4

The Behavior of Yields and Terms on Conventional, FHA and VA Mortgages

The relationship between different mortgage yield series is examined in this chapter. A comparison of yields on FHA and conventional mortgages illuminates some features of lender preference associated with the characteristics of these loans, especially those concerning risk. A comparison of FHA and VA yields reveals the influence of the contract rates that prevailed at different times on these loans. Comparison of yield series covering direct, correspondent and secondary market transactions reveals the influence of different types of market organization. We also examine the relationship of cyclical changes in mortgage yields to loan-value ratios and maturities on the same type of mortgage.

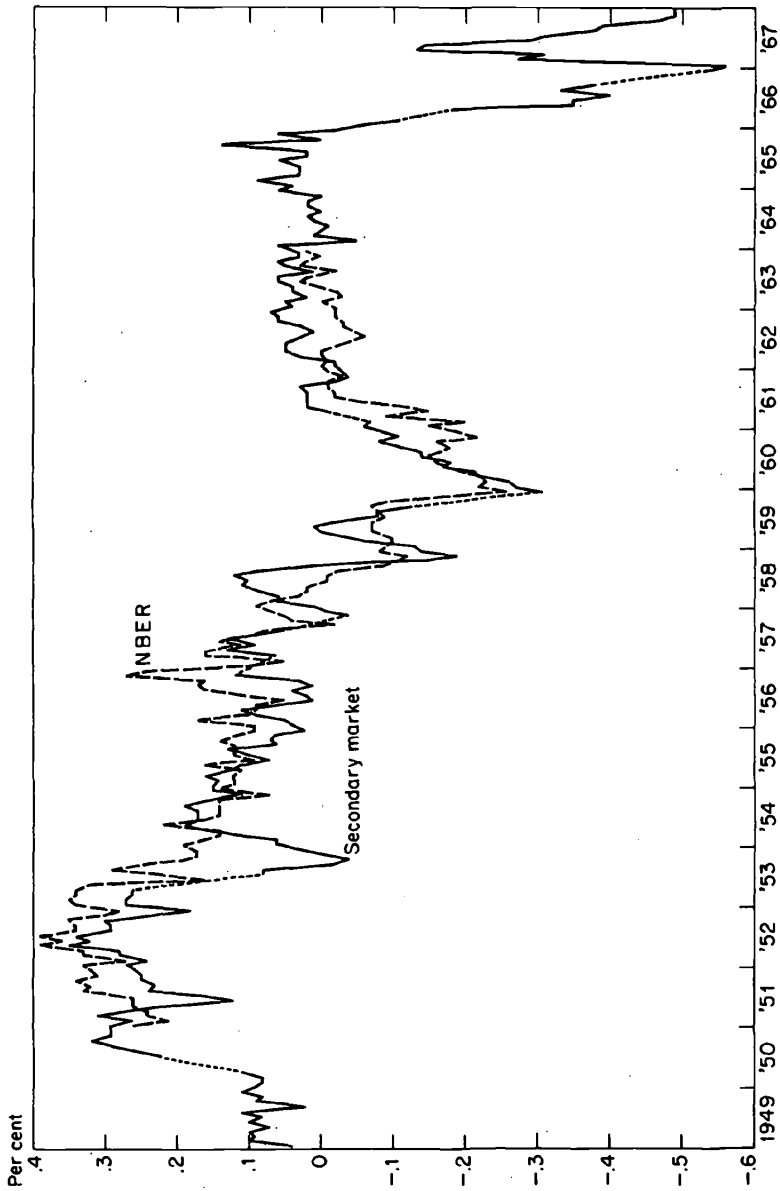
Relationship Between FHA and Conventional Yields: The Influence of Risk and Lender Preference

Our new data permit an analysis of changes in the relationship between FHA and conventional yields over the cycle, and over the eighteen-year period 1949–66. The dashed line on Chart 4-1, covering 1950–63, shows the differential based on the new National Bureau series. The solid line covering the period 1949–67 is based on the FHA secondary market series and the three linked conventional series used in Chart 3-2.[1] Table 4-1 shows yield differentials calculated at specific cycle peaks and troughs in both series. Since the cyclical amplitude of FHA yields is sensitive to the prepayment assumption, the conventional-FHA yield differential in this table is computed on four different prepayment assumptions.

It would generally be expected that conventionals would carry higher yields than FHAs because the latter are virtually free of default risk. The risk on conventional loans made by life insurance com-

[1] Yields in this chart are calculated on a uniform prepayment assumption of ten years. Data on secondary market yields are in Appendix Table 9-4.

CHART 4-1
YIELD DIFFERENTIAL BETWEEN CONVENTIONAL AND FHA LOANS, 1949–67



panies, however, is quite small since these loans typically carry down payments of 25 per cent or more. (Largely for this reason conventional loans by life insurance companies typically are in the lower range of yields on conventional loans generally.) For some lenders the modest risk advantage of FHAs is more than counterbalanced by other disadvantages. FHA loans have somewhat higher origination costs because of the need to comply with the insuring agency's reporting and other requirements. Higher delinquency ratios on FHAs raise servicing costs while higher foreclosure ratios are also viewed unfavorably. While financial loss on foreclosed FHAs is quite small, most life insurance companies prefer to avoid foreclosure for public relations and other reasons. In addition, conventional loans may carry prepayment penalties that are attractive to lenders, while borrowers can often be offered faster processing, and the ½ per cent insurance premium is avoided. The evidence indicates that conventionals have usually yielded more, but with some notable exceptions.

There are some suggestions in Chart 4-1 and Table 4-1 of a secular decline in the yield differential over the period 1952–59.[2] Yields declined erratically but persistently over this period. A secular decline might be expected from the favorable repayment experience on conventional mortgages, which would have reduced their risk premiums relative to federally underwritten mortgages.[3]

The yield differential rose during 1950–52, but for very special reasons. With FHA 4.50 per cent mortgages carrying premiums, the maximum contract rate on these mortgages was reduced to 4.25 per cent in April 1950. Since premiums on high-contract-rate mortgages are never large enough to reduce yields to the level of lower-contract-rate mortgages (for reasons discussed in the next section), the reduction in contract rate also reduced FHA yields and raised the yield differential. The rise in yield differential during this period can be discounted, therefore, as essentially reflecting an administrative action by the FHA. This strengthens the case for a secular decline.

The data do not reveal any tendency for the yield differential between FHA and conventional mortgages to change systematically over the cycle. Thus, the average differential at the four peaks and three troughs covered by the authorization data is about the same, as shown on page 68.

[2] A small part of the decline in yield differential shown in Chart 4-1 may be due to the fixed prepayment assumption used to calculate yield. See page 154.

[3] An alternative hypothesis is that the liberalization of terms on conventional mortgages during this period kept pace with the increasingly sanguine views of lenders, so that no reduction in risk premiums occurred.

TABLE 4-1

Gross Yields on FHA and Conventional Mortgages
at Specific Cycle Peaks and Troughs

	Peaks				
FHA Conventional	Jan. 1950[a] Dec. 1949[a]	Dec. 1953 Jan. 1954	March 1958 Feb. 1958	March 1960 July 1960	Dec. 1966 Nov. 1966
FHA					
Contract rate	4.50	4.49	5.25	5.75	6.00
Discount (points)	-1.57	1.38	2.47	3.52	6.80
Effective yield – 8 years	4.25	4.73	5.67	6.35	7.17
10 years	4.28	4.70	5.61	6.26	7.01
half maturity	4.28	4.69	5.57	6.17	6.80
maturity	4.33	4.65	5.51	6.10	6.67
Conventional					
Contract rate	4.60	5.02	5.75	6.12	6.55
Discount (points)	-1.27	-.96	-.37	-.13	b
Effective yield – 8 years	4.38	4.85	5.68	6.10	6.55
10 years	4.41	4.87	5.69	6.11	6.55
half maturity	4.40	4.87	5.69	6.11	6.55
maturity	4.44	4.90	5.70	6.11	6.55
Conventional less FHA					
Effective yield – 8 years	.13	.12	.01	-.25	-.62
10 years	.13	.17	.08	-.15	-.46
half maturity	.12	.18	.12	-.06	-.25
maturity	.11	.25	.19	.01	-.12

	Troughs			
	Jan. 1951 Feb. 1951	Feb. 1955 Nov. 1954	Sept. 1958 Oct. 1958	Aug. 1965 Sept. 1965
FHA				
Contract rate	4.27	4.50	5.25	5.25
Discount (points)	-1.21	.61	1.45	1.40
Effective yield – 8 years	4.07	4.60	5.51	5.48
10 years	4.10	4.59	5.47	5.45
half maturity	4.11	4.58	5.44	5.41
maturity	4.14	4.56	5.40	5.38
Conventional				
Contract rate	4.48	4.82	5.44	5.50
Discount (points)	-1.20	-.83	-.33	b
Effective yield – 8 years	4.27	4.68	5.39	5.50
10 years	4.29	4.70	5.40	5.50
half maturity	4.28	4.70	5.40	5.50
maturity	4.32	4.74	5.41	5.50
Conventional less FHA				
Effective yield – 8 years	.20	.08	-.12	.02
10 years	.19	.11	-.07	.05
half maturity	.17	.12	-.04	.09
maturity	.18	.18	.01	.12

Note: Data for 1951 – 60 are based on NBER authorization series. Since yields are taken from the *Mortgage Yield Table for Monthly Payment Mortgages* (Boston, 1962) rather than from our own program, the yields at ten years may differ slightly from those shown in Tables C-1 and C-2. Data covering the 1966 peak and 1965 trough are based on the FHA secondary market series and the Federal Home Loan Bank Board conventional loan series (Appendix Tables 3-2 and 9-4).

[a]Data cover one company.

[b]Assumed equal to zero to maintain comparability.

Prepayment	Peak	Trough
8 years	.00%	.05%
10 years	.06	.08
Half maturity	.09	.08
Maturity	.14	.12

However, Chart 4-1 shows that during two periods of extreme credit stringency—in late 1959–60 and in 1966—the yield differential fell sharply to a point where FHAs were yielding appreciably more than conventionals. What could account for this apparent aberration?

The most obvious possibility is a statistical accident arising from lack of statistical comparability between FHA and conventional series. The most convincing evidence against this is that the phenomenon appears in data covering individual lenders, both in 1959 and 1966. It also appears in data covering individual regions and states.

The conventional loans acquired during a period of market tightness are of somewhat higher over-all quality than those acquired in more normal periods, since lenders limit themselves to the best risks. This might cause a *decline* in the yield differential but would not explain why FHAs come to yield more.[4]

A third possibility, suggested by market practitioners, is that usury laws in some states constrained the rise in yields on conventional loans more than on FHA loans. Discounting on FHAs had become an accepted practice by 1959, but on conventionals, charges exceeding customary levels encounter borrower resistance and various kinds of institutional frictions.[5]

If this explanation was correct, we would expect to find rates on conventional mortgages rising more slowly and the margin between FHA and conventional rates increasing most sharply in states with relatively low usury ceilings. In states with high or no ceilings, in contrast, conventional rates should rise enough to maintain a margin over FHAs. Data available on a state basis for the 1959–60 period of market stringency do not support this explanation. Table 4-2

[4] The decline would be small in any case, since life insurance companies change their risk standards on conventional mortgages very little in the short run.

[5] Many lenders are reluctant to charge discounts on conventional mortgages because of adverse public relations arising from complaints by borrowers that they had been forced to pay a usurious charge in disguise. Under the FHA program, only sellers are allowed by law to pay discounts. Even though this requirement is frequently violated by adjusting transactions prices, FHA approval provides the lender with a prima facie valid defense against the charge that the borrower paid the discount.

TABLE 4-2

Yields on FHA and Conventional Home Mortgages in Selected States, 1958 and 1960

State	First Quarter, 1958						First Quarter, 1960					
	FHA		Conventional				FHA		Conventional			
	Yield	No. of Loans	Yield	Contract Rate	No. of Loans	Conv. less FHA (yield)	Yield	No. of Loans	Yield	Contract Rate	No. of Loans	Conv. less FHA (yield)
6 Per Cent Usury Law												
New York	5.39	10	5.58	5.64	48	.19	5.75	1	5.87	5.88	44	.12
New Jersey	5.44	61	5.59	5.61	29	.15	6.04	10	5.94	5.94	43	-.10
Pennsylvania	5.44	69	5.48	5.57	43	.04	6.06	24	5.96	5.95	50	-.10
10 Per Cent Usury Law												
California	5.65	55	5.70	5.83	245	.05	6.27	132	6.05	6.15	178	-.22
Florida	5.65	45	5.76	5.78	26	.11	6.29	27	6.07	6.07	37	-.22
Texas	5.69	71	5.82	5.83	71	.13	6.34	72	6.15	6.15	119	-.19

Source: National Bureau of Economic Research series.

shows that in the two-year period ending in the first quarter of 1960, rates on conventional loans did not increase any more in three states with a 10 per cent usury ceiling than in three states with a 6 per cent ceiling. FHA yields came to exceed conventional yields in both groups of states, and, in fact, the margin was wider in states with high usury ceilings.

Many individual lenders must have an institutional preference for conventionals over FHAs at the same rate. Otherwise, barring differences in the timing of transactions or other statistical quirks, conventionals could *never* yield less. Discussions with lenders indicate that some do indeed prefer conventionals. Such lenders may feel that the disadvantages of FHA loans more than offset the value of insurance, particularly on conservative loans where risk is small. As noted earlier, both origination and servicing costs are somewhat higher on FHA loans while some lenders are also influenced by the higher rate of foreclosures on FHAs. Even though the FHA reimburses them, foreclosures involve a public relations cost which they prefer to avoid. In addition borrowers can be offered faster processing on conventional loans and the ½ per cent insurance premium is avoided. Also, lenders place some value on the prepayment restrictions that can be written into conventional loans. Under "normal" market conditions, the impact of lenders with an institutional preference for FHAs more than offsets that of lenders with a preference for conventionals, so that conventionals yield more. Lenders who prefer FHAs, however, tend to maintain more diversified portfolios and are sensitive to rate differentials between mortgages and bonds. Under conditions of extreme market stringency, these lenders tend to shift out of FHA mortgages. The mortgages must then be absorbed largely by lenders who prefer conventionals and will accept FHAs only at premium rates. Unfortunately, there is no way at present to test this hypothesis.

Relationship Between FHA and VA Yields: The Influence of Contract Rate

The relationship between FHA and VA yields is affected by factors bearing on their relative loan quality, and by their contract rates. Klaman noted a tendency for VA yields to be higher (prices to be

TABLE 4-3

Discounts on FHA as Compared to VA Mortgages During Periods of Equal Maximum Contract Rate

Period	National Bureau Series: Average Contract Rate		National Bureau Series: Average Discount			FNMA Series Average Discount		
	FHA	VA	FHA	VA	VA less FHA	FHA	VA	VA less FHA
June-Dec. 1953	4.49	4.49	.8	1.5	.7	2.2	2.6	.4
1954	4.49	4.48	.9	1.5	.6	1.1	1.5	.4
1955	4.48	4.48	1.0	1.7	.7	1.2	1.8	.6
Jan.-Nov. 1956	4.48	4.49	1.7	2.2	.5	2.2	2.8	.6
1962	5.26	5.25	3.1	3.4	.3	3.2	3.3	.1
1963	5.25	5.25	1.9	2.0	.1	2.1	2.1	.0
1964						1.8	1.9	.1
1965						1.9	1.9	.0
1966						6.1	6.1	.0

Note: FNMA quotations apply to 4½ per cent mortgages during 1953 – 56, 5¼ per cent mortgages during 1962 – 65, and 5¼ to 6 per cent mortgages during 1966 (current rate used in all cases).

lower) during 1953–56 when their maximum contract rates were the same.[6] He noted that

> . . . in general, contract terms—maturities, down payments, and loan-to-value ratios—have been more liberal for VA loans than for FHA loans. Lenders generally have regarded VA property appraisals also as tending to be more liberal than those made by FHA. The fact that the VA guarantee is for 60 per cent of a loan (not to exceed $7,500) and FHA insurance for 100 per cent of a loan may also have influenced investors' judgments about the quality of these mortgages.[7]

Our new data confirm that VA prices were lower (discounts were larger) during the 1953–56 period of contract rate equality (Table 4-3).[8] Such comparisons are not possible during the next five years

[6] Klaman's comparisons were based on secondary market price quotations reported by the Federal National Mortgage Association, described above.

[7] Klaman, *The Postwar Residential Mortgage Market*, pp. 90, 91.

[8] Prices are used in these comparisons because differences in maturities and expected life as between FHA and VA mortgages over the period covered were too small to have any significant effect on yield differences.

because FHA and VA contract rates differed most of the time, but during 1962–66, contract rates were again the same. In this later period, the price differential was negligible. This may reflect the fact that FHA terms became more liberal during the intervening period relative to VA terms. By 1964, average down payments were only a few percentage points lower on FHA than on VA mortgages, and FHA maturities were several years longer. It is possible also that lenders became less concerned with terms during this period.

At various times, FHA mortgages have carried a higher contract rate than VAs, and this has affected their relative yield. In part, this is due to the uncertain yield realized on a mortgage that is not priced at par; the yield depends not only on the contract rate and the size of the premium or discount but also on the life of the mortgage, which is not known in advance. Most mortgages are prepaid in full well before maturity. The more a mortgage deviates from par, the more important is variability in life as a determinant of realized yield.[9] Lender reaction to this uncertainty will affect relative yields.

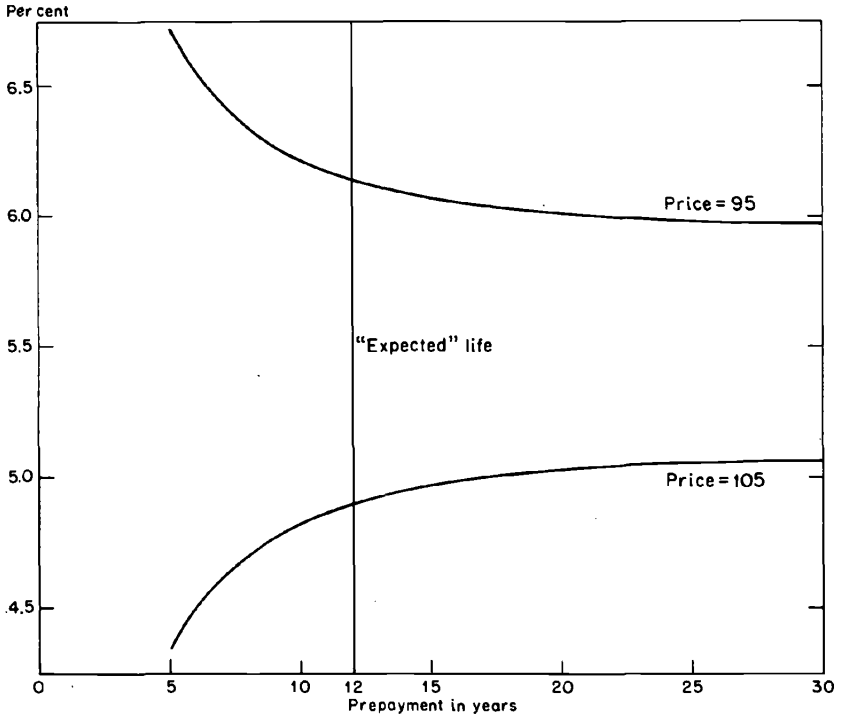
It is quite possible that lenders will react differently to yield uncertainty when mortgages sell at premiums than when they sell at discounts from par. When mortgages sell at discounts, yield is a decreasing function of life, and the lowest possible yield, which is realized if the mortgage runs to maturity, is not much lower than the yield at some intermediate "expected" life based on past experience or reasonable expectations. The maximum yield in this case approaches infinity as life approaches zero. This is illustrated by the top line in Figure 4-1. When mortgages carry premiums, on the other hand, yield is an increasing function of life, as illustrated by the lower line on Figure 4-1; the lowest possible yield approaches minus infinity as life approaches zero. The maximum yield, which is realized if the mortgage goes to maturity, is not much higher than the expected yield.

The consequence of miscalculating mortgage life is thus quite different when mortgages sell at premiums than when they sell at discounts. When mortgages carry premiums, an error in the wrong direction can be very serious, since yield can be zero or negative. If the market is heavily influenced by conservative lenders, concerned with the "worst that can happen," the premium paid on high-contract-rate mortgages may not be large enough to equalize yield with low-contract-rate mortgages.

[9] See Jack M. Guttentag, "Mortgage Interest Rates: Trends and Structure," p. 128.

FIGURE 4-1

YIELD ON A 5½ PER CENT THIRTY-YEAR MORTGAGE PRICED AT 95 AND 105



When mortgages carry discounts, in contrast, no serious consequences arise from a mistake in estimating mortgage life. Other factors, however, including public relations aspects of accepting discounts from borrowers, may influence the yield.[10]

The evidence examined here can be divided broadly into two phases, in which, for periods of varying length, the FHA contract rate was

[10] Tax treatment of discounts and premiums does not affect the relative yield of mortgages carrying different contract rates. For tax purposes, discounts and premiums are considered income rather than capital gains. Typically, the discounts and premiums of the current year are spread out over a period equal to the estimated life. If the correct estimated life is used to calculate yield and to amortize discounts and premiums, mortgages with different contract rates carrying the same before-tax yield will also have the same after-tax yield. If the estimate of life for tax purposes is, for example, too short, tax payments will be accelerated but the impact on after-tax yields would be negligible.

higher than the VA rate. These periods are prior to mid-1952, when FHAs and VAs carried premiums, and 1957–61, when they carried discounts.

The Case of Premiums

The data[11] confirm the supposition advanced above that lenders are reluctant to pay a premium on a high-contract-rate mortgage large enough to equalize its yield with a lower-contract-rate mortgage. Prior to April 1950, FHA Section 203 mortgages carried a maximum rate of 4.50 per cent, while the VA rate was 4 per cent. One large life insurance company paid an average premium of 0.8 per cent for VAs during this period and 1.6 per cent for FHAs, producing a yield spread of .37 per cent in favor of the high-rate FHAs (Table 4-4). To put the matter somewhat differently, if prepayment occurred in ten years, which is the assumption used in the yield calculation, FHAs would have required a premium of about 4.0 points to equalize their yield with that on VAs.[12] The FHA rate was only .14 per cent below the conventional rate in this period.

In April 1950, the FHA rate was reduced to 4.25 per cent, and the yield on FHAs immediately fell relative to VAs and conventionals. Chart 4-1 shows a sharp rise in the yield differential of conventionals over FHAs following the rate reduction on FHAs. In the sixteen months ending April 1952, the FHA yield for life insurance companies was .08 per cent lower than in the prior period, while the yields on 4 per cent VAs and on conventionals were higher by .15 per cent and .07 per cent, respectively (see Table 4-4). This shift in the spread can be attributed largely to the decline in the FHA rate. Nevertheless, the 4.25 per cent FHAs continued to yield more than 4 per cent VAs.[13]

It may be asked why, if mortgages carry premiums, the contract rate is not bid down by competition? The rate set by law or regulation on FHAs and VAs is, after all, a maximum rate and not a minimum. Any extended discussion of this would go well beyond the scope of this paper, but clearly the explanation is rooted in the imperfect char-

[11] Publishable data prior to 1951 are limited to one large company. Fragmentary data from other sources, however, confirm the relationship shown in the table.

[12] A shorter prepayment period would tend to reduce the yield disparity. Equal yields, however, imply prepayment in less than two years.

[13] After an adjustment for "quality," the spread would have been wider. It will be recalled that in 1953–56, when contract rates were the same, VAs yielded more.

TABLE 4-4

Premiums and Yields on Mortgages
Authorized By Life Insurance Companies,
January 1949-April 1950 and January 1951-April 1952

	January 1949-April 1950[a]			January 1951-April 1952		
	Contract Rate	Premium	Effective Yield	Contract Rate	Premium	Effective Yield
FHA	4.49	1.6	4.26	4.26	.5	4.18
VA	4.00	.8	3.89	4.00	-.3	4.04
Conventional	4.58	1.3	4.40	4.63	1.1	4.47

[a]Data limited to one company.
Source: National Bureau of Economic Research survey.

acter of the residential mortgage market at the primary (origination) level. Among the relevant factors would be the following.

1. Most mortgage borrowers are ignorant of the market and unwilling or unable to shop.[14]

2. An apparent sanction is provided the maximum rate by the federal agencies; borrowers are encouraged to believe that the Government has set *the* rate, rather than merely the maximum rate.

3. Mortgage lenders tend to view rate-cutting as an "unethical practice." One large lender who did cut rates below the maximum in the period when FHAs carried large premiums was taken severely to task by other lenders.[15] Mortgage lenders tended to view the maximum allowable rate much as personal finance companies view the legal rate ceiling on small loans, namely, as a customary rate that is in the best interest of all lenders to observe.

4. Builders are unwilling to bargain for a lower contract rate; the builder could usually command part of the premium from the high-rate mortgage. This might or might not be reflected in lower house prices.

It would seem from the above analysis that from the standpoint of borrower interest, contract rates on FHA and VA mortgages should never be a high enough for these mortgages to command premiums. As a matter of fact, they have not commanded premiums since 1953.

The Case of Discounts

Beginning in 1957, following the 1953–56 period of contract-rate equality between FHA and VA mortgages, rate differences arose again. For this and later periods, price data on FHAs and VAs are available from FNMA as well as from the new NBER survey. The NBER data cover loans authorized by large life insurance companies, while the former are largely based on over-the-counter sales by mortgage companies, mainly to life insurance companies and mutual savings banks. The two sources show only modest price differences on FHA mortgages, but very substantial differences on VAs. Thus, during February–July 1957, NBER series show VAs carrying a discount of three points, while the FNMA series show VAs carrying a discount

[14] For some evidence on this, see Housing and Home Finance Agency, "Residential Mortgage Financing, Jacksonville, Florida, First Six Months of 1950," *Housing Research Paper No. 23*, Washington, D.C., 5 December 1952, pp. 30–33.

[15] See H. A. Schaaf, "Federal Interest Rate Policy on Insured and Guaranteed Mortgages," unpublished Ph.D. dissertation, University of California, Berkeley, 1955, p. 135.

TABLE 4-5

Discounts on FHA and VA Mortgages as Reported in NBER and FNMA Series, Selected Periods (percentage points)

	NBER		FNMA		FNMA less NBER	
	FHA	VA	FHA	VA	FHA	VA
Feb. 1957-July 1957	2.4	3.0	2.9	7.0	.5	4.0
Oct. 1957-March 1958	2.3	3.2	2.6	9.2	.3	6.0
Sept. 1958-June 1959	2.5	4.9	3.1	7.2	.6	2.3
Dec. 1959-Jan. 1960	3.4	5.3	3.8	7.9	.4	2.6
Dec. 1960-Jan. 1961	2.9	4.6	2.4	6.6	-.5	2.0
April 1961-Aug. 1961	2.6	4.5	2.2	4.3	-.4	-.2

Source: National Bureau of Economic Research, Federal National Mortgage Association.

of seven points (Table 4-5). As a result, for the large life insurance companies, the higher-contract-rate FHAs yielded more, while for the lenders covered by the FNMA data, the lower-contract-rate VAs yielded more (Table 4-6). The yield difference was largest during the period October 1957–March 1958, when the contract rate difference between FHAs and VAs was largest (.75 per cent). During this period, FHAs authorized by the life insurance companies yielded .62 per cent *more* than VAs, while on loans sold by mortgage companies FHAs yielded .23 per cent *less* than VAs.

When VA mortgages carried lower contract rates than FHAs, the large life insurance companies reduced their VA volume but took a limited number at relatively small discounts. This action reflected a widespread view, in Congress and elsewhere, that large discounts on VA mortgages were unethical. Klaman noted that "large financial intermediaries, in their widely acknowledged role as public trustees, have been less willing to risk public censure than to ignore the facts of market forces."[16] The result of this policy was, in effect, to create two markets for VA mortgages: a rationed low-discount market by large life insurance companies (and perhaps other lenders with similar compunctions), and a "free" market where discounts rose to the level necessary to clear the market. It is ironical that the public pressures on large institutions to limit discounts on VA mortgages, by causing them

[16] Klaman, p. 89.

TABLE 4-6

Gross Yield on FHA and VA Mortgages as Reported in NBER and FNMA Series, Selected Periods
(per cent)

Period	Maximum Contract Rate			Gross Yield					
				NBER[a]			FNMA[b]		
	FHA	VA	FHA less VA	FHA	VA	FHA less VA	FHA	VA	FHA less VA
Feb. 1957-July 1957	5.00	4.50	.50	5.33	4.93	.40	5.43	5.52	-.09
Oct. 1957-March 1958	5.25	4.50	.75	5.58	4.96	.62	5.63	5.86	-.23
Sept. 1958-June 1959	5.25	4.75	.50	5.60	5.44	.16	5.69	5.79	-.10
Dec. 1959-Jan. 1960	5.75	5.25	.50	6.19	6.01	.18	6.31	6.40	-.09
Dec. 1960-Jan. 1961	5.75	5.25	.50	6.15	5.91	.24	6.09	6.21	-.12
April 1961-Aug. 1961	5.50	5.25	.25	5.88	5.89	-.01	5.82	5.86	-.04

[a]Yields are calculated from *Mortgage Yield Table for Monthly Payment Mortgages* and may differ slightly from those shown in Table C-2.

[b]Assumes prepayment in ten years and maturity equal to the average on all FHA and VA home loans on new properties during the period indicated.

Source: National Bureau of Economic Research, Federal National Mortgage Association.

to sharply reduce their VA volume, had the effect of increasing pressure on VA discounts in the "free" market.

There are indications that life insurance company attitudes toward discounting underwent a considerable change during 1958–59, in the sense that they began to accept the discounts required to bring VA yields into an appropriate relation to FHA yields. Comparing the October 1957–March 1958 and the September 1958–June 1959 periods, VA discounts rose by 1.7 points in the NBER series and declined by 2.0 points in the FNMA series (Table 4-5). Perhaps even more dramatic was the shift in the FHA-VA yield relationship in the NBER series (Table 4-6). Yields on VA mortgages rose by .48 per cent as VA discounts rose appreciably despite a rise in contract rate (4.50 to 4.75 per cent). Yields on FHA mortgages rose by only .02 per cent, as discounts on FHA mortgages of constant contract rate increased only slightly.

Evidently, by 1961, the market had learned to live with discounts. During April–August 1961, price quotations on VA loans were about the same in the FNMA and NBER series, and differences between FHA and VA yields were small. However, the contract-rate difference between FHAs and VAs was only .25 per cent during this period; it is not clear how the market would have reacted to a .75 per cent difference. Since 1961, contract rates have been the same.

There is, however, additional evidence of a change in lenders' attitudes toward discounting during 1959. The evidence consists of FNMA price quotations, following a change in the FHA or VA maximum contract rate, on old mortgages carrying the old rate. After the contract rate is changed, new commitments are at the new rate, but there will also be some overhang of uncommitted mortgages carrying the old rate for which mortgage companies or other originators must find buyers. FNMA continues to report prices on mortgages carrying the old rate for as long as there is any significant activity in them. During such periods of dual coverage, yield comparisons are possible between old and new mortgages carrying different contract rates (Table 4-7).

These observations reveal a sharp decline during 1959 in the yield on a low-contract-rate mortgage relative to the yield on a high-contract-rate mortgage, indicating a greater willingness to accept discounts as an offset to a lower contract rate. While the yield differentials are sensitive

TABLE 4-7

Prices and Yields on Current and "Old" FHA and VA Home Mortgages, Selected Periods

Period	Mortgage (per cent)	Estimated Average Maturity	Average Price over Period	Average Yield Prepayment in		Yield Differential Prepayment in	
				10 Years	Half Maturity	10 Years	Half Maturity
May 1953-Jan. 1955	FHA 4¼		96.2	4.80	4.76		
(18 observations)[a]	FHA 4½	23	98.6	4.70	4.68	.10	.08
	VA 4		94.4	4.81	4.70		
	VA 4½	25	98.3	4.74	4.72	.07	-.02
Dec. 1956-June 1957	FHA 4½		93.4	5.47	5.35		
(7 observations)	FHA 5	25	97.3	5.39	5.34	.08	.01
Aug. 1957-Dec. 1958	FHA 5		95.5	5.65	5.54		
(17 observations)	FHA 5¼	27	97.7	5.58	5.52	.07	.02
April-Dec. 1958	VA 4½		92.1	5.64	5.43		
(9 observations)	VA 4¾	28	94.3	5.57	5.41	.07	.02
July-Sept. 1959	VA 4¾		91.5	5.98	5.73		
(3 observations)	VA 5¼	29	94.8	6.00	5.85	-.02	-.12

Oct. 1959-March 1960	FHA 5¼		93.0	6.27	6.07		
(6 observations)	FHA 5¾	29	96.2	6.30	6.19	-.03	-.12
Feb.-May 1961	FHA 5½		97.2	5.90	5.82		
(4 observations)	FHA 5¾	30	98.6	5.95	5.91	-.05	-.09
June 1961-Feb. 1962	FHA 5¼		96.3	5.78	5.67		
(9 observations)	FHA 5½		97.8	5.81	5.75	-.03	-.08
	FHA 5¾	30	99.4	5.83	5.82	-.05	-.15
March-April 1966	FHA 5¼		92.6	6.33	6.10		
(2 observations)	FHA 5½	30	94.5	6.30	6.13	.03	-.02
May-June 1966	FHA 5½		92.6	6.59	6.36		
(2 observations)	FHA 5¾	30	94.6	6.54	6.38	.05	-.02

Note: The high contract rate mortgage indicates the current maximum rate during each period. Maturities are for all FHA or VA loans on new homes during the period indicated.

[a]No observations for July, September or October 1953.

Source: Federal National Mortgage Association.

to the maturity and assumed prepayment, the break in 1959 is clearly evident on any reasonable assumptions.[17]

Relationship Between Direct, Correspondent and Secondary Market Yields: The Influence of Market Organization

In Chapter 3, it was suggested that differences in the cyclical sensitivity of mortgage and bond yields might be explained in terms of differences in the organization of the bond and mortgage markets. Here we consider whether cyclical sensitivity is related to differences in substructures within the mortgage market. We compare direct with correspondent loans and authorization series with secondary market series.

Direct versus Correspondents Loans

Yields on correspondent loans show a tendency to lag yields on direct loans as shown in Table 4-8.

Chart 4-2 shows that the direct loan series also contains two short intracyclical movements (during the second half of 1952 and the first half of 1957) that follow similar movements in government bond yields but which do not appear in the correspondent series. Correspondent lending is thus evidently less sensitive; what is the reason?

As noted in Chapter 6, the transfer of a mortgage between life insurance company and correspondent is a market transaction rather than a transfer between agent and principal. Nevertheless, the parties to the transactions may have a more or less permanent relationship. The mortgages purchased by the company will be serviced by the correspondent, and, also, the parties to the transaction contemplate additional transactions in the future. It is not surprising that this continuing relationship exercises a moderating influence on yield.

1. The life insurance company generally sets a rate at which it will purchase loans from its correspondents. Although this rate is theoretically subject to change without notice, frequent changes may be disruptive to those correspondents who find it necessary to extend their own commitments before obtaining the life insurance company's commitment. As a result, the companies do not change their buying rate

[17] The partial reversal in 1966 probably reflects the marked slowdown in mortgage repayments in that year, which could have caused lenders to assume a longer prepayment period.

TABLE 4-8

Lead of Direct Over Correspondent Loans
(number of months)

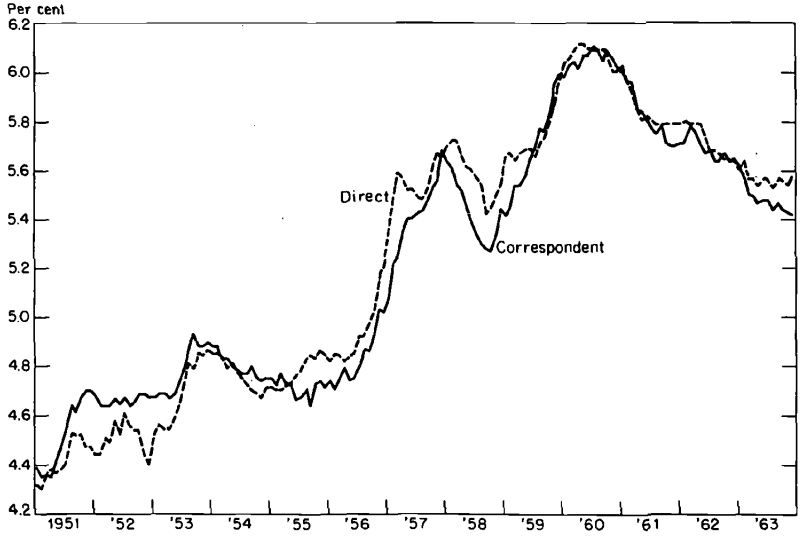
	FHA	Conventional
Peaks		
1953-54	4	2
1957-58	2	-3
1960	6	2
Troughs		
1953	4	4
1954-55	2	7
1958	-1	1

with every wiggle in the capital markets. By keeping their buying rate more stable than the general market around them, they tend to moderate some of the yield changes on correspondent loans.

2. When the life insurance company raises its buying rate and the correspondent is heavily committed at the old rate the company may

CHART 4-2

GROSS YIELD ON CONVENTIONAL LOANS, 1951–63: DIRECT VERSUS CORRESPONDENT SERIES



or may not, as an accommodation, extend its own commitment at the same terms as the correspondent's commitment, depending on the nature of the company-correspondent relationship. The company may limit this privilege to certain correspondents, perhaps to "good producers" operating under allotments. (When the buying rate declines between the time a correspondent extends its own commitment and the time it obtains a commitment from the company, the correspondent might pass the higher yield along, but this probably happens less often.) A tendency to "bail out" overextended correspondents also exercises a moderating influence on yield changes.

3. The company may grant a correspondent "precommitment authority," in which the terms in the company's commitment will as a matter of course hark back to the correspondents' commitment (see the discussion in Chapter 6).

A company-by-company analysis suggests that the influence on transactions between company and correspondent of the factors discussed above varies with the size of the company's correspondent loan operation. The larger the volume, the more likely that the company will provide the sole or major outlet for a given correspondent and the greater the pressure on the company to assure continuity in the correspondent's operation. This concern may be reflected in any of the factors discussed above: a relatively stable buying rate, "bail-out" operations following a rate increase, or delegation of precommitment authority, all of which tend to generate sluggish yield series. Precommitment authority is, indeed, a formalized expression of the company's obligation, and it tends to make "bail-out" operations and stable buying rates unnecessary. Thus, it was found that yield series of one company, which adopted the policy of granting correspondents precommitment authority at a point during the period covered by our study, were no more sluggish after this than before. The new policy merely formalized a behavioral pattern that had existed earlier (and which had generated sluggish yield series earlier) on an ad hoc basis.

The moderating influence of the correspondent relationship on rates may be compared with that of the so-called "customer relationship" between a commercial bank and a business customer who is both depositor and borrower.[18] In both cases, transactions are multidimensional, there is a continuing relationship over time, and the relationship

[18] See Hodgman, *Commercial Bank Loan and Investment Policy,* Chapters X and XI.

may cause the lender at times to extend credit at rates below what he would expect other customers to pay.

Secondary Market versus Authorization Series

The FHA secondary market series[19] shows a clear tendency to lead the combined authorization and correspondent loan series at turning points (see Table 4-9).[20] The evidence on direct loan series at turning points is not so clear. Although the secondary market series leads at four of the six turning points, it lags at the other two by substantial periods. Nevertheless, by the alternative sensitivity measure (yield changes at specified periods after turning points in long-term governments), the secondary market series ranks first, the direct loan series ranks second, and the correspondent loan series ranks third at four of five turning points (Table 4-10).

The somewhat greater sensitivity of the secondary market series appears not to be due to residual recording lag in the direct loan series (see Chapter 7). Presumably, therefore, it is due to differences in market organization. The secondary market series reflects the activities of lenders who are not as committed as life insurance companies to maintaining continuity in the supply of funds, who have no direct contact with builders or mortgagors, and who cull the market for the best available deal on any given day. For these reasons, it is likely that the secondary market series will be more sensitive both to small shifts in the market equilibrium rate and to factors generating temporary disequilibrium, such as an unforeseen glut that can be moved only at bargain prices.

Changes in Loan-Value Ratios and Maturities

Although there has been a great deal of theorizing about short-run changes in nonrate credit terms, which are associated in the literature

[19] The secondary market series is based on price quotations compiled by the Federal Housing Administration, as noted in Chapter 1. Technical differences between the secondary market series and the authorization series, beyond the differences in market organization at issue here, are discussed in Chapter 9. These differences probably do not affect the relative cyclical behavior of the series.

[20] The early-1951 trough, which is used in Table 4-1 and elsewhere in this study, cannot be employed with confidence here because the turning point in the direct and correspondent loan series may have occurred before January 1951, when the series began. In its stead we use a secondary trough in early 1953.

TABLE 4-9

Turning Points in Effective Yield on FHA Home Mortgages;
Secondary Market and Authorization Series, 1951-63

Peak or Trough	Secondary Market	Authorization			Secondary Market Lead Over Authorization (months)		
		All	Direct	Correspondent	All	Direct	Correspondent
T	April 1953	April 1953	Dec. 1952	April 1953	0	-4	0
P	Oct. 1953	Dec. 1953	Nov. 1953	March 1954	2	1	5
T	March 1955	Feb. 1955	Oct. 1954	Dec. 1954	-1	-5	-3
P	Dec. 1957	March 1958	Feb. 1958	April 1958	3	2	4
T	Aug. 1958	Sept. 1958	Oct. 1958	Sept. 1958	1	2	1
P	Feb. 1960	March 1960	May 1960	Nov. 1960	1	3	9
	Average				1	0	3

TABLE 4-10

Changes in Yields on FHA Authorization Series Covering Direct and Correspondent Loans, and on FHA Secondary Market Series Following Turning Points in U.S. Government Bond Yields

Turning Points in Government Bond Yields	Number of Months After Turning Point	Authorization				Secondary Market	
		Correspondent		Direct			
		Yield Change	Sensitivity Rank	Yield Change	Sensitivity Rank	Yield Change	Sensitivity Rank
Troughs							
July 1954	+5	-6		+1		-1	
	+10	-8	(3)	+6	(1)	+3	(2)
	+15	+2		+18		+14	
April 1958	+5	-13		-19		-16	
	+10	+10	(2)	+3	(3)	+11	(1)
	+15	+19		+8		+22	
Peaks							
July 1953[a]	+4	+15		+15		+18	
	+8	+20	(3)	+9	(2)	+3	(1)
	+12	+11		+2		-10	
Nov. 1957[a]	+3	+2		+5		-4	
	+6	-2	(3)	-5	(2)	-22	(1)
	+9	-10		-16		-31	
Jan. 1960	+5	+4		+1		-2	
	+10	+4	(3)	-6	(2)	-15	(1)
	+15	-22		-27		-43	

[a]Because data are not available on secondary market series for June 1953 or October 1957, the month following the turning point in government bond yields was used.

with changes in credit rationing and "availability,"[21] little has been known about the actual behavior of terms over time because of the sparsity of data. Only for VA mortgages had there been monthly series over any extended period, and these loans comprised a progressively diminishing share of the total residential market.[22] Our new data provide insight into the behavior of loan-value ratios and maturities on all three types of mortgages, although for only one major lender group.

1. *Secular Change.* Loan-value ratios have risen and maturities have lengthened on both federally underwritten (particularly FHA) and conventional mortgages throughout the period since World War II. On federally underwritten loans, the main factor underlying the trend has been legislative liberalization of maximum allowable terms. On conventional loans, legal limits have been liberalized for some lenders and favorable repayment experience has encouraged them to use the new authority. Herzog and Earley have extensively documented this change and so it will not be examined in detail here.[23]

During 1951–63 the large life insurance companies in our series lengthened considerably the maturities on all three types of mortgages, and kept pace with the lengthening done by other lenders (see Table 4-11). In contrast, loan-value ratios on conventional loans by life insurance companies did not rise as much as they did on conventional loans by savings and loan associations. (This probably reflects the greater constraint of legal ceilings on life insurance companies; none of the four companies in our survey could go above 75 per cent, whereas after 1958, federally charted savings and loan associations could under certain conditions go as high as 90 per cent.) Loan-value ratios on VA loans by life insurance companies didn't rise much either, but these ratios were very high at the beginning of the period. Only on FHA loans did the rise in loan-value ratios for life insurance companies keep pace with the rise for other lenders.

2. *Cyclical Changes.* Cyclical changes in terms are affected by changes in supply and demand for mortgage credit and by changes in

[21] See Jack Guttentag, "Credit Availability, Interest Rates, and Monetary Policy," *Southern Economic Journal,* January 1960; and Richard F. Muth, "Interest Rates, Contract Terms, and the Allocation of Mortgage Funds," *The Journal of Finance,* March 1962.

[22] A series on VA downpayments is shown in Guttentag, "The Short Cycle in Residential Construction, 1946–59," p. 282; and in Leo Grebler, *Housing Issues in Economic Stabilization Policy,* pp. 118–120.

[23] John P. Herzog and James S. Earley, *Home Mortgage Delinquency and Foreclosure,* New York, NBER, 1970, pages 6–13.

TABLE 4-11

Average Maturities and Loan-Value Ratios in 1951 and 1963, Life Insurance Companies and All Lenders

	Maturity				Loan-Value Ratio			
			Increase				Increase	
	1951	1963	Years	Per Cent	1951	1963	Points	Per Cent
FHA								
Life insurance cos.	21.0	29.3	8.3	39.5	81.3	93.6	12.3	15.1
All lenders (new homes)	23.4	31.0	7.6	32.5	82.5	92.7	10.2	12.4
All lenders (existing homes)	21.1	27.9	6.8	32.2	73.6	92.5	18.9	25.7
VA								
Life insurance cos.	24.0	29.5	5.5	23.0	96.4	97.6	1.2	1.2
All lenders (primary, new homes)	24.0	29.3	5.3	22.1	89.6	97.6	8.0	8.9
All lenders (primary, existing homes)	18.2	27.3	9.1	50.0	80.7	95.8	15.1	18.7
Conventional								
Life insurance cos.	18.1	25.9	7.8	43.1	62.4	70.0	7.6	12.2
Savings and loan (new construction)	16.2	23.9	7.7	47.5	65.5	77.0	11.5	17.6
Savings and loan (home purchase)	13.6	20.2	6.6	48.5	63.6	75.6	12.0	18.9

Note: Figures are weighted averages except those applying to savings and loan associations, which are estimated medians. Data on life insurance companies are from the National Bureau of Economic Research survey. Other averages are from John P. Herzog and James S. Earley, *Home Mortgage Delinquency and Foreclosure*, New York, NBER, 1970, Tables 1 and 2.

legal lending limits imposed on institutional lenders, which were quite important in the 1951–63 period. The secular changes already referred to must be accounted for in any interpretation of cyclical changes.

Mainly we will focus on the relationship between changes in terms and changes in yields. Terms are usually believed to change in such a way as to reinforce the effect on demand of changes in rates, i.e., when yields fall, loan-value ratios rise, maturities lengthen, and so on. Two hypotheses have been advanced to support this expectation. One, the "credit-rationing" hypothesis, assumes that shifts in lenders' loan-offer functions involve changes in both rates and terms. When lenders have more money to lend, they will offer lower rates *and* higher loan-value ratios.[24] An alternative hypothesis focuses on changes in borrower mix at different interest rate levels. This hypothesis assumes that loan-offer functions change only with respect to rates. Changes in rates, however, change the composition of demand among borrowers with different preferences for using borrowed funds. Thus, if lenders have more funds to lend and reduce rates, borrowers with high loan-value and long maturity preferences are attracted into the market and average terms become more liberal.[25]

In general, the evidence covering life insurance companies during 1951–63 is consistent with the expectations arising from the two hypotheses.

1. On conventional loans, maturities rose during periods of rising yields as well as during periods of falling yields, but they rose at a much faster rate during periods of declining yields[26] (Chart 4-3 and

[24] See Guttentag, "Credit Availability, . . ."

[25] See Muth. Note that both hypotheses offer the possibility of terms moving to offset rather than reinforce changes in rates under certain conditions (where changes in demand are the principal dynamic factor in the market). Under the Guttentag version of the credit-rationing hypothesis, such an offsetting movement can occur if changes in demand are so large that they cause a pronounced shift in lender's risk functions—that is, in the risk premium associated with loans having given characteristics. Under the Muth hypothesis, an offsetting movement can occur if demand changes result from a shift in the marginal returns schedule of potential borrowers arising from any factor affecting the demand for owner-occupied housing. Guttentag, although not necessarily Muth, views the offsetting case as atypical.

[26] The liberalization of terms on conventional loans during the 1951–54 period of rising yields may have been affected by relaxation of credit controls under Regulation X. As shown on the chart, these relaxations occurred in September 1951, June 1952 (on loan-value ratios only), and September 1952 (when the

CHART 4-3
LOAN-VALUE RATIO AND MATURITY ON CONVENTIONAL LOANS, 1951–63
(THREE-MONTHS AVERAGE)

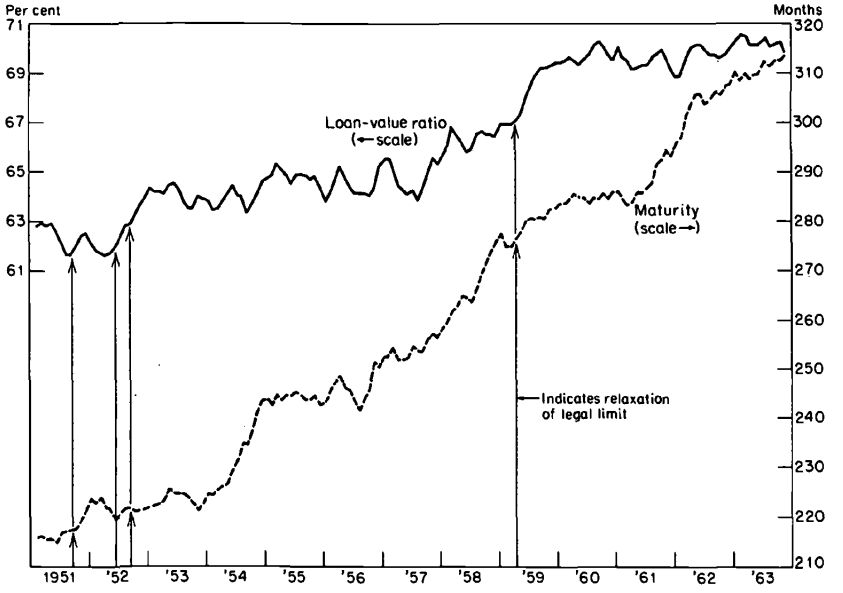


Table 3-2). A pronounced cyclical pattern appears after adjustment for trend, as shown in Chart 4-4. There is hardly any cyclical pattern at all in loan-value ratios, probably because of the dampening influence of low ceilings.[27]

In April 1959, the maximum loan-value ratio on conventional loans was raised from 66⅔ per cent to 75 per cent, and the maximum maturity was extended from twenty-five to thirty years for two of the companies in our survey. This was a period of rapidly rising yields and increasing tightness in the capital markets. The extension of ma-

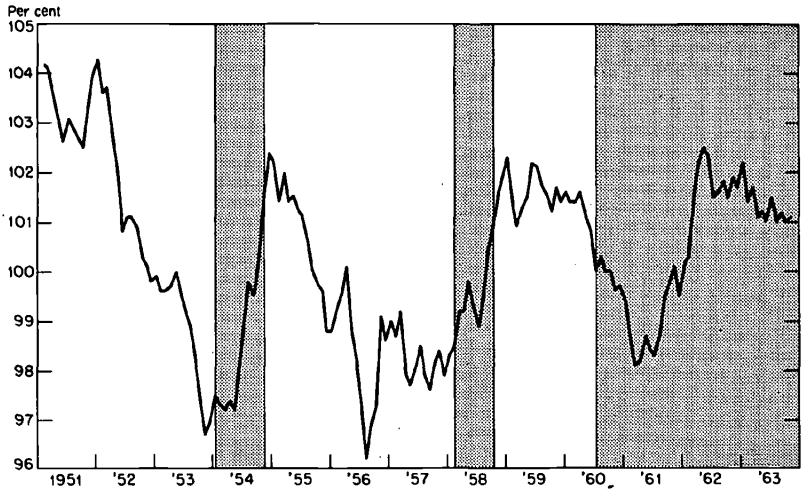
regulation was suspended). The effect probably was quite small, however, because most conventional loans made by life insurance companies prior to Regulation X fell within the limits of the regulation.

[27] Loan-value ratios may be subject to bias arising from discrepancies between appraised values and sales prices. If, e.g., lenders are "conservative" in raising appraised values during a period of rising construction and prices, loan-value ratios will rise less than loan-price ratios. It is not clear whether this factor is of any real importance.

CHART 4-4

MATURITY ON CONVENTIONAL LOANS AS PER CENT OF TREND, 1951–63

(THREE-MONTHS AVERAGE)



NOTE: Shaded areas are periods of declining yields.

turity had no noticeable effect since the existing twenty-five-year limit was within the range of maturities generally available in the market at the time. The loan-value ratio, however, immediately reflected the increase in the limit because the existing 66⅔ limit was well below the loan ratios available from savings and loan associations.

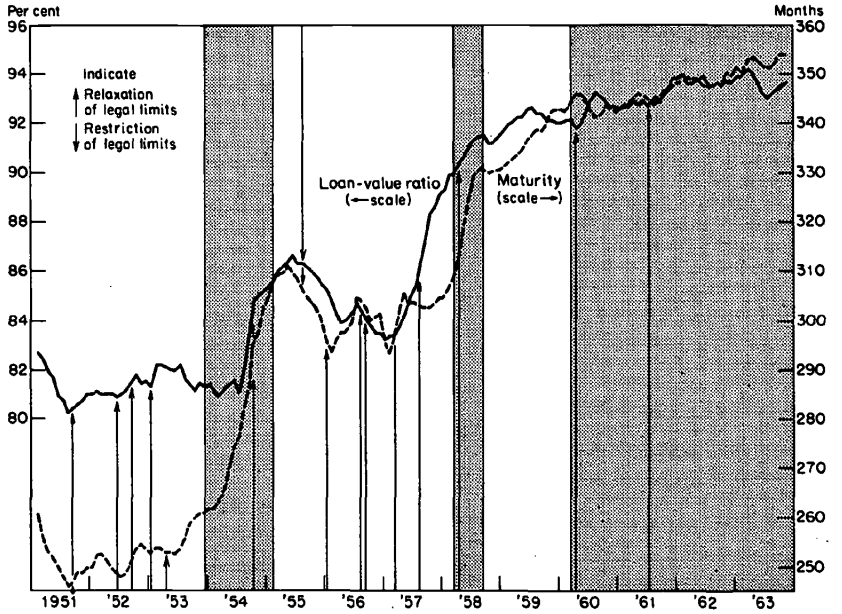
2. Maturities and loan-value ratios on FHA loans were strongly affected by the very frequent changes in legal maximum terms that occurred during the 1951–63 period. As indicated in Chart 4-5, hardly any cyclical phase does not include some such change. Little can be said, therefore, about the cyclical behavior of terms on FHA mortgages in response to market forces alone.

3. In contrast to FHA and conventional loans, terms on VA mortgages show a rough cyclical pattern: liberalization during periods of declining yields and restriction during periods of rising yields (Chart 4-6). Maximum allowable terms on VA loans were also revised, although not as frequently as on FHA loans, and the VA sample is thin during certain periods. Nevertheless, allowing for these influences does

CHART 4-5

LOAN-VALUE RATIO AND MATURITY ON FHA LOANS, 1951–63

(THREE-MONTHS AVERAGE)



NOTE: Shaded areas are periods of declining yields. In 1957, the relaxation of legal limits applies only to the loan-value ratio; in 1961, it applies to both loan-value ratio and maturity.

not change the conclusion. An important exception, however, is the 1960–63 period of yield decline when loan-value ratios declined and maturities were roughly level.

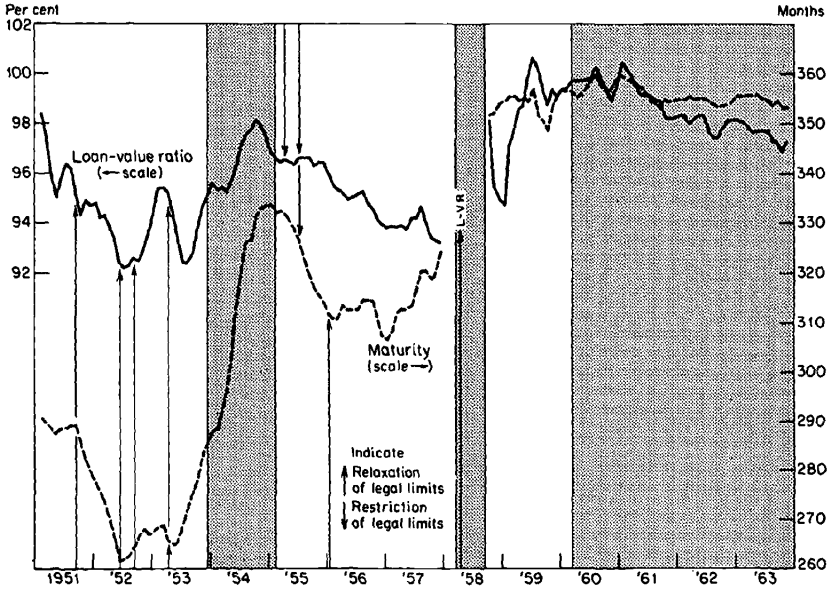
4. Chart 4-7 shows quite marked cyclical fluctuations in weighted average loan-value ratios and maturities on all mortgages; much of this variability was due to shifts in the mix. Table 4-12 shows actual cyclical changes in average loan-value ratios and maturities on all mortgages, and changes calculated on an assumption of constant composition.[28] The difference in peak-trough changes using actual and

[28] Each peak-trough change is calculated on the assumption that the composition at the trough is the same as at the peak, and each trough-peak change is calculated on the assumption that the composition at the peak is the same as at the trough.

CHART 4-6

LOAN-VALUE RATIO AND MATURITY ON VA LOANS, 1951–63

(THREE-MONTHS AVERAGE)



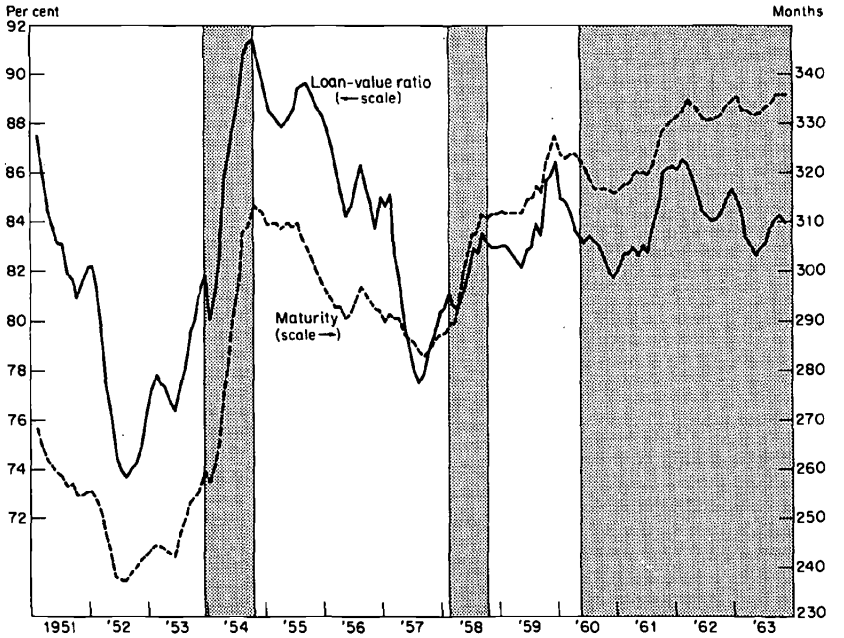
NOTE: Shaded areas are periods of declining yields.

constant weights thus shows the effect of changes in mix during that phase. As an example, the average maturity declined by 9.0 months during the 1951–54 rise in yield, but since the decline would have been only 1.2 months if composition had not changed, the difference, or 7.8, was due to a shift in mix.

Changes in mix were in the direction of tightening credit during each of the three periods of rise in yields, although in the 1958–60 period, the shift was not large enough to offset the easing that occurred separately on each type of mortgage. Shifts in mix were in the direction of easing in the first two periods of yield decline but not in the third (1960–63) period. Thus, shifts in mix usually but not invariably reinforced the effects of changes in yields.

Therefore, the evidence covering life insurance companies is broadly consistent with the hypothesis that over the cycle, terms will move to reinforce the effect of yields, but this pattern can be suppressed or dis-

CHART 4-7
LOAN-VALUE RATIO AND MATURITY ON ALL RESIDENTIAL LOANS, 1951–63
(THREE-MONTHS AVERAGE)



NOTE: Shaded areas are periods of declining yields.

rupted by a number of influences. Thus, the expected cyclical changes in terms were constrained on conventional mortgages by relatively low legal ceilings on loan-value ratios, and by the thrust of secular liberalization on maturities; the expected pattern on FHA mortgages was disrupted by frequent changes in legal ceilings on both loan-value ratios and maturities. The expected pattern revealed itself on VA mortgages but, during part of the 1961–63 period, the life insurance companies were virtually out of this market. Shifts in the mix of the three types of mortgages usually changed average terms in the expected direction, sometimes by a substantial amount.

TABLE 4-12

Changes in Maturities and Loan-Value Ratios on All Mortgages During Periods of Cyclical Rise and Decline in Mortgage Yields, 1953-63

	Periods of Rise in Yields						
	1951-54		1954-58		1958-60		
	Change	Per Month	Change	Per Month	Change	Per Month	Average Per Month
	Changes in Maturity (months)						
Actual weights	-9.00	-.28	-24.10	-.60	11.70	.62	-.24
Constant weights	-1.20	-.04	-2.60	-.07	14.70	.77	.12
	Changes in Loan-Value Ratio (percentage points)						
Actual weights	-5.70	-.18	-10.30	-.26	0.20	.01	-.17
Constant weights	-1.90	-.03	-3.20	-.08	1.40	.07	-.04
	Periods of Decline in Yields						
	1954		1958		1960-63		
	Change	Per Month	Change	Per Month	Change	Per Month	Average Per Month
	Changes in Maturity (months)						
Actual weights	53.90	5.39	21.60	2.70	13.40	.33	1.48
Constant weights	33.50	3.35	19.20	2.40	15.30	.32	1.13
	Changes in Loan-Value Ratio (percentage points)						
Actual weights	9.60	.96	2.00	.25	0.60	.01	.20
Constant weights	2.10	.21	1.10	.14	1.20	.03	.07

Notes to Table 4-12

Notes: Changes are calculated from three-month averages centered on turning points in weighted total yields. Terminal date for the 1960 – 63 decline is November 1963.

Source: National Bureau of Economic Research.

APPENDIX TABLE 4-1

Yields on Bonds and Mortgages at Reference Cycle Peaks and Troughs

Peaks

	July 1953	July 1957	May 1960	Average
Mortgages				
Conventional	4.76	5.48	6.09	
FHA	4.53	5.38	6.28	
Conv. less FHA	.23	.10	-.17	.05
Bonds				
Corporate Baa	3.86	4.73	5.28	
Corporate Aaa	3.28	3.99	4.46	
Baa less Aaa	.58	.74	.82	.71
State and local Baa	3.60	4.29	4.31	
State and local Aaa	2.56	3.17	3.34	
Baa less Aaa	1.04	1.12	.97	1.04
Conventional mortgages				
Less Aaa corporate bonds	1.48	1.49	1.63	1.53
Less Aaa state and local	2.20	2.31	2.75	2.42

Troughs

	Aug. 1954	April 1958	Feb. 1961	Average
Mortgages				
Conventional	4.74	5.63	5.96	
FHA	4.60	5.61	6.16	
Conv. less FHA	.14	.02	-.20	-.01
Bonds				
Corporate Baa	3.49	4.67	5.07	
Corporate Aaa	2.87	3.60	4.27	
Baa less Aaa	.62	1.07	.80	.83
State and local Baa	2.94	3.78	4.06	
State and local Aaa	1.90	2.70	3.14	
Baa less Aaa	1.04	1.08	.92	1.01
Conventional mortgages				
Less Aaa corporate bonds	1.87	2.03	1.69	1.86
Less Aaa state and local	2.84	2.93	2.82	2.86

Note: Mortgage yields are from NBER authorization series, with assumed prepayment of ten years. Bond series are from Moody's.