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Equity Participation in Homeownership by Institutional Investors

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Abstract

Due to the financing mechanisms currently available, homeowners tend to have too much of their portfolios invested in their homes and institutional investors have too little invested in owner-occupied housing. This paper presents an approach that will permit greater portfolio diversification by both homeowners and institutional investors. It is proposed that homeowners sell an equity participation in their homes to institutional investors. These participations will involve a percentage of the value of the home with the return to be realized from the sale of the home. This approach will benefit society by encouraging and increasing homeownership. By providing a new source of equity, it will enable more households to own their home or to own a larger home. The increase in the homeownership rate that would result from such a program is estimated.

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by

Robert Schafer

Homeownership is part of the American dream – its benefits have been widely recounted and are generally accepted. It has been argued, however, that many individual homeowners have too much of their portfolios invested in their homes, largely as a result of the mechanisms making funds available for home purchase. At the same time, the operation and structure of the financial markets prevent institutional investors from participating in the equity portion of the owner-occupied housing stock.

Homeownership is a large segment of the real estate market. The equity value of owner-occupied housing is approximately $4,798 billion, which is 40 percent of real estate assets and 16 percent of the value of all assets in the United States (Miles and Tolleson 1997).[1] Equity investment in owner-occupied housing is a large portion of the asset portfolio of most Americans. For the typical homeowner, their investment in their home is about 48% of their net worth (Joint Center, 1997). Aside from owner equity investment in their own homes, funds are channeled to homeowners through loans and the operation of the secondary mortgage market in home finance. As a result, institutional investors are under invested in this sector and unable to properly balance their portfolios by allocating a portion of their investments to equity in owner-occupied housing. The closest they can come is to invest in residential mortgages directly or through mortgage backed securities.

[1] The value of residential mortgages and mortgage backed securities, which are not included in the equity value of owner occupied housing, is another $3,825 billion in value.

This paper presents an approach that will permit greater portfolio diversification by homeowners and institutional investors. In addition, it will benefit the public by encouraging and increasing homeownership. The proposal permits homeownership by households who at present are unable to afford to purchase a home by providing a source of equity in their purchase. It will permit others to purchase a larger house than they might otherwise be able to afford, and, as a result, live in a home that better meets their needs. Still others will be given a way to draw equity out of their homes without borrowing funds or selling their homes. Given the relatively low volatility of home prices, most of the demand for this new source of financing will be driven by the desire for affordability and larger housing consumption.

In a nutshell it is proposed that homeowners sell an equity participation to institutional investors. These participations will involve a percentage of the value of the house. The homeowner will not be obligated to make any payments to the investor during the duration of the relationship except upon sale of the property. At that point, the homeowner will have to pay the investor the investor's share of the sale price. The homeowner will be responsible for the maintenance of the property, payment of real estate taxes, insurance and all other expenses of the property. The following portions of this paper will explore the specific provisions of this new financial instrument, review capital market interest in this instrument and examine the potential impact on homeownership.

The Equity Participation

This is not the first proposal for equity sharing in the purchase of owner occupied housing. However, it is a practical approach that utilizes existing financial and legal structures and requires only relatively minor adjustments to begin operation.

An early proposal by Bull and St. James (1990) concentrates on bringing individual investors together with individual prospective homeowners and negotiating a specific transaction with each set of parties.[2] Under this scheme, the non-resident owner and the owner-occupant own the house together, either as a partnership or a tenancy-in-common. A fairly large mortgage is generally contemplated based on the credit of the owner-occupant. The owner-occupant and the non-resident owner each contribute to the down payment and the other closing costs and divide up the ownership of the house, generally in accord with their contributions to the down payment and closing costs. The individualized nature of this structure makes it unlikely to develop into a new capital market. The transactions are also structured to try to give the non-resident owner certain tax benefits which unnecessarily complicates the relationship and tends to insert issues that are inconsistent with fostering homeownership.

Another proposal by Geltner, Miller and Snavely (1995) calls for the creation of Housing Equity Investment Trusts (HEITs). A HEIT involves a partnership between the home occupant as the active managing partner and a passive limited partner providing most of the capital to purchase or finance the house. The partnership would own the home. In return for providing the capital, the limited partner would receive a percentage of the sale price or, in the event of being bought out prior to a sale, value of the house plus a dividend. For example,

[2] See also, Levine and Roberts, 1981 for a short description of a similar structure.

if the passive partner put up 90 percent of the value, it would receive 90 percent of the sale price or transfer value plus a regular dividend (suggested to be 3%). The authors conceive of their proposal as the homeowner taking out a HEIT instead of a mortgage. They recognize that there could be several variations, including a maturity provision. Although the authors do not discuss the structure of the market they foresee for these HEITs, it appears that they contemplate the passive partner interests being owned by investor entities and a secondary market in such passive partnership interests. The structure contemplated by HEITs is conceptually unfamiliar to homeowners and likely to face serious marketing difficulties. In addition, a new structure of participation in the home buying market would have to be created. The HEIT does not build on existing market structures and the familiar relationship of an owner to his or her home is compromised by introducing a sophisticated (to the average homeowner, especially first time buyers) organizational structure between the owner and his home.

The most recent proposal by Andrew Caplin, Sewin Chan, Charles Freeman and Joseph Tracy is very similar to the HEIT. In their book, Caplin, Chan, Freeman and Tracy delve into the details more carefully and completely than Geltner, Miller and Snavely were able to do in an article. It also requires the creation of an entire new market in limited partnership interests. Although their proposal is thoughtful and aimed at solving the same problem as the present proposal, it suffers in several ways. As in the case of the HEIT, they propose to have limited partners own the house jointly with the homeowner, and require the creation of a market in which these limited partnership interests can trade. The Partnership Market proposal faces many of the same constraints and obstacles as the HEIT proposal. The task of creating an entire new market is daunting, and it is unlikely to evolve, at least not in

the foreseeable future. All the instruments and relationships would need to be developed. It would take a huge effort to get the necessary actors to seriously participate in the development of their Partnership Market. The concept of joint ownership with a limited partner in a partnership is alien to the common understanding of home buyers and, therefore, faces an uphill battle in marketing the concept to the consumer.

The present proposal is more straight forward and takes advantage of current market structure. Instead of a global step beyond the current market, it is an incremental change that should be more readily pioneered and accepted by institutional investors. The homeowner remains the owner of the house and, thus, keeps his or her traditional role.

How is this accomplished? The homeowner grants the investor a participation in the house by entering into an agreement to pay the investor a fixed percentage of the house's value upon sale or at the end of an agreed upon period of time, whichever occurs first. The percentage could vary, but we will use 50% to illustrate the process. The agreement provides that the homeowner will not be permitted to sell or transfer the ownership of the house without the prior written consent of the investor. In addition, the owner will not be permitted to mortgage or otherwise encumber the property without the investor's prior written consent.

The owner is expected to have a first mortgage on its share of the equity in the house. The amount of this mortgage is limited to an amount (including all mortgages and encumbrances) equal to no more than 90 percent [or 95 percent] of owner's share of the house's value at the time an encumbrance is created. The owner's share is equal to the value of the house minus the investor's share of the house's value. In our example of a 50% investor participation, the maximum permitted mortgage amount would be 0.90*(1.00 - 0.50), or 45% of the value. [If the limit agreed to were 95%, the permitted amount would be 47.5%

of the value.] The first mortgage must not involve any investor liability. The investor would not be able to unreasonably withhold its consent from such a mortgage

The investor's equity participation would be evidenced by an Equity Participation Certificate, and the owner's performance of its obligations under the Equity Participation Certificate and all related documents would be secured by a mortgage on the real estate. This mortgage would be junior to permitted mortgages on the homeowner's share of the house's value. All of the owner's obligations would be detailed in the Equity Participation Certificate and the related mortgage. This approach, an Equity Participation Certificate secured by a mortgage, is a transaction structure similar to the now familiar structure of instruments traded in the secondary mortgage market. As a result, the process is both familiar to consumers and investors, and should require only a minimum effort to explain the approach and its possibilities. That is not to say that the approach will be readily accepted and utilized. It will still require considerable work and effort to implement and develop a market.

Although most mortgages are given to secure the repayment of a money debt, valid mortgages can and are routinely created to secure other obligations and promises. The only requirement is that the obligation must be reducible to a monetary value at the time the mortgage is enforced (The American Law Institute, 1997). This requirement makes it possible to determine the amount of the obligation at the time of foreclosure and the amount of any surplus. Mortgages securing the promise to construct an apartment building or the promise to provide support for life have been upheld. Although these do not have an established amount of obligation, the amount payable upon enforcement can be determined by reference to testimony on the value of the construction project or on the life expectancy. The

Equity Participation Certificates value at the time of enforcement is readily determined from the sale price of the property because it is merely a pre-established percentage of that value.

Owner's Obligations[3]

In this section, some of the more important aspects of the owner's obligations are summarized. The following topics are addressed: maintenance, insurance, real estate taxes, payment of operating expenses, improvements to the property, restrictions on transfer, sale, establishment of value, encumbrances, required occupancy, and required repurchase of investor's interest.

The owner will be responsible for maintaining the house at the owner's expense. The owner will also be responsible for keeping the house fully insured and for paying all real estate taxes, operating expenses and insurance premiums in connection with the house. If there is a mortgage on the house, the owner will also be responsible to make all principal and interest payments. The investor shall have no responsibility to perform these activities or to make or fund any of these payments. In essence, the investor's share of the value of the house shall not be mortgaged or encumbered in any way.

The homeowner can only make improvements to the property with the approval of the investor. The homeowner may seek approval for an improvement and pay for the improvement without any adjustment to the investor's interest in the value of the property, including any increase in value resulting from the improvement. In that situation and upon a showing that the improvement will add value to the property, the investor will not unreasonably withhold its consent. If the homeowner desires to make the improvement at his

or her expense and have the investor's interest in the value of the property adjusted to reflect the resulting increase in value, a process of full appraisal is required and the investor is required to offer a reasonable adjustment to its share of the value. The investor could also offer to pay its share of the proposed improvement without adjustment of its share of the value of the property. In either case, the investor may require an escrow of the funds to be used to pay for the improvement.

Occupancy by the homeowner is a crucial element of the investment giving the investor confidence that the house will be properly maintained and carefully used. As a result, the homeowner is required to use and occupy the property as their principal residence and for no other purpose unless the investor agrees in advance and in writing.

The Owner is prohibited from selling or encumbering the property without the consent of the investor. The situation with respect to encumbrances has been discussed above. The investment may, but need not, contain a prohibition on any sale during an initial agreed upon period; acceptance by consumers is more likely without any prohibition on resale. If the homeowner desires to sell the house, he or she must seek the approval of the investor. If they cannot agree on a selling price, the owner and investor embark on an appraisal process to determine the value. This process involves each appointing an independent appraiser and, if those two appraisers cannot agree on the value, the two appraisers appointing a third independent appraiser to arrive at a value by majority vote. The value shall remain valid for six months and, upon increase by any increase in the consumer price index, for a period of one year. The cost of the appraisal is paid for by the homeowner. The homeowner must use its best efforts to obtain the highest price for the property. If the homeowner wishes to accept

[3] A copy of the form of the Equity Participation Certificate and Agreement and of the Mortgage are available

an offer from an unrelated third party complying with the valuation, the investor shall have a right of first refusal to purchase the property on the same terms and conditions set forth in the offer. This right of first refusal would expire in 20 business days. Any purchase and sale agreement for the sale of the property must be subject to the investor's approval and its right of first refusal.

In certain situations, the investor may require the homeowner to repurchase the investor's equity interest in the property. These involve the expiration of a specified number of years, such as 25 years, or the investor determining that repair of casualty damage is not economic or the homeowner has broken its agreements contained in the documents. In these cases the purchase price is equal to the investor's share of the value determined in the same way as it is in the case of a sale to an unrelated third party (i.e., agreement of owner and investor or determination by appraisal). If the owner does not repurchase the investor's interest in these situations, the investor may foreclose on the property under the mortgage and sell the property at a public sale. The proceeds of that sale would be divided in accordance with the investor's interest in the property with the expenses of enforcement to be paid from the homeowner's share of the proceeds.

Federal Income Tax Matters

The objective of this equity participation approach is for the homeowner, who will be paying all of the expenses on the house, to retain the benefit on his or her income tax return of the deductions for the property tax and the interest paid on the first mortgage. In addition, the Equity Participation Certificate is not indebtedness for federal income tax purposes, and no

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from the author.

interest income is attributed to the investor and no interest deductions accrue to the homeowner.

Unlike the Bull and St. James structure which seeks to make the depreciation deduction available to the non-resident owner, the current proposal does not provide the investor with any tax advantages relating to real estate as a result of its investment in the property. Therefore, it is unnecessary to create the somewhat artificial rent payment obligations from the owner occupant to the non-resident owner that are present in the Bull - St. James equity sharing scheme. In the present proposal, the homeowner has no obligation to make any regular payments, whether they be characterized as rent or something else, to the investor. As a result, the provisions of Section 280A of the Internal Revenue Code are inapplicable to this proposal.

Section 280A regulates the deductions available to taxpayers in connection with the business use of a home, vacation homes and certain low rent arrangements. The latter aspect of Section 280A denies deductions to taxpayers who own an interest in a dwelling unit pursuant to a "shared equity financing agreement" and rent it to another person also owning an interest in that dwelling unit pursuant to the same "shared equity financing agreement" at a rent less than the fair rental of the unit. A "shared equity financing agreement" is defined for purposes of Section 280A as an agreement under which two or more taxpayers acquire an ownership interest in a dwelling unit and one of such persons is entitled to occupy the dwelling unit and is required to pay rent to one or more of the remaining persons having an ownership interest under the agreement. In the present proposal, the homeowner-occupant is not obligated to pay any rent to the investor and the investor receives no rent. As a result, the current arrangement is not a "shared equity financing agreement" under Section 280A. Even

if it were to be found to be such an agreement, Section 280A would only deny the investor tax deductions, which is the intent of the current proposal.

The Internal Revenue Code gives special treatment to certain types of "debt instruments." In particular, it requires that in certain situations the principal and interest be re-characterized to recognize what the Internal Revenue Code refers to as "original issue discount." Original issue discount is the stated redemption price less the issue price of the covered debt instrument. In general, the application of these rules to a debt instrument results in the imputation of interest that must be recognized currently by the lender as income and deducted currently by the borrower.

We will briefly consider these rules in relation to the proposed Equity Participation Certificate. First, the Equity Participation Certificates do not come within the purview of these provisions because the Equity Participation Certificates are not indebtedness. The regulations define "debt instrument" as "any instrument or contractual arrangement that constitutes indebtedness under general principles of Federal income tax law (including, for example, a certificate of deposit or a loan)". In the present case there is no promise to repay any amount of loaned money or property. Instead, the investor has purchased a percentage of the value of the property and has fully assumed the risk of the property's value rising or falling. This is an equity investment and not any form of indebtedness. As a sale of property by the homeowner to the investor, the investor pays in full in cash for its investment at the time of the transaction and owes the homeowner no further payments. The homeowner does not make any principal or interest payments to the investor.

Second, even if these sections were applicable, the stated redemption price, which is a stated fraction of the value of the property, equals the issue price, after taking into account the

risk and the multiple year nature of the investment. This is the inherent nature of the Equity Participation Certificates. Therefore, there can be no original issue discount.

Market Interest

The question of whether the capital markets would be interested in Equity Participation Certificates is explored using the mean-variance approach to the analysis of portfolio. According to this theory, the efficient portfolio for any given level of return is the portfolio with the least variance (Luenberger,1998; Goetzmann, 1993). The actual analysis is performed by graphing the return against the standard deviation (instead of the variance). The line connecting the efficient portfolios is referred to as the efficient frontier. If Equity Participation Certificates have market interest, they should appear in at least some of the portfolios located on the efficient frontier.

There are countless possible combinations of portfolios involving Equity Participation Certificates. For example, one could involve a national sampling of homes, or focus on one or more local markets (such as Boston or Los Angeles, or any number of various combinations of local markets with varying weights for each market's share of the portfolio). Since we are only interested in a general indication of market interest, we will review a few examples. In particular, we will examine a portfolio consisting of the S&P 500, long term government bonds (those with a maturity near 20 years) and Equity Participation Certificates for the United States. We assume that the Equity Participation Certificates have returns and variances like those of the Freddie Mac price index for home sales and refinancings in the United States for the first quarter of 1975 through the third quarter of 1997 (Stephens et al 1995). Annual returns for the Equity Participation Certificates are estimated using the

changes from fourth quarter in each year to fourth quarter for the following year resulting in annual returns for 1976 through 1996. Information on returns and variances for the S&P 500 (based on 1926-96) and long term government bonds (based on 1970-96) are taken from Ibbotson (1997). In addition, the calculation of the variance of each potential portfolio requires the correlation between each element of the portfolio. The mean returns, standard deviations and correlation coefficients are summarized in Tables 1 and 2.

The efficient frontier is constructed by calculating the mean return and standard deviation for all combinations of the three portfolio elements where each element's share ranges from zero to 100% in 10% increments. The sum of the shares of all three elements in each possible portfolio is 100%. Each portfolio's mean return is the weighted average of the returns of each element with each element's weight being its share of the portfolio. Each portfolio's standard deviation is given by the following formula:

$$\sigma_p = [\Sigma\Sigma\, w_i\, w_j\, \sigma_i\, \sigma_j\, \rho_{ij}]^{1/2}$$

where

σ_p = standard deviation of the portfolio;

x_i = weight of portfolio element i;

x_j = weight of portfolio element j;

σ_i = standard deviation of portfolio element i;

σ_j = standard deviation of portfolio element j; and

ρ_{ij} = correlation coefficient between elements i and j of the portfolio.

The results are presented in Figure 1. Some of the points on the efficient frontier are identified by three numbers, each representing an element's share of that portfolio. For

example the minimum variance portfolio is "901" meaning that Equity Participation Certificates constitute 90 percent, S&P 500 zero percent and long term government bonds 10 percent of that portfolio. The portfolios containing only one element are also identified by "USHP" for Equity Participation Certificates, "LTG" for the long term government bonds and "S&P 500" for the S&P 500. Figure 1 has several portfolios located on the efficient frontier that contain Equity Participation Certificates. This suggests that there should be a market for the Equity Participation Certificates.

The analysis was repeated using Equity Participation Certificates from the Boston metropolitan area instead of ones from throughout the United States. The mean return and standard deviation for Boston home prices is 8.31 percent and 10.01 percent, respectively. The results are presented in Figure 2. The minimum variance portfolio also contains the Boston area Equity Participation Certificates. Other points on the efficient frontier are also portfolios which contain Boston Equity Participation Certificates.

These results are consistent with those of other researchers (Goetzmann, 1993; Caplin, Chan, Freeman and Tracy, 1997).

The possibilities for constructing various equity participation certificate instruments is suggested by the variation in market performance across the 162 metropolitan areas for which the home price index is calculated. The mean return of the home price index varies from 2.77 percent to 10.51 percent. The standard deviation varies from 2.68 percent to 51.39 percent.

Increasing Homeownership

The availability of Equity Participation Certificates will increase homeownership. To illustrate the impact of these certificates on homeownership, two fundamental aspects of

qualifying for a mortgage are examined: the ratio of principal, interest, taxes and insurance to income and the cash required at closing. The ability to purchase a home is compared for three situations: a conventional loan in an amount equal to 80 percent of the house price (assumed to equal appraised value), a loan with private mortgage insurance (PMI) in an amount equal to 90 percent of the house price, and Equity Participation Certificates equal to 50 percent of the house price in combination with a loan equal to 45 percent of the house price.

The following assumptions are made in simulating the alternative financing and equity participation scenarios:

a) interest rate of 7.5 percent per annum with a 30 year fixed rate loan;

b) closing costs equal to three percent of the house price;

c) real estate taxes and insurance equal to two percent of the house price;

d) in the case of loans with private mortgage insurance, a cost at closing equal to three percent of the house price; and

e) in the case of equity participation, an additional annual cost of one percent of the house price to reflect investor concern for and supervision of maintenance.

The ratio of principal, interest, taxes and insurance to income (PITI) is calculated for the 80% loan-to-value (LTV) conventional loan and the 90% LTV with PMI loan; and ratio of principal, interest, taxes, insurance and maintenance to income (PITIM) is calculated for the combination of equity participation and conventional loan for several alternative house prices in all cases. Figure 3 shows the variation in PITI(M) for a house price of $100,000. Since the average sale price for single family houses was $118,200 in 1996 (U. S. Bureau of the Census, 1997), this is a convenient and reasonable figure to use in illustrating the program impact. For each approach to purchasing the $100,000 house, the PITI(M) declines as income

increases. The usual front-end qualification ratio of PITI(M) to income of 28 percent is shown as a straight line in Figure 3; that is, other recurring monthly debt/lease obligations are not included in the numerator. The portion of each line that lies below this qualification ratio line delineates incomes that qualify on the basis of PITI(M) for purchasing the house with that particular approach. Incomes in excess of $34,114 qualify for the 90% LTV loan, and incomes in excess of $31,114 qualify for the 80% LTV loan. The 90% LTV loan has higher annual costs and requires a higher income than the 80% LTV loan, but, as will be illustrated soon, requires less cash at closing. The equity participation certificate (EPC) approach has the lowest qualifying income at $24,200.

Cash needed at closing consists of the down payment (house price less loan amount and, in case of the EPC, less the equity amount), closing costs and, in the case of PMI, PMI costs. Figure 4 shows the relationship between cash required at closing and house price for the three approaches. The cash required at closing increases with house price. The steepest line is for the 80% LTV loan with the EPC approach having the most gradual slope of the three approaches. The cash required at closing to purchase a $100,000 house is $23,000 for the 80% LTV situation, $16,000 for the 90% LTV situation and only $8,000 for the EPC situation.

The introduction of equity participation certificates opens up homeownership opportunities by making lower income households eligible and by reducing the net worth required to meet the cash at closing requirement. The distribution of income by net worth for renter households in 1995 is shown in Table 3. The categories have been selected to illustrate the three alternative approaches to buying a $100,000 home. Approximately 10.6 million of the 35 million renter households have net worth and incomes that suggest they might qualify

to purchase the $100,000 home with either the 80% LTV or the 90% LTV approaches; of the remainder, approximately 12.4 million renter households have zero or negative net worth or have very low incomes (under $10,000). The Equity Participation Certificate approach would permit an additional two million renter households, out of the remaining 12 million to qualify to purchase their own home for $100,000. In comparison, the 90% LTV approach added approximately 790,000 households to those qualified to purchase the $100,000 home with the 80% LTV approach.

Not all of the households with net worth and income qualifying them for the 80% LTV or the 90% LTV approaches have purchased homes. There are a wide variety of reasons such as varying attitudes towards desired liquidity and other commitments of or demands on their net worth and income. Many households without the net worth and income to qualify for these approaches actually own their homes. One reason is that Table 3 uses current income to measure demand when a measure of permanent income would be preferred. Again a wide variety of reasons come into play such as their purchase may have been at a time when their income or net worth was larger or they may have inherited the house or had family assistance with the purchase. Some of these households are undoubtedly the elderly who have the highest homeownership rates.

Table 4 summarizes the homeownership rates in 1995 by net worth and income. The homeownership rate for households with net worth over $50,000 is 90.2% in the aggregate, with all income subgroups within this wealth range in excess of 80%. Households with incomes in excess of $31,000 and with $30-50,000 of net worth have homeownership rates approaching 80%. These are the groups of households that appear to be able to own their home if they want to, and the homeownership rates for them suggest the upper bounds of

participation of any group in homeownership. If the homeownership rates of these groups are taken as the potential outcome of a successful implementation of the equity participation approach, approximately 2,400,000 additional homeowners would be added at the 80% ownership rate and approximately 3,400,000 at the 90% ownership rate. In addition, other households currently using one of the currently available approaches to homeownership may also participate in the equity participation approach because it gives them greater financial freedom and/or allows them to purchase a larger or better house.

Implementation of the equity participation approach should increase homeownership. If this vehicle had been in place in 1995, the homeownership rate would have been 67-68% instead of 64.7%, above the highest rate in history.

Conclusion

Home equity is a large part of the nation's real estate assets and of its assets in general. The development of a vehicle for permitting institutional investors to participate in this segment of the economy should improve the overall functioning of capital markets, especially those related to real estate and housing. An Equity Participation Certificate is proposed which would permit investors to own an equity interest in houses owned by homeowners. The certificate is structured to be similar to instruments that exist in our equity markets. The investor's interest is evidenced by a certificate and agreement setting forth the terms of the investment and the homeowner's performance of its promises is secured by a mortgage on the home.

Analysis of hypothetical portfolios using the concept of efficient frontiers indicates that the proposed vehicle should find a place in the market. In addition, the availability of this vehicle is expected to substantially increase home ownership to its highest level. The participation of two to three million homeowners in the equity participation approach would mean a market of 125 billion dollars for these certificates. Over time this market would be expected to grow larger as more homeowners turn to it to improve the quality of their housing and to free up their capital for other investments and greater portfolio diversification by households.

References

Bull, Diana, and Elaine St. James. 1990. The Equity Sharing Book: How To Buy A Home Even If You Can't Afford the Down Payment. New York, Penguin.

Caplin, Andrew, Sewin Chan, Charles Freeman and Joseph Tracy. 1997. Housing Partnerships: A New Approach to a Market at a Crossroads. Cambridge, Massachusetts, The MIT Press.

Geltner, David M., Norman G. Miller and Jean Snavely. 1995. We Need a Fourth Asset Class: HEITs. *Real Estate Finance: 71-81.*

Goetzmann, William Nelson. 1993. The Single family Home in the Investment Portfolio. *Journal of Real Estate Finance and Economics; 201-22.*

Ibbotson Associates. 1997. Stocks, Bonds, Bills and Inflation 1997 Yearbook. Chicago.

Internal Revenue Code of 1986, as amended and related regulations issued by the Internal Revenue Service.

Joint Center for Housing Studies of Harvard University, 1997. The State of the Nation's Housing. Cambridge, MA.

Levine, Michael R., and Paul E. Roberts. 1981. Future Forms of Financing - Lending Devices Addressed To Inflation and Tight Money, in Financing Real Estate During the Inflationary 80s, edited by Brian J. Strum. Chicago: American Bar Association.

Luenberger, David G. 1998. Investment Science. New York, Oxford University Press.

Miles, Mike, and Nancy Tolleson. Spring 1997. A Revised Look at How Real Estate Compares with Other Major Components of Domestic Investment Universe. *Real Estate Finance*: 11-20.

Stephens, William, Yang Li, Vassilis Lekkas, Jesse Abraham, Charles Calhoun and Thomas Kimner. 1995. Conventional Mortgage Home Price Index. *Journal of Housing Research*: 389-418.

The American Law Institute. 1997. Restatement of the Law Third; Property; Mortgages. St. Paul, MN: American Law Institute Publishers.

United States Bureau of the Census, 1997. Statistical Abstract of the United States: 1997. Washington, D. C.

Table 1

Means and Standard Deviations for Annual Returns (%)

	Mean	Standard Deviation
US Home Prices	5.92	3.92
S&P 500	12.67	20.30
Long Term Government Bonds	9.80	12.41

Table 2

Correlations among Portfolio Elements

	US Home Prices	S&P 500	Long Term Government Bonds
US Home Prices	1.0000		
S&P 500	-0.0835	1.000	
Long Term Government Bonds	-0.2346	0.4660	1.0000

Table 3

Renter Households - Net Worth By Income: 1995

Net Worth	Income									
Net Worth	<$10,000	$10,000-19,999	$20,000-24,999	$25,000-30,999	$31,000-34,499	$35,000-39999	$40,000-49,999	$50,000-59,999	$60,000-69,999	>=$70,000
<=0	3845605	2458076	889651	636645	398017	198222	402862	165418	100300	67335
$$1-7,999	4457290	3226021	1027206	1115701	496833	540542	397222	160412	84044	31214
$8,000-15,999	850793	1017927	328598	399668	356900	285834	258360	44910	28089	98573
$16,000-22,999	210634	334231	88241	158726	141854	268992	287915	107535	65716	100431
$23,000-29,999	125707	283905	147204	220623	165619	164306	148538	111511	40132	46930
$30,000-39,999	48465	299927	60483	197552	77103	187068	103431	76055	45116	64125
$40,000-49,999	110263	246651	100900	85875	86174	112340	164535	39528	89451	22254
$50,000-99,999	268795	350539	230575	164995	146628	343737	282304	162344	154954	220411
>=$100,000	122239	296421	230435	295538	195371	243962	213174	186792	170619	839346

Solid line is for Equity Participation Certificate approach.
Dashed line is for 80% LTV with lower LTVs for households with income below $31,000 and high net worth.
Double line is for 90% LTV.

Source: Special tabulation from the Survey of Consumer Finance.

Table 4

Homeownership Rates - Net Worth By Income: 1995

Net Worth	Income										
	<$10,000	$10,000-19,999	$20,000-24,999	$25,000-30,999	$31,000-34,499	$35,000-39999	$40,000-49,999	$50,000-59,999	$60,000-69,999	>=$70,000	Total
<=0	3.12	3.52	3.69	15.5	22.76	26.39	20.30	0.01	28.32	50.94	7.70
$1-7,999	12.85	9.53	15.39	20.5	24.95	29.08	33.73	20.51	48.60	66.52	16.28
$8,000-15,999	42.14	40.72	27.37	49.31	37.03	36.09	44.14	71.7	64.28	47.89	42.04
$16,000-22,999	69.95	64.38	73.27	60.00	44.26	25.83	63.65	55.51	35.78	11.96	58.33
$23,000-29,999	76.57	72.17	66.82	46.95	46.15	45.79	75.35	43.83	61.32	79.82	65.07
$30,000-39,999	87.91	64.61	87.15	63.01	79.05	53.56	81.96	72.26	81.75	74.10	73.45
$40,000-49,999	77.13	70.63	54.38	69.35	76.86	77.65	73.64	86.30	75.54	89.85	74.79
$50,000-99,999	84.86	87.59	85.24	87.37	84.6	82.24	85.43	89.61	88.03	86.87	86.18
>=$100,000	93.24	92.49	90.88	87.18	86.75	90.20	94.07	93.87	94.12	92.42	92.06
Total	38.24	53.35	61.89	59.98	62.28	68.63	76.70	82.82	85.58	89.34	64.72

Solid line is for Equity Participation Certificate approach.
Dashed line is for 80% LTV with lower LTVs for households with income below $31,000 and high net worth.
Double line is for 90% LTV.

Source: Special tabulation from the Survey of Consumer Finance.

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