

Creating a New Financial Instrument:
The Case of Reverse Mortgages

by

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The U.S. financial system appears to be "financial instruments elastic" -- when the need arises, the instrument appears, as witness the growth and development over the last decade of bank certificates of deposit, equity shares in real estate investment trusts, shares in mutual funds that deal in various types of debt instruments, guaranteed mortgage bonds, and others.

Yet sometimes the need is there and the instrument does not appear. This may be because the instrument is so complex and perhaps novel that its potential is not perceived; it may be because the functions involved in creating the instrument fall between stools of existing institutions; or it may be because some action, perhaps only facilitating or permissive, is required by Government. All of these reasons apply in some degree to the case of reverse mortgages.

A reverse mortgage is a forward sale of a home, with the seller entitled to continue living there until his death; at the seller's death the buyer takes possession. Such a transaction allows a homeowner to consume the equity in his house during his lifetime without moving to other quarters.

The purpose of this paper is to facilitate the process of creating the reverse mortgage instrument by reducing complexity, and by showing how to adapt existing institutions to its issue. While the instrument has been recommended in principle be-

fore,¹ by H. Peter Gray, Yung-Ping Chen and myself,¹ this paper provides the first systematic analysis of the basic features of reverse mortgage contracts (Section II); the advantages and disadvantages of three main types of contracts that could be offered to the public (Section III); the principal functions that must be performed by the institution(s) offering reverse mortgages (Section IV); and the relative merits of alternative institutional structures (Section V). Two structures are proposed, one involving Government and one not, that could be pursued independently.

II Public Need and Rationale

Investment in children and in owner-occupied houses comprise a major part of all investments made by households over their lifetimes. Unfortunately, neither of these "assets" ordinarily provides households with cash income when they need it in their twilight years. Many elderly persons live a meagre existence and then leave a substantial

1. I first encountered the proposal in an unpublished manuscript by Gray, and incorporated it in a broader set of proposals for developing new financial instruments (see my "Changes in the Structure of the Residential Mortgage Market: Analysis and Proposals," in Study of the Savings and Loan Industry, directed by Irwin Friend, Federal Home Loan Bank Board, Washington, D.C., July 1969). At that time I was unaware of the work of Chen which had been published some two years earlier (see "Making a Theory Work: The Case of Homeownership by the Aged" by Yung-Ping Chen and "A Note on Estimating Potential Income From a Housing Annuity" by Yung-Ping Chen and L. Timothy Giles, in Hearings Before the Subcommittee on Housing for the Elderly of the Special Committee on Aging, United States Senate, Part 4 - Homeowner Aspects, July 31-August 1, 1969, U.S. Government Printing Office, Washington, D.C., 1970)

equity in a house to their heirs, whose financial position is likely to be substantially stronger than their own and to whom they feel no financial obligation.

Elderly homeowners can, of course, sell out and move to rented quarters, and many do this, but most stay put. Not only may they have strong emotional ties to the house in which they have spent much of their lives, but uncertainty regarding how long they will live is a powerful deterrent. The house provides "rent free" services as long as they live whereas if they sell the house their capital could run out before they die.

Frenchmen in this predicament frequently have negotiated a rentes viageres, which is a reverse mortgage transaction between two individuals arranged through the intermediation of the notaire.¹ A sells his home to B for current value, the price is divided by A's life expectancy which the notaire provides from a book of life tables, and the resulting amount is paid by B to A every year until A dies. At that point the payment ceases and B takes possession of the house.

Although the rentes viageres appears to be dying out in France (for reasons I'll indicate below), the time is ripe for adoption of an institutionalized version in the U.S. With the proportion of elderly in the population steadily rising and concern for wealth bestowals through estates declining, the potential market is increasing rapidly.

1. The notaire is the equivalent of our notary public but with much wider legal powers. See John L. Hess, "That Peculiar French Institution -- The Notariat," The New York Times Magazine, April 9, 1972.

There is a strong social interest in the development of this instrument, furthermore, because the aged comprise a large chunk of the poverty problem. The median income of households headed by a person 65 years or older in 1970 was \$3,498 compared to \$8,734 for all households.¹ While elderly households comprise about one-fifth of all households, they account for two-fifths of all "poor" households, using the definition of poverty established by the Social Security Administration.²

A substantial proportion of elderly households including poor households own their own homes. The most recent figure on home ownership for elderly households is 71% in 1965.³ A preliminary report from the 1970 census shows a figure of 78% for husband-wife households only.⁴ The incidence of homeownership is also surprisingly high among the lower-income elderly. The 1968 survey of the aged showed that for elderly married couples the incidence of homeownership varied only narrowly, from 69% for those with annual incomes below \$1000 to 82% for those with incomes above \$7500.⁵ While the absolute amount of homeowner equity rises with income, the ratio of equity to income is higher among lower-income groups.

1. U.S. Bureau of the Census, Current Population Reports, Consumer Income, Series P-60, #79, July 1971.

2. Data on the characteristics of the poor are shown in Current Population Reports, Consumer Income, Series P-60, #81, Nov. 1971; and George Katona, Eva Mueller, Jay Schmiedeskamp, and John A. Sonquist, 1965 Survey of Consumer Finances, Monograph #42, Survey Research Center, University of Michigan, 1966. The definition of poverty used in the Survey of Consumer Finances is similar but not identical to that of the Social Security Administration.

3. 1965 Survey of Consumer Finances

4. See 1970 Census of Housing, Supplementary Report, Series HC(S1)-3, May 1972.

5. See Janet Murray, "Homeownership and Financial Assets: Findings from the 1968 Survey of the Aged," Social Security Bulletin, August 1972, p. 9.

The financial plight of many elderly homeowners is reflected in, and aggravated by their relatively heavy property tax burden. A recent study by the Advisory Commission on Intergovernmental Relations indicates that property taxes amount to 3.4 percent of total money income for the average homeowner, 8.1 percent of income for elderly homeowners and 15.8 percent for elderly homeowners with current incomes below \$2,000.¹

The unique appeal of the reverse mortgage as a means of improving the economic status of the aged is that it requires no or minimal transfer payments. In effect, the aged who own their own homes are enabled to help themselves, without significant cost to taxpayers. Even if there is a cost in creating the required institutional structure or an opportunity cost in the provision of loanable funds by Government, it would be a small fraction of the benefit accruing to those who take advantage of the plan. I estimate that households 65 years of age and older today have a net equity in homes of at least \$80 billion, which defines the outer limit of the benefit they would derive from the plan.

To be sure this increment in consumption by the aged is in no sense a net gain to society; the heirs of the aged would be correspondingly poorer. In a traditional society where intergenerational transfers of property are considered

1. Advisory Commission on Intergovernmental Relations, Property Tax Relief and Reform: The Intergovernmental Dimension, Preliminary draft, September 14, 1972, pp. 1-6,7.

very important this might be a powerful argument against the reverse mortgage. In our society, however, this consideration carries increasingly small weight. As Chen points out, "People in general feel these days little moral obligation to conserve inheritances for bequests and rather consider as more desirable passing on a 'heritage' through providing educational opportunity for their children."¹ The reason most of the elderly today retain an equity in their home is because they wish to remain living there and not because they wish to leave a home to their heirs. Nevertheless, I don't wish to make a case for reverse mortgages on the grounds that it is "good" for the aged to reduce the size of their estates.

The more compelling argument is that reverse mortgages widen freedom of choice by providing a new method of dissaving. Existing methods of dissaving are generally unsatisfactory for those elderly homeowners who want to continue to live in their home.

a. They frequently have no substantial assets to liquidate other than their home.²

1. "The Case of Homeownership by the Aged," p. 833.

2. The Survey of Financial Characteristics of Consumers by Dorothy S. Projector and Gertrude S. Weiss (published in August 1966 by the Board of Governors of the Federal Reserve System with data as of December 31, 1962) showed that about three-fourths of all spending units where the head was 65 years of age and over had a net worth of less than \$25,000 and more than half of the total wealth of this group was in owned homes. See Tables A-1 and A-8.

b. Loans are difficult for them to obtain; any loans they do obtain will initially cover only a part of their equity, and (most important) the term will be shorter than the borrowers' expected remaining life with the result that they are in effect obliged to buy back their equity over their remaining years.

c. Undermaintenance is perhaps the most widely employed method of dissaving, but it has the obvious drawback that the quality of housing services will deteriorate over time. It is also "wasteful" in the sense that the depreciation in property value on an undermaintained home will at some point exceed the accrued value of foregone maintenance expense.

The reverse mortgage can thus be viewed as a new type of financial instrument that will widen freedom of choice by making possible a more efficient method of dissaving for elderly homeowners households.

III Basic Features of Reverse Mortgage Contracts

A. The Annuity

As noted, a reverse mortgage is a forward sale with delivery deferred until the seller's death. The consideration paid by the buyer under a rentes viageres is an annuity that runs until the seller's death, but in principle it could be a lump sum or a combination of lump sum plus annuity. Assuming

a known life expectancy of n years, the value of the property at year n (V_n) discounted to the present at the buyer's required rate of return (r), purchases some amount of cash (C) and an annuity payment (A) for n years.

$$1) \quad \frac{V_n}{(1+r)^n} = C + \frac{A_1}{1+r} + \frac{A_2}{(1+r)^2} + \dots + \frac{A_n}{(1+r)^n}$$

Assuming that the property appreciates at a constant rate (p):

$$2) \quad V_n = V_0 (1+p)^n \quad \text{where } V_0 \text{ is the current property value.}$$

If the annuity is fixed we can denote A_1, A_2, \dots, A_n simply as A . Denote the present value of one dollar per year for n years discounted at r as (a). Then the annuity is given by:

$$3) \quad A = \left[V_0 \frac{(1+p)^n}{(1+r)^n} - C \right] \frac{1}{a}$$

The annuity will decline with n if the buyer's required rate of return is greater than the expected rate of price appreciation, which we would fully expect. Thus, if p is 3%, r is 6% and C is zero, the annuity per \$1,000 of current property value would be:

<u>Life Expectancy(n)</u>	<u>Annuity(A)</u>
5 years	\$206
10	102
15	67
20	49
25	38

As with ordinary annuities, the amount could be adjusted to provide continued payments to beneficiaries (perhaps at a reduced level), a guaranteed minimum period of payment, etc.

Such modifications need not detain us here.

In France the annuity under a rentes viageres is calculated simply by dividing the current value of the property by the sellers life expectancy. Neither the buyer's required rate of return nor the assumed rate of appreciation of property figure explicitly in the calculation. How reliable is this rule of thumb?

Let us define a fixed annuity as:

$$A = \frac{V_0}{n} (z), \quad z = \frac{nA}{V_0}$$

The rule of thumb says that z is 1.0 regardless of the value of n . While there are indeed many combinations of p and r that give a z value of 1.0 at some value of n , there is only one combination that gives a z of 1.0 at every value of n , namely, $p = r = 0$. Some considerable experimentation suggests, however, that if p and r are not too high and stand in the ratio of 1 to 2, z will be approximately 1.0 and relatively insensitive to variations in n . (When $p > \frac{1}{2}r$, z tends to be greater than 1.0 and to rise with n while the reverse is true when $p < \frac{1}{2}r$). The table, which shows values of z for a number of combinations of p and r , illustrates this point.

While I would not argue that a 1-2 relationship is empirically "normal," it does have a rough plausibility. The 3-6 combination is particularly appealing and I used it in making some cash flow estimates in an earlier version of this paper, without realizing that it had the attractive feature of generating z values approximately equal to one. This may help to explain why the rule of thumb used by the notaire has "worked."

Annual Annuities Per \$1,000 of Initial Property Value (A),
and Value of z with Various Combinations of p and r

Life Expectancy (n)	$p > \frac{1}{2}r$						
	p=0 r=0	p=5 r=5	p=5 r=6	p=5 r=6	p=4 r=4	p=4 r=6	p=4 r=7
5	A	A	A	A	A	A	A
10	1.000	1.155	1.132	1.079	1.079	1.057	1.071
15	1.000	1.295	1.236	1.123	1.123	1.075	1.075
20	1.000	1.444	1.340	1.161	1.161	1.069	1.069
25	1.000	1.604	1.442	1.191	1.191	1.054	1.054
	40	71	62	49	49	42	42
	100	130	124	89	77	72	53
	200	231	226	124	112	107	107
	A	A	A	A	A	A	A
	z	z	z	z	z	z	z

$p < \frac{1}{2}r$

Life Expectancy (n)	$p < \frac{1}{2}r$						
	p=0 r=6	p=2 r=6	p=3 r=8	p=3 r=8	p=3 r=2	p=4 r=4	p=4 r=9
5	A	A	A	A	A	A	A
10	.887	.980	.988	.973	1.007	1.017	.974
15	.759	.925	.928	.861	.973	.974	.920
20	.645	.867	.861	.790	.930	.920	.857
25	.544	.808	.790	.715	.881	.857	.787
	18	30	29	33	32	32	32
	43	58	57	44	44	43	43
	76	93	93	62	62	61	61
	177	196	198	97	97	97	97
	A	A	A	A	A	A	A
	z	z	z	z	z	z	z

$p = \frac{1}{2}r$

Life Expectancy (n)	$p = \frac{1}{2}r$						
	p=1 r=2	p=2 r=4	p=3 r=6	p=4 r=8	p=4 r=8	p=5 r=5	p=5 r=10
5	A	A	A	A	A	A	A
10	1.010	1.020	1.028	1.037	1.037	1.045	1.022
15	1.009	1.015	1.019	1.022	1.022	1.022	1.013
20	1.007	1.008	1.004	.995	.995	1.013	.943
25	1.004	.998	.982	.958	.958	.943	.861
	40	39	38	37	37	34	34
	101	102	102	102	102	102	102
	202	204	206	207	207	209	209
	A	A	A	A	A	A	A
	z	z	z	z	z	z	z

B. Adjustments in the Annuity

The reverse mortgage contract may call for several types of adjustments in the annuity. First, if it is a variable annuity contract the annuity amount would be adjusted periodically based on actual price experience. (The specific method of reevaluation of the property and the period of adjustment would of course be spelled out in the reverse mortgage contract).

Suppose that after x years the property is worth $V_x \neq V_0(1+p)^x$. Then the annuity that should have been paid is:

$$4) A_s = \left[\frac{V_x(1+p')^{n-x}}{(1+r)^n} - C \right] \cdot \frac{1}{a}$$

where p' is the revised estimate of future price appreciation. (Presumably $p' > p$ if $V_x > V_0(1+p)^x$). The new annuity must also include the payment that can be purchased with the accrued value at x of the difference between A and A_s .

$$5) A_d = (A_s - A) \left[(1+r)^x - 1 + \dots 1 \right] \cdot \frac{1}{a}$$

where a' is the present value of one dollar per year for $n-x$ years discounted at r . The revised annuity is then:

$$6) A_r = A_s + A_d$$

Second, additions and alterations made by the seller should be treated as if the contract were a variable annuity (even if it is otherwise a fixed annuity). This would involve exactly the same type of adjustment in the annuity as

that shown in equations 4-6 except that the assumed value of p would not be changed in a fixed annuity contract.

Third, the reverse mortgage contract should call for an adjustment in the annuity if the seller relinquishes possession before death. In general, the annuity should be increased by an amount based on the buyer's saving from being able to realize the value of the house sooner than anticipated. This will provide those who move to other quarters before their death some additional income to meet their additional costs.¹

Assuming that the seller moves out after x years, the annuity that should have been paid is:

$$7) \quad A_s' = \left[\frac{V_0 (1+p)^x (1+r)^{n-x}}{(1+r)^n} - c \right] \cdot \frac{1}{a}$$

Hence the new annuity is:

$$8) \quad A_r = A_s' + A_d$$

where A_d is as defined in equation (5).

C. Maintenance, Insurance and Taxes

The reverse mortgage contract must stipulate the responsibility of the seller and buyer for payment of maintenance, insurance and taxes. For example, the contract could make

1. The original calculation of the annuity would be based on the assumption that occupancy is retained until death. An alternative procedure would be to take into account, in the calculation of the annuity, the expectation that some participants will relinquish their homes before death. This would provide a larger initial annuity, but with no subsequent adjustments for those who relinquish their quarters before death. The more flexible procedure of adjusting the annuity for move-outs appears better.

the seller responsible for performing his own maintenance and for paying taxes and insurance, with the buyer authorized to deduct the required payments from the annuity. The best division of responsibility, however, depends on whether the annuity is fixed or variable.

D. "Opt-out" and "Final Reckoning" Provisions

The reverse mortgage contract could also include provisions that would allow the seller to opt-out of his obligation upon repayment of all annuity payments previously received plus interest and perhaps penalties. Variable contracts might include provision for a final reckoning upon eventual resale of the property by the buyer. The utility of such provisions will be examined further below.

IV Types of Reverse Mortgage Contracts

A. Fixed Annuity Contracts

A fixed annuity contract would pay a fixed gross annuity to the seller, the only possible adjustments being those consequent upon alterations made by the seller. The major issue arising in connection with this type of contract is the appropriate division of responsibility, as between buyer and seller, for maintenance, insurance and taxes. In general, it appears best if the buyer assumes responsibility for all these charges, deducting a fixed amount from the annuity. Under such arrangement a fixed annuity contract would imply a fixed net as well as gross annuity.

Broadly there are three types of arrangements possible in apportioning responsibility for expenses. First, the seller could be held responsible without prior conditions. This clearly would be unsatisfactory to the buyer, since the seller under a fixed annuity contract has little incentive to provide more than the minimum maintenance necessary to assure livability, and no incentive to carry insurance.

Second, the seller could be held responsible but subject to conditions designed to protect the buyer's equity. Specific types and amounts of insurance and maintenance could be required, with charges deducted by the buyer from the annuity. This approach, which converts the fixed gross annuity to a variable net annuity, has the potentially serious drawback that it opens the door to possible "tie-in" abuses in the sale of maintenance and insurance to sellers. A situation would be created analagous to the sale of title insurance to mortgage borrowers wherein the lender has an incentive to require insurance whether it is needed or not, and to keep the price of insurance high, because he benefits directly or indirectly from the sale.

In addition, this approach violates the principle that offsetting risks should be pooled. The risk that expenses will rise by more than expected, and the risk that property values will rise by less than expected, are partly offsetting. If the seller assumed responsibility for expenses under a fixed annuity contract a substantial inflation in both expenses and property values could wipe him out. With the

gross annuity fixed, his net annuity would be progressively eroded and could even become negative.

It is true that the seller would be obliged to pay the expenses of maintenance, insurance and taxes whether he took out a reverse mortgage or not. In the event of severe inflation, however, the home owner who did not take out a reverse mortgage could, when expenses rose beyond his capacity, sell the house and pocket the higher capital value whereas under the reverse mortgage contract he loses this option.

The third and best arrangement is for the buyer to assume responsibility for expenses, making a fixed charge from the gross annuity. An institutional buyer would be in a much stronger market position in buying insurance and maintenance services than the individual seller, and he would have an incentive to keep expenses low. If expenses were to rise faster than expected, furthermore, the impact on the buyer's wealth position would tend to be offset by more rapid increases in property values.

There remains the risk to the seller that the real value of the annuity could be eroded through inflation. While this is not a risk to be ignored, the seller would, at least, be assured that the property would provide the same real services as before and the annuity will increase his real income beyond what it would have been if he had retained ownership. Thus, the reverse mortgage cannot possibly make him worse off.

Another important question that arises with respect to the fixed annuity reverse mortgage is whether the buyer would use the same assumption regarding price appreciation in all contracts. If different rates of price appreciation can to some degree be forecast, the use of a uniform assumed rate would lead to adverse selection -- those with the poorest prospects of appreciation would take out reverse mortgages. To protect himself the buyer would be obliged either to assume different rates of price change, which means he would have to go into the forecasting business, or to establish various types of property eligibility requirements. This problem, which does not apply to variable annuity reverse mortgages, requires additional research.¹

A less serious problem is additions and alterations that the seller may wish to make on the property. This could be handled in the same way as on a tenant-occupied structure; namely, the occupant can make such improvements only with the permission of the owner and at the occupant's expense. A more equitable arrangement would be to reappraise the property after the improvement and to adjust the annuity for any change in value. The procedure for doing this has already been described.

1. Real estate practitioners frequently talk as if they can anticipate different rates of price appreciation for properties of different types or location, but I have never seen any evidence that they can in fact do this.

B. Variable Annuity Contracts: Individual Parcel Experience

Under a variable annuity contract the gross annuity would be adjusted periodically (say, every three years) based on actual experience. Such adjustments obviate the problem that could arise under the fixed annuity contract that the buyer, in order to protect himself against adverse selection may be obliged either to forecast price changes by property category or to establish property eligibility requirements.

The experience employed to value a property could pertain to the individual parcel of property that has been conveyed, or it could pertain to a group of properties. These two types of variable annuity contracts are considered in turn.

The principle of pooling offsetting risks suggests that the seller should be responsible for expenses under variable annuity contracts. (The seller who does not wish to take the residual risk that expenses will rise faster than the gross annuity would opt for a fixed annuity contract). Where adjustment in the individual annuity is contingent upon reappraisal of the specific property conveyed, the seller has every incentive to maintain the property and to carry adequate insurance.

The major problem of variable annuity contracts that are based on price experience of individual parcels arises out of the need for periodic reappraisals. The problem is not so much the cost (a \$25 - \$50 cost every three years or so does not impose much of a burden on the transaction), but the need to assure equity to both parties. Appraising

necessarily involves a considerable element of subjective judgment; if the appraiser has an interest in either a low or high value, the appraisal may be biased. To take the most obvious case, if the buyer is a profit-making concern, it may tend to make the first appraisal high (to encourage participation) and subsequent appraisals low. This problem does not arise on the fixed annuity contract which involves only a single appraisal -- if it is too low, the homeowner can refuse the contract.

Assuming that the buyer or his agents do the appraising various provisions could be incorporated into the contract to protect the interest of the seller. He could, for example, be allowed to opt-out of the contract after an "unsatisfactory reappraisal" upon repayment of all annuity payments previously received plus interest. This would provide some protection to the seller but not much -- probably in most cases the seller would be obliged to sell his house in the market in order to obtain the funds to repay the buyer. If reliance were had on such an opt-out provision, there would be the danger that the buyer would deliberately force resort to it under conditions where alternative investment opportunities appear attractive. While I believe that the variable annuity contract should include an opt-out provision, per se, this is insufficient to protect the seller against biased reappraisals.

Another possible safeguard would be to include in the contract provision for a "final reckoning" upon eventual resale of the property by the buyer. While de jure such provisions

could swing both ways -- the buyer would have a claim against the seller's estate in the event that prior appraisals were higher than the final sale price -- de facto they would run only in one direction because in most cases the seller's estate would have little value. Provision for a final reckoning would remove the potential gain to the buyer from a low appraisal but it would create a potential loss from a high appraisal; hence, it would not eliminate the buyer's bias toward low appraisals.

The best means of safeguarding the interest of the seller is to guarantee the integrity of the appraisal process. I will return to this problem later.

C. Variable Annuity Contracts: Group Price Experience

A variable annuity plan could base periodic adjustments in the annuity on actual price experience covering a group of properties that have been acquired and resold, as opposed to reappraisals of the individual parcel that has been conveyed.¹

The main advantage of this approach is that, by using an objective measure of price change, it eliminates the problem of biased reappraisals (as well as the expense of reappraisals). On the other hand, as with fixed annuity contracts, there is little incentive for sellers to provide adequate maintenance and insurance. If sellers become responsible for expenses, therefore, contractual requirements

1. A plan based on group reappraisals (rather than actual sales data) has little to recommend it and will not be discussed.

would have to be imposed to protect the buyer's equity, introducing the tie-in hazards discussed earlier. If the buyer assumed responsibility for expenses, the principle of pooling offsetting risks would be violated; severe inflation could bankrupt the buyer.

Hence, this type of contract appears less desirable than the others, except, perhaps, if it were offered, or closely monitored by, a public agency.

D. The Issue of Freedom to Contract

It should be clear that reverse mortgage contracts will be complicated. They will have many more dimensions or "terms" than an ordinary mortgage. For obvious reasons these complicated provisions will appear even more formidable when reverse mortgages are first offered. When it is considered that many of the households who would participate in these complicated transactions are of limited sophistication and would be making a major commitment, one hesitates about the advisability of giving free rein to "freedom of contract."

We have ample experience to indicate that when one party to a complicated contract participates once in a lifetime while the second party is in the business, freedom of contract means that the second party writes the contract and the potential exists for "small print abuse." The usual historical sequence, when this happens, is for Government to come in later to correct the abuses, by specifying what cannot and/or what must be included in the contract.

A question arises as to whether we cannot short-cut the abuse-correction sequence by having Government specify the basic forms of the contracts at the outset? Government would set out several types of basic contracts, each of which would have standard (fixed) features plus a limited number of optional provisions that would be subject to negotiation. This would eliminate the possibility of small-print abuse, would make it easier for households to compare one offer with another, and hence would generate a much more competitive market structure.

A persuasive objection to this position is that in the absence of a body of experience arising from the market, Government is not likely to do a good job in developing basic contracts. It might standardize provisions that should be variable, and vice versa. Or it might go so far in the direction of protecting the seller that institutional investors would not be willing to write contracts. In setting out institutional structures, therefore, I will propose two approaches that can be pursued independently, one involving freedom of contract and one not.

V Reverse Mortgage Functions

The reverse mortgage as it is found in France has two serious weaknesses. First, there is no mortality risk-sharing on the part of buyers, who take a sizeable gamble. (The counterpart of this is the possible psychological burden on the seller arising from the buyer's continued interest in the state of his health). The second drawback, which is probably

responsible for the declining use of the rentes viageres in France, is that in the absence of an effective secondary market, the buyer must contemplate residing in the same community indefinitely. In a mobile society a reverse mortgage would not be a very attractive investment for an individual.

The answer to both of these problems is institutionalization. The institution would write the reverse mortgage contract, pooling the mortality risk on many contracts, and would resell acquired homes for immediate delivery. Hence, the ultimate buyer of the property would not be required to wait before taking possession.¹

Before attempting to determine the best institutional arrangements for creating reverse mortgages, it is useful to summarize the functions that must be performed.

A. Real Estate Functions

The institutional buyer of reverse mortgages requires real estate expertise. It must appraise properties, provide for their maintenance, and market them after they have been acquired. These functions must be organized on a locality basis. Maintenance must be organized over a relatively small area to be economical. Property appraisals and the marketing of acquired properties require knowledge of local housing markets and participation with the local institutions that are involved in property transfers. The buyer will thus need

1. One loss from institutionalization may be noted. A reverse mortgage is a type of forced savings contract, which many persons of low income find attractive. Alternative types of forced savings contracts may be difficult to find.

an office or an agent in each urban center in which contracts are offered and perhaps it will need more than one in major centers. The real estate functions involved in a reverse mortgage operation would be a natural extension of a real estate mortgage-lending function.

B. Provision of Annuities

While the institutional buyer must provide the seller with an annuity, this function can if necessary be subcontracted to insurance companies. Hence, the function is not strategic in determining the best institutional structure.

C. Long-term Investment

The buyer of a reverse mortgage makes a long-term commitment of funds that is broadly similar to that involved in an ordinary mortgage. Thus, the expected life of a 30-year mortgage, and of a reverse mortgage purchased from a person 70-years of age who retains occupancy until death, is about 12-15 years in both cases. Because of the differences in cash flow patterns, the "interest rate risk" -- the loss associated with an increase in investment opportunity costs after a commitment is made -- is somewhat larger for a reverse mortgage than for an ordinary mortgage having the same life. The institutional investor must be in position to accept this risk.

D. Regulation

Regulation by Government may be required for two purposes. One is to assure the integrity of the reappraisal

process on variable annuity contracts when adjustments in the annuity are based on changes in appraised value of the individual parcel. The second purpose is to provide standard forms of the major types of reverse mortgage contracts. Neither of these functions is absolutely necessary and they are incorporated into only one of the proposed institutional structures proposed below.

VI Institutional Structures

A. Life Insurance Companies as Contractors

Life insurance companies are long-term investors and have expertise in annuities, but most of them do not have legal authority to write reverse mortgages,¹ and few have local real estate offices; they acquire their residential real estate loans from agents, usually mortgage companies. (While they might be willing to use agents to write variable annuity reverse mortgages it is doubtful that they would be willing to delegate authority to write fixed annuity contracts because of the risk involved). Life insurance companies also might feel that selling acquired houses could embroil them in local politics or generate public relations problems to which they are very sensitive. In addition, the regulatory apparatus

1. Reverse mortgage operations would not be legal under existing state statutes that limit life company investments in income-producing real estate to commercial and industrial properties. Whether they would be legal in those states that permit investment in residential properties (usually specified as "apartment houses" or "housing projects") is doubtful.

of life insurance (entirely at the state level) is not well suited for auditing the appraisal function or defining the basic characteristics of reverse mortgage contracts. Nevertheless, I envisage an important role for life companies as subcontractors in the writing of annuities.

B. The Federal Government as Contractor

The Federal Government could offer reverse mortgages through one or another department of HUD or a new agency established for that purpose. This approach has the advantage that the Government could employ a relatively low required rate of return (just high enough, say, to earn its borrowing rate plus a margin for administrative costs) and thereby pay more generous annuities than private institutions.

The principle issue associated with having the Federal Government as the principal contractor is the desirability of employing other than market criteria in determining the scope of the program and the terms of reverse mortgage contracts. Ownership of individual houses by the Government could be used as a social planning tool. The Government could integrate its reverse mortgage operations with neighborhood renewal or redevelopment plans, it could use the program to promote racial integration, to provide housing for low-income families at below-market prices, and so on. There is also the possibility that considerations of "need" might influence the determination of annuity amounts.

I prefer to see the reverse mortgage program assessed and developed on its own inherent merits as a financial

instrument, directed toward meeting the needs of the aged without intrusion of other objectives that are likely to be highly controversial and politically charged. For this reason I am opposed to using the Federal Government as the principal contractor. Nevertheless, I envisage an important role for Government in providing supervision and long term loanable funds.

C. Savings and Loan Associations as Contractors

I see savings and loan associations as one principal contractor in writing reverse mortgages. They have several important attributes for this role. First, they have expertise in residential real estate -- the real estate aspects of reverse mortgages would be a natural extension of the residential real estate lending function which is their central activity. Second and closely related, the associations are essentially local institutions with offices in all major metropolitan areas and many smaller centers (there are today over 4,000 insured associations with roughly 9,000 offices). Third, they are regulated at the Federal level but regulation is implemented on a regional basis by the 12 Federal Home Loan Banks. This is very important because the development of the basic contractual form of the reverse mortgage should be centralized, while auditing of the reappraisal process is done best on a decentralized basis

The savings and loan associations have several weaknesses as prime contractors in reverse mortgages. First, they have no expertise in annuities. But this is very easily remedied;

they can simply buy the required annuities from insurance companies.¹

Second, the savings and loan associations do not now have legal authority to write reverse mortgages. The Federal Home Loan Bank System could take the initiative, however, in obtaining this authority for all insured associations.

The third disadvantage is more fundamental. Investment in reverse mortgages involves interest rate risk to which associations are already unduly exposed in their mortgage lending operations. Sharp increases in market interest rates in 1966 and 1969 exposed the associations to serious difficulties as the price they paid on their essentially short term liabilities rose much more sharply than earnings on their long term assets. Considerable effort has been devoted in recent years to finding methods of reducing their exposure to interest rate risk, through greater asset diversification, issuance of new types of liabilities, or in other ways. In general, it probably would be unwise for them to enter a new line of business that carries the same kind of risk that has bedeviled them in the past, although some associations may be well equipped to do so.

I believe there is justification, therefore, for the

1. This could generate an important externality, namely, an improvement in the existing market for annuities. With savings and loan associations in the market on a large scale we could expect more competition and a sharp narrowing in existing inter-company price differences on annuities.

Federal Government to absorb this risk. It would do this by making loans to associations, for purposes of investing in reverse mortgages, at a rate equal to the current market yield on long term Government securities. By holding down the "cost of capital" in this way, the annuities granted also could be larger.

The mechanism might work roughly as follows. Each association would have a special line of credit with its Federal Home Loan Bank that could be used only for reverse mortgages. The individual association could draw on the line to buy annuities from life insurance companies, to pay cash to sellers, or to make annuity payments. Under the proposed arrangement, the association could avoid interest rate risk only by buying an annuity in the market.¹ If the association drew on its line to make annuity payments, it would stand the interest rate risk, since the Government loan rate would be adjusted periodically in line with changes in market yields on long term Government securities. No maturity would be specified on the Government loans but all inflows to the association from property liquidations would be used to retire

1. The association would not be given a commitment by the Government to borrow at a fixed rate in order to make annuity payments over the life of a given contract. This would impose a heavy administrative burden because specific Government loans would have to be linked to specific reverse mortgage contracts. My inclination also would be not to allow the association to borrow the entire present value of the annuity. This partly reflects my view that there would be advantages in bringing life companies into the operation as providers of annuities. In addition, there is the problem that in the absence of a market price the present value of an annuity is not exactly determinable.

loans, in the order in which the loans were made.

Thus, an association could write a fixed annuity contract with the interest rate risk taken by the Government and mortality risk taken by a life company. The association would take the risk that expenses will rise faster than property values (it is in a good position to assess and to some degree control this risk). On a variable annuity the latter risk would be absorbed by the seller. While the association would not be able to shift all the mortality risk to the life company -- because of reappraisals an annuity purchased at the outset would not correspond exactly to the annuity paid to the seller -- over many contracts the net mortality risk to the association would be very small.

All loans by the Government would have interest deferred until termination of the contract. Otherwise, the associations would be required to make a substantial investment of their own funds in paying interest. As it is, the associations will be investing in expenses and it will require a rate of return on these outlays well above the Government loan rate.

D. Bank Holding Companies as Contractors in Reverse Mortgages

The diversified bank holding company, a recent arrival on the U.S. financial scene, constitutes an alternative mechanism for providing reverse mortgages. The real estate functions could be provided through mortgage companies and the investment functions through real estate investment trusts (REITS)

expressly established for that purpose. Both mortgage companies and REITs are on the Federal Reserve System's approved activities list for bank holding companies.

In the proposed arrangement the REIT would be the contracting agency, investing funds raised through the sale of shares to the public. The real estate functions would be performed by the mortgage company on a fee basis. Common ownership would reduce the frictions that might otherwise be associated with sale of such a complex bundle of services.

An advantage of this approach is that a number of the mortgage company affiliates of bank holding companies operate over a wide geographical area, thus providing more geographical diversification than would be possible for the typical savings and loan association. The larger holding companies also have the resources to invest in the development of operating procedures and contracts. The other side of this is the danger referred to earlier that each institution will develop different contracts, raising information costs to sellers, and that some contracts will place them at an undue disadvantage. Considering that reverse mortgages are not now available this is a risk worth taking, particularly if the first route I have outlined, involving standardized contracts, also is implemented.

VII Concluding Comment

The reverse mortgage is badly needed; it is also very different from, and more complex than, any existing financial

instrument. It thus constitutes a challenge of the first magnitude to the imagination of Government, and to the ingenuity and adaptability of the private financial system.