life insurance obligations due to program changes or growth are not reflected in the year in which they occur since cash payments may not be required for many years.
- Program income is not matched with program expenses. Premium and investment income necessary to pay future claims is recorded in the budget as negative outlays (income), while the future expense is not recorded. As a result, the relative cost of the program may be understated and sufficient funds may not be available to pay future claims.

Issues in Implementing an Accrual-Based Budgeting Approach

- Although methodology for estimating the risk-assumed cost of extending life insurance is well established in actuarial science, estimates are highly sensitive to assumptions such as interest rates.

National Flood Insurance Program

Budget Account: National Flood Insurance Fund (58-4236-0-3-453)

Agency: Federal Emergency Management Agency (FEMA)

Bureau: Federal Insurance Administration (FIA)

Purpose

The National Flood Insurance Program (NFIP) was established by the National Flood Insurance Act of 1968 (Public Law 90-448) to (1) identify flood prone areas, (2) make flood insurance available to property owners living in communities that joined the program, (3) encourage floodplain management efforts to mitigate flood hazards, and (4) reduce federal spending on disaster assistance. Some of the key factors leading to the program's establishment were the reluctance of private insurers to sell flood coverage, increasing losses caused by floods because of floodplain encroachment, and higher federal expenditures for relief and flood control.[5] Since its establishment, NFIP has been expanded and modified several times.

[5]Federal Disaster Assistance, Bipartisan Task Force on Funding Disaster Relief, S. Doc. No. 4, 104th Cong., 1st Sess. (1995).

Coverage

Federal flood insurance is available in the 50 states, the Virgin Islands, Puerto Rico, Guam, the District of Columbia, and American Samoa. In fiscal year 1995, NFIP had about 3.3 million policies, totaling over $325 billion, in force in over 18,000 communities nationwide. As of January 1997, there was approximately $380 billion of insurance in force.

NFIP has two principal components: emergency and regular. The emergency program is available in communities before detailed mapping[6] is completed. Under the emergency program, structures identified in flood-prone areas are eligible for limited amounts of coverage at subsidized rates. However, according to FIA, flood insurance rate maps (FIRMs) have been completed for nearly all communities considered to be flood-prone, and only a very few communities remain in the emergency program.

After mapping is completed, the communities enter the regular program. Under the regular program, there are basically two classifications of properties (1) pre-FIRM properties—those built before the initial mapping studies were completed and (2) post-FIRM properties—those built after the mapping studies were completed. After a community joins the regular program, the rates for the pre-FIRM properties may still be subsidized, but post-FIRM properties are to be charged actuarially-based rates. In fiscal year 1996, subsidized policies accounted for approximately 38 percent of the total policies in force. Under the regular program, coverage is available for virtually all types of buildings and their contents with coverage limits of up to $350,000 for residential properties and $1 million for other properties.

Eligibility Requirements

To be eligible for federal insurance, communities must adopt and enforce floodplain management ordinances that meet or exceed the minimum standards of the program. Communities must join the program within 1 year of the time they are identified as flood-prone.

The purchase of flood insurance was voluntary until the adoption of the Flood Disaster Protection Act of 1973. The 1973 Act required the purchase of flood insurance to cover structures in special flood hazard areas of communities participating in the program if (1) any federal loans or grants were used to acquire or build the structures and (2) loans were secured by improved properties and the loans were made by lending institutions that

[6]Flood insurance rate maps (FIRMs) provide information such as elevation and flood zone that are necessary for classifying properties according to flood risk.

are regulated or insured by the federal government. In 1994, the Congress amended NFIP to, among other things (1) prohibit federal disaster relief in flood disaster areas to persons who failed to obtain and maintain required flood insurance and (2) establish civil monetary penalties for regulated lenders who fail to ensure that their borrowers obtain required flood insurance.

Program Financing

The program is financed primarily through premiums, fees, and interest income. As noted above, owners of post-FIRM structures pay actuarially-based rates. By contrast, subsidized rates are available for owners of older, generally less flood-worthy, pre-FIRM structures. FIA is authorized to borrow up to $500 million from the Treasury without approval of the President and up to $1 billion with approval of the President.[7] In addition, the Congress has appropriated funds for NFIP from time to time over the program's history. The program has not received a general fund appropriation since 1986.

By design, NFIP is not actuarially sound. The Congress authorized FIA to subsidize a significant portion of the total policies in force but did not provide annual appropriations to cover the implicit subsidy costs. Although the program has achieved a goal of becoming self-supporting for the average historical loss year,[8] it may not have sufficient resources to meet potential catastrophic losses.[9] This is the case because the historical experience period used does not include any loss years considered to be of a catastrophic level.[10]

Figure IV.3 shows the program's premium income and loss and loss adjustment expenses since the program's inception. The volatility in the program experience demonstrates the uncertainty surrounding the average loss and loss adjustment costs.

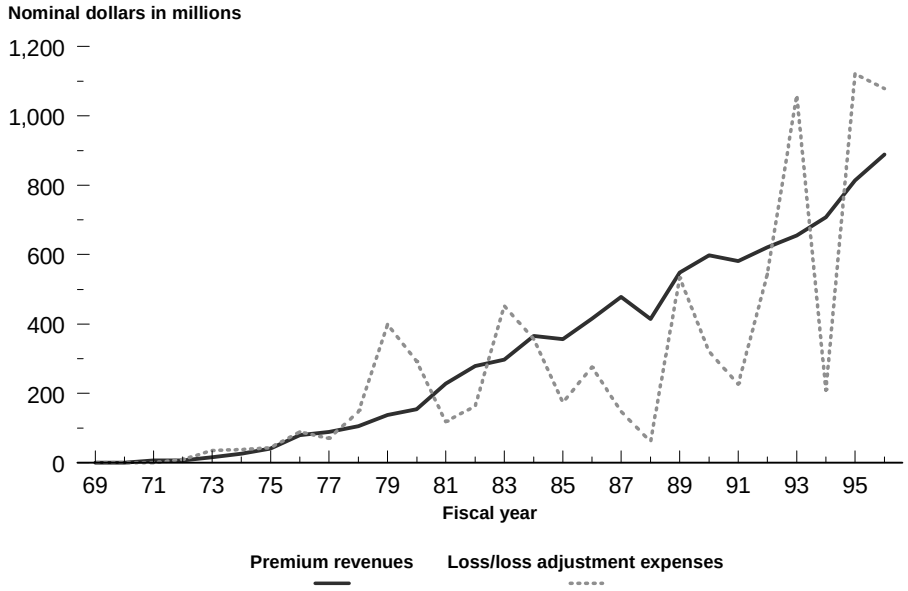
[7]FIA's borrowing authority was increased to $1.5 billion for fiscal year 1997 only.

[8]Premium rates for NFIP are established so that total premium revenue is sufficient to cover the average historical loss year. According to FIA, the rate review typically first determines whether the actuarial rates need to be adjusted. The effects of any such adjustments on maintaining the overall target level are then projected. Should there be a shortfall, adjustments to policy coverage or premiums for pre-FIRM policies will likely be proposed to make up the difference so that the combination of actuarial and subsidized policies would be generating written premiums at least to the level of NFIP's self-supporting target.

[9]Flood Insurance: Financial Resources May Not Be Sufficient to Meet Future Expected Losses (GAO/RCED-94-80, March 21, 1994).

[10]According to FIA, the probable maximum loss resulting in $4.5 billion to $5 billion in claim losses has a 1 in 1,000 chance of occurring. For comparison purposes, Hurricane Hugo resulted in claims of $0.4 billion.

Figure IV.3: NFIP Premium Income Versus Loss and Loss Adjustment Expenses, Fiscal Years 1969-1996



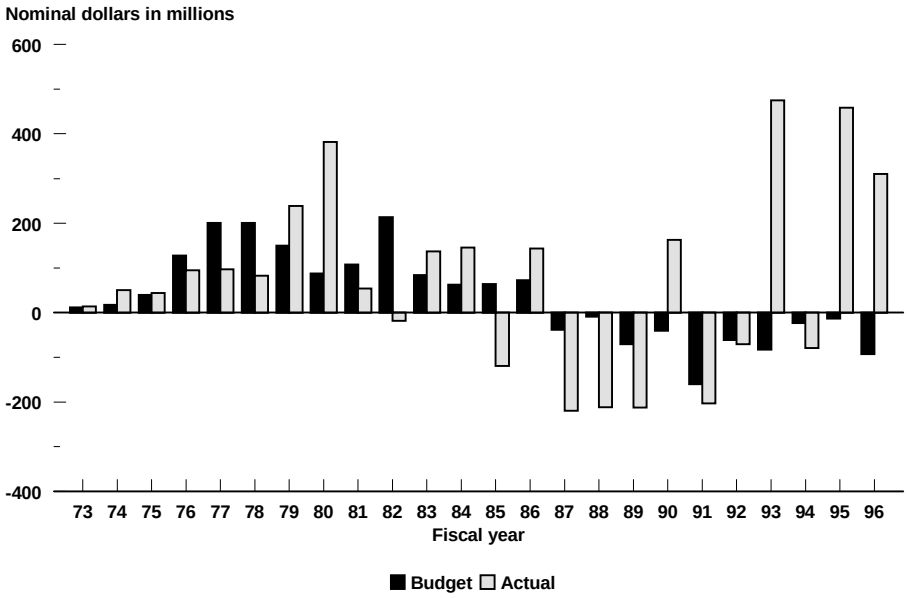
Source: FIA unaudited data.

The program has had to borrow from the Treasury several times in recent years. For example, in fiscal year 1993, the nation experienced severe flood damage resulting in flood insurance claims more than double the historical average loss. As a result, the program borrowed and since repaid funds from the Treasury to pay excess claims. Similarly, in fiscal year 1995, the program experienced losses that were much greater than the historical average loss. As a result, the program again exercised its borrowing authority. According to FIA, as of March 31, 1997, NFIP owed the Treasury $818 million.

Current Budget Treatment

The National Flood Insurance Fund, a revolving fund, was established to carry out NFIP. The program includes both mandatory and discretionary spending. Funding for expenses other than costs incurred in the adjustment and payment of claims is available only to the extent provided in appropriation acts. Figure IV.4 shows the program's budgeted versus actual outlays from fiscal years 1973 through 1996.

Figure IV.4: National Flood Insurance Fund Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Risk Assessment Methods

According to FIA, its actuarial rate-setting method for unsubsidized policies (post-FIRM) could be used to generate reasonable estimates of the costs of the long-term expected risk for the entire program. The difference between the costs of the long-term expected risk and the actual premium rates could be used to provide an estimate of the government's subsidy costs.

FIA uses a class-rating system to establish actuarial rates. That is, FIA classifies properties according to key characteristics of flood risk. All owners of properties in the same risk group are then charged the same rates. Even though individual risk may vary among properties within each risk group classification, these rates are actuarially-based in the sense that risk exposure for like properties is considered when setting the group's rates.

Information about the risk of flooding is essential to establishing actuarially sound rates. Two key characteristics that are used to classify properties according to flood risks include (1) the flood zone and (2) the

elevation of the structure relative to the base flood elevation (BFE).[11] Information about flood zones and BFEs is obtained from FIRMs.

The basic method for establishing actuarial rates on post-FIRM structures lying within the 100-year floodplain follows the hydrologic model described in a 1966 Department of Housing and Urban Development (HUD) report, Insurance and Other Programs for Financial Assistance to Flood Victims.[12] The basic logic of the model is to set rates for a property according to its risk of being flooded. According to an FIA actuary, the model is basically an expected value calculation based on measures of the frequency and severity of floods.[13]

Thus, a key data element is an estimate of the probabilities that floods of different severities, relative to BFE, will occur in a given year. FIA calls these data probability of elevation (PELV) values. Although within any zone there is a 1-percent chance that flood waters will exceed the BFE, the degree to which flood waters will reach above or below that level will vary across zones. PELV tables provide detailed information, by zone, about the frequency with which floods of all possible water surface elevations can be expected to occur. These data were generated on the basis of detailed engineering studies, available flood insurance data, simulations, and professional judgments and were established for each flood-hazard zone to meet generally accepted scientific parameters and legal considerations.[14]

Another key data element is the structural damage that will be suffered when a flood occurs. For a variety of depths of floods, and the associated depth of water in a structure, FIA has data that provide estimates of the percent of the value of a structure that is expected to be damaged. FIA calls these data the depth-percent-damage relationship or the damage by elevation (DELV) values. Information is presented by 1-foot increments of flood level within the structure and expressed as the average percentage

[11]BFE is the elevation relative to mean sea level at which there is a 1-percent chance of flood waters exceeding that level in a given year. The level of BFE within a community can change throughout the floodplain. These changes are delineated on FIRMs.

[12]Rates for post-FIRM properties that are outside the 100-year floodplain are set primarily through an analysis of previous years' claims.

[13]The HUD report describes the "hydrologic method" of rate-making as a method which "uses available data on the occurrence of floods and damage, but is considerably more sophisticated than merely averaging losses over a period of time."

[14]As noted in GAO/RCED-94-80, March 21, 1994, one of the problems in originally establishing the PELV tables was that the flood histories on which these studies were based were generally not very long. Statistical literature has shown that this may cause a bias toward establishing frequency probabilities that are too low. Consequently, the original PELV values have been modified to account for this bias.

of the property's value that will be damaged due to a flood of that elevation. For example, according to 1987 DELV information, a one-story, no basement structure located in the AE zone would sustain damage equal to 21 percent of the property's value if flood water reached a depth of 2 feet. As with the PELV data, information used in establishing DELV values was obtained primarily from engineering studies. In 1973, data for DELVs were selected on the basis of studies done by the U.S. Army Corps of Engineers and available flood claims at the time. According to FIA, DELVs are compared to actual experience and updated when sufficient data exist.[15]

Knowledge of the elevation-frequency relationship and the depth-damage allows a summation of the range of flood probabilities and their associated damage to property and contents. Each possible flood is multiplied by the expected damage should such a flood occur, and then each of these is added together. The total of each possible flood's damage provides an expected per annum percent of the value of property damage due to flooding. This expected damage can then be converted to an expected loss per $100 of property value covered by insurance. This per annum expected loss provides the fundamental component of rate-setting.

Several other factors important for modifying expected losses or for building additional expense items into the rates are also considered. These variables include the following:

- Loss adjustment factor: Rates are "loaded" or adjusted upward to account for costs associated with claims and loss adjustments.
- Deductible offset factor: Rates are adjusted downward to take into account that some portion of each claim will not be covered because of the policy deductible.
- Underinsurance factor: Rates are adjusted to take into account that the full value of the property may not be insured.
- Expense items factor: Rates are loaded for certain expenses, such as agents' commissions.

[15]FIA determines whether it has sufficient data on actual floods of different severities since 1978 to replace the original DELV. If data are sufficient then there is "full credibility" and the original DELVs are replaced. If insufficient claims data exist for full credibility, DELVs are based on a weighted average of the original base table values and the actual experience since 1978, where the weighting is determined by the ratio of actual experience claims to the number of experience claims necessary for full credibility. This would mean that over time the original, theoretical DELV will have less weight in determining actual DELV used for rate-setting.

Implementation Considerations for the National Flood Insurance Program

Adequacy of Current Budget Reporting

- The current cash-based budget does not recognize or fund the subsidy cost implicit in the government's flood insurance commitment for losses in excess of the historical loss year. As a result, the relative budgetary cost of the program may be understated and the program may not have sufficient funds to cover future claims. FIA estimates the annual "missing premium"—the government's subsidy—at about $520 million.
- The sporadic nature of floods may cause fluctuations in the deficit unrelated to the budget's long-term structural balance.

Issues in Implementing an Accrual-Based Budgeting Approach

- Although FIA's risk assessment experience and established rate-setting methodology will provide a useful foundation for generating risk-assumed estimates, some additional work may be required to adapt these estimates for use in an accrual-based budget.
- The appropriate level of reserves and the basis for reestimation will have to be determined. FIA has done some work developing estimates of catastrophic reserve levels but additional refinements and modifications will likely be required.
- The appropriate basis for accrual cost measurement—the average historical loss year or the program's long-term expected loss (including rare catastrophic loss years)—will have to be determined.
- FIA officials and staff expressed concern about the amount of staff resources required to update and adapt estimates and to comply with the requirements of an accrual-based budgeting approach.

Federal Crop Insurance Program

Budget Account: Federal Crop Insurance Corporation Fund (12-4085-0-3-351)

Agency: Department of Agriculture (USDA)

Bureau: Risk Management Agency (RMA)[16]

[16]The Federal Crop Insurance program is administrated by the Federal Crop Insurance Corporation (FCIC), a wholly owned government corporation. The 1996 Farm Bill established the Risk Management Agency within USDA and it has jurisdiction over FCIC.

Purpose

The Federal Crop Insurance program was established in 1938 by the Federal Crop Insurance Act[17] to protect crop farmers from unavoidable risks associated with adverse weather, plant diseases, and insect infestations. The program has been amended numerous times during its history. Extensive amendments were adopted in the Federal Crop Insurance Act of 1980[18] (Public Law 96-365) and the Federal Crop Insurance Reform Act of 1994[19] (Title I of Public Law 103-354). Most recently, several changes were made to the program by provisions of the Federal Agricultural Improvement and Reform Act of 1996 (Public Law 104-127, the Farm Bill).

Coverage

Crop insurance is available in all 50 states and Puerto Rico. In crop year 1996, there was about $27 billion of insurance in force written in over 3,000 counties. These policies provided coverage for approximately 200 million acres.

Under the changes made by the Federal Crop Insurance Act of 1994, two types of coverage—catastrophic and additional—are available for most major crops. Catastrophic coverage provides producers a minimum level of protection for a small processing fee. This coverage compensates farmers for crop yield losses greater than 50 percent at a payment rate of 60 percent of the expected market price. Premiums for this coverage are fully subsidized by the government.

Farmers can also purchase additional coverage from participating private insurance companies.[20] Farmers who purchase this additional insurance must choose both the coverage level (the proportion of the crop to be insured) and the unit price (e.g., per bushel) at which any loss is calculated. Farmers can choose to insure as much as 75 percent of normal production or as little as 50 percent of normal production at different price

[17]Title V of the Agricultural Adjustment Act of 1938 (Public Law 75-430, 7 U.S.C., 1501-1520).

[18]The Federal Crop Insurance Act of 1980 authorized FCIC to expand coverage to include all agricultural crops in all agricultural counties and to subsidize producer premiums.

[19]Among other things, the 1994 Act repealed ad hoc disaster authority and authorized FCIC to offer catastrophic risk protection.

[20]According to FCIC, additional coverage can be made available through USDA if private insurance providers do not service an area. The 1996 Farm Bill allows USDA to continue offering catastrophic risk protection through its local offices but only in states where there are too few approved private insurance providers.

levels.[21] With respect to unit price, farmers can choose to value their production at USDA's full price or a percentage of the full price. The government pays part of the farmer's premium for this additional coverage.

The Crop Insurance Reform Act of 1994 also created a new program, the Noninsured Assistance Program (NAP), for producers of most crops not currently covered by the crop insurance program. For a farmer to become eligible for payment, area-wide losses must be at least 35 percent of normal yields and the farmer must experience an individual minimum loss of at least 50 percent. Coverage levels are similar to those under the catastrophic coverage level once the trigger is activated.

Eligibility Requirements

The 1996 Farm Bill eliminated mandatory participation[22] in the federal crop insurance program to qualify for assistance under other farm programs. This applies to farmers who provide a written waiver to the Secretary of Agriculture agreeing to forgo eligibility for disaster payments in connection with a crop.[23] If a farmer does not sign a waiver, catastrophic coverage is required for receipt of a Conservation Reserve Program (CRP) payment, a USDA loan, or the 7-year market transition payment for eligible wheat, feed grain, cotton, or rice growers.

Program Financing

The crop insurance program is financed primarily through general fund appropriations and farmer-paid premiums. FCIC is authorized under the Federal Crop Insurance Act, as amended, to use funds from the issuance of capital stock which provides working capital for FCIC.[24] FCIC does not earn interest on cash maintained in U.S. Treasury accounts.

Under the Federal Crop Insurance Reform Act of 1994, FCIC is required to set insurance premiums at rates that are actuarially sufficient to attain an expected loss ratio[25] of not greater than 1.1 through September 1998, and

[21]According to FCIC, the 1994 Act authorizes 85-percent coverage. This coverage may be implemented on a limited basis in 1997.

[22]The Federal Crop Insurance Act of 1994 required producers to obtain at least the catastrophic level of insurance to be eligible for benefits under the price support or production adjustment program, the conservation reserve program, or farm credit programs.

[23]Effective for spring planted 1996 crops and all subsequent crops.

[24]The act authorizes capital stock of $500 million subscribed by the United States. There has been no change in the level of capital stock issued since August 1985.

[25]The loss ratio represents insurance claims expense divided by premium revenues.

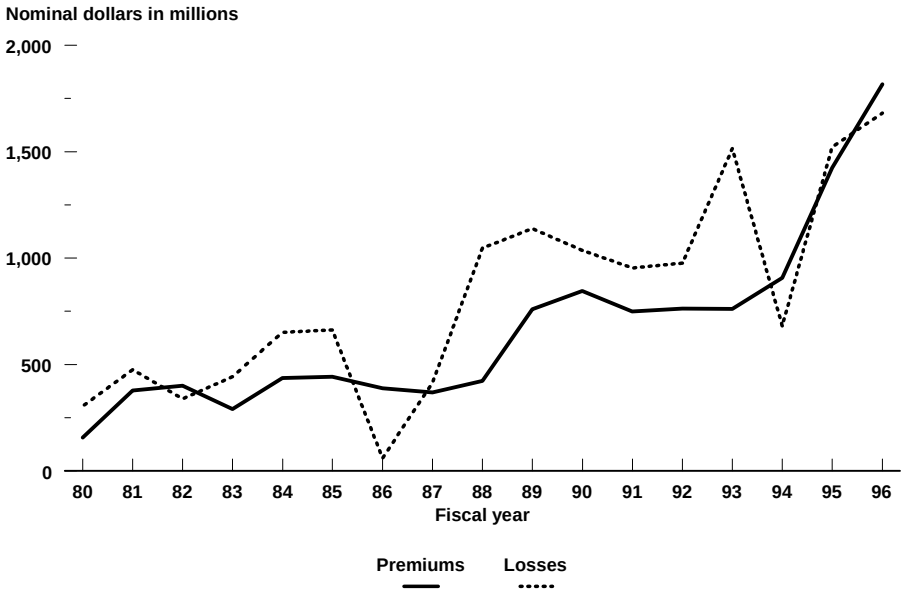
not greater than 1.075 thereafter. In addition to the premiums paid by producers, FCIC receives a mandatory indefinite appropriation to the Insurance Fund to provide funds for the program's premium subsidy costs, excess losses, and delivery expenses. For fiscal year 1996, net insurance premium revenue from farmers was approximately $600 million and the appropriation for the government's premium subsidy was approximately $990 million. Total appropriations received to cover operating costs in fiscal year 1996 were approximately $1.6 billion. In addition, farmers are required to pay an administrative fee.[26]

The program has a history of financial losses.[27] For example, since the program was expanded, it has paid out approximately $3.4 billion more in claims than it has received premiums from farmers and the federal government between crop years 1980 and 1996. Since losses in excess of premium income are a cost to the government, they represent additional federal subsidies. Figure IV.5 shows the total premiums—both producer and government—and claim payments from fiscal years 1980 through 1996.

[26]Producers are required to pay a $50 processing fee per covered crop per county upon enrollment in the program for catastrophic and limited additional coverage up to 65 percent of production at full price. The total fees cannot exceed $200 per producer per county, up to a maximum of $600 per producer for all counties in which a producer has insured crops. According to FCIC, the fee for additional coverage greater than 65 percent of production at full price is $10 per crop per county without limitation. USDA can waive processing fees for financial hardship cases.

[27]See Crop Insurance: Additional Actions Could Further Improve Program's Financial Condition (GAO/RCED-95-269, September 28, 1995).

Figure IV.5: Federal Crop Insurance Premiums Versus Loss and Loss Adjustments, Fiscal Years 1980-1996



Source: USDA.

Current Budget Treatment

Budget reporting for the Federal Crop Insurance program has undergone several changes in recent years.[28] Under the most recent changes included in the 1996 Farm Bill, the expenses of the Federal Crop Insurance program will be handled in two budget accounts. Beginning in fiscal year 1998, the Federal Crop Insurance Fund will handle insurance premiums, the government's premium subsidy, claim losses, and a portion of the program's insurance sales and claims processing administrative costs. These costs will be covered by a mandatory indefinite appropriation.[29] Salaries, general governmental administrative costs, and agent commissions will be handled in a separate administrative and operating

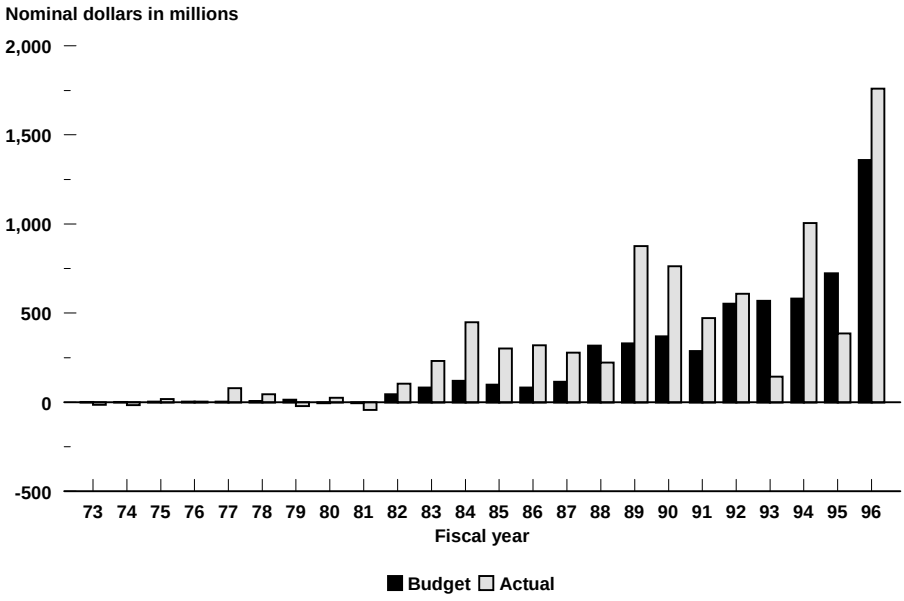
[28]Both the Federal Crop Insurance Reform Act of 1994 and the Federal Agricultural Improvement and Reform Act of 1996 (the Farm Bill) made changes in the budget reporting for the Federal Crop Insurance program. Prior to the 1994 reforms, FCIC maintained two funds: (1) the Crop Insurance Fund—primarily for insurance premiums and claim losses and (2) a separate administrative and operating account which handled salary and general administrative expenses as well as insurance sale and claim processing costs. Under the 1994 reforms, FCIC's salary and general administrative expenses were shifted to the Farm Service Administration's administrative and operating account. Claim losses and all other program expenses were handled in the Crop Insurance Fund.

[29]In the past, FCIC relied on Commodity Credit Corporation (CCC) funding for losses that exceeded premiums. Although this authority to use CCC funding still exists, FCIC is also authorized to draw necessary funds directly from the Treasury.

account of the newly established RMA. These costs will be classified as discretionary.

Figure IV.6 shows the budget estimates versus actual outlays for the Federal Crop Insurance Corporation Fund from fiscal years 1973 through 1996. This figure shows both that budget estimates are usually lower than actual outlays and the sometimes erratic nature of actual outlays.

Figure IV.6: FCIC Fund Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Risk Assessment Methods

FCIC has an established rate-setting methodology which, according to agency officials, could serve as the foundation for estimating the risk assumed by the government for the crop insurance program. For example, the difference between the "pure" or "full-risk" premium and actual premium rates could be used to provide an estimate of the government's subsidy costs for policies issued in a given year. However, as discussed in chapter 5, the rate-setting methodology is complex because the risk of growing a particular crop varies by county, farm, and farmer. Because of all the possible combinations involved, hundreds of thousands of rates are in place. Thus, a number of implementation issues would have to be

resolved. The following discussion provides a brief overview of the premium rate-setting process.[30]

Each year, FCIC follows a multistep process to establish rates for each crop included in the program. The process involves establishing base rates for each county crop combination and adjusting these basic rates for a number of factors, such as coverage and production levels. In addition, rates are adjusted to account for the legislated limitations in price increases.

For each crop, FCIC begins the process by extracting data on counties' crop experiences for all years available (up to 20) from its historical database. The data elements for each crop, crop year, and county include (1) the dollar amount of the insurance in force (coverage sold), (2) the dollar amount of the claims paid (indemnities), and (3) the average coverage level. Data for farmers who incur frequent and severe losses relative to other farmers are removed from the resulting database to avoid setting rates that are higher than necessary for the risk represented by the farmers who are not considered high risk. The premium rates for high-risk producers are established separately under the high-risk program.

The historical data are then adjusted to the 65-percent coverage level. Using the adjusted data, FCIC computes the loss-cost ratio for each crop in each county. The loss-cost ratio is calculated by dividing the total claim payments by the total insurance in force; the result is stated as a percentage.[31] The loss-cost ratios are calculated using the latest available data, which are for the period ending 2 years before the year for which the rates are being established. For example, the crop year 1995 rates were established in 1994 at which time the most recent 20-year record was for crop years 1974 through 1993.

A loss-cost ratio is calculated for each of the 20 years and then these data are divided into two segments—the 4 years with the highest loss-cost ratios and the 16 years with the lowest loss-cost ratios.[32] For the 4 years

[30]The rate-setting for the crop insurance program is discussed in Crop Insurance: Additional Actions Could Further Improve Program's Financial Condition (GAO/RCED-95-269, September 28, 1995).

[31]For example, if the claims paid in 1 year totaled $7.36 and the insurance in force was $100, the loss-cost ratio is 7.36 percent. The percentage represents the rate that would need to be charged per $100 of insurance coverage if total premiums are to equal the total claim payments for that year. In this example, the 7.36 percent indicates that a rate of $7.36 was required per $100 of insurance coverage sold.

[32]According to FCIC's senior actuary, the procedures described herein will be modified beginning with 1998 crops to incorporate the results of an analysis conducted by an actuarial firm and USDA.

with the highest loss-cost ratios, the ratios are capped at the loss-cost ratio for the highest loss year in the 16-year segment. To establish the county unloaded rate, the average for all 20 years is calculated, using the capped loss-cost ratios for each of the 4 years. Thus, the 20-year average loss-cost ratio consists of actual loss-cost ratios for the 16 lowest loss years and the capped loss-cost ratios for the 4 highest loss years.[33]

The county unloaded rates are then adjusted to minimize the differences in rates among counties using a weighting process. A surcharge for catastrophic coverage for each crop in each state is then developed and added to the adjusted unloaded rate for each county in the state.[34] The result of this process is a basic rate for the county for the 65-percent coverage level and the average production level in that county.[35]

Next, the rates at the 65-percent coverage level are adjusted for each farming practice, such as whether the insured acreage is irrigated or dryland, and for each crop type, such as winter or spring wheat, using factors based on historical data. Field underwriters review the rates[36] for reasonableness on the basis of their knowledge and continuing research on farmers' experiences with the particular crop in the county and the surrounding area and recommend changes when they believe they are warranted. On the basis of these recommendations, FCIC analysts make adjustments.

Following this review and any resulting adjustments, rates are adjusted upward for the risk represented when farmers choose to subdivide their farming operation for a given crop into multiple units for crop insurance purposes. According to FCIC, this is done because USDA's historical data

[33]The excess of losses above the capped amount is pooled at the state level and reallocated to the counties. According to FCIC, this procedure is intended to reduce the variation of rates from one year to the next.

[34]The surcharge is established by pooling the amount of insurance in force and the claim payments for the 4 years with the highest loss-cost ratios in each county that were not factored into the county unloaded rates at the state level. These data are used to calculate a statewide surcharge for catastrophic coverage (pooled claims payments divided by pooled insurance in force). If the pooled losses at the state level exceed five points, the excess is returned to the counties and included in the county unloaded rate.

[35]Rates for the 50-percent and 75-percent coverage levels are also established by applying factors of 0.72 and 1.54 to the rates established for the 65-percent coverage level.

[36]Because the regional service office underwriters are more familiar with the 75-percent coverage level, the basic rates are adjusted to the 75-percent level to facilitate review. According to FCIC, in the 1980s, when much of the crop insurance business was at the 75-percent coverage level, rates were calculated on that basis. Today, although most business is at the 65-percent level and rates are calculated on that basis, many underwriters remain more comfortable performing comparisons at the 75-percent level.

show that farming operations insured on a multiple unit basis are more likely to make claims than those insured as one unit.

As noted above, the calculated rates are for farmers whose historic production level (yield) is about equal to the average for all producers in the county. However, many farmers' average production levels are above or below the county's average. According to USDA, farmers' chances of having a loss decreases as production increases. Therefore, rates are adjusted using a mathematical model to account for production levels that differ from the average production level.

The calculated full rates are reduced as needed to ensure that they do not exceed the maximum 20-percent increase per year allowed by law. As a final step, discounts are developed for farmers who buy hail and fire protection from private insurance companies.[37]

Implementation Considerations for the Federal Crop Insurance Program

Adequacy of Current Budget Reporting

Since the costs associated with a normal loss year are included in the budget year estimates for the crop insurance program, policymakers receive some signals about the program's potential costs at the time decisions are made. However:

- On a cash basis, the program sustained significant losses without prompting recognition of funding deficiencies until claims had occurred. Between crop years 1980 and 1996, the program's claims exceeded premiums by approximately $3.4 billion.
- The need and cost of establishing reserves over time is not explicitly recognized in outlays or in the deficit in the year the insurance is extended.
- The sporadic nature of crop losses will cause fluctuations in the deficit unrelated to the budget's long-term structural balance.

[37]By law, this option is only offered to farmers who purchase at or above the 65-percent and full-price coverage.

Issues in Implementing an Accrual-Based Budgeting Approach

- Although FCIC's risk assessment experience and established rate-setting methodology will provide a foundation for generating risk-assumed estimates, additional work will be required to determine how to adapt these estimates for accrual-based budgeting purposes.
- Due to the complexity of the risk assessment process and the timing differences between the detailed rate-setting process and the budget cycle, a number of implementation challenges will have to be resolved. For example, an appropriate and feasible aggregation level for risk factors will have to be determined.
- Additional work would be required to determine the basis for reestimation and reserve levels.

Political Risk Insurance

Budget Account: Noncredit Account
(71-4184-0-3-151)

Agency: Overseas Private Investment Corporation (OPIC)

Purpose

The Overseas Private Investment Corporation (OPIC), which began operations in 1971, was established to facilitate U.S. private investment in developing countries and countries with emerging markets. OPIC's insurance programs reduce the risk of U.S. private investment in these countries by offering protection against several political risks. All valid claims arising from OPIC's investment insurance are explicitly backed by the full faith and credit of the United States. In general, the coverage offered by OPIC is more comprehensive—both in scope and duration—than that currently available from private sector insurers.

OPIC operates as a self-financing governmental agency. In addition to its insurance activities, OPIC provides project financing and makes equity capital available by guaranteeing long-term loans to private equity investment funds.

Coverage

OPIC insures against three types of political risks:

- Currency inconvertibility: The deterioration of an investor's ability to convert and transfer profits, debt service, and similar remittances related to insured investments from local currency to U.S. dollars due to new currency restrictions. OPIC does not protect against currency devaluation.

- Expropriation: The loss of investment due to nationalization, confiscation, or expropriation by a foreign government including "creeping" expropriation—government actions that deprive an investor of fundamental rights in a project for a period of at least 6 months. Losses due to lawful regulatory or revenue actions by host governments as well as actions deemed to be provoked by the investor or foreign enterprise are excluded.
- Political violence: The loss of assets or income due to war, revolution, insurrection, or politically motivated civil strife, terrorism, and sabotage. Actions, such as strikes, undertaken primarily to achieve labor or student objectives are not covered.

In addition to these three areas, OPIC has specialized insurance programs for financial institutions, leasing arrangements, natural resource projects, oil and gas projects, and contractors and exporters. With limited exception, OPIC's insurance policies cover a maximum of 90 percent of an eligible investment. Policy terms can extend up to 20 years[38] and are generally only cancelable by OPIC in the event of default.

OPIC operates in approximately 140 counties, including countries in central and eastern Europe. OPIC's outstanding exposure as of September 30, 1996, totaled $13.4 billion. This exposure is governed by OPIC's statutory limitation and represents the amount for which OPIC is contingently liable. An adjustment of outstanding exposure for standby coverage, for which OPIC is committed but not currently at risk, yields OPIC's reported Current Exposure to Claims (CEC), which was $6.4 billion for fiscal year 1996. The face value of aggregate insurance outstanding at the end of fiscal year 1996 was $31.4 billion. This represents the sum of all current and standby coverage elected by investors.

OPIC's insurance exposure has grown significantly in recent years. Between 1990 and 1996, OPIC's CEC almost doubled from $3.3 billion to $6.4 billion. About 45 percent of this 6-year increase occurred in fiscal year 1995. Demand for OPIC's insurance is expected to continue to grow due to expanding international investment opportunities. The projected face value of insurance outstanding at the end of fiscal year 1997 is $33.7 billion.

[38]The insurance term for loans, leases, and transactions is generally equal to the duration of the underlying contract or agreement.

Eligibility Requirements

OPIC's political risk insurance is available to U.S. investors, contractors, exporters, and financial institutions involved in international transactions. Specifically, OPIC's insurance program covers U.S. citizens, U.S. companies that are more than 50 percent owned by U.S. citizens, foreign corporations that are at least 95 percent U.S.-owned, and other foreign entities that are 100 percent U.S.-owned. OPIC's insurance coverage is available for new investments or expansion of existing enterprises.

According to OPIC officials, they have discretion in determining the insurability of projects and certain coverage may be unavailable or limited due to underwriting or other reasons. For example, coverage amounts may be limited for investments in countries where OPIC has a high portfolio concentration and for highly sensitive projects.

Program Financing

OPIC's income is derived primarily from (1) interest earnings on invested assets, (2) premiums, (3) recoveries and (4) fees. In addition, OPIC has the authority to borrow up to $100 million from the U.S. Treasury. Premium rates for OPIC's insurance are based on a standard pricing table for four different sectors with adjustments made for project-specific risks. Actual premiums may be increased or decreased, generally by up to one-third of the base rate, depending upon an insured project's risk profile.[39]

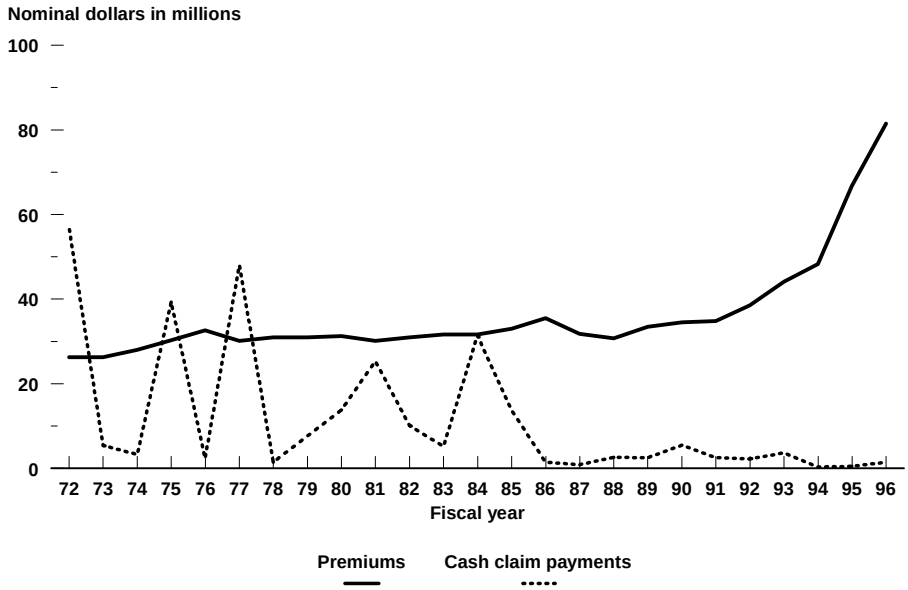
For fiscal year 1996, interest earnings on funds invested in U.S. Treasury securities were OPIC's largest source of revenue, accounting for 55 percent of OPIC's total revenue of $300 million. Insurance revenues—premiums ($80.5 million) and miscellaneous income ($1.0 million)—accounted for about 27 percent of OPIC's total revenues. The majority of the remainder of OPIC's revenues stemmed from its investment financing activities.

As a whole, OPIC has been self-sustaining with positive net income in each year since its inception. As shown in figure IV.7, since 1972 insurance premium collections have exceeded claim payments in all but 3 years, which were in OPIC's early years of operation. As of September 30, 1996, OPIC's insurance program collected premium revenue totaling $922.5 million, paid cash settlements of just over $288.8 million, and collected cash recoveries of $277.9 million, resulting in total premium income net of claims of $911.5 million. In addition to cash claim payments, OPIC negotiated noncash settlements of approximately $227 million. At the

[39]Actual premiums for natural resource projects and projects with investments of $50 million may vary by more than one-third.

end of fiscal year 1996, OPIC had $1.8 billion in insurance loss reserves and retained earnings available for insurance losses.

Figure IV.7: OPIC Insurance Premium Collections Versus Claim Payments, Fiscal Years 1972-1996



Source: OPIC.

Current Budget Treatment

OPIC's insurance activities are currently handled in one budget account, the "Noncredit Account," a revolving fund that is a discretionary account under BEA. Although outlays are reported on a cash basis, OPIC uses accrual concepts to obligate funding for claim reserves.[40] According to OPIC officials, this reserve is used to recognize losses that are probable and can be reasonably estimated in accordance with private sector accounting standards as required by the Government Corporation Control Act. When a claim occurs, cash payments are made from these reserves.

Risk Assessment Methods

The risk assessment methods used by OPIC to establish insurance reserves and set premium rates rely heavily on expert judgment and are not highly quantitative. According to OPIC officials, no standard actuarial model exists for quantifying political risks. Although OMB has suggested using options

[40]To the extent that these reserves are a sufficient measure of the risk assumed, OPIC is already using the aggregate budget authority approach to accrual-based budgeting discussed in chapter 6.

pricing or other econometric modeling approaches to assess the risk assumed by OPIC's insurance program, these models have not been developed and some analysts we spoke with expressed concerns about their cost-effectiveness and usefulness for this purpose.

In order to establish insurance reserves, OPIC analyzes, on a quarterly basis, the losses inherent in the outstanding insurance portfolio. OPIC officials told us that a general nonspecific reserve based on its entire insurance portfolio is used because project-specific losses cannot be reasonably estimated. Reserves are established in consultation with OPIC's external auditors and are based on OPIC management's evaluation of historical loss experience, the composition and volume of current insurance commitments, and anticipated worldwide political and economic conditions.

As a starting point, OPIC uses a calculation based on historical experience. According to OPIC officials, the program's entire historical experience is used to determine reserve levels because claims have been sporadic over the life of the program and no discernible pattern exists. An OPIC official stressed that while this historical-based calculation provides a useful starting point, management's judgment is a key factor in determining the appropriate reserve levels and additional adjustments are made to account for OPIC's new business and other factors that affect the level of risk assumed.

OPIC also uses risk assessment to adjust rates from the standard pricing tables for project-specific risk. In determining the risk associated with a particular project, OPIC considers (1) project-specific risk, such as the structure of the project and the experience of the project's sponsors and (2) country-based risk, such as projections of the country's general economic conditions, including balance of payments and foreign exchange reserve levels. According to OPIC officials, the level of risk for each project is assessed individually during the rate-setting process. However, OPIC officials stressed that overall portfolio management is important in controlling its overall risk exposure precisely because predicting political risk for particular projects over long periods of time is so difficult.

Implementation Considerations for OPIC's Political Risk Insurance

Adequacy of Current Budget Reporting

OPIC's multiyear, long-term contracts commit the federal government to pay future claims for extended periods. As noted above, OPIC currently uses accrual concepts to obligate funding for claims inherent in insurance coverage outstanding. Thus, to the extent that these reserves represent the risk assumed by the federal government, OPIC's current budgetary reporting is similar to the budget authority approach used for accrual-based budgeting outlined in this report. However, a number of limitations to this approach have been identified as follows:

- Although budgetary reserves are obligated when they are realized, claim payments are not recognized in net outlays or the deficit until they come due. As a result, the future cost of new or growing commitments may not be isolated or fully recognized at the time they are extended.
- OMB raised concerns that general reserves based on historical experience and management judgment may not fully focus attention on the risk assumed for new insurance commitments at the time they are extended.
- As a result, changes in the composition and riskiness of OPIC's insurance activities may not be fully recognized in the budget at the time the insurance is extended.

Issues in Implementing an Accrual-Based Budgeting Approach

- Estimates of political risk and future claims are uncertain due to their dependence on variables that are inherently difficult to predict, such as the political stability of governments and long-term economic conditions.
- Risk assessment is complicated by (1) the individualistic nature of the risk covered, (2) the lack of relevant historical data, and (3) the constant volatility of the international political and economic environment.
- The nature of OPIC's insurance operations may not fit well with a credit reform model (an aggregate outlay approach using annual cohorts).
  - According to OPIC officials, estimating the net cost for a particular project would be complicated by (1) the uncertainties surrounding the magnitude and timing of loss recoveries and (2) the difficulty of allocating the benefits of overlapping contract provisions such as agreements that limit total losses for the same company.
  - OPIC insurance activities deal with a small number of diverse projects with individually negotiated terms and thus implementation challenges

similar to those faced by international credit programs under the Credit Reform Act are likely.

- Based on their experience with credit reform, OPIC officials expressed concerns that the additional reporting requirements to comply with an aggregate outlay approach would divert staff resources from portfolio management and loss recovery activities that are critical to mitigating total losses.

Federal War-Risk Insurance Programs

The two federal war-risk insurance programs—aviation and maritime—provide insurance to commercial airlines and ship owners during extraordinary circumstances, such as war and other hostilities, in order to support the foreign policy interests of the United States. The Aviation War-Risk Insurance program was established in 1951.[41] The War-Risk Insurance program for vessels was established under Title XII of the Merchant Marine Act of 1936. Because of their similar purposes, these programs would likely face common risk assessment and implementation challenges under an accrual-based budgeting approach.

Aviation War-Risk Insurance

Budget Account: Aviation Insurance Revolving Fund (69-4120-0-3-402)

Department: Department of Transportation (DOT)

Bureau: Federal Aviation Administration (FAA)

Purpose

The Aviation War-Risk Insurance program was established to insure commercial aircraft that provide essential air service during extraordinary circumstances—such as war and other hostilities—when such insurance is not available commercially or is only available on unreasonable terms and conditions.[42]

Coverage

FAA issues both hull and liability war-risk insurance. Hull insurance covers the aircraft itself. Liability insurance covers bodily injury to or the death of the crew and passengers and the loss of or damage to cargo, property, and people on the ground. The maximum amount of hull and liability coverage provided under FAA's war-risk insurance is limited to the amounts insured

[41] 49 U.S.C. § 44301 et. seq.

[42] In November 1977, the Congress expanded FAA's authority to provide all-risk insurance, but none has been issued to date.

by an airline's commercial policy. The insured value of the hull cannot exceed the fair and reasonable value of the aircraft.

FAA issues two forms of war-risk insurance: (1) nonpremium insurance, which is provided at no cost to the airlines other than a one-time registration fee and (2) premium insurance for which airlines pay a risk-related premium. Generally speaking, FAA's nonpremium insurance covers flights performed directly for the government and premium insurance covers other flights that are considered necessary to support the foreign policy interests of the United States. According to FAA officials, coverage under both types of insurance is issued sporadically and may remain active for only limited durations.

FAA registers aircraft for nonpremium insurance when the carriers perform contract services for federal agencies that have indemnification agreements with DOT. Under the indemnification agreement, these federal agencies reimburse FAA for the insurance claims they pay to the airlines. Over 99 percent of all war-risk insurance issued has been nonpremium insurance for flights sponsored by the Department of Defense (DOD). According to FAA, the program has issued nonpremium coverage several times since 1975.[43]

Premium insurance is only provided when the President makes a determination that flights to a specific location are necessary to carry out the foreign policy interest of the United States. Authority for this type of insurance is provided for an initial period of 60 days, with an additional 60-day extension granted when it is considered necessary by the President. According to FAA officials, premium policies have only been issued during one period since 1975 when 36 premium policies were in force during the Persian Gulf conflict. No premium policies have been issued since March 1991.

Program Financing

The program is financed primarily through interest on Treasury securities, insurance premiums for flights insured by premium insurance, and registration fees for flights insured with nonpremium insurance. From its inception through fiscal year 1996, the program's revolving fund

[43]According to FAA, the nonpremium aviation insurance has been activated since 1975 as follows: 50 flights to Honduras were covered between 1983 and 1984; approximately 5,000 flights into the Middle East were covered from mid-1990 through mid-1991; one flight was covered from Oman to Frankfurt in January 1991; 20 flights to Kuwait were covered from November 1992 to April 1993; 155 flights into Somalia were covered between late 1992 and early 1994; three flights to Georgia were covered in early 1994; 32 flights to Haiti were covered between September 1994 and October 1994; and 111 flights to Bosnia were covered between April 15 and September 30, 1996.

accumulated approximately $67 million in revenues—including interest earnings—and paid out net claims totaling only about $151,000.

Despite the fund's positive position, the accumulated balance may be insufficient to pay potential claims. For example, in 1994, we reported that claims for the loss of one aircraft—such as a Boeing 747-400 which can cost over $100 million—could liquidate the fund's entire balance and still leave a substantial portion of the claim unpaid.[44] If claims exceed the fund balance, FAA would have to seek a supplemental appropriation to cover losses. These potential funding shortfalls would not only subject the government to unexpected costs but, as we previously reported, may also reduce the effectiveness of the program.[45]

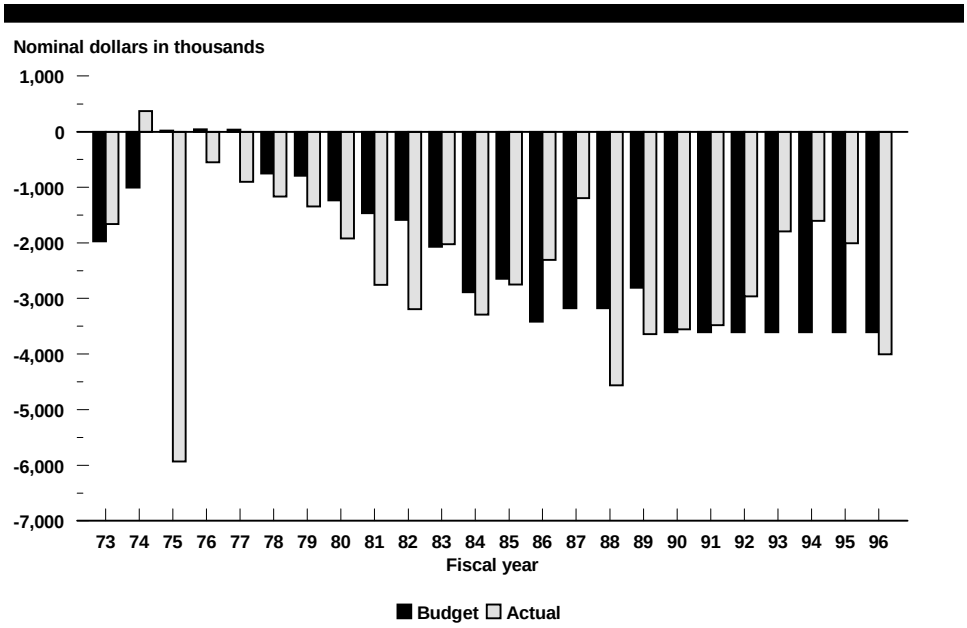
Current Budget Treatment

The Aviation War-Risk Insurance program is handled in one account, the Aviation Insurance Revolving Fund. Figure IV.8 shows the program's budgeted versus actual outlays from fiscal years 1973 through 1996. Negative outlays mean that the program's receipts exceeded its outlays.

[44]See Aviation Insurance: Federal Insurance Program Needs Improvements to Ensure Success (GAO/RCED-94-151, July 15, 1994).

[45]GAO/RCED-94-151.

Figure IV.8: Aviation Insurance Fund Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Maritime War-Risk Insurance

Budget Account: War-Risk Insurance Revolving Fund (69-4302-0-3-403)

Department: Department of Transportation (DOT)

Bureau: Maritime Administration (MARAD)

Purpose

The War-Risk Insurance program provides protection against loss or damage from marine war risks in order to provide for the availability of merchant vessels for national defense or to protect the continued flow of U.S. foreign commerce during periods when commercial insurance cannot be obtained on reasonable terms and conditions.

Coverage

Three types of war-risk insurance coverage are available: (1) interim binder, (2) section 1202, and (3) section 1205.

- Interim binder: Interim binder insurance is a standby emergency program which provides insurance coverage for 30 days for eligible vessels when their commercial war-risk insurance is terminated under automatic termination and cancellation clauses included in commercial policies.

According to MARAD, commercial insurance automatically terminates upon outbreak of war, declared or undeclared, among any of the five major powers—the United States, United Kingdom, France, the Russian Republic (formerly the Soviet Union), or The Peoples' Republic of China. The binder policy provides immediate coverage so that the covered vessels can complete their voyages without interruption.

- Section 1202: Under Section 1202, the Secretary, with the approval of the President, can offer insurance and reinsurance against loss or damage caused by war risks to commercial vessels when commercial coverage cannot be obtained on reasonable terms and conditions. Premiums are charged for this type of insurance.
- Section 1205: Under Section 1205, any United States department or agency may obtain from MARAD war risk insurance. Insurance is provided without premiums in consideration of the insured agency's agreement to indemnify MARAD for all losses covered by such insurance.

Program Financing

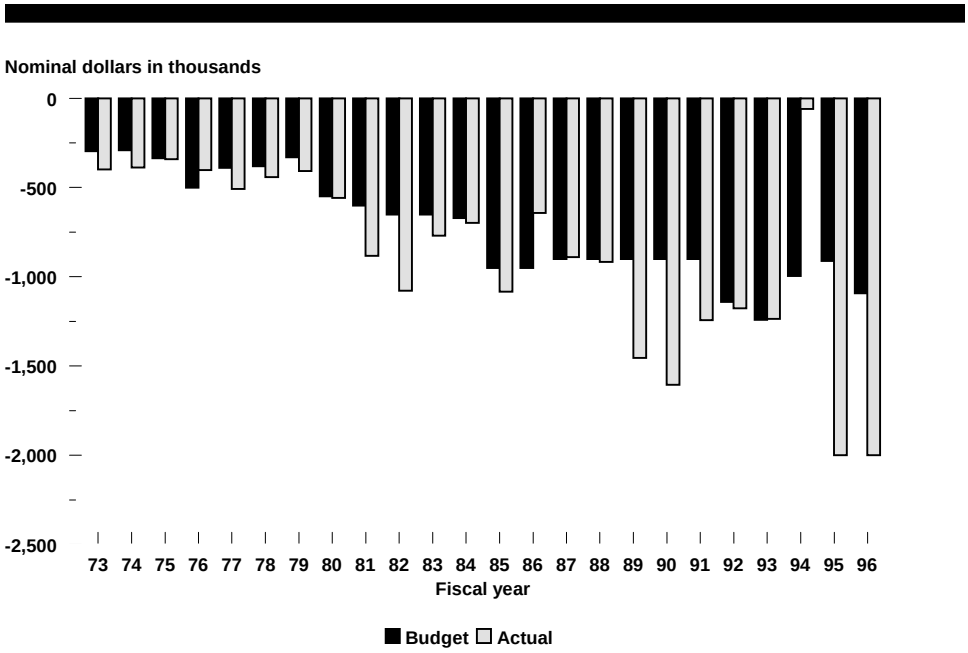
As noted above, the financing mechanisms vary among the different types of war-risk coverage. Under interim binder insurance, premiums are to be established to cover losses. If the original premiums do not meet the losses, then a retroactive premium is to be assessed to cover the losses without limit. Therefore, under this agreement, the fund should be self-supporting; however, MARAD officials noted that this financing mechanism has never been tested. For section 1202 coverage, risk-related premiums are charged. In this case, the government bears the full risk of losses on policies it issues. Under section 1205, MARAD is reimbursed by the insured agency or department for losses covered by such insurance; thus the insured agency or department bears the risk. In addition, the program earns interest on funds invested in Treasury securities.

At the end of fiscal year 1996, the War-Risk Insurance Revolving Fund had a balance of approximately $26 million. However, despite this positive balance, the fund may not have sufficient funds to cover potential claims when the program is activated. According to a MARAD official, the values of covered vessels generally range from approximately $2 million to $50 million.

Current Budget Treatment

The War-Risk Insurance program is reported in the War-Risk Insurance Revolving Fund. The account has permanent authority from offsetting collections. Program costs are mandatory but administrative expenses are discretionary. Figure IV.9 shows the program's budgeted versus actual outlays since 1973. Negative outlays mean that the program's offsetting collections exceeded its outlays.

Figure IV.9: War-Risk Insurance Revolving Fund Budget Estimates Versus Actual Outlays, Fiscal Years 1973-1996



Risk Assessment for the War-Risk Programs

The unique role of the maritime and aviation war-risk insurance programs complicates risk assessment. As noted above, the war-risk insurance programs provide insurance to commercial airlines and ship owners during extraordinary circumstances, such as war and other hostilities, in order to protect the interests of the United States. Both programs provide coverage only when commercial insurance is not available or is available only on unreasonable terms. This unique role complicates risk assessment because (1) the insured risks tend to be case-specific and highly variable, (2) historical program data are limited and (3) commercial sector war-risk insurance data are unlikely to be directly applicable to the risk assumed by these federal programs. Currently, risk assessment for both programs relies heavily on expert judgment. Neither program uses quantitative modeling or standard risk assessment procedures.

The risks assumed by the federal war-risk insurance programs tend to be case-specific and highly variable. MARAD officials stressed that each conflict is different and involves numerous factors. FAA officials told us that at the point commercial sector insurers leave the market—and federal war-risk insurance is activated—the calculation of risk becomes very difficult and subjective. According to FAA officials, it is not practical to

develop a mathematical formula to calculate appropriate premium rates due to the uniqueness of each case.

Officials from both agencies noted that the level of risk assumed by the government can also be highly variable. Coverage may remain active only for short durations such as a few months, days, or even hours. For example, according to FAA officials, insured flights can be in operation for only a few hours and only a portion of a flight—as the plane flies through zones excluded by commercial policies—may be covered. In addition, given the extraordinary conditions surrounding the issuance of federal war-risk insurance, the level of risk assumed can change rapidly. For these reasons, MARAD officials also stressed that risk assessment is an on-going process, requiring continuous reassessment.

Both MARAD and FAA officials told us that because of the two programs' infrequent activation and extremely rare losses, there is a lack of historical program data for risk assessment. As noted above, according to FAA officials, aviation war-risk insurance has only been issued during a few periods since 1975. MARAD officials also stated that its war-risk insurance is activated infrequently and remains active for short durations, usually less than a year. Further, not only is the issuance of federal war-risk insurance infrequent, but claims under the programs have also been extremely rare. According to agency officials, the Aviation War-Risk Insurance program has paid out only four claims totaling about $151,000. According to an agency official, the only claims to date under MARAD's war-risk insurance program occurred during the Vietnam Era and totaled approximately $110,000 and were reimbursed by the Navy under Section 1205.

Further, officials from both agencies told us that historical information from commercial war-risk insurance may not be useful in assessing the risk undertaken by their programs because commercial information often is not readily available or applicable. For example, officials from both agencies stated that the basis for setting commercial premiums generally is not released by private sector companies. In addition, FAA officials described the goals and operations of the Aviation War-Risk Insurance program as significantly different from those of commercial aviation insurance because federal war-risk insurance is activated only infrequently, for very short durations and under extreme conditions. MARAD officials added that historical loss information from commercial policies is of limited use for projecting future losses of its insurance programs because commercial policies also cover events which are not war-related. Nevertheless, MARAD officials told us that, when available, they do consider

the quoted commercial sector rate for a particular voyage as a starting point in the risk assessment process.

Because of the above limitations, risk assessment for the federal war-risk programs currently relies heavily on expert judgment. Premiums for both programs are set in consideration of the risk involved, U.S. policy interests, and to encourage the participation of commercial insurers. In general, risk assessment for the programs involves the subjective evaluation of numerous factors associated with a particular flight or voyage. According to FAA officials, they consider factors such as (1) the hull value, (2) the potential liability for passengers, crew, cargo, and losses on the ground, and (3) the apparent danger associated with flights into the area(s) excluded by commercial insurers. They told us that, in assessing the risks associated with a particular area, they consider available information on potential dangers, such as intelligence information on terrorist groups, and the types of weapons involved in the conflict. If available, they consider historical losses in the area.

FAA officials also noted that although they do not currently use a standard risk assessment model, they are looking for ways to improve risk assessment techniques. For example, they have developed a database of war-risk incidents since 1980 containing (1) the type of incident, (2) the region where the incident occurred, (3) a text section describing the incident, and (4) the value of the aircraft. According to officials, this database will be used as a reference and training tool. In addition, the agency is studying the actuarial process used by the private sector. Although not directly applicable to their programs, they said they are interested in what might be learned from the private sector methods.

MARAD officials also described their risk assessment process as ad hoc and judgmental. For example, during the Persian Gulf conflict, a committee was established to determine premium rates. They said that a number of factors were considered in assessing risk, such as (1) the destination of the vessels, (2) the extent of the military threat, (3) the current commercial rates, and (4) the value of the vessels. Although in a few cases, historical information can be useful in assessing conditions, such as the military threat in a particular area, MARAD officials noted that the number of cases in which historical information is available and useful is very limited. According to agency officials, an outside consultant, the American War-Risk Agency, has provided advice on risk assessment.

Overall, agency officials for the war-risk insurance programs expressed concerns that accrual-based budgeting may not be feasible or useful for their programs. They described the infrequent and limited issuance of insurance and the resulting lack of historical experience as a key obstacle to developing risk-assumed estimates and using accrual-based budgeting for these programs. Because of the programs' unique roles, it is difficult to effectively pool risk or to develop discernible loss patterns. Further, the emergency (standby) nature of the programs makes it difficult to know in advance when the programs will be activated and limits the time available for risk assessment. FAA officials stated that, in their opinion, it was not feasible to generate a reliable risk-assumed estimate for the budget. MARAD officials provided a similar assessment for their program, stating that given the nature of the program, reliable estimates of the risk assumed could not be developed.

Implementation Considerations for the War-Risk Insurance Programs

Adequacy of Current Budget Reporting

- Although infrequently activated, when in force the war-risk insurance programs expose the federal government to potential unfunded claims without recognizing these potential funding shortfalls at the time the insurance is extended. For each of the war-risk programs, one major loss could deplete the program's fund balance and leave a portion of the claim unpaid.
- The amount of risk assumed by the federal government is not explicitly recognized in the budget process.
- However, the government's budgetary exposure may be limited because of the war-risk programs' infrequent activation and limited coverage.

Issues in Implementing an Accrual-Based Budgeting Approach

- Significant uncertainty will surround the risk-assumed estimates for the war-risk insurance programs because of the volatile nature of the risk and the lack of relevant historical data.
- The unique role of war-risk programs may make the use of accrual-based budgeting difficult because the need for coverage may not be apparent during the normal budget cycle.
- A decision would have to be made as to whether accrual-based budgeting should be applied only to the premium portion of the war-risk programs or to the nonpremium portions as well. If applied to the nonpremium

portions, additional implementation issues would have to be resolved. For example, for insurance provided under indemnification agreements, it would have to be determined whether the insured agency or FAA should report the accrued cost for the risk assumed by the government.

- The combination of the catastrophic nature of war-risk losses and the limited number of policies issued may impede the establishment of sufficient reserves, even if costs were measured on an accrual basis.
- The use of accrual-based budgeting may not lead to significant policy changes because of the war-risk programs' limited activation and unique roles.

National Vaccine Injury Compensation Program (Post-1988)[46]

Budget Account: Vaccine Injury Compensation Program Trust Fund (20-8175-0-7-551)

Agency: Department of Health and Human Services (HHS)

Bureau: Health Resources and Services Administration (HRSA)

Purpose

The National Vaccine Injury Compensation Program (VICP) was established by the National Childhood Vaccine Injury Act of 1986 (Public Law 99-660). VICP, which went into effect in October 1988, is a no-fault alternative to state tort law and private liability insurance systems for compensating individuals, including adults, who have been injured by vaccines routinely administered to children. The program was intended to improve the stability of the childhood vaccine market by reducing the adverse impact of the tort system on vaccine supply, cost, and innovation.[47] VICP is administered jointly by the United States Court of Federal Claims, the

[46] Claims resulting from vaccines administered prior to October 1, 1988, are treated separately (pre-1988 program) and paid with general fund appropriations. The deadline for filing claims under the pre-1988 program has expired. This appendix provides a general summary of the ongoing post-1988 program.

[47] The intent of the Congress is reflected in H. Rept. 908, 99th Cong., 2nd Sess. (1986) which states "manufacturers have become concerned . . . with the availability of affordable product liability insurance that is used to cover losses related to vaccine injury cases . . . there is little doubt that vaccine manufacturers face great difficulty in obtaining insurance." Agency officials, however, contend that VICP is not an insurance program because (1) there is no insurance contract between VICP and manufacturers, (2) the program is funded through an excise tax on manufacturers and not premiums, and (3) a lawsuit must be filed to receive compensation. As noted in chapter 1, there is not universal agreement on which programs constitute federal insurance, but the factors cited by the agency do not necessarily preclude classifying VICP as insurance. Explicit insurance contracts do not exist for many federal insurance programs and a program's financing mechanism does not affect the government's liability. The requirement that injured persons begin compensation proceedings in claims court has no bearing on whether to classify VICP as insurance since the party being provided something akin to liability insurance is the manufacturer.

Department of Health and Human Services (HHS), and the Department of Justice (DOJ).

Coverage

VICP compensates individuals or families of individuals who have been injured by childhood vaccines, whether administered in the private or public sector.[48] Compensation for petitioners alleging vaccine-related injuries is provided through a no-fault administrative hearing process conducted by Special Masters of the U.S. Court of Federal Claims. The vaccine manufacturer and whoever administered the vaccine are not involved as parties to the proceedings. Awards for vaccine-related deaths are limited to $250,000 plus attorney's fees and costs. There is no limitation on the amount of an award in a vaccine-related injury; however, the law does contain certain restrictions.

Petitioners may not obtain compensation from both the program and litigation. Claims arising from post-1988 claims in excess of $1,000 or of an unspecified amount must be processed through VICP before a civil suit may be brought against a vaccine manufacturer or administrator.

Eligibility Requirements

An individual claiming injury from a vaccine must file a petition for compensation with the claims court. In order to qualify for compensation a petitioner must:

- show that an injury found on the Vaccine Injury Table occurred within a specified period of time after receiving a vaccination, or
- prove that the vaccine caused the condition, or
- prove that the vaccine significantly aggravated a pre-existing condition.

The Vaccine Injury Table lists specific injuries or conditions and the time frames in which they must occur after a vaccine is administered. According to HRSA, the Injury Table is a legal mechanism for defining complex medical conditions and allows a statutory "presumption of causation."[49]

[48]VICP compensation is secondary to all insurance coverage except Medicaid.

[49]Most claims allege that a "Table Injury" occurred because it is much easier to demonstrate a Table Injury than to prove that a vaccine caused a condition. However, compensation is not awarded if the court determines that the injury or death was due to a cause unrelated to the vaccine.

Program Financing

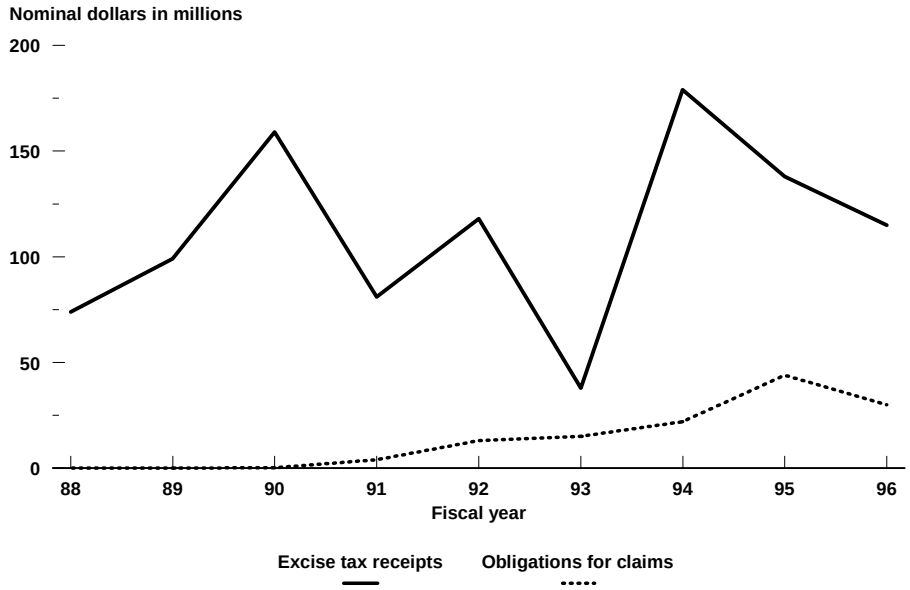
The Vaccine Injury Compensation Program Trust Fund is supported by revenues from an excise tax on vaccine manufacturers and interest earned on fund balances invested in Treasury securities. Each vaccine has a predetermined per dose excise tax rate.[50] According to HRSA officials, rates are related to "perceived" risk but are not based on empirical risk assessment. Gross excise tax receipts are reduced by 25 percent before being transferred from the General Fund to the Vaccine Trust Fund.[51]

The Vaccine Trust Fund has a significant and growing balance. The fund balance as of the end of fiscal year 1996 was $1.0 billion. Although significant uncertainty surrounds future claims, the risk of injury or death due to vaccination is considered extremely small. Figure IV.10 shows the excise tax receipts and budget obligations for claim payments for the Vaccine Injury Compensation Trust Fund since fiscal year 1988.

[50]Exported vaccines are not subject to these excise taxes, except where the export is to a U.S. possession.

[51]The Omnibus Budget Reconciliation Act of 1987 requires that net revenues be transferred from the general fund to the VICP Trust Fund.

Figure IV.10: VICP Excise Tax Receipts Versus Obligations for Claim Compensation, Fiscal Years 1988-1996



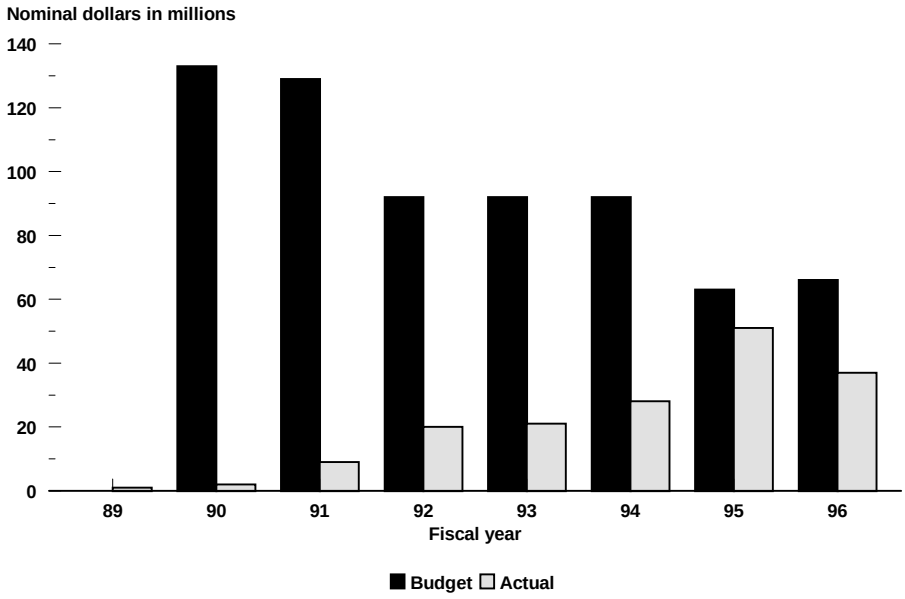
Note: Excise tax receipts for fiscal year 1990 reflect the termination of taxes on December 31, 1992 and reenactment of taxes effective August 10, 1993.

Source: Budget of the United States Government, Appendix.

Current Budget Treatment

The VICP (post-1988) is reported in the budget in a single account, the "Vaccine Injury Compensation Trust Fund." The majority of the program's spending is mandatory. Claim payments and the administrative expenses of the public health service are mandatory while the administrative costs for the Court of Federal Claims and DOJ are discretionary. Figure IV.11 shows the program's budget estimates versus actual outlays from fiscal years 1989 through 1996.

Figure IV.11: Vaccine Injury Compensation Program Budget Estimates Versus Actual Outlays, Fiscal Years 1989-1996



Risk Assessment Methods

Risk assessment for the post-1988 VICP is complicated by several factors including (1) the program's limited historical experience, (2) the lack of scientific evidence linking adverse events to vaccines, and (3) the dynamic or subjective nature of some variables such as injury coverage and settlement amounts. These factors increase the difficulty of assessing the many variables required to estimate the aggregate awards that are likely to be paid for vaccinations administered in a particular year, such as (1) the number of vaccines administered, (2) the frequency of adverse reactions, (3) the probability that petitions will be filed following an adverse reaction,[52] (4) the filing of petitions for adverse reactions that are not attributable to vaccinations,[53] and (5) the probability and amount of awards.

VICP's limited historical experience is a key factor in the uncertainty surrounding estimates of the program's future costs. Although the VICP has

[52]Not all individuals who are eligible for compensation under the program will file claims. For example, a 1994 Department of the Treasury report, entitled National Vaccine Injury Compensation Program: Financing the Post-1988 Program and Other Issues, points out that some victims of adverse reactions may be compensated through ordinary health insurance.

[53]A petition does not require evidence proving a causal relationship between administration of a vaccine and an adverse event.

been in existence since 1988, a full cohort of cases has not yet been resolved. As a result, a 1994 Department of Treasury study concluded that VICP had not been in existence long enough to project future outlays with confidence.[54] Both a Department of Treasury analyst who worked on the report and HRSA officials reiterated that, until more historical data on closed cases become available, estimates of the program's future outlays will be uncertain. Specifically, HRSA officials stressed that, in their opinion, there is not sufficient historical evidence on the cost of claims to produce meaningful estimates of the program's future costs.

According to HRSA officials, scientific data also may not be useful in predicting the program's future claims. HRSA officials told us that although the Food and Drug Administration (FDA) tests vaccines to prove safety and identify potential side effects, these studies would not be very useful in determining future claims under VICP because they do not estimate the number of injuries that are likely to occur over a long period of time. The Treasury report confirms that although new vaccines "may be proven to be completely acceptable in clinical trials involving thousands of doses, a few adverse reactions may still occur when doses are administered routinely to millions of children."[55] HRSA officials added that calculating the risk associated with vaccines is becoming increasingly difficult with the use of combined antigens in single vaccinations.

In addition, HRSA officials expressed concern that the dynamic or subjective nature of some variables makes it difficult, if not impossible, to generate reasonable projections of the program's future claims. For example, agency officials noted that changes in the injuries covered by the program make it more difficult to assess the amount of risk associated with the program because a change in the injury table means a change in the risk involved. Further, HRSA officials described award amounts as case-specific and subjective. According to an HRSA official, the program's obligations are derived from court judgments which vary from year to year and are not "susceptible to the type of actuarial analysis that is an integral part of insurance schemes." Additional factors, such as the introduction of new vaccinations and changes in the recommended vaccination schedules, may also complicate risk assessment.

Overall, HRSA officials expressed serious reservations about their ability to produce reasonable projections of the program's future costs and the use of accrual-based budgeting for the program. HRSA officials stressed that

[54]Department of the Treasury, National Vaccine Injury Compensation Program, p. v.

[55]Department of the Treasury, National Vaccine Injury Compensation Program, p. 21.

risk assessment has never been and is not currently used for VICP. They stated that, in their opinion, there currently is no meaningful way to quantify the program's risk.

The Treasury report concurred that until the program matures, program outlays cannot be estimated with confidence, but noted that "as the program matures sufficient program data will become available to permit more sophisticated methods of estimating future outlays to be used."[56] A Treasury analyst noted that it may not be necessary to establish causation between the vaccine and the adverse event in order to establish an estimate of the program's future outlays. For example, as more cases are closed, it may be possible to establish a pattern between adverse events and award amounts based on historical data. However, changes in variables over time, such as injury coverage and the introduction of new vaccines, will have an impact on the usefulness of estimates based on historical data.

Implementation Considerations for VICP

Adequacy of Current Budget Reporting

- The current cash-based budget does not recognize the program's future claims costs. Because tax receipts are not matched with potential claim payments, policymakers may not receive timely signals of the reasonableness of the program's financing levels. However, there does not currently appear to be a funding deficiency.
- The current cash-based budget may not prompt decisionmakers to consider the implications of changes in the level of risk assumed by the government at the time the changes are made.

Issues Associated With Implementing an Accrual-Based Budgeting Approach

- Both the magnitude and timing of the cost of VICP (post-1988) future claims are uncertain.
- HRSA officials expressed concern about the staff resources required to implement an accrual-based budgeting approach.

[56]Department of the Treasury, National Vaccine Injury Compensation Program, p. v.

Comments From the Office of Management and Budget

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

July 1, 1997

Ms. Christine E. Bonham
Assistant Director, Budget Issues Group
Accounting and Information Management Division
United States General Accounting Office
Washington, D.C. 20548

Dear Ms. Bonham:

Budgeting for Federal Insurance Programs is a very fine and useful GAO report on a conceptually and technically difficult subject. You are to be congratulated for taking on these issues and clarifying them. Your conclusions and recommendations help to build a good foundation for considering ways to improve budgeting for Federal insurance programs.

See comment 1.

OMB has one broad comment on the words used in the report to frame the main conceptual issue. We also have comments on the explanation of our views on the conceptually correct approach for deposit insurance, and on your helpful analysis of the OMB deposit insurance and pension guarantee models. Finally, we have a number of technical comments, which we have enclosed as an appendix.

Cash vs. "Accrual Budgeting"

See comment 2.

The words used to frame the main conceptual issue seem to juxtapose a "cash budget" with an "accrual budget" -- in some cases for insurance, and in other cases for the budget as a whole -- despite the fact that these terms do not define the characteristics of a budget that make it appropriate for deciding about and controlling the allocation of resources.

On p. 5.

As the report says on page 5: "As a general principle, decisionmaking is best informed if the government recognizes the costs of its commitments at the time it makes them." This is the appropriate way to allocate new resources among competing uses. It records costs when they can be controlled, that is, before resources have been committed to a project or program. This approach is often called commitment- or obligations-based budgeting.

Obligations-based budgeting in the Federal government has three stages: (1) Congress must enact budget authority before government officials can obligate the government to make outlays; (2) government officials obligate the government to make outlays by entering into legally binding agreements; and (3) outlays are made in payment to liquidate obligations. Good budgeting requires that budget authority be available up front for the full cost of the commitment undertaken, that the benefits of the commitment be expected to exceed its cost, and that useful projects and programs result.

As the report continues on page 5: "For most programs, cash-based budgeting accomplishes this" principle of recognizing the cost of commitments at the time they are made. However, in current practice obligations may be paid and outlays recorded for cash-equivalent transactions even though no cash is disbursed. For example, outlays are recorded for the full amount of Federal employees' salaries, even though the cash disbursed to employees is net of Federal and state income taxes, retirement contributions, life and health insurance premiums, and other deductions. Outlays are also recorded for other cash-equivalent payments, such as when debt instruments are used to pay obligations. For example, outlays and a parallel increase in debt are recorded when physical assets are acquired through certain types of lease-purchase arrangements. (See *Analytical Perspectives, FY 1998,* page 345.)

For some programs involving the exchange of financial instruments -- notably, Federal credit and insurance programs -- the cost is not recorded at the time of commitment if the cash flows themselves are recorded. However, the Federal Credit Reform Act of 1990 required that the net present value of the cash outflows and cash inflows inherent in Federal direct loans and loan guarantees be substituted for the cash flows themselves in the budget. This brought credit programs into consistency with the principle of obligations budgeting. It required the enactment of budget authority for the cost of direct loans before they were obligated and for loan guarantees before they were committed. It obligated this net present value for each direct loan (or loan guarantee) at the time the government agreed to make (or guarantee) the loan, and it recorded the appropriate amount as an outlay when the loans were disbursed.

Risk-assumed measures of the cost of insurance are also consistent with the principle of obligations-based budgeting. They also measure the net present value of the expected cash outflows and cash inflows inherent in each amount of insurance at the time the commitment is made to assume that risk. This may be a commitment to assume risk for additional coverage, for additional amounts, or for a longer period of time.

The term "accrual" can be applied to a range of concepts and measures. Accrual revenues and expenses can be recognized at different times and estimated in different ways. For example, the accrual expense for credit under Financial Accounting Standards Board (FASB) standards is very different from the accrual expense designed by the Federal Accounting Standards Advisory Board (FASAB) to complement credit reform budgeting. Similarly, the liability for insurance according to both FASB and FASAB standards is currently accrued on a different basis from the risk-assumed measure required for supplementary reporting.

Finally, we think that obligations-based budgeting and accrual accounting are complementary means of controlling and measuring the use of resources. Accrual accounting tracks resources at the time they are used. In the private sector, resources are deemed to be used when the goods and services they produce earn revenue; the difference between this expense and revenue is net income. In the Federal Government, resources are used when the goods, services, grants, transfers, credit, and insurance are provided to the public. This is the appropriate way to assess the expense of producing outputs and achieving outcomes; these measures could have a major role in improving the

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management of the Federal Government.

We would like to see the report call the current system "obligations budgeting," state the basic up-front principle for the allocation of new budgetary resources, explain the rationale, and briefly describe the relatively sophisticated system of budget authority, obligations, and outlays -- not outlays alone -- that carries it out. **Then you could explain that credit programs under credit reform -- and insurance programs under risk assumed -- reflect the principles of obligation-based budgeting by calculating the net present value of the underlying cashflows at the time the credit is extended or the insurance risk is assumed.**

See comment 2.

Other accrual measures -- notably for fixed assets and inventories, but also for other items -- do not carry out the principle of obligations-based budgeting. Thus, we think the section on "Shortfalls of Cash-Based Budgeting Have Long Been Recognized" (pages 19-21) is too broad, and should be omitted. The point is not that cash budgeting should be replaced with accrual budgeting. **Rather the point is that for credit and insurance programs, cash does not carry out the principle of recognizing the cost of commitments at the time they are made.**

There are also technical problems in this section. Costs are sometimes reported sooner (e.g., retirement benefits) and sometimes reported later (e.g., fixed assets) on an accrual basis than on a cash basis. The President's Commission on Budget Concepts advocated an "accrued expenditures" concept that, while different from present practice, was also different from accrual expenses. The accruing military and FERS retirement costs are only intragovernmental payments offset by intragovernmental collections of the retirement funds; the budget outlays are on a cash basis, and occur much later. Additional problems are discussed in the appendix.

Now on p. 22 and p. 23.

The issues involved in Federal employee retirement benefit costs are interesting and complex. We recommend that you omit the references to retiree benefits in this report (e.g., page 17, line 7, and page 20, line 13 and thereafter), and consider a separate project on this subject.

While this section of the report is the one most likely to lead the reader to infer that a full accrual budget might be desirable, there are many other places in the report where the wording used to advocate use of accrual measures for credit and insurance programs is not sufficiently qualified or limited to those programs, and could be interpreted as advocating much broader or full use of accrual measures in budgeting. We would like to give no support to accrual, rather than obligations, budgeting.

Deposit Insurance

See comment 3.

The Bush Administration's 1992 proposal for insurance budgeting did not intend to treat deposit insurance differently from other insurance programs. OMB did not focus only on the current financial condition of insured depository institutions without taking future events into account -- although opinions may differ on how fully we accounted for rare catastrophic events. The paragraph on the bottom of page 105 therefore requires revision. The cross-cutting issue here might be the

Now on p. 89.

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interpretation of the word "long-term." We see three different usages.

- First is the insurance industry's distinction between term insurance, which covers losses during a specific period of time (often, but not always, a year), and open-ended insurance, which covers losses until the insured event occurs or can no longer occur. We believe that Federal crop, flood, war-risk, deposit, and OPIC insurance are term insurance. We believe that veterans' whole life insurance, vaccine compensation, and pension guarantees are open-ended insurance. We believe this classification treats each type of insurance appropriately, that is, the same in relation to its nature. The programs, of course, are all projected as on-going.

- Second is the question of incorporating future events into "risk assumed" estimates that start from the existing financial condition. For deposit insurance and pension guarantees -- both cases in which bankruptcy precipitates insurance claims -- we start from the current financial condition of the banks, thrifts, corporate plan sponsors, and pension funds. In the case of deposit insurance, the bank or thrift is atomized, and each "atom" is "bumped" randomly by a mathematical distribution of values which is intended to represent the variety of experience (improvement or deterioration of financial condition) that they might encounter -- including changes over the business cycle. (Note that this does not attempt to estimate the timing of the cycle.) To make budget projections, the "bumped" values are "bumped" again for each year of the projection, so that the distribution of financial condition at the end of the budget window (six or eleven years ahead) is different from the starting distribution. A similar, but more complex, process is used to incorporate future events in the pension guarantee model.

- Third is the distinction between measuring average losses over a period of time and ensuring that the period is so long that it includes an allowance for rare but catastrophic losses, or that the measure is adjusted to have this effect. You have given much thought to this issue in the context of flood and crop insurance. It is a more difficult conceptual and measurement issue for other insurance programs, including deposit insurance (which suffered major losses in the 1980s compared with other times) and pension guarantees (where whole industries with underfunded flat-benefit plans, such as steel, autos, and airlines, can come under financial pressure at the same time). One can wonder how to incorporate rare systemic catastrophes that can be affected by economic policies. And one can certainly question whether the mathematical distribution of values used in the "bumping" process described above fully incorporates rare catastrophic losses (or whether, as E&Y suggests, some kind of "jump function" would be helpful).

To sum up, OMB does not think that it treated deposit insurance differently than other on-going programs of term insurance. Based on the volatility of financial condition that has been experienced, we incorporate a new year's worth of losses due to future events in each year's projected budget outlays on a risk assumed basis. We agree that, for all programs, what should be measured is the long-term expected cost of loss-generating events less premiums collected.

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See comment 4.

OMB agrees that improvements are needed in modeling risk assumed before these measures can be used for budgeting. We hope to address some of the methodological concerns, particularly for deposit insurance. We would like to experiment with the use of stock market equity in measuring initial financial condition and with adjustments for the stage of the interest cycle before capitalizing earnings. However, you should omit the statements that we are currently working on these approaches (on pages 112 and 161), since acquiring additional expertise will be necessary to develop the models further.

Again, we would like to complement you on the quality of this report and your contribution toward consideration of ways to improve budgeting for Federal insurance programs.

Sincerely,

Philip R. Dame
Deputy Assistant Director
Budget Analysis and Systems

Enclosure

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The following are GAO's comments on the Office of Management and Budget's letter dated July 1, 1997.

GAO Comments

1. We have incorporated OMB's technical comments in the report as appropriate but have not reprinted them in this appendix.

2. Section omitted.

3. Discussed in the Executive Summary and the "Agency Comments and Our Evaluation" section of chapter 8.

4. Statements omitted.

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