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IMPUTED VERSUS REPORTED ASSETS IN THE STUDENT AID FORMULA

The current financial aid formula used by the Federal government some important disadvantages that can be addressed effectively through imputation.

- ***FAIRNESS***
  - *General.* In the current aid formula, families are treated inequitably, because parents with similar abilities to pay--similar incomes over their lives--who did not sacrifice to save have smaller expected contributions to college finances. On the other hand, people with similar incomes will be treated similarly with imputation.
  - *Housing.* Homeowners are granted an unfair advantage by having their homes excluded from the aid formula. Imputed assets are not based on homeownership.
  - *Retirement Assets.* Owners of assets in 401(k) plans are also given an unfair advantage because those assets are ignored in the aid formula. Again, imputed assets are not based on ownership of retirement assets.
  - *Honesty.* The current formula creates a strong incentive for people to misreport their assets. Imputation has no such burden.
  - *Income Distribution.* The current formula is intended to distribute financial aid fairly across income classes. Our empirical investigation concludes that imputation has little affect on the distribution of aid.
- ***EFFICIENCY***
  - The current formula offers a strong incentive to shift existing savings into protected forms. Because the U.S. tax code already subsidizes housing and retirement savings, it is inappropriate to further subsidize them in this fashion.
- ***SAVING***
  - The current formula implies a very steep levy on assets. Recent research has shown that this substantially lowers savings among families with children near college age. The aggregate reduction in assets is estimated to be on the order of $100 billion.
- ***SIMPLICITY***
  - AGI is easily computed by families based on their taxes. But it may be quite difficult and time consuming for families to pursue an asset inventory. Also, the implicit tax provides an incentive for families with substantial assets to under-report their asset levels. This leads to increased complexity for the financial aid documentation, and to a low quality for the asset data that are reported.

Imputing a Contribution from Assets

The Department proposes to modify the financial aid formula to calculate a college savings expectation based on family characteristics. More specifically, this proposal would allow the Secretary to implement an imputation scheme at the appropriate time rather than, as had been previously suggested, simply authorize a study of this issue.

In particular, the treatment of assets in the current need analysis is deficient in four areas:

Responsibility. While the family has primary responsibility for college financing, many financial aid applicants need not report any information regarding their savings and other assets.

Fairness. If two otherwise identical families apply for financial aid—and one has saved for college while the other has not—the "savers" might be eligible for less financial aid than their "spender" counterparts.

Simplicity. It is often difficult and time consuming to pursue an asset inventory. Moreover, by counting some types of assets and excluding others, the current formula offers a strong incentive not only to reduce overall savings, but to shift existing savings into the protected forms.

Accuracy. Vague descriptions of reportable assets and preferential treatment of other assets provide an incentive for families with substantial assets to under-report or reposition their holdings. This leads to increased complexity for the financial aid application documentation and to a low quality of the asset data that are reported.

The Department has worked closely with Treasury's Office of Economic Policy to develop an asset imputation methodology that does not significantly distort the income distribution of Expected Family Contributions (EFCs).

Using asset data from the Survey of Consumer Finances and a sample of Federal financial aid applicants, Treasury compared the distribution of actual 1997-98 EFCs (using reported assets) with those based on the asset imputation. The imputations were refined by increasing the effective assessment rate for higher income families ($50,000 and more) by approximately doubling the asset conversion rate.

Treasury found that there was essentially no difference in median EFCs using reported or imputed assets for families in the first three quintiles of total income (up to $51,000). For the top 40 percent of applicants, the EFC difference were, roughly, between $300 and $500. A description of the methodology and a table of results is attached.

Treasury's imputation methodology ensures that families with incomes that are so low they could not reasonably have saved, would not have a savings expectation. This meets the Department's goal that no student would be penalized for his or her parents' inability to save for college.

January 28, 1998

Distributions of Expected Family Contributions
Based on Reported and Imputed Assets

This note describes effects on expected family contributions (EFC) of using either reported assets - the current-law procedure - or imputed assets. Our analysis involved the following steps:

- Using the combined 1992-1995 Surveys of Consumer Finances estimated each component of the EFC formula for dependent students, using parameters from the 1997-98 EFC formula book. The result is an EFC simulation based on assets as reported in the survey.

- We then estimated median countable assets by age, income, and education classes. We used five age classes: 30-39, 40-49, 50-59, 60-69, 70+; twelve income classes: $10,000 classes up to $70,000, $70,000-$99,999, $50,000 classes up to $250,000 and greater than $250,000; and four education classes: less than high school, high school, some college, and college or more.

- In order to reduce variation in estimated median assets, we smoothed the estimates with a log-linear regression of assets on age, income, and education. The resulting (smoothed) median estimates are then imputed by class to each family in our sample.

- We then calculated EFCs again but with imputed assets in place of reported assets in the EFC formula.

- Finally, in order to improve our imputations, we roughly doubled the asset conversion rate for families with total incomes of $50,000 and above.

The attached table shows the distribution of median expected family contributions calculated using either reported or imputed assets. For this table we excluded families in which the computed EFC exceeded $30,000.[1] This was done to avoid the influence of very high EFC cases that would not be eligible for student aid anyway. The table shows that:

- EFCs across income quintiles are similar when based on either reported or imputed assets; the overall median EFC is slightly lower in the imputed assets case (total contributions are about $37 billion in each case).

- Median EFCs are a little higher in the top two quintiles for the imputed assets case and a little lower in the second and third quintiles.

- For blacks, median EFCs are lower in the top two quintiles for the imputed as compared to the reported assets case.

[1]Using Department of Education data from with over 80,000 observations, we computed a distribution of the cost of college attendance: 99 percent of cases were under $30,000.

- For whites, median EFCs are a little higher in the top quintile for the imputed assets case.

We concluded that imputing assets is a feasible method for surmounting the problems with the current financial aid formula. It is technically manageable, and does not lead to a significant change in the distribution of financial aid.

- For whites, median EFCs are a little higher in the top quintile for the imputed assets case.

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Median Expected Family Contributions by Income Quintiles (1992, 1995 Survey of Consumer Finances)

Asset Scenario*	Quintile 1 (≤ 18,975)	Quintile 2 (≤ 34,710)	Quintile 3 (≤ 51,256)	Quintile 4 (≤ 76,248)	Quintile 5 (> 76,248)
			TOTAL SAMPLE		
Reported	0	1,254	3,363	8,214	17,903
Imputed	0	1,207	3,316	8,526	18,433
			BLACKS		
Reported	0	1,195	3,690	8,482	18,246
Imputed	0	1,195	3,690	8,027	17,668
			WHITES		
Reported	0	1,473	3,363	8,427	18,300
Imputed	0	1,395	3,363	8,427	18,795

The Financial Viability of the GovernmentGuaranteed Student Loan Program
Executive Summary

The current student loan formula, which sets the ceiling rate for the government guaranteed student loan program and also for the direct loan program, is based on the bond equivalent yield for 3-month T-bills plus a spread of 2.5 percentage points for loans to students who are in school or for loans that are temporarily deferred, and a spread of 3.1 percentage points for loans that are being repaid, with the rate reset annually for borrowers. The rate that the student pays on loans is capped at 8.25 percent and the Government pays any excess above this rate in the form of a Special Allowance Payment (SAP); the government also reimburses lenders on a quarterly basis for increases in the interest rate within the year.

The Student Loan Reform Act of 1993 (SLRA) scheduled a change in the formula determining the rate that borrowers would pay for new student loans finalized beginning July 1, 1998. The SLRA requires that lenders' gross yield on new loans be based on "the bond equivalent rate of the securities with a comparable maturity as established by the Secretary of Education", in consultation with the Secretary of the Treasury, plus 1.0 percentage point, with the rate reset every 12 months. For the purposes of the government credit budget, the comparable maturity would be a 10-20 year average annual rate (simple interest). However, most observers have assumed that the comparable maturity that will be chosen will be the 10-year Treasury constant maturity yield.

Lenders under the guarantee program (Federal Family Education Loans, or FFEL) are concerned that loans under the new formula will not be profitable. Part of the reason is the implicit reduction in the interest rate on student loans under the new formula, resulting from the cut in the markup from 2.50/3.10 percentage points over the benchmark rate to 1.0 percentage point. In addition, the potential lack of profitability stems from the cost that banks will have to incur once the new formula is in force, in order to swap out of the 10-year (with annual reset) asset they will hold into a LIBOR-related asset.

This paper provides estimates of lenders' costs (including servicing, default and pre-payment costs as well as cost of funds) and the gross return from student loans under the current student loan formula and under the formula scheduled to become effective on July 1, 1998. We also provide an estimate of the "target" rate of return to which this return will be compared by banks deciding whether to participate in this program. Although we recognize the diversity of participants in student loan origination, our analysis is focused on large, for-profit bank originators because these institutions span the markets in which other lenders operate. Our estimates of costs and target rates of return reflect this choice of focus; they are offered not in the belief that "one size fits all" very well but because we believe that the economic forces at work on these large, for-profit lenders are the leading edge of developments that are likely unfold in this complex market. We have based our analysis on a review of the existing literature, financial data from loan originators, and discussions with many experts in this area.

Our results show that under the current formula, lenders are earning a pretax rate of return on student loans that exceeds a reasonable range of assumed target rates, but that switching to the

THE FINANCIAL VIABILITY OF THE GUARANTEED STUDENT LOAN PROGRAM

Introduction

The current formula for calculating student loan interest rates -- the ceiling rate for government guaranteed loans and the rate on the direct loan program -- applies to new loans made between July 1, 1994 and June 30, 1998. Under this formula, lenders receive the bond-equivalent yield of 3-month T-bills1 plus 2.5 percentage points for in-school loans and loans in deferment, or the 3-month T-bill rate plus 3.1 percentage points on loans in repayment. Loans are reset annually for borrowers, with an 8.25 percent cap on the borrower's rate. A lender of guaranteed loans receives a Special Allowance Payment (SAP) in any quarter in which the average rate for 3-month T-bills auctioned during the quarter plus 2.5/3.1 percentage points is greater than the borrower's interest rate (either the formula interest rate established at the last annual re-set or the cap of 8.25 percent). The SAP is the difference between the quarterly re-set rate from the formula and the rate the student pays, divided by four (for a quarterly payment). Until recently, the loan interest rate for loans in consolidation was the weighted average of the interest rates on all outstanding loans being consolidated, rounded up to the nearest whole percent; this figure is currently 9.0 percent. Under the Emergency Student Loan Consolidation Act, passed in October, 1997, the rate for consolidation loans will be the T-bill rate plus 3.1 percent until October, 1998 (capped at 8.25 percent).

The Student Loan Reform Act of 1993 (SLRA) scheduled a change in the formula determining the rate that borrowers would pay for new student loans finalized beginning July 1, 1998. The SLRA requires that lenders' gross yield on new loans be based on "the bond equivalent rate of the securities with a comparable maturity as established by the Secretary of Education", in consultation with the Secretary of the Treasury, plus 1.0 percentage point, with the rate reset every 12 months.2 For the purposes of the government credit budget, the comparable maturity would be a 10-20 year average annual rate (simple interest).3 However, most observers have assumed that the comparable maturity that will be chosen will be the 10-year Treasury constant maturity yield. This yield is a commonly used benchmark in financial markets, within the appropriate maturity range, is regularly published in official sources, and is forecast in private as well as government budget analyses.4 Based on the assumption for either of these rates, the formula change for next year would reduce the loan rate to borrowers, relative to the rate they would pay under the current formula.5 As noted later in this paper, in all likelihood the formula change also would reduce the net return to lenders.

The cost to a borrower for a student loan includes more than the interest on a student loan. The Federal Family Education Loan (FFEL) program authorizes lenders to collect from borrowers an origination fee (currently, 3 percent of the loan principal borrowed), which is paid to the Federal Government, and an insurance premium (no more than 1 percent), which is paid to guaranty agencies. These one time fees, which are intended to offset the Federal subsidy costs and to defray default costs, are disbursed to the Government and guaranty agencies at the same time as the loan is disbursed to the student. The Administration's current budget proposal would cut the total fees charged to students to three percent, and phase out origination fees altogether for needy students.

In principle, the legislated interest rate is a ceiling, below which lenders can compete to offer the most attractive interest rates to students. In practice, direct price competition of this form has been very limited. Many schools have "preferred provider" lists of lenders to whom they direct students and these lists seem to play the dominant role in students' choices6. Competition to be on such a list takes place largely in terms of services -- mostly directed to the schools themselves -- rather than taking the form of direct price competition, and there is considerable variation among schools in their procedures. At some schools, for instance, preferred providers may have other connections to a school and its community, and offer nothing more than customer-relations at the bank; at other schools, however, competition may be keen among providers to offer quick payments to schools, ease in billing, and assured follow-up on delinquencies. Lenders may send representatives to campuses at enrollment time to help with loan processing, may coach students on loan consolidation options, and may provide the school with substantial computer support for financial processing. There appear to be substantial economies of scale in basic loan servicing and it may, therefore, be worthwhile for large servicers to expend additional resources on essentially promotional activities. (As will be noted below, our cost estimates have not attempted to capture such promotional costs.)

Overall, it appears that for a top tier of schools that are attractive to major national lenders, the loan market is "imperfectly competitive" with loan providers likely able to establish reputations and maintain market share for a time at prices above a purely competitive level. For this tier, however, it is likely that the drive to maintain market share and realize economies of scale at least assures effective competition in service provision. For schools relying on local providers, competition may not be very effective, and local loan providers may well be able to obtain extra returns from sale of loans in the secondary market as they reach the "in repayment" stage where scale economies for servicing become especially important. For schools whose programs lack the characteristics that appeal to private lenders, the role of not-for-profit public agencies in providing a secondary market is especially important.

Competition among lenders has become more keen since the inception of the full-scale federal direct loan program, which does offer some directly financial incentives, such as income-contingent repayment options and loan-write offs under certain special circumstances. Nevertheless, although lenders are not required to charge borrowers the full rate of interest authorized by the student loan formula, our understanding is that direct competition on a loan interest rate basis is rare. Direct interest rate competition seems to be viewed with unease, as subject to criticism for being discriminatory and as socially divisive --even when, in the secondary market, loans from schools with better repayment records will sell for a higher price than loans from other schools. An important but small exception is the Sallie Mae formula -- the "Great Rewards Program" -- for reducing the loan rate in repayment, based on a borrower's good payment performance over a period of time. We understand that other lenders, particularly some of the major institutions in the national market, have followed Sallie Mae's lead in this respect with similar types of incentives. (The effect of such programs on our profit calculations will be noted below.)

The new loan formula introduces another dimension of cost for lenders, because of the

peculiar structure of the proposed loan contract. Under this contract, lenders would receive a return tied to a long-term yield, repriced annually, while they would presumably be funding themselves at a short-term rate, the most common among banks being LIBOR. Although the risks resulting from the mismatch between the short-term sources of borrowed funds (liabilities) for lenders and the long- term yields of student loans (assets) are mitigated by the annual repricing of the rate on the long-maturity asset, the remaining basis risk is notably larger than under the current loan formula with the asset return linked to a short-term rate. Starting in mid-1998 with the new formula for student loans, therefore, lenders are very likely to protect themselves against the new risk by hedging the differential interest rate streams through a swap agreement.

The cost of this swap agreement will detract from the overall profitability of the loan contract from the banks' perspective. Moreover, because this particualar swap contract is somewhat unusual, substantially boosting the demand for such swaps could raise the cost of obtaining such swaps. The critical policy issue for the loan program is whether lenders offering student loans currently have a profit margin that is sufficiently large to absorb this and any additional costs, so that the return on educational loans is still favorable.

Evaluating the future prospects for the net return to lenders or for those purchasing student loan contracts in the secondary market requires estimating the spread between lenders' revenues -- based on the 10-year Treasury yield or another long-term index -- and lenders' costs. The next section describes our methodology for measuring costs.

Assumptions for Lenders' Costs

The following discussion attempts to describe the costs of a for-profit lender big enough to have achieved scale economies in its operations while both originating loans and holding loans in repayment in its portfolio. We realize that analyzing the situation for any one type of lender may not describe accurately the cost structure all lenders or loans in this diverse market. Indeed, only 41 percent of outstanding student loans are held by banks, while not-for-profit institutions (essentially state government agencies) hold 26 percent and Sallie Mae, the currently government sponsored enterprise, holds the remaining 31 percent. Student loan originations are very much more concentrated among banks because the origination business is legally limited, with a few exceptions, to banks. Bank originators, however, range considerably in size and funding sources and may experience cost differentials depending on the parts of the student population that they most readily serve.

Our choice of focus was dictated by three considerations. The first, and most important, is trends in financial markets towards consolidation, with the implicit realization of scale economies and specializations of function. This trend has been illustrated in the case of student loans, where from 1994 to 1996 the top 25 originators increased their market share from 55 to 60 percent [**CAN WE GET LONGER HISTORICAL PERSPECTIVE?**] In view of these trends, it made most sense to us to examine the part of the market where expansion has tended to occur and where the cutting edge of the formula change might first have an effect.

Second, non-profit entities should experience similar pressures on the return from their loans as a result of the change in the mark-up in the formula over the index interest rate, and the evolution of substantially narrower spreads between long-term and short-term interest rates since 1993. In a relatively tranquil financial environment, public sector entities might not feel that they needed to hedge the basis risk imposed by the new formula. Thus, their costs might not be as severely impacted as banks' costs in the short-term and the availability of loans from these agencies might respond slowly -- or even be positive if they moved to pick up some short-run fall out from the for-profit sector. Over time, of course, failure to hedge basis risk could prove costly for these institutions if financial markets changed abruptly. The emergence of different funding costs than anticipated could impose budget pressures on the parent state governments and, ultimately, affect the rating given by rating agencies to a public sector agency. In this respect, the pressures implied on the not-for-profit sector would parallel those discussed below for commercial banks.

Finally, we have chosen to focus primarily on institutions that are formally loan originators, since without origination there would be no secondary market. The lines between the primary and secondary markets are not hard, and it has become increasingly clear that the secondary market plays a very important role in allowing smaller originators to sell loans profitably at the point in their life cycle when servicing costs could become prohibitive without greater scale economies. Given that there are large banks that span both loan origination and secondary market activities, however, analysis of their profitability should assure the profitability of the student loan market overall. That is, given arbitrage in the secondary market for student loans, the analysis should be the same whether banks originate and hold these loans or whether they sell them to secondary holders at a premium; if, for example, there are regular excess returns to selling over holding, there would be no banks engaged in both activities.

Of course, even the for-profit market need not be expected to respond instantly or massively to adverse changes in profitability. A 1992 study of the student loan market suggested that a 25 basis point reduction in payments to lenders could lead growth of loan volume to be about 1 percentage point lower than it would have been in the absenceof the reduction, and a 50 basis point reduction could lower the growth rate by about 2 percent -- amounts that could be accommodated by the not-for-profit guarantee agencies.7 This report notes, however, that its conclusions should not be extended beyond the range of variables examined historically and, as will be noted below, the reduction in profitability from the impending formula change could be larger than the changes this report examined.

The interest rate and cost assumptions for lenders used in this paper are shown in **Tables 1 and 2** and are discussed below. **Appendix A** includes a more detailed discussion of these assumptions.

- The 1999 Budget projections for **interest rates** are shown in Table 1, along with some other projections for comparison. All of these projections suggest that the yield curve will remain relatively flat, consistent with the structure of current market rates. The projected yield curve is somewhat steeper under administration projections for 1998 than in projections from other sources, but for 1999 the projections are more similar. Interest

rate levels are projected to change rather little and the spread between long-term and short-term rates is projected to remain well below average historical experience since 1962, consistent with a favorable inflation outlook and expectations of federal deficit reduction that adds to national saving..

- Under the new formula, the need for **hedging** affects lenders' returns. Lenders would be expected to swap -- i.e. give up -- their long-term income to obtain a short-term-index-linked income flow that would parallel their cost of funds. We talked with several major financial institutions, which provided estimates of the cost of swaps between a fixed 10-year Treasury yield, reset annually, and LIBOR. We were unable to obtain swap estimates for the case of a 10-20 year maturity instrument, which is not currently traded on a regular basis. We therefore assume that banks swap the 10-year portion of the risk in this case, and bear themselves (at a cost) the additional variation of this particular index.

  We emphasize that the swap quotes we obtained are for a contract that is currently used only to a limited extent. The market for swapping between a fixed 10-year Treasury yield and LIBOR is a deep market, but swap brokers have no natural counter-parties for a floating rate long-term yield and are likely, therefore, to need to hedge themselves on this side of the market through a basket of fixed rate transactions. The need for the swap dealer to hold one side of the contract may imply that a liquidity premium would develop in this market if the swap were demanded in volume. We assume that swaps would be available and chose a representative estimate of the costs of hedging from quotes provided to us by swap dealers.

  Using this estimate of hedging costs, we translated lenders' returns from the long-term indexed formula into a short-term rate of return after the hedge. It should be noted that the cost of these floating rate hedges are, we are told, quite sensitive to the shape of the yield curve. Consequently, our estimates of the future returns from the hedged asset are sensitive to the underlying economic assumptions, which show very little change in the shape of the yield curve by historical standards.

- The **lenders' cost of matched funds** is assumed to be the 3-month T-bill, or the 1-or-3-month LIBOR rate plus a given spread. The size of the spread for an individual lender will depend on its size and creditworthiness and on the exact structure of the financing --e.g., whether warehousing loans or raising new funds by actually selling a package of loans in a securitization. Large lenders will move around among sources in the short-term financial markets seeking the lowest costs. In general, arbitrage will tend to keep costs fairly closely in line. For example, we obtained quotes for swapping T-bills into LIBOR, a highly liquid market in which banks do much marginal funding. These quotes plus a slight mark-up over LIBOR for banks actual funding yielded roughly similar costs to those associated with typical securitizations done in the first half of last year. We have assumed a short-term funding cost in the range of these securitizations.

- The **all-in cost of funds** used in the calculations below is the short-term matched fund

cost, as discussed above. These costs are then **adjusted** (fourth row of Table 2) to allow for a small fraction of a loan asset to be counter-balanced on the balance sheet of a bank by capital rather than debt; thus, a student loan is not assumed to be 100 percent debt financed by the originator.

- Given the cost of funds and an estimate of lenders' return after hedging, we calculate the **net interest margin** earned on the loan asset (see Table 2)

- **Servicing and overhead costs** (an estimate of the total seems likely to be more accurate than estimates of the separate pieces) include a share of expenses such as general management, legal, accounting, human resources, and marketing costs plus direct costs for servicing the loan such as expenses for collections, borrower correspondence, reporting and account maintenance, and filing guarantee claims. Servicing costs seem to vary among lenders depending on the size of lenders and the efficiency of their operations. Larger lenders probably are more efficient owing to economies of scale. Costs may differ also among parts of the student population depending, e.g., on whether or not the students typically complete four or more years of schooling possibly at an expensive school, thus accumulating a large total loan for given costs of billing.

- The possibility of **default** on loans in repayment also implies some small cost to lenders.. Recent data suggest that default rates may be declining. The probability of default on in-school loans, and to a lesser extent loans in consolidation, generally has been small. The Federal Government pays the interest cost on a subsidized student loan while a student is in school. Most important, the Government guarantees 98 percent of a student loan, thereby reducing substantially the cost of default to the lender. (Currently, a borrower pays a guaranty agency a loan insurance premium of 1.0 percent of the loan amount to help defray default costs; the lender may pick up part of this cost to the borrower in order to reduce the overall loan rate but is not required to do so nor assumed here to do so.)

- Another cost for lenders is the one-time 50 basis point **origination fee** paid by loan originators to the Department of Education. This fee cannot be passed on to borrowers, who already pay a separate 3 percent origination fee to the Federal Government to help offset the cost of the Federal subsidy. In addition to this origination fee, holders of consolidation loans must pay to the Federal Government a **rebate fee**, calculated on an annual basis, equal to 1.05 percent of the loan principal plus interest, which is then added to the 50 basis point origination fee.

- Lenders offering student loans face a risk of prepayment of loans attributable to defaults, loan consolidation, and advance payments from borrowers. Prepayment reduces the life of a loan, thereby increasing the over-the-life cost of certain fixed expenses, e.g., origination support. Consequently, lenders may face a **prepayment risk** that results in a cost to them. Many financial experts, however, think that prepayment costs are not large for student loans because there is little evidence of prepayment on these loans being interest rate sensitive; the absence of interest sensitivity seem reasonable as most

borrowers would have accumulated other credit with higher rates that would be more important to prepay when interest rates decline. (This absence of interest sensitivity distinguishes student loans from mortgages for which prepayment means that lenders forego a highly profitable asset in an environment where they cannot make a new loan at as high a rate.)

Table 2 provides a summary of the interest margin cost assumptions used for this paper. The two major costs for lenders are their all-in cost of funds and servicing/ overhead costs; the former is then adjusted for counter-balancing as noted above. For the former, the rates are 5.56 percent (5.15 bond-equivalent average yield on the 3-month T-bill +0 .70 spread, net of adjustment) for 1997/98 and 5.48 percent (5.07 T-bill plus .70, net of adjustment) for 1998/998. The estimated servicing/overhead cost for loans in repayment status is 95 basis points. For in-school loans, the estimated cost is one-third the cost for loans being repaid, or 32 basis points. All other costs combined are 9 basis points for in-school loans and 20 basis points for loans in repayment. The net interest margin for a swapped loan tied to a long-term index in 1998/99 or thereafter is assumed to reflect a swapped return of T-bill plus 1.60 (given swap quotes plus the 1.0 markup over the long-term index in the new loan formula).

For the future policy environment, Table 2 shows two scenarios: interest rates tied the 10-year CMT rate, and interest rates tied to the bond equivalent of the 10-20 year rate. As noted earlier, the latter is the actual cost of these loans in the government credit budget, while the former is the commonly assumed index for the loans. We compute our results using both rates throughout the report. **Table 4** breaks out the underlying costs in more detail, and shows the effects of considering as well the case of consolidation.

Target Rate of Return for Student Loans

The viability of various student loan formulae depends on the appropriate target rate of return for the lender for this particular asset. The ultimate criterion that a financial institution must meet is a competitive rate of return on its capital. The return on its capital and the return on its assets are related by the ratio of capital to assets.

Banking regulations in fact require that two conditions be met for capital adequacy: One condition requires a ratio of capital to *risk-adjusted* assets. The required ratio is 8 percent but recent history shows ratios well above that. The industry -wide average currently stands at around 12.5 percent, down from 13.2 percent in 1994.

Student loans have a risk weighting factor of 20 percent, meaning that in the calculation of risk-adjusted assets, student loans count only to the extent of 20 cents on the dollar. Thus, if a bank aims to hold capital equal to 12.5 percent of risk-adjusted assets, it will hold only $2.50 in capital for every $100 in student loans. Applying this capital ratio to a 20 percent target rate of pre-tax return on equity gives a target net return on assets of 50 basis points.

The second requirement (the leverage ratio requirement) is for a minimum amount of capital equal to 4 percent of assets regardless of risk weight. As with the risk-based capital standard, banks have tended to have more than required capital in recent years (the average ratio

because these average returns on all assets had been calculated after allowances for defaults and loan-loss reserves, they were already risk-adjusted and represented the appropriate standard to which to compare a risk-adjusted return on a safe asset such as student loans. Others analysts, however, seemed inclined to think that a government-guaranteed asset with a fairly stable interest rate and cash flow profile possibly could receive a pre-tax return far below 1.75 percent although they did not present firm frameworks for determining how much below average a student loan return should be. Even accounting for loss reserves, the facts on risk and non-risk adjusted capitalization presented above imply most bank assets are much riskier than student loans, and therefore require a much higher capitalization and return. Thus, it is reasonable to assume that the target rate of return on student loans is much lower than the current average return on assets.

The second criterion for judging the target rate of return is the rate of return on alternative, comparable, assets. A 1997 paper by the CRS9 on the student loan program presented estimated returns on a couple of alternative assets as a frame of reference for judging returns on student loans. This approach keys on the idea that no profit-maximizing bank would allocate part of its portfolio to an asset that was dominated by other available assets. CRS estimated returns on Ginnie Mae securities10 at 1.20 percentage points and estimated the return on adjustable-rate mortgages to be 1.25 percentage points; these rates are slightly above the upper end of our range of target rates of return. Although this is an attractive approach in principle, however, it runs into important difficulties in practice. The usefulness of the adjustable rate mortgage return for comparison may be questioned because it does not take account of "teaser rates", which have become a very important feature of this market and could significantly lower the rate of return. The Ginnie Mae comparison also may be problematic because the spread between yields on this instrument (even after adjustment for systematic prepayment risks) and other open market rates such as Treasuries appears to be quite volatile. These instruments are held by banks in their investment portfolios more for trading purposes, implying use for liquidity and interest rate plays, than in their long-term loan asset portfolios.

Summary Results and Some Empirical Evidence

As shown in **Table 2**, our estimate of the pre-tax weighted net return to lenders in 1997/98, for in-school loans and loans in repayment, is about 1.63 percent. It appears that, under the current student loan formula, lenders are earning more than an adequate rate of return on student loans compared with a reasonable range for the minimum target rate of return. Student loans, however, may yield a slightly lower rate of return than the average return in recent years on banks' total portfolios.

As noted above, this return does not allow for discounts from the maximum student loan rate that banks may charge. For example, Sallie Mae offers a "Great Rewards Program" that allows borrowers who have made 48 consecutive loan payments on time a 2 percentage point discount of the loan rate. Other lenders have similar concessions. For Sallie Mae, the discount translates to about a 10-15 point reduction in return for their entire portfolio.11 If this discount is the competitive standard for the industry, then banks' net returns are actually 1.48 to 1.53 percent after the cost of the discounts. Costs of marketing and promotional factivity that we did

not allow for would also reduce lenders returns. Nevertheless, even after factoring in these competitive discounts and costs of service competition, there is a large excess return in this sector.

On the other hand, this return also does not consider the fact that the interest rate for unsubsidized student loans is higher than the current rate for subsidized loans: this rate is the one-year treasury interest rate plus 3.1 percent, which is currently about 100 basis points higher than the rate for subsidized loans. This differential will be reduced somewhat by the costs of hedging this one-year instrument into a shorter term instrument, but it nevertheless provides excess returns to banks who are providing both subsidized and unsubsidized loans. Since subsidized loans are roughly 10% of loan volume, this implies at most a 10 basis point increase in net returns for the average bank, so it once again does not greatly affect our calculations [TO BE RECHECKED].

The financial statements for 1996 for two major student loan originator are very consistent with our estimates. For one wholly student loan subsidiary, the annual pre-tax rate of return for 1996 was 1.64 percent; for another bank, their internal calculation of the implied rate of return to their student loan department was 1.99 percent. For the first bank, partial data for 1997 indicates a reduction in the rate of return to 1.29 percent.12 The decline in returns for 1997 likely reflects, in part, the fact that the structure of interest rates in the short-term market also became less favorable to lenders for a while last year than our assumptions allow. In particular, the Treasury bill rate, to which the short-term cost of funds is pegged in assumptions used to analyze the current formula, tended to decline relative to other short-term rates, such as LIBOR, during the past year, increasing the cost of matched funds for lenders. But this phenomenon appears to have been a temporary initial reaction to the financial disturbances in Asia (a "flight to quality"), and more recent data suggests that this trend has been reversed. We have assumed that banks will continue to be able to fund in a variety of markets with the spreads among rates similar to those that prevailed in the earlier part of 1997, before the Asian difficulties emerged.

Another source of profit data is Sallie Mae. Of course, this secondary market agency is not a loan originator but its joint ventures and pre-purchase agreements bring it close to the origination market. Its rate of return on assets for 1997 (from partial data once again) is similar to that reported above for the student loan subsidiary: 1.2 to 1.3 percent. Their slightly lower return than our calculation may reflect, in part, premiums that it pays on loans acquired in the secondary market rather than aspects of its costs that are directly relevant to originators. Furthermore, its rate of return on capital is higher than would be implied for banks because, as a Government Sponsored Enterprise, Sallie Mae can operate now with a lower capitalization. Thus, for the present, it too seems to be earning at least an adequate rate of return. In the future, Sallie Mae can be expected to continue to operate a high-volume, low-margin activity as long as costs in the market for securitizations permit it to move a considerable volume of assets off its books fairly quickly. Sallie Mae's situation will change in an important respect, nonetheless, because of its transition to privatization. As a private entity, the holding company can be expected to be required by credit rating agencies to have higher capitalization than it now has; this will be relevant for its required return on assets which can be expected to become more similar to that of banks.

The return to lenders would change dramatically if the new student loan formula were changed from the 3-month T-bill rate plus 2.5/3.1 percentage points to a longer rate (either for 10-year Treasury notes, or to 10-20 year interest rates) plus 1.0 percentage point, in part because of the new risk associated with this change which raises the all-in cost of funding as a result of hedging. **Table 2** shows that switching to the new student loan formula for loans in school and in repayment could reduce the weighted average pre-tax return to lenders from 1.63 percent under the current formula in 1997/98 to 0.38 percent to 55 percent under the new formula next year if the 1999 Budget assumptions are borne out. Clearly, these estimates, if correct, would not be acceptable to lenders.

It may be noted, however, that these findings are somewhat sensitive to substantial interest rate movements within a year, i.e., between the time (end of May) when the student loan rate is determined by formula and the time when a lender actually makes a loan and finances it. For example, if the new formula were in place for the current school year, using the 10-year CMT rate, the risk-adjusted net return on assets for student loans in-school and in- repayment would be 1.08 percent. This is in the range of providing a satisfactory rate of return. However, this rate of return would have been achievable only because yields fell significantly after mid-1997, lowering the cost of funds relative to the second quarter of 1997 when the formula sets the student loan rate.

The fact that the yield curve historically has been much steeper than is currently projected was the reason in 1993 for expecting that the new formula would be financially acceptable. Adjusting the data for the years when the loan formula rate exceeded the 8.25 percent cap on the student loan interest rate, the 10-year rate plus 1.0 percentage point has been less than the 3-month T-bill rate plus 3.1 percentage points by an average of only 28 basis points since the early 1960s. The 1999 Budget assumptions project this difference to be 137 basis points in 1998, 131 basis points in 1999, and 121 basis points from 2000 through 2007 (with the T-bill based index higher); other projections have a similar contour. As noted above, swap dealers have documented to us that the all-in cost of funds for student loans tied to a long-term index (with an annual reset) would be substantially sensitive to the yield curve; that is, with the historically much steeper yield curve, banks would have earned a much higher profit on their student loans.

But this very historical pattern documents the difficulties with tying student loan interest rates to a long term index, when banks finance themselves on a short-term basis. This approach introduces a substantial risk into the banks portfolio which is not mitigated by swapping, due to the annual reset provision. The difficulty of using a long-term index for student loans should be seen not as a matter of betting on future yield curves but rather in light of the risk to lenders that is implied by the experience between 1993 and 1998. The slope of the yield curve is notoroiusly uncertain, and mis-judgements about it have play a significant role in problems of lenders including the thrift institution difficulties of a decade ago. Making the profitablity or the availability of guaranteed student loans dependent on such uncertainties seems like unwise policy.

Regardless of this point, however, it is fairly clear that given average non-interest costs

(averaging across in-school and in-repayment) of 87 basis points, a 100 basis point mark-up of the student loan rate over an index rate leaves very little room for profits except under favorable spreads between long-term indexed income and short-term indexed borrowing costs. And, as **Table 3** illustrates, this point is true looking forward over the next five years of projected interest rates as well. The first rows of Table 3 show that the rate of return to the banks would remain high if the current system were maintained. But the next rows show that the rate of return under the new legislation will remain below the target rate into the future as well as in the current environment.

Is there a Remedy ?

The results in **Tables 2 and 3** imply that lenders will not receive a reasonable rate of return in the government-guaranteed student loan program if the scheduled change of formula takes place in July, 1998. As shown in Table 3(second block of rows), the five year average return under the new formula would be 34-53 basis points, given the administration's economic assumptions. It should be noted that there is some variation in returns from one student loan year to the next in the table that arises largely from projected changes in the level of interest rates within each year; as noted above, in a year when the cost of funds falls relative to the level of interest rates in the second calendar quarter, which sets the student loan rate, the student loan becomes more profitable for the lender.13

One possible remedy would involve returning the basis for student loans to a short-term rate, while holding borrowers harmless so that the total cost to a student next year would be no higher than under the new formula . This alternative, however, does not appear sufficient to provide a competitive rate of return to banks. Holding borrowers harmless would require that the student loan interest rate for 1998/99 is reduced to 3-month T-bill plus 1.73 percent to T-bill plus 1.98 percent, depending on whether the 10 year or 10-20 year rate is used (see **Table 3**). However, we estimate that a formula which holds borrowers harmless would provide lenders only a 0.51 percent to 0.76 percent rate of return next year, using 1999 Budget assumptions (which have a small decline in short-term rates, and hence borrowers' costs during the student year). This rate of return is below the target rates described above. But, in the case of the 10-20 year rate, it is very close.

Another possible remedy would involve allowing lenders the minimum rate of return that would make student loans profitable according to a target rate of return criterion. We calculate that the loan rate under this approach would ranges from T-bill plus 2.08 percentage points to T-bill plus 2.43 percentage points; this uses the second quarter interest rate for each year to set the appropriate markup. All of these loan rate would be somewhat higer than would prevail under the formula now scheduled to go into effect at mid-year. Any of the rates would represent, however, a significant reduction in the cost relative to the current system (roughly 45-80 basis points from the current markup of 2.88, using a weighted average of the rates in-school and in repayment). Thus, a new formula which allowed banks and students to "split the difference" could provide a competitive rate of return to banks, while maintaining much of the projected savings to students from the scheduled interest rate change.14 Indeed, the savings to students would be roughly that projected when the SLRA scheduled this rate change for July 1, 1998, or

even a bit higher.

In addition to considering an alternative T-bill based formula, our research into hedging emphasized for us the importance of alternative short-term indexes, such as LIBOR or commercial paper, for the financial community. The possibility of achieving economies for lenders by using such an index should be explored; using these alternative instruments could save 10 or more basis points for banks, which could additionally be passed on to students in the form of lower rates. The inefficiencies of a T-bill based formula are not nearly as large as the inefficiencies of a 10-year or 10-20 year based formula. But there are inefficiencies nonetheless, and serious consideration should be given to reducing them.

Additionally, any new formula should probably also revert to recognizing the significant differences in lenders costs for loan in-school and in-repayment, as is recognized by the current 60 basis point differential. Our research has suggested real underlying cost differentials between these two states, and recognition of these cost differences in the formula setting returns would help to even out returns across types of lenders.

Why Set the Rate Administratively?

The difficulty of this exercise points out the fundamental problems with regulatory determination of student loan interest rates. Setting these rates by fiat is a hit or miss proposition, which only by chance will result in the minimum rate lenders need to participate in the student loan program. One way to assure the loan rate is set appropriately would be to *allow the market to set the rate directly*. For the student loan program, this could mean using some form of auction system to determine who would receive the rights to originate student loans.

One form of auction could be a single price (interest rate) auction for amounts of guaranteed loans to be originated. With this type of auction, bids would be accepted in rank order from the lowest to the the highest (interest rate) until the total target quantity of new student loan originations, as estimated by the Secretary of Education, had been awarded. The maximum interest rate that all successful bidders could charge would be the rate for the last bid accepted. Lenders submitting this bid would receive the rights to originate the amount of loans on which they bid. All others bidding a lower rate than the marginal bid also would obtain the right to originate their proposed amount of loans but could charge a rate on these loans up to the maximum rate set in the auction. Some successful bidders could receive a return -- if they charged the maximum rate -- that would be more than they need to originate their share of the total loans. Competition should assure that this differential would be small, however, because lenders would not want to submit a bid price much higher than they need, otherwise they could fail to obtain any of the rights to originate student loans.

The experience of the Health Education Assistance Loan (HEAL) program suggests that such an auction can work. HEAL is a federally-insured loan program for graduate students in schools of medicine and other health professions. The interest rate for both borrowers and lenders is reset quarterly, but rates on HEAL loans are capped at the rate for 3-month T-bills plus 3.0 percentage points. Since FY 1993, there has been an auction system for allocating the insurance authority for HEAL loans and the interest rate spread over the T-bill rate has been well

below the cap and declining every year. The lowest rate bid in the first auction was T-bill plus 2.4 percentage points. For the most recent auction in February, 1997 (for the school year 1997/98), the successful bid was T-bill plus 1.5 percentage points.

The auction system for the HEAL program suggests that an auction could be used for the FFEL program, and that such an option should be explored more rigorously. The success of the HEAL auction, however, does not necessarily imply that an auction will guarantee large savings for FFEL. The successful bidders for the HEAL program generally have been not-for-profit State agencies. As such, their debt is not taxable, which allows them to borrow at rates that are well below the cost of funds for others who are not exempt from taxes. If an adjustment is made for the difference between the interest rates for a tax-exempt and a taxable security, the effective student loan interest rate might not be much, if any, different between the HEAL and FFEL programs. Moreover, the HEAL program involves only $85 millions currently and probably less than $400 million if an authorization/appropriation is enacted by next fall. The experience with this small program may not be completely transferable to a $20-25 billion program that has a 98 percent guarantee rather than 100 percent and whose borrowers are more diverse and do not have the same risk characteristics as HEAL borrowers.

Concluding Remarks

The results presented in this paper rest on a number of assumptions about the cost structure of the student loan program, projections of the term structure of interest rates and the costs of hedging loans tied to long-term interest rates, and estimates of the target rate of return for lenders. These results therefore have a degree of uncertainty that is not necessarily reflected in our tables. Nevertheless, four conclusions seem clear.

- Unless our assumptions are substantially in error, the new formula will provide a rate of return on student loans which is below the target rate of return of lenders in the guaranteed student loan program.

- There are large inefficiencies associated with the mismatch of student loan interest rates and bank financing under the proposed formula, and substantial joint benefits could be realized to students and lenders from moving back to a short-term index.

- While there is some range of uncertainty reflected in these numbers, it is clear that an alternative rate setting formula could be devised, linked to a short-term rate, that would maintain bank participation in the government-guaranteed student loan program over the long-term.

- The new formula should preserve a differential between the mark-up for loans while the student is in school and loans during the in-repayment period; this differential allows gross returns to better track costs and thus help to even out returns among different types of lenders.

- Finally, it appears from our analysis that attention should be given to the advantages --

and, of course, any possible disadvantages -- of alternative short-term index rates. Although a T-bill rate seems natural for a government program, a program that is dependent on the participation of sophisticated private sector lenders might benefit from their greater efficiency in raising funds indexed to an alternative short-term rate.

Our confidence in the qualitative conclusions of the following analysis is high. Nevertheless, setting student loan interest rates by fiat is a highly uncertain proposition, which is unlikely to result in exactly the minimum rate that lenders need to participate in the student loan program. One way to assure the loan rate is not too high or too low is to allow the market to set the loan rate directly. For the student loan program, this could mean using some form of auction system to determine who would receive the rights to originate student loans. The experience of the Health Education Assistance Loan (HEAL) program using an auction system for allocating the insurance authority for HEAL loans suggests that an auction could be considered for the Federal Family Education Loan program.

Proposed changes in the student loan interest rate formula

The Question

Will the proposed changes in the student loan interest rate formula cause lenders to exit the market?

The Current System

The interest rate on student loans is set at the rate on 3-month T-bills plus either 2.5 percentage points (for in-school and other deferment periods) or 3.1 percentage points (during repayment). The rate is reset quarterly. The maximum rate that students must pay is 8.25 percent. Interest in excess of this cap is paid by the government in the form of a Special Allowance Payment (SAP).

The New System (scheduled to take effect 7/1/98)

The interest rate will be set at the rate on 10-year T-bonds plus 1 percentage point, both in-school and during repayment. The rate will be reset annually. The interest rate cap and SAP will not change.

The New System Will Likely Reduce the Profitability of Student Loans

The new system will likely result in a lower interest rate, and will also impose interest-rate risk on lenders.

- Lower interest rate -- If the spread between the 10-year bond and 3-month bill is less than 210 basis points, the interest rate during repayment will be lower. Currently the spread is only 74 basis points, and the spread is predicted to remain below 100 basis points for at least the next two years. The long-run (1955-97) average spread is 135 basis points.
- Interest-rate risk -- Many lenders fund student loans with short-term (3-month) debt, so tying the rate to the 10-year bond exposes the lender to interest-rate risk. Estimates of the cost of this risk vary widely, from close to zero to over 100 basis points. Additionally, since the rate would be reset annually rather than quarterly, in order to fund the loans without interest-rate risk lenders would need to fund loans with 1-year debt instead of 3-month debt. One-year debt is about 35 basis points more expensive.

Analysis

Various attempts have been made to estimate the profitability of student loans by estimating the costs of these loans, but these estimates appear unreliable (for example, according to these estimates HEAL lenders are currently making loans at sub-competitive interest rates). However, it is likely that some lenders, particularly those with high servicing costs and high-cost funds, will stop making student loans. Given the availability of Direct Lending, student access to loans should not be a problem

No matter what the likely effects are, before deciding to go ahead with the change the following question needs to be answered: What are the *benefits* of switching from the 3-month basis to the 10-year basis? Since this switch imposes costs on lenders, unless there are offsetting benefits it is a bad idea. If the goal is to reduce the interest rate paid to lenders, deeper reductions could be achieved by sticking with the 3-month basis and reducing the markup from 2.5/3.1 -- the HEAL auctions suggest that a 2 percent markup would be reasonable.

Robert M. Shireman
11/21/97 09:33:39 AM

Record Type: Record

To: Aaron S. Edlin/CEA/EOP

cc: jonathan.gruber @ MS01.do.treas.sprint.com @ inet
Subject: Auctions

You should definitely contact Joe Flader, Congressman Tom Petri's chief of staff (225-2476). Petri is a Republican who supported direct lending as an improvement over the guarantee system. Joe has been working on an auction approach; my guess is that his would go too far, but he has probably thought through some of the basic problems. (Don't be put off by his low-energy manner of speaking; he has thought a lot about the student loan market and the incentives in the programs).

In terms of making sure that all students get their loans, AND not paying more than we need to during the in-school period, one approach (my guess is it's the Flader approach) would be to front the funds (like in direct lending), but then use the results of an auction to transfer the loans to lenders and secondary markets for collection when students finish school. (The question then is, can students choose their ultimate lender, or do we somehow split up the volume?)

Split gains for stud & govt
split decision

2.915

TABLE 1: INTEREST RATE ASSUMPTIONS
(Percent)

SOURCE	1997	1998	1999	2000	2001	2002	5-year ave.
OMB ('99 Budget)							
3-month T-bill	5.17	5.13	5.01	4.91	4.81	4.81	4.93
10-year note	6.75	5.86	5.80	5.80	5.70	5.70	5.77
Spread	1.58	0.73	0.79	0.89	0.89	0.89	0.84
memo: 10-20 simple	6.77	6.11	6.03	6.03	6.03	6.03	6.05
Blue Chip (Feb.98)							
3-month T-bill	5.17	5.24	5.24	--	--	--	--
10-year note	6.75	5.80	6.00	--	--	--	--
Spread	1.58	0.56	0.76	--	--	--	--
CBO (Jan'98)							
3-month T-bill	5.17	5.45	5.34	4.93	4.82	4.82	5.07
10-year note	6.75	6.00	6.10	6.00	5.90	5.90	5.98
Spread	1.58	0.55	0.76	1.07	1.08	1.08	0.91
DRI (Jan'98)							
3-month T-bill	5.17	4.95	4.53	4.21	4.2	4.22	4.422
10-year note	6.75	5.64	5.78	5.63	5.47	5.33	5.57
Spread	1.58	0.69	1.25	1.42	1.27	1.11	1.15
Implicit Forward Rates b/							
3-month T-bill	---	5.17	5.40	5.33	5.64	5.33	5.374
10-year note	---	5.67	5.80	5.92	6.03	6.14	5.912
Spread	---	0.50	0.40	0.59	0.39	0.81	0.54

Note: Data for 1997/98 are actual data for the last week in May, 1997 prior to June 1; all other OMB data are for the second calendar quarter while data from other sources are for calendar years, as published. All bill rates are converted to a bond equivalent basis.

a/ The average simple annual interest rates for 10 to 20 year Treasury bonds, as used in credit budget scoring.

b/ Forward rates for June of each year, as of February 10, 1998.

n.a. Not available.

02/17/98

TABLE 2: INTEREST MARGIN AND COST ASSUMPTIONS

(Percent or Basis Points)

Income or Cost Category	Current Policy		Future Policy:10-year CMT		Future Policy:10-20 year	
	In-School	Repayment	In-School	Repayment	In-School	Repayment
Loan income, after hedging if needed a/	Bills + 2.50	Bills + 3.10	Bills + 1.60	Bills + 1.60	Bills + 1.77	Bills + 1.77
All-in cost of funds b/	Bills + 0.70	Bills + 0.70	Bills + 0.70	Bills + 0.70	Bills + 0.70	Bills + 0.70
For 1997/8 & 98/9	5.85	5.85	5.77	5.77	5.77	5.77
Adjusted costs c/	5.56	5.56	5.48	5.48	5.48	5.48
Interest margin	2.11	2.71	1.25	1.25	1.42	1.42
Servicing and other costs d/	0.41	1.13	0.41	1.13	0.41	1.13
Net income before tax, 1997/8 &98/9	1.70	1.58	0.84	0.12	1.01	.29
Weighted average net income e/	1.63		0.38		0.55	

Note: Costs are representative of large for-profit lenders who both originate loans and hold loans in-repayment in their portfolios.

a/ For current policy, loan income is the formula determination, based on Q2 interest rate; for future policy, loan income is determined under the formula and then reduced by the cost of hedging the loan to convert it into a short-term denominated asset.

b/ All-in costs are the cost of matched funds, which are assumed to be essentially the same whether raised in a T-bill denominated securitization of borrowed in the LIBOR market, possibly entailing a T-bill/LIBOR swap.

c/ Costs to banks are adjusted, in the fourth line above and following tables, reducing them by 5 percent of this total, because that amount is assumed financed by equity.

d/ Includes servicing and overhead costs, origination fees, default risk and prepayment risk (for detailed component separately, see Table 4).

e/ Weights are 36.8% in school and 63.92% in repayment.

TABLE 4: RISK-ADJUSTED PRE-TAX NET RETURN for FFEL STUDENT LOANS, 1997 and 1998
(Percent, Administration Economic Assumptions))

	7/1/97 to 6/30/98			7/1/98 to 6/30/99		
	In-school or Deferment	Repayment	Consolidation	In-school or Deferment	Repayment	Consolidation g/
Student Loan Interest Rate	7.67	8.25	9.00	6.86	6.86	9.00
Loan income, net a/	7.67	8.27	9.00	6.73	6.73	8.87
Less Costs:						
All-in cost of funds b/	5.85	5.85	5.85	5.77	5.77	5.77
Adjusted cost c/	5.56	5.56	5.56	5.48	5.48	5.48
Origination/holding fee d/	0.06	0.04	1.10	0.06	0.04	1.10
Servicing costs/overhead e/	0.32	0.95	0.47	0.32	0.95	0.47
Default risk	0.00	0.07	0.07	0.00	0.07	0.07
Prepayment risk	0.03	0.07	0.07	0.03	0.07	0.07
Subtotal	**5.97**	**6.69**	**7.27**	**5.89**	**6.61**	**7.19**
Net Return	**1.70**	**1.58**	**1.73**	**0.84**	**0.12**	**1.68**
Weighted Average Net Return f/		**1.64**			**0.54**	

Note: OMB estimates for interest rates are from the 1999 budget. Loan rates are determined in Q2 of calendar year; costs of funds are determined by the average interest rate from Q3 of first year through Q2 of following year.

a/ Loan income takes account of SAP payments and of hedging costs when the formula is tied to a long-term index.

b/ Assumes all-in cost of funds is T-bill + 70 basis points.

c/ All-in cost of funds, reduced by 5%; only 95% of the loan principal is assumed to be financed by debt.

d/ Fee is amortized over life of loan; part of it becomes a prepayment cost in the case of default or other early loan payoff. Consolidation loans involve an extra fee.

e/ Assumes that servicing/overhead costs in-school are 33 percent of the cost for repayment; for consolidation loans, these costs are 50 percent of those for loans in repayment.

f/ Weights are 31.53%, 55.88%, and 12.58% for loans in school, in repayment, and in consolidation, respectively.

g/ For loans already consolidated before 1998-99.