8

The Effective Yield Concept

A mortgage transaction almost always involves cash payments between the lender and other parties to the transaction. The contract rate adjusted to take such payments into account is termed an "effective yield." More precisely, it is the rate which, when used to discount the stream of principal and income from the loan, equalizes its present value with the cost of the loan (equal to face amount less net fees received).

$$L - F = \frac{R_1}{1+Y} + \frac{R_2}{(1+Y)^2} + \cdots \frac{B}{(1+Y)^p}$$

where L = face amount of loan
F = net fees received by lender
R = payment of principal and interest, determined by contract rate, maturity, and amortization arrangement
B = balance of loan at time of prepayment
Y = effective yield
p = prepayment period when balance is paid in full

To compute the effective yield thus requires all the information shown in the formula.[1]

The contract rate, contract maturity, and amortization arrangement are specified in the loan contract. Most residential mortgages today are

[1] Strictly speaking, the formula also should include any penalty that the borrower must pay the lender for the privilege of prepaying the loan, which would be represented in the formula by an increment to B in year p. There is no prepayment penalty on VA loans. There is a penalty, equal to 1 per cent of the original principal, for prepayment of an FHA loan within the first ten years of life, but this payment goes to the FHA rather than the lender. The companies in our survey employ a variety of prepayment-penalty formulas on conventional loans, which may vary from loan to loan depending on competitive conditions, the aggressiveness of borrowers, and other factors. We have made no provision for this payment in our calculation of yield because the prepayment provision on individual conventional loans is not shown on the finance committee records. To illustrate the effect on yield, a penalty payment equal to 1½ per cent of the outstanding balance, which would not be unusual, would raise yield by about ten basis points on a twenty-five-year mortgage prepaid after ten years.

amortized by the level monthly payment method, and this is the only method used by the lenders in our survey. Net fees received or paid are a part of the transaction, although not specified in the contract. While the prepayment period is not known at the time the loan is authorized, most loans are prepaid prior to maturity.

In this chapter we discuss a number of questions connected with the fees and charges that may be associated with mortgage loan transactions, including the types of charges that should be considered when calculating the yield. We also investigate the most appropriate assumption regarding prepayment, and the most efficient method of calculating effective yield.

Fees and Charges

Relationship to Yield Concepts

The types of fees and charges that should be included in calculating yield on a direct loan depends on the yield concept desired. If the series are designed to measure borrower cost, the concept most relevant to studies of mortgage credit demand, they would include charges by which the borrower reimburses the lender for expenses connected with the transaction, such as appraisal fees, even though these charges do not increase the lender's net income. On the other hand, fees received by a lender from a third party (as when a builder pays "points" for an FHA or VA loan) would not be included in borrower cost series unless the borrower in some way reimburses the third party (as by paying a higher price for a house). Similarly a "finder's fee" paid by the lender to a broker would not be included.

If the series are designed to measure lenders' net income,[2] the concept most relevant to analysis of the supply of mortgage credit, they would not cover lending expenses reimbursed by the borrower, but would reflect fees the lender paid or received from third parties.

Entanglement with Charges Connected to Property Transfer

Charges associated with directly-originated mortgage loans are often entangled with charges associated with property transfers. Conceptually,

[2] By "net income" we mean income net of expenses attributable to a specific loan transaction. All the yield series with which we are concerned in this study are gross of general administrative expenses as well as losses.

the portion of any given charge applicable to the loan transaction should be allocated to the loan, but as a practical matter, it is necessary to take all of it or none.

An appendix to this chapter indicates the amount, if any, of several types of charges to be included in a direct loan series designed to measure borrower cost or lender income.

Direct Versus Correspondent Loans

The problems associated with fees and charges discussed above apply only to direct loans. On correspondent loans, no property transfer is involved. Hence all of the payments involved are associated with the mortgage credit transaction and none with the property transfer (in this sense the correspondent loan is a "purer" transaction). Since the mortgagor is not involved in the transaction, correspondent loan yields can only measure lender income. No significant expenses are connected with correspondent loans, furthermore, so that no distinction arises between net and gross income.

Fees and Charges in the NBER Series

In compiling our historical series, we did not, of course, enjoy the luxury of choosing the fees and charges we wished to include. Our choices, however, may not have differed materially from the practices of the life insurance companies in our study. It is not possible to obtain borrower-cost data from lender records, and the company's practices provide the closest possible approximation to a net income concept.

On correspondent loans, as noted above, fees and charges are necessarily consistent with the net income concept. Ordinarily, only a single payment or price is shown on the finance committee record, and it indicates net income to the lender. A price of ninety-seven, for example, implies net fees received of 3 per cent. Occasionally, the record will show an "origination fee" along with the price, indicating that the company is separately reimbursing the correspondent for some of the latter's net origination costs, but this means merely that the net income has been divided into two components.

On direct loans, the general practice is to record all amounts paid or received as specific consideration for making the loan, and which adjust the lender's *net* income by a like amount. Finance committee records do not show charges that might be connected (in whole or in part) to property transfer or ownership or that are designed to defray

lending costs, even though they may in part provide extra net income attributable to the credit extension. This procedure maximizes comparability between direct and correspondent loans. If income designed to reimburse the lender for origination costs were added to fees and charges on direct loans while the costs were not deducted, direct loan yields would have an upward bias relative to yields on correspondent loans.[3]

Finders Fees on Direct Loans

In the National Bureau series, fees paid to a broker are deducted from fees received. The FHLBB and Federal Reserve Bank of Chicago series, in contrast, exclude finders fees; whether this is because they wish to measure borrower cost rather than lender income, or because they do not consider "broker loans" comparable to nonbroker loans, is not clear. Broker loans do tend to have lower yields, but shifts in their relative importance may be an essential part of the market adjustment process that we want to be reflected in time series.

We ran a special tabulation of broker loans for the two cross-section months, June 1953 and February 1960. In the earlier month, fees were paid to a broker on about three-fourths of the direct conventional loans and one-tenth of the direct FHA loans. The gross yield on these loans was .11 and .21 per cent below that on nonbroker loans, for conventionals and FHAs, respectively. In February 1960, broker loans were much less important, were almost entirely conventionals, and carried a yield disadvantage of only .03 per cent. In February 1960, yields were close to peak levels and the companies were not prepared to pay brokers for mortgages unless they could earn a rate closely comparable to that on other (nonbroker) mortgages.

[3] Referring to the example on page 125, assume that net origination costs of .25 per cent on direct loans were derived from gross costs of .28 per cent and income of .03 per cent. If the income were included in fees received, the recorded gross yield on direct loans would be 6.03 per cent, compared to 6.00 per cent on correspondent loans, although the yield net of service and net origination costs would be the same for each. The point probably is not of great quantitative importance, however, because charges imposed by large life insurance companies to defray expenses, are small. We obtained data from one lender in our survey for June 1953 on the "origination service charge," a catch-all fee to reimburse the lender for a variety of expenses. If the aggregate of such charges had been added to the lender's income in that month, the effective yield on his direct loans would have risen by less than .01 per cent. This nonrecorded income on direct loans probably varies with market conditions as the incidence of various charges shifts between borrowers and lenders, but evidently this has a very small impact on the yield series for direct loans.

The Prepayment Assumption

The great majority of residential mortgages are prepaid in full prior to maturity. Obviously, it cannot be known at time of authorization when any individual loan will be repaid, but some assumption is required in calculating effective yield.

Differences in effective yield associated with different prepayment assumptions increase proportionately with increases in fees and charges. If net fees received, for example, amount to .50 per cent of the face amount of the loan, the effective yield on a 6 per cent twenty-four-year mortgage is 6.09 per cent if prepaid after eight years, and 6.07 per cent if prepaid after twelve years—a difference of only .02 per cent. If net fees amount to 10 per cent on such a mortgage, however, the effective yields corresponding to the two prepayment assumptions amount to 7.83 and 7.43 per cent—a difference of .40 per cent.

During the period covered by this study, the prepayment assumption was quantitatively important only on FHA and VA mortgages. Because the maximum contract rate on these mortgages is set by law or regulation and is changed infrequently, market adjustments take the form mainly of changes in price, expressed as premiums over or discounts from par. Discounts particularly have at times been sizeable, ranging up to ten points or even more on individual mortgages. In our time series, average monthly discounts for the United States as a whole ranged up to 4 per cent on FHA and up to 6 per cent on VA loans.[4] For conventional loans, in contrast, fees paid generally exceeded fees received but the U.S. average never exceeded 1 per cent.

The approach to the prepayment should be actuarial in nature. Our guess as to when any individual mortgage will be prepaid is worth little, but presumably a reasonable estimate can be made for a large number of similar mortgages, based on termination experience of mortgages made in the past. Two questions will be discussed with respect to this experience. First assuming past termination experience can be extrapolated, is it appropriate to use average life as the prepayment assumption? Second, should the prepayment assumption be related to the face maturity?

Since yield is not a linear function of mortgage life (see Chapter 4), the entire distribution of lives and not merely the average is relevant

[4] For some regions and states, of course, average discounts were higher.

to the average yield for a group of mortgages. Assume, for example, that we have a group of twenty-five-year 6 per cent mortgages priced at ninety-four and all are prepaid after ten years; the yield for each mortgage, and for the group is 6.92 per cent. If prepayments are evenly distributed between five, ten and fifteen years, the average life remains ten years, but the average yield rises to 7.06 per cent. This average yield assumes, however, that the interest, amortization and prepaid balance on the five-year mortgage are reinvested at the yield on the five-year mortgage, and similarly for the ten- and fifteen-year mortgages. On the more appropriate assumption that all flows are reinvested at the average calculated yield, the average is about 7.00 per cent.

Thus, when mortgages carry discounts, the use of average life as the prepayment assumption tends to understate yields; when mortgages carry premiums, this procedure overstates yields.

To determine the actual quantitative importance of this bias, we calculated the appropriately weighted average yield for 6 per cent mortgages of varying maturity and discount, on the assumptions that (a) the distribution of lives was the same as that for equivalent maturity FHA home mortgages made between 1935 and 1965, and (b) all flows are reinvested at the average yield. This yield is shown in column 3 of Table 8-1.[5] Column 4 compares this yield with the yield calculated on the assumption of prepayment at half the face maturity, which is approximately equal to the average life (see Table 8-2). The understatement of yield from using average life increases with the discount and reaches .25–.33 per cent when discounts are 10 points. Thus the use of average life as the prepayment assumption introduces a significant downward bias in the estimate of yield.

Should the prepayment assumption be related to the face maturity, a procedure used both by the Federal Reserve Bank of Chicago and by the Federal Home Loan Bank Board?[6] Table 8-2 shows that on FHA and VA mortgages, average life has been equal roughly to half the face

[5] The computer program required to calculate these yields was written by Anthony Curley of the University of Pennsylvania.

[6] In the Federal Reserve Bank of Chicago survey, prepayment was assumed to occur after eight years for mortgages maturing in less than twenty years, and after twelve years for mortgages with longer maturities. The Federal Home Loan Bank Board originally calculated yield on the assumption that loans are prepaid after a period equal to half the face maturity. Later, however, the FHLBB adopted the same procedure as the National Bureau of Economic Research, namely, a uniform assumption of ten years.

TABLE 8-1

Effective Yield on 6 Per Cent Contract Rate Mortgages Using Average Life and Distribution of Lives, at Varying Maturities and Discounts

Discount (points) (1)	Yield at Average Life[a] (2)	Yield Using Distribution of Lives[b] (3)	Difference (Col 3-Col 2) (4)
	20 Year Mortgages		
2	6.31	6.37	.06
4	6.64	6.76	.12
6	6.97	7.16	.19
8	7.31	7.57	.26
10	7.66	7.99	.33
12	8.02	8.44	.42
14	8.40	8.89	.49
	25 Year Mortgages		
2	6.26	6.31	.05
4	6.53	6.64	.11
6	6.81	6.97	.16
8	7.10	7.32	.22
10	7.39	7.67	.28
12	7.69	8.04	.35
14	8.01	8.42	.41
	30 Year Mortgages		
2	6.23	6.28	.05
4	6.46	6.56	.10
6	6.71	6.85	.14
8	6.95	7.15	.20
10	7.21	7.46	.25
12	7.48	7.79	.31
14	7.75	8.12	.37

[a]Assumed to equal half the face maturity.

[b]FHA experience covering Section 203 mortgages during 1935-65.

TABLE 8-2

Estimated Life Expectancy of FHA and VA Mortgages, by Maturity (years)

Maturity	Average Life
FHA	
Less than 13 years	5.9
13-17 years	7.6
18-22 years	9.5
23-25 years	11.8
26-30 years	14.7
VA	
Less than 15 years	8.3
20 years	10.9
25 years	13.8
30 years	16.6

Note: FHA experience 1935 – 62 was on Section 203 mortgages only. VA experience 1944 – 60 was on primary home loans.

Source: 1964 *Annual Report of the Housing and Home Finance Agency*, p. 173; "Probable Life Expectancy of GI Home Mortgages," Veterans Administration (mimeographed).

maturity. Whether this relationship or any relationship of life to maturity should be employed depends partly on whether the relationship is likely to be stable.

This question can be approached by asking what determines the difference in life between mortgages of different face maturity. For simplicity, assume the mortgages have maturities of two and three years, respectively. The average life of the two-year mortgage is

$$L_2 = R_1 + 2R_2$$

where L_2 is average life, R_1 is the retirement rate in the first year (per cent of the original group of mortgages), and R_2 is the retirement rate in the second year. Since R_2 equals $1 - R_1$, this can be written

$$L_2 = 2 - R_1$$

Similarly for the three year mortgage,

$$L_3 = 3 - 2R_1' - R_2'$$

where R_1' and R_2' are retirement rates in the first and second years, respectively.

Thus,

$$L_3 - L_2 = 1 - 2R_1' - R_2' + R_1$$

The difference in life is positively related to the prematurity retirement rate on two-year mortgages and negatively related to the prematurity retirement rates on three-year mortgages. (Henceforth the term "retirement rates" refers to prematurity rates.) The retirement rates on the longer mortgages, however, carry more weight. Any uniform reduction in retirement rates will increase the difference in life between the long and short mortgage. This means that with a given relationship between retirement rates on longs and on shorts, the difference in life is affected by changes in the *general* level of retirement rates.

If we posit a "normal" level of retirement rates, the actual difference in life between long and short mortgages can be divided into three components: (1) the difference attributable to the difference in face maturity at normal retirement rates, which are assumed to be the same for long and short mortgages; (2) the difference attributable to the divergence between actual and normal retirement rates, still assuming the same rates for all mortgages (this component could be either positive or negative); and (3) the difference that is due to higher retirement rates on the shorter mortgages.

It seems likely that the second component has been positive, i.e., the actual retirement rates underlying the termination experience shown in Table 8-2 have been below normal because of the high level of assumptions during the period covered by that experience. (An assumption occurs when a property is transferred, but the existing mortgage remains in force; the new owner assumes the obligation.) The *1960 Census of Residential Financing* showed that one of every six outstanding mortgages on one-unit homeowner properties in 1960 had been

assumed from previous owners. Assumption rates probably have been abnormally high because of the upward ratcheting of interest rates in the period since World War II. Termination of this trend would imply a rise in over-all retirement rates and consequently, a reduction in the differences in life between short and long mortgages. Since there is no way to determine normal retirement rates, there is no way of determining the quantitative importance of the changing trend; however, the major part of the difference in life between short and long mortgages is due to higher retirement rates on short mortgages (component 3).

Component 3 can be measured statistically from existing data covering termination experience of FHA mortgages. The actual difference in life between twenty- and twenty-five-year mortgages is 2.25 years, while the difference attributable to different retirement rates is 1.61 or 2.08 years,[7] depending on whether we equalize retirement rates at the

[7] Following the logic employed above

$$L_{25} = R_1' + 2R_2' + 3R_3' + \ldots 24R_{24}' + 25(1 - R_1' - R_2' - \ldots R_{24}')$$
$$L_{20} = R_1 + 2R_2 + 3R_3 + \ldots 19R_{19} + 20(1 - R_1 - R_2 - \ldots R_{19})$$

The actual difference in life $L_{25} - L_{20}$ is

$$L_{25} - L_{20} = 5 - 24R_1' - 23R_2' - \ldots R_{24}' + 19R_1 + 18R_2 + \ldots R_{19}$$

We then obtain a calculated difference in life $(L_{25} - L_{20})^c$ on the assumption that $R_1' = R_1 = R_1''$, $R_2' = R_2 = R_2''$ etc. Combining the Rs and subtracting

$$(L_{25} - L_{20})^c = 5 - 5R_{20}'' - 4R_{21}'' - 3R_{22}'' - 2R_{23}'' - R_{24}'' - 5(R_1'' + R_2'' + \ldots R_{19}'')$$

The difference in life attributable to differences in retirement rates is the difference between actual life and life calculated on the assumption that retirement rates are the same.

$$L_{25} - L_{20} - (L_{25} - L_{20})^c = -24R_1' - 23R_2' - \ldots R_{24}' + 19R_1 + 18R_2 + \ldots R_{19} + 5R_{20}'' + 4R_{21}'' + 3R_{22}'' + 2R_{23}'' + R_{24}'' + 5(R_1'' + R_2'' + \ldots R_{19}'')$$

Since the only estimates of R_{20}'', $R_{21}'' \ldots R_{24}''$ are R_{20}', $R_{21}' \ldots R_{24}'$, we assume these to be equal, which reduces the expression.

$$L_{25} - L_{20} - (L_{25} - L_{20})^c = -24R_1' - 23R_2' - \ldots 6R_{19}' + 19R_1 + 18R_2 + \ldots R_{19} + 5(R_1'' + R_2'' \ldots R_{19}'')$$

R_1'', R_2'', etc. in this expression can be assumed equal either to R_1', $R_2' \ldots$ or R_1, $R_2 \ldots$. These two assumptions provide two estimates of the difference in life attributable to different retirement rates on long- and short-maturity mortgages.

level of those on the twenty-five-year mortgage or at the level of rates on the twenty-year mortgage.

The higher retirement rates on shorter mortgages reflect lower assumption rates.[8] The shorter mortgages are less attractive to home purchasers and are therefore less frequently assumed. This is partly for structural reasons. Loan balances are smaller on short-maturity loans, because they are paid down at a faster rate and because original loan values are smaller.[9] In addition, however, a transient element is involved. Over the period covered by the termination experience, interest rates were lower on the short-maturity mortgages because a larger proportion of them came from the early post-World War II period when interest rates were low.

Thus, two of the three components of the difference in life between long and short mortgages have been affected by the upward trend in interest rates. This raises a serious question regarding the stability of the relationship between mortgage life and face maturity.

In this study it was decided to use a uniform prepayment assumption rather than base the prepayment assumption on the face maturity. In addition to our question about the stability of the relationship between face maturity and mortgage life, we were influenced by pragmatic considerations of the ease in handling data; we found that variable prepayment assumptions introduce needless complexities into analytical uses of the data. A uniform assumption is easier to work with in the sense that it is usually a simple matter to determine the effect on results of a shift in assumption. This is true for both time series and cross-section analysis.

The assumption is ten years. No defense of this particular figure will be given. All our tabulations include the information needed to recompute the effective yield on a different assumption.[10] For analytical purposes, it is important to be aware of the implications of different assumptions. For time series analysis, for example, it is important to note the following:

1. If expected mortgage life increased with maturities over the post-World War II period, our assumption of a fixed prepayment period

[8] Although different retirement rates conceivably could reflect different turnover rates, there is no reason why turnover should be related to maturity of outstanding mortgages.

[9] On a cross-section basis, loan-value ratios and maturities tend to be positively correlated.

[10] The average effective yield for a group of loans calculated from the weighted average contract rate, net fees received, and maturity of the group is virtually the same as the weighted average of each individual effective yield.

results in a small upward bias in the secular trend of yields, the size of the bias depending on the level of discounts in the terminal years. For example, assuming that the "correct" prepayment assumption is half of the face maturity, the bias in the NBER-FHA series over the period 1951–63 associated with the extension of average maturity from 21 to 29 years amounts to .06–.12 per cent for discounts of 2 and 4 points respectively. The bias in the FHA secondary market series associated with an extension of maturity from 20 to 30 years over the period 1949–67 amounts to .16–.21 per cent for discounts of 5 and 7 points. Using a prepayment equal to $\frac{4}{10}$ of maturity, these possible biases fall to .02–.04 and .05–.10 per cent respectively.

2. The assumption of a uniform short prepayment period will raise the level of any time series and widen its cyclical amplitude relative to a series that embodies a uniform longer prepayment period, or a prepayment period that bears some fixed relationship to face maturity. The cyclical decline and rise in the FHA secondary market series during 1960–66 are reduced, respectively, from .85 to .81 per cent, and from 1.56 to 1.38 per cent if yields are calculated on the assumption that prepayment occurs after a period equal to half the face maturity. Using the $\frac{4}{10}$ of maturity assumption, the change in yields is only .03 per cent smaller in each phase.

The Computation of Effective Yield

The effective yield on a given mortgage can be obtained from the *Prepayment Mortgage Yield Table for Monthly Payment Mortgages.*[11] Since most cases involve an interpolation between the values shown in the book, this is a time-consuming operation when the number of loans is very large. It turned out also that the mathematical routine used in calculating effective yield when programmed for machine tabulation used an inordinate amount of machine time. As a result, we finally adopted an empirical, and easily programmed, formula which provides a close approximation to the yield shown in the yield book.[12] Table 8-3

[11] Second edition, Boston, 1962; hereafter referred to as the "yield book."

[12] This formula, which is a variant of one developed by Charles Torrance, formerly of the Federal Home Loan Bank Board, is as follows:

$$E = C + 2D(1/M + .0025C + .001M) - D/10M$$

where E = effective rate
C = contract rate
M = maturity (in years)
D = discount (in points below par)

TABLE 8-3

Differences in Effective Yield Between Yield Book and Formula
(ten-year prepayment)

	10 Years Maturity			15 Years Maturity			20 Years Maturity			25 Years Maturity			30 Years Maturity		
Price	4%	5%	6%	4%	5%	6%	4%	5%	6%	4%	5%	6%	4%	5%	6%
99.5	.01	.01	.01	.01	.01	00	.01	00	00	00	.01	.01	00	00	.01
99.0	.02	.02	.02	.02	.01	.02	.01	.01	.01	.01	.01	.01	.01	.01	.01
98.5	.03	.02	.02	.02	.02	.02	.01	.01	.02	.01	.01	.01	.02	.01	.01
98.0	.03	.03	.03	.02	.02	.02	.01	.01	.02	.01	.01	.01	.02	.02	.02
97.5	.04	.04	.04	.02	.02	.02	.02	.02	.02	.02	.01	.02	.02	.02	.02
97.0	.04	.04	.04	.03	.04	.03	.02	.02	.03	.02	.01	.02	.02	.03	.02
96.5	.05	.04	.05	.03	.04	.03	.01	.02	.02	.01	.02	.02	.02	.03	.03
96.0	.04	.05	.05	.04	.04	.04	.02	.02	.02	.01	.01	.02	.02	.02	.03
95.5	.05	.05	.05	.04	.04	.04	.02	.02	.02	.02	.02	.02	.03	.03	.03
95.0	.05	.06	.05	.03	.04	.04	.02	.02	.03	.02	.02	.02	.03	.03	.03
94.5	.05	.05	.05	.04	.04	.05	.01	.02	.02	.01	.02	.02	.03	.03	.03
94.0	.05	.05	.05	.04	.04	.05	.01	.02	.02	.02	.02	.02	.03	.03	.03
93.5	.05	.05	.05	.04	.04	.04	.01	.02	.02	.01	.01	.01	.02	.03	.03
93.0	.04	.05	.05	.04	.04	.05	.01	.01	.02	.01	.02	.01	.02	.03	.03
92.5	.04	.04	.05	.04	.04	.04	00	.01	.02	.01	.01	.01	.02	.02	.03
92.0	.03	.04	.04	.03	.03	.04	00	.01	.01	00	.01	.01	.03	.03	.03
91.5	.03	.04	.04	.03	.03	.04	00	00	00	00	00	.01	.02	.02	.02
91.0	.02	.03	.03	.02	.03	.03	00	00	.01	.01	00	.01	.02	.03	.02
90.5	.02	.02	.03	.02	.03	.03	.02	.01	00	.01	.01	.01	.01	.02	.02
90.0	.01	.01	.02	.02	.03	.03	.02	.01	.01	.02	.01	.01	.01	.01	.01

shows differences in yield between the formula and the yield book for various values of discount, contract rate, and maturity. The largest difference is .05 per cent, and within the range of maturities where most observations fall (twenty to thirty years), the deviation is not more than .03 per cent. The errors, furthermore, are not systematically related to the maturity, the discount, or the contract rate.

This formula was used to calculate effective yield on each individual loan, from which weighted averages were then computed. As a check, the averages for the U.S. were recomputed from the yield book, using the average maturity, discount, and contract rate in each month. The differences between the book averages and those obtained from the program are shown in Table 8-4. On FHA loans the deviation is two basis points or less in 120 of 156 months, and only in one month is it as large as five basis points. For all practical purposes, therefore, it makes no difference whether the series used is calculated from the program or obtained from the yield book.

Nevertheless, anyone using our data on FHA loans who wishes to recalculate yield employing a different prepayment assumption should take account of the small difference between yield as calculated from the formula given above and yield as shown in the yield book. All the yield series shown in Appendix C are calculated from the formula.

TABLE 8-4

Deviation Between Yields Calculated in Program and Yields Obtained from Yield Book, U.S. Averages for FHA and VA Mortgages, 1951 – 63

Deviation (basis points)	FHA (months)	VA (months)
0	30	16
1	37	41
2	53	46
3	30	38
4	5	15
5	1	0
	156	156

Appendix: Types of Fees and Charges on Direct Loans

Costs of Services Connected to Property Ownership.[18]

Certain costs of property ownership are usually prepaid at the time a mortgage is closed. These include property taxes and insurance designed to protect the owner—principally title, fire, and hazard insurance. Costs of property ownership should not be included in the effective rate on mortgage loans. If prepaid items are held in escrow by the lender, however, the interest on these funds is really an added cost of mortgage credit, as well as added income to the lender. To the extent that insurance is designed to protect the lender rather than the borrower, moreover, the charge is also part of the cost of credit, although it would not ordinarily be net income to the lender.

Costs of Property Transfer

These costs, which should also be excluded from the effective rate, include charges for state and federal stamps on the deed, and the conveyancing fee for recording the deed. They also include the property survey and appraisal report if these are for the borrower rather than the lender.

Costs of Services Connected to Credit Extension

These charges, which offset specified expenses of mortgage lending, include closing (or attorney's fee), credit report, appraisal report and property survey when required by the lender, and title or other insurance designed for the lender's protection. These charges are part of the cost of credit to the borrower. Ordinarily, they would constitute gross income, but not net income to the lender. Part of such charges could constitute net income, however, if priced by the lender above cost, or if the lender obtains a brokerage fee from a third party who provides the service.

On the other hand, some expenses incurred by the lender are not

[18] A further discussion of various types of charges can be found in *Closing Costs and Settlement Payments in the Jacksonville, Florida, Mortgage Market,* Housing Research Paper 22, Housing and Home Finance Agency, November 1952; and in John M. Ducey and Kenneth R. Berliant, *Loan Closing Costs on Single-Family Homes,* Institute of Urban Life, Chicago, May 1965.

reimbursed, and the lender generally pays to put a loan on the books. This is sometimes termed the "net origination cost."

Mortgage Service Charge

It is general practice for lenders to charge borrowers a fee, often 1 per cent of the loan or some flat dollar amount, to cover various miscellaneous costs of mortgage lending. Both the VA and FHA allow lenders to charge borrowers a 1 per cent fee to cover a number of expense items that cannot be charged for separately.[14] This charge differs from those under Costs of Services, above, only in not being related to a specific service. Like the others, this charge is clearly a cost to the borrower, but the extent to which it constitutes net income to the lender probably varies from case to case.

Points

When a lender pays less than face value for a mortgage ("discounts" it), or receives a premium, fee, or commision for granting the loan, which amounts to the same thing, his net income is increased. The distinguishing characteristic of points is that they do not even ostensibly purport to defray expenses, so that they represent net income to the lender.[15]

Points, however, may or may not represent a cost to the borrower, depending on who pays them, the borrower or the home seller. Regulations under the federal underwriting programs prohibit direct payment of points by borrowers, but home sellers (including builders) have generally been allowed to pay them as needed, and in many cases they have no doubt passed them along to borrowers in the form of a higher price.

Finder's Fee

Lenders sometimes pay a real estate or mortgage broker a fee for steering loans to them. These fees should be *deducted* from the effective rate if we are measuring return to the lender, but ignored if we are measuring cost to the borrower.

[14] A list of these miscellaneous charges will be found in *Closing Costs and Settlement Payments in the Jacksonville, Florida, Mortgage Market,* p. 12.

[15] Included in this category is the "commitment fee," which is retained by the lender even if the loan is not closed. From the standpoint of authorization data, commitment fees are indistinguishable from other sources of net income. From the standpoint of data on closings, however, commitment fees swell the lender's over-all net income without being included in the income attributable to any specific loan.

Brokerage Fee

On the other hand, sometimes borrowers will pay a fee to a broker for help in obtaining a loan. This should be considered a cost of credit, but it is not income to the lender.

Conceptually, we can aim at an effective rate series that measures cost to the borrower or net income to the lender. (By net income we mean net of costs connected to the specific loan transaction; the series would, of course, be gross of general administrative and operating expenses.) A gross income series would be identical to a borrower cost series except for the cost of services that the lender chooses to turn over to subcontractors. Since it is of no analytical interest whether the lender chooses to appraise a property himself or to have an outside appraiser do it for him, a gross income series has little merit.

The items that conceptually belong in cost and net income series can be summarized as follows:

	Coverage of Item in Series	
	Cost	Net Income
Interest on prepaid costs of property ownership when held in escrow by lender	All	All
Title and hazard insurance when required by, and designed to protect, lender	All	Only brokerage fee or commission earned by lender
Mortgage service charge, closing fee, credit report, and appraisal and property survey when required by lender	All	Only the part of charge above cost of service
Points, premiums, commissions, etc.	Portion paid by borrower directly or in price of house	All
Finder's fee	None	All
Brokerage fee	All	None