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ALTERNATIVE MORTGAGES CONSUMER INFORMATION PAMPHLET

BY

DIANE DEHANN HABER
JOY HASHIBA SEKIMURA

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ALTERNATIVE MORTGAGES
CONSUMER INFORMATION
PAMPHLET

DIANE DEHANN HABER
JOY HASHIBA SEKIMURA

University of California
Berkeley

Working Paper 81-30
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CONSUMER MORTGAGE INFORMATION PAMPHLET

Given the plethora of new mortgage instruments which have been authorized by the FHLBB, the Comptroller of the Currency and by state agencies which govern state chartered savings and loan associations, there is an urgent need for consumer information on AMIs. The following is a sample consumer mortgage information pamphlet which explains the terms and conditions of the GPM (California S & Ls), VRM (California S & Ls), ARM (Federal banks), AML (Federal S & Ls) and the SAM (Federal proposal for S & Ls). The pamphlet outlines the advantages and disadvantages of each AMI and presents a graphical comparison of the interest rate, monthly payments and outstanding balance for 1975-1980.

A mortgage consists of four features:

1. Amount of principal
2. Interest rate
3. Periodic or monthly payment of principal and interest
4. Repayment term
In a standard fixed rate mortgage, all four features are determined at inception of the loan and do not vary over the life of the mortgage. In an alternative mortgage instrument, one or more of these features will be subject to change by prearrangement, or according to current economic conditions.

As we proposed in an earlier section of this paper, we believe the FHLBB should sponsor a pilot consumer education program. One of the purposes of the program would be to develop pamphlets similar to the GPM-VRM-ARM-AML-SAM pamphlet, for all the new AMIs. By making more information on house financing available to the public, the FHLBB can facilitate a potential homeowner's decision making process and can also reduce the probability of costly litigation for the parties involved.

**VARIABLE RATE MORTGAGE-CALIFORNIA (VRM)**

The VRM described in this pamphlet may be subject to change. Several bills are now before the California State Legislature which if passed, would liberalize the terms and conditions of the California VRM.

**What is it?**

The VRM is a home loan whose interest rate can change according to the cost of funds index. As the interest rate fluctuates, the monthly payment can
increase/decrease or the maturity date can be reduced or extended, up to 40 years.

How does the VRM compare to the standard fixed rate mortgage?

Interest Rate

The interest rate can change according to changes in the cost of funds index. The cost of funds index is compiled by the Federal Home Loan Bank Board of San Francisco and reflects the weighted average cost of funds for savings and loan associations in California.

Monthly Payment

The monthly payments can increase/decrease as the interest rate changes.

Repayment Term

If a change in interest rate triggers a change in the monthly payment, the repayment term can be lengthened up to 40 years to reduce or eliminate the increase in the monthly payment.

Amount of Principal
The principal will not increase as a result of changes in the interest rate. As the loan is amortized, the principal balance will decrease.

How does it work?

1. What determines the change in interest rate?

The movement of the cost of funds index, as calculated by the FHLBB of San Francisco, is the basis for interest rate changes. The direction of interest rate changes depends on what point in the interest rate cycle the loan is obtained.

2. How often can the interest rate change?

Semi-annually. The cost of funds index is usually released in February and August. No increase can occur during the first six months of the mortgage.

For example, if a borrower obtained a mortgage in September, 1980 when the index was 9.530%, his/her interest rate could increase when the index rises to 9.630%, although no rate change may occur during the first six months of the loan.

3. How much can the interest rate change?

A rate increase can be no less than 1/10 of 1 percentage point and no more than 1/4 of 1 percentage point during any six month period. However, a
lender can raise a VRM's interest rate twice in two consecutive six month periods if the cost of funds index rises by more than 1/4 of 1 percentage point in the first period. This can occur even though the interest rate has not increased as of the beginning of the second period. For example, if the index rises to 10.03% in February 1981, a lender could raise interest rates on VRMs originated in August 1980, when the index was 9.530%, by 1/4 of 1 percentage point in March 1981 and by another 1/4 of 1 percentage point in September 1981, even though the cost of funds index did not increase in August, 1981. The most the VRM interest rate can increase over the life of the loan is 2.5 percentage points above the interest rate in effect when the mortgage was obtained.

4. What is the effective date of a rate increase?

A notice must be mailed to the borrower at least 30 days prior to the effective date of any interest rate change. For example, if the cost of funds index is published on August 15th, a lender could notify borrowers on August 16th of an intended rate increase. The increase would be effective as of the October payment date.
5. How much can the interest rate decrease?

A rate decrease is mandatory when the cost of funds index decreases by at least 1/10 of 1 percentage point during a six month period. There is no overall limit for interest rate decreases over the life of the loan.

6. Is there a prepayment penalty?

No. There is no prepayment penalty if a borrower prepays within 90 days of notification of an interest rate increase.

ADVANTAGES

1. If the VRM is priced correctly, its interest rate should initially be less than the interest rate on a comparable fixed rate mortgage.

2. There is a cap of 2.5 percentage points on interest rate increases over the life of the mortgage.

3. The allowable interest rate increase per year is limited to 1/2 of 1 percentage point.

4. If there is a rate increase, the term can be extended to avoid an increase in monthly payments.
5. The interest rate on a VRM can be reduced.

6. There is no interest rate increase during the first six months.

7. There is no prepayment penalty.

8. The VRM is a long-term mortgage instrument, therefore the borrower is not forced to refinance as may be the case with a short-term mortgage.

DISADVANTAGES

1. There is no guarantee of interest rate stability.

2. The monthly payment is subject to change throughout the life of the loan.

3. If the borrower is unable to meet increasing monthly payments, he/she may be forced to sell the home.

4. The borrower is assuming more of the interest rate risk than he/she would with a fixed rate mortgage.

5. It may be more difficult to qualify for a VRM if banks adopt more stringent income requirements to insure that the borrower's future income keeps pace with increasing monthly payments.
6. With the phase out of interest rate ceilings, the cost of funds index will probably increase.

7. Since 1970, interest rates on VRMs have decreased only once but have increased several times.

**ADJUSTABLE MORTGAGE LOAN (AML)**

The AML outlined below is based on the FHLBB's regulation and the original Glendale Federal Savings AML proposal. Since Glendale Federal Savings is still developing its instrument, many of the features described below are subject to change.

**What is it?**

The AML is a home loan whose interest rate can change monthly according to changes in the six-month Treasury Bill rate. As the interest rate fluctuates, the monthly payment can increase/decrease up to 7.5% annually or the maturity date can be reduced or extended, up to 40 years.

**How does the AML compare to the standard fixed rate mortgage?**

**Interest Rate**
The interest rate will change according to changes in the six-month Treasury Bill rate.

**Monthly Payment**

The monthly payments can increase/decrease as much as 7.5% annually as the interest rate changes. If the 7.5% annual increase is not enough to amortize the loan, the lender must schedule a "catch up" payment adjustment at least every five years to insure the loan will be paid off at the end of the term.

**Repayment Term**

The repayment term can be lengthened up to 40 years.

**Amount of Principal**

The principal can increase if the monthly payment is insufficient to amortize the loan. However, the lender must schedule a "catch up" payment adjustment at least once every five years to insure that the monthly payment is enough to amortize the principal over the remaining term.

*How does it work?*
1. What happens if the interest rate changes?

The monthly payment, the term of the loan or the loan principal can be changed to reflect fluctuations in the interest rate.

2. What determines the change in interest rate?

The movement of the six-month Treasury Bill rate is the basis for interest rate changes.

3. How often can the interest rate change?

Semi-annually.

4. How much can the interest rate change?

There is no restriction on the amount the interest rate can change. At this time, there is no minimum increment for increasing the interest rate to reflect changes in the six-month Treasury Bill rate.

5. What is the effective date of a payment increase?

The borrower must be notified in writing 30 to 45 days before any payment change.

6. How much can the interest rate decrease?
There is no limit on the amount the interest rate can decrease. The lender must decrease the interest rate if there is a decrease in the six-month Treasury Bill rate. At this time, there is no minimum increment for decreasing interest rates to reflect changes in the six-month Treasury Bill rate.

7. Is there a prepayment penalty?

No. There is no prepayment penalty.

ADVANTAGES

1. If the AML is priced correctly, its interest rate should initially be less than the interest rate on a comparable fixed rate mortgage.

2. There is a cap of 7.5% on monthly payment increases, subject to a potential "catch up" adjustment every five years.

3. The interest rate on an AML can be reduced.

4. To avoid an increase in monthly payments, the term of the loan or the principal can be adjusted if there is a rate increase.

5. There is no prepayment penalty.
6. The AML is a long-term mortgage instrument, therefore the borrower is not forced to refinance as may be the case with a short-term mortgage.

DISADVANTAGES

1. There is no guarantee of interest rate stability.

2. The amount of the monthly payment is subject to change throughout the life of the loan.

3. If the borrower is unable to meet increasing monthly payments, he/she may be forced to sell the home.

4. The borrower is assuming all of the interest rate risk.

5. It may be more difficult to qualify for an AML if lenders adopt more stringent income requirements to insure that the borrower's future income keeps pace with increasing monthly payments.

6. Prior to a "catch up" adjustment, the homeowner may not be building up equity if the monthly payment has not kept pace with interest rate increases. This may pose a problem if the homeowner wants to sell and the house has not appreciated in value.
ADJUSTABLE RATE MORTGAGE (ARM)

What is it?

The ARM is a home loan whose interest rate can change according to one of the three national interest rate indices. As the interest rate fluctuates, the monthly payment can increase/decrease or the rate of amortization can change.

How does the ARM compare to the standard fixed rate mortgage?

Interest Rate

The interest rate can change at six month intervals over the life of the loan. Interest rate adjustments must correspond to changes in one of the three national interest rate indices:

1. Six-month Treasury Rate
2. Three year Treasury Rate
3. FHLBB Mortgage Rates for previously occupied homes

Monthly Payment

The monthly payments can increase/decrease as the interest rate changes. If the interest rate increases, the borrower also has the option of
keeping the monthly payment fixed for a period of up to five years while changing the rate of amortization. The rate of amortization refers to the portion of each monthly payment allocated to repayment of principal. If there is an interest rate increase, the monthly payment must be adjusted (increased) within a five year period to insure that the principal balance is paid over the remaining term.

**Repayment Term**

Determined by the bank.

**Amount of Principal**

If there is an interest rate increase, and the borrower/lender have agreed to keep the monthly payments fixed for a period of up to five years, an increase in the principal is permitted. This increase occurs because the monthly payments are not enough to cover the interest due on the outstanding loan balance. The increase in principal, defined as negative amortization, is limited to 1 percent of the principal outstanding at the beginning of the fixed payment period times the number of six-month intervals within the period. The amount of negative amortization within the fixed payment period may not exceed ten percent of the
principal outstanding at the beginning of the period.

How does it work?

1. What determines the change in interest rate?

The movement of one of the three national interest rate indices is the basis for interest rate changes. The direction of interest rate changes depends on what point in the interest rate cycle the loan is obtained.

2. How often can the interest rate change?

Interest rate changes can occur as often as semi-annually.

3. How much can the interest rate change?

An interest rate increase cannot exceed one percentage point per six-month period. If the interval between interest rate changes exceeds six months, the interest rate change is limited to one percentage point times the number of six month periods in the interval; however, any single interest rate change cannot exceed five percentage points.
4. Is there a limit on interest rate increases over the life of the loan?

No. Although there is no overall interest rate limitation, the ARM regulation provides for periodic interest rate caps. (See Answer to Question 3.)

5. What is the effective date of a rate increase?

A notice must mailed to the borrower 30 to 45 days prior to the effective date of any interest rate change.

6. How much can the interest rate decrease?

A rate decrease is mandatory when the specified national interest rate index decreases, except to the extent that rate decreases offset rate increases not taken. The ARM regulation does not specify a minimum interest rate decrease, although banks offering ARMs may establish their own minimum requirements.

7. Is there a prepayment penalty?

No, although banks may impose prepayment penalties up to one month before the first scheduled rate adjustment.
ADVANTAGES

1. If the ARM is priced correctly, its interest rate should initially be less than the interest rate on a comparable fixed rate mortgage.

2. If there is a rate increase, monthly payments can remain fixed up to five years.

3. The interest rate on an ARM can be reduced.

4. The allowable interest rate increase per year is limited to two percentage points.

5. There is no prepayment penalty.

6. The ARM is a long-term mortgage instrument, therefore the borrower is not forced to refinance as may be the case with a short-term mortgage.

DISADVANTAGES

1. There is no guarantee of interest rate stability.

2. The monthly payments are subject to change throughout the life of the loan.

3. If the borrower is unable to meet increasing monthly payments, he/she may be forced to sell the home.
4. The borrower is assuming more of the interest rate risk that he/she would with a fixed rate mortgage.

5. It may be more difficult to qualify for an ARM if lenders adopt more stringent income requirements to insure that the borrower's future income keeps pace with increasing monthly payments.

6. During a fixed payment period, the homeowner is not building up equity if the monthly payment has not kept pace with interest rate increases. This may pose a problem if the homeowner wants to sell and the house has not appreciated in value.

7. The ARM is not assumable.

GRADUATED PAYMENT MORTGAGE (GPM)

What is it?

The GPM is a home loan whose monthly payments start out lower than a comparable fixed rate mortgage, rise in graduated steps, and then level off to a predetermined amount for the remainder of the loan term.

How does the GPM compare to the standard fixed rate mortgage?
Interest Rate

The interest rate is fixed throughout the life of the loan.

Monthly Payment

The monthly payment increases during the graduation period (5 or 10 year period) and then remains constant.

Repayment Term

The repayment term is fixed.

Amount of Principal

The amount of principal increases during the 5 or 10 year graduation period because the monthly payments cover less than the interest due on the loan balance. This increase in the unpaid loan balance is defined as "negative amortization."

How does it work?

1. How often and by how much do the monthly payments increase?

The monthly payments increase annually during the graduation period. Under the 5 year plan, monthly mortgage payments increase annually by no more than 7.5% on a compound basis. Under the 10 year
plan, monthly mortgage payments increase annually by no more than 3% on a compound basis. At the end of the graduation period, the monthly payments are fixed.

2. What are the conditions of the GPM regarding term and amount?

The term of the loan cannot exceed 40 years and the amount of the loan cannot exceed the lesser of 95% of the value of the property or 95% of the purchase price.

3. At the time the loan is made, will the borrower know what the increase in monthly payments will be?

Yes. The interest rate, graduation period and rate of increase are fixed at the time of origination of the loan.

ADVANTAGES

1. The monthly payment schedule is designed to be tied to the borrower's income stream potential. As income increases, monthly payments also increase.
2. The GPM has lower monthly payments during the graduation period.

3. Because of lower monthly payments in the early years of the loan, it is easier to qualify for the loan and meet the lender's income to housing cost requirement.

4. The monthly payments cannot increase by more than 7.5% a year under the 5 year plan or by more than 3% a year under the 10 year plan.

5. At the end of the graduation period (5 or 10 years), the monthly payments are fixed for the remainder of the loan.

6. Lower monthly payments in the early years of the loan enable the borrower to buy a more expensive house or to use more of his/her income for other expenses.

7. There is no prepayment penalty for owner-occupied dwellings.

DISADVANTAGES

1. Since the GPM involves negative amortization, the homeowner is not building up equity during the graduation period. This could pose a problem if the homeowner wants to sell during the early years of the loan and the house has not greatly
appreciated in value.

2. The borrower will pay more in interest over the term of the loan compared to the standard fixed rate mortgage. However, the total interest expense is offset by its tax deductibility.

3. A family's income may not keep pace with the increasing monthly payments.

4. At the end of the graduation period, the monthly payments for a GPM are higher than the monthly payments for a comparable fixed rate mortgage.

**SHARED APPRECIATION MORTGAGE (SAM)**

**What is it?**

The SAM is a home loan in which the borrower agrees to share the home's appreciation with the lender in return for an interest rate lower than the interest rate on a standard fixed rate mortgage.

**How does the SAM compare with the standard fixed rate mortgage?**

**Interest Rate**
The interest rate is fixed over the ten year term of the mortgage. If the borrower wants to refinance the loan at the end of the ten year period, the interest rate will convert to the current market rate of interest for new residential mortgages.

Monthly Payment

The monthly payment does not change during the ten year term. Since the interest rate for a SAM is lower than the interest rate for a fixed rate mortgage; the monthly payment will also be lower.

Repayment Term

The mortgage is due at the end of the ten year term, or upon sale or transfer of the property. The repayment term can be lengthened if the borrower decides to refinance at the end of the ten year term. The new 30 year mortgage will include the unpaid balance of the SAM mortgage plus the appreciation due the lender.

Amount of Principal

The amount of principal decreases during the life of the mortgage. However, if the mortgage is refinanced, the principal increases by the amount of the appreciation due the lender.
How does it work?

1. How is the appreciation percentage/interest rate reduction trade-off determined?

The lender will determine the trade-off based on the competitive market for mortgages. There is a 40% limit on the amount of appreciation the lender can receive.

2. How much does the borrower owe the lender at the end of the term of the mortgage?

The borrower must pay the lender its share of the appreciated value of the home plus the unpaid loan balance. The appreciation due the lender is defined as "contingent interest" and qualifies as an interest tax deduction.

3. How is house appreciation determined?

If the house is sold before the end of the ten year term, house appreciation is the difference between the net sales price and the original purchase price. Net sales price is the gross sales price less sales expenses such as commissions, transfer and stamp taxes, escrow fees, appraisals, etc. If the lender does not choose to accept the net sales price or if the house is not sold prior to the end of the ten year term, house
appreciation is determined by appraisal.

4. How is the appraiser chosen?

The borrower and lender select the appraiser from a list of appraisers approved by the Federal Home Loan Mortgage Corporation and the Federal National Home Mortgage Association. If the borrower and lender disagree over the choice of an appraiser, each would choose their own appraiser and an average of the two appraisals would be used to determine house appreciation.

5. What if the borrower makes home improvements?

House appreciation can only be reduced by the cost of home improvements. The borrower is not compensated for his/her time devoted to home improvements. For example, if the borrower decides to put in a deck and spends $1,000 for wood and materials, the cost of the deck will only include the $1,000 spent and not the value of the borrower's own labor. The borrower must keep adequate records to verify the cost of the home improvements. Home improvements do not include maintenance work, such as painting, or repairs.
6. What happens if the house decreases in value?

The lender does not share in any decrease in the market value of the home.

7. What happens if the borrower does not have enough money to pay off the mortgage at the end of the ten year term?

The lender is required to refinance the unpaid balance of the mortgage plus the contingent interest due without regard to the economic forecast of the borrower's income. The loan may be refinanced with any mortgage offered by the lender other than a SAM, at the prevailing rate for residential first mortgages. Refinancing is conditioned upon the borrower satisfying any intervening liens against the property arising since the original SAM was made. The lender is also not required to offer refinancing in violation of lending requirements such as loan-to-value limitations, limits on term, escrow requirements and amount of monthly installments.

8. Can the lender exercise any rights over the property such as the right to sell, transfer, improve, etc.?
No. The borrower does not need the lender's prior consent to sell, transfer, improve, encumber, or otherwise use the property.

9. Is there a prepayment penalty?

No.

**ADVANTAGES**

1. The SAM has a lower interest rate than the current market rate on new residential first mortgages.

2. The monthly payments are lower. This makes it easier to qualify for a loan.

3. The original SAM lender is required to provide refinancing.

4. Contingent interest (lender's share of appreciation) is tax deductible.

5. Payment of contingent interest can be deferred by adding it to the unpaid loan balance and refinancing the total amount.

6. There is no prepayment penalty.

**DISADVANTAGES**
1. The borrower will have a harder time "trading up" to a more expensive home because he/she will receive less money from the sale of the SAM financed house.

2. By sharing the appreciation with the lender, the borrower's potential investment gain from the home is reduced.

3. There is a possibility of a large monthly payment jump when the loan is refinanced. If the borrower is then unable to afford the increased monthly payments, he/she may lose the home.

4. The increase in value due to homeowner improvements will be shared with the lender since only the cost of improvements is deductible from net sales price or appraised value. For example, a deck may add $5,000 to the value of the home, but only $1,000 of actual expenses can be deducted.

5. The homeowner cannot deduct the value of his/her own time spent on home improvements.

6. With a SAM, the borrower will have lower interest tax deductions than with a standard fixed rate mortgage during the ten year term.
7. The borrower may be unable to get the full interest deduction for the amount of appreciation paid to the lender at the end of the mortgage if the interest paid exceeds the borrower's taxable income.

8. The SAM is not assumable.
### SUMMARY OF AMI FEATURES

#### FIXED RATE MORTGAGE

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<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tr>
<td>Loan Term:</td>
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<td>Frequency of Rate Changes:</td>
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<td>Interest Rate Index:</td>
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<td>Maximum Rate Change at One Time:</td>
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<tr>
<td>Maximum Rate Change over Life of Loan:</td>
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</tr>
<tr>
<td>Minimum Rate Change at One Time:</td>
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</tr>
<tr>
<td>Maximum Payment Change:</td>
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<td>Prepayment Fee:</td>
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<tr>
<td>Assumability:</td>
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<tr>
<td>Negative Amortization:</td>
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</tr>
<tr>
<td>Equity Participation:</td>
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VARIABLE RATE MORTGAGE-CALIFORNIA (VRM)

Loan Term: up to 40 years
Frequency of Rate Changes: semi-annual
Interest Rate Index: FHLBB's Cost of Funds

Maximum Rate Change at One Time: 0.25%
Maximum Rate Change over Life of Loan: 2.5%
Minimum Rate Change at One Time: 0.10%
Maximum Payment Change: none
Prepayment Fee: none
Assumability: yes, state S & Ls, pending, federal S & Ls

Negative Amortization: none
Equity Participation: none
ADJUSTABLE MORTGAGE LOAN (AML)

Loan Term: up to 40 yrs.
Frequency of Rate Changes: semi-annual
Interest Rate Index: 6-month T-Bill rate
Maximum Rate Change at One Time: none
Maximum Rate Change over Life of Loan: none
Minimum Rate Change One Time: none
Maximum Payment Change: 7.5% per year
Prepayment Fee: none
Assumability: assumable
Negative Amortization: yes
Equity Participation: none
ADJUSTABLE RATE MORTGAGE (ARM)

Loan Term: determined by lender

Frequency of Rate Changes: semi-annual

Interest Rate Index: National interest rate indices **

Maximum Rate Change at One Time: 1% per 6 month period (can be accumulated up to 5%)

Maximum Rate Change over Life of Loan: none

Minimum Rate Change at One Time: none

Maximum Payment Change: none

Prepayment Fee: none

Assumability: not assumable

Negative Amortization: yes, limited to 10% of the principal outstanding at the start of fixed payment period

Equity Participation: none

** 6 Month Treasury Rate, 3 Year Treasury Rate or FHLBB Mortgage Rates on Previously Occupied Homes
**GRADUATED PAYMENT LOAN (GPM)**

<table>
<thead>
<tr>
<th>Feature</th>
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<tr>
<td><strong>Loan Term:</strong></td>
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<tr>
<td><strong>Frequency of Rate Changes:</strong></td>
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<td><strong>Minimum Rate Change at One Time:</strong></td>
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<td><strong>Maximum Payment Change:</strong></td>
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<td><strong>Prepayment Fee:</strong></td>
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<td><strong>Equity Participation:</strong></td>
<td>none</td>
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**SHARED APPRECIATION MORTGAGE (SAM)**

- **Loan Term:** 10 years
- **Frequency of Rate Changes:** only at the end of the 10 yr. period
- **Interest Rate Index:** N/A
- **Maximum Rate Change at One Time:** N/A
- **Maximum Rate Change Over Life of Loan:** N/A
- **Minimum Rate Change at One Time:** N/A
- **Maximum Payment Change:** depends on re-refinancing terms
- **Prepayment Fee:** none
- **Assumability:** not assumable
- **Negative Amortization:** yes
- **Equity Participation: (Lender)** yes
ASSUMPTIONS USED IN COMPARISON TABLE

1. ASSUMPTIONS FOR FIXED INTEREST RATE MORTGAGE
   A. The fixed interest mortgage is priced at 9.00%.

2. ASSUMPTIONS FOR VARIABLE RATE MORTGAGE (VRM)
   A. Interest rate changes are based on fluctuations in the FHLBB's (S.F.) cost of funds index from 1975-1980.
   B. The semi-annual interest rate changes are effective as of January and July.
   C. Interest rate increases are reflected in higher monthly payments as opposed to extensions of the term.
   D. The VRM is priced at 8.00%, 100 basis points below the fixed interest rate.

3. ASSUMPTIONS FOR ADJUSTABLE MORTGAGE LOAN (AML)
   A. Interest rate changes are based on fluctuations in the six-month Treasury Bill rate from 1975 to 1980.
   B. The semi-annual interest rate changes are effective as of January and July.
   C. Interest rate increases are first reflected in higher monthly payments, up to a cap of 7.5% per year and then in increases in the principal.
   D. The AML is priced at 8.00%, 100 basis points below the fixed interest rate.

4. ASSUMPTIONS FOR ADJUSTABLE RATE MORTGAGE (ARM)
   A. Interest rate changes are based on fluctuations in the six-month Treasury bill rate from 1975 to 1980.
B. The semi-annual interest rate changes are effective as of January and July.

C. Interest rate increases are reflected in higher monthly payments as opposed to increases in the principal.

D. The ARM is priced at 8.00%, 100 basis points below the fixed interest rate.

5. ASSUMPTIONS FOR GRADUATED PAYMENT MORTGAGE (GPM)

A. The graduation period is five years.

B. The GPM is priced at 9.50%, 50 basis points above the fixed interest rate.

6. ASSUMPTIONS FOR SHARED APPRECIATION MORTGAGE (SAM)

A. The SAM is priced at 7.00%, 200 basis points below the fixed interest rate.

B. The house appreciated by 7.5% per year, compounded, over the ten year period of the loan.

C. The lender's share of appreciation is 33 1/3%.
| Year | Interest rate | Monthly payment | Loan balance | Interest rate | Monthly payment | Loan balance | Interest rate | Monthly payment | Loan balance | Interest rate | Monthly payment | Loan balance |
|------|--------------|-----------------|--------------|--------------|----------------|--------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|
| 1975 | 9.00% 1-12/78| $643.70         | $79,453.42   | 8.00% 1-12/75| $587.02        | $79,672.47   | 6.37% 1-12/76| $499.61       | $79,206.22     | 7.00% 1-12/76| $509.75       | $79,187.25   | 6.84% 1-12/77|
| 1976 | 9.00% 1-12/78| $643.70         | $79,055.56   | 8.00% 7-12/78| $587.02        | $78,765.02   | 6.69% 7-12/79| $516.22       | $78,295.83     | 7.00% 7-12/79| $547.98       | $78,315.75   | 6.42% 7-12/79|
| 1977 | 9.00% 1-12/78| $643.70         | $77,823.78   | 8.00% 1-12/80| $587.02        | $77,690.57   | 6.11% 1-12/81| $486.64       | $77,381.25     | 7.00% 1-12/81| $509.08       | $77,381.25   | 5.29% 1-12/81|
| 1978 | 9.00% 1-12/78| $643.70         | $77,201.63   | 8.00% 1-12/82| $587.02        | $76,670.40   | 8.11% 1-12/83| $587.11       | $76,379.19     | 7.00% 1-12/83| $532.25       | $76,379.19   | 6.21% 1-12/83|
| 1979 | 9.00% 1-12/78| $643.70         | $77,486.34   | 8.00% 1-12/84| $587.02        | $76,684.54   | 10.11% 1-12/85| $639.25       | $68,648.25     | 7.00% 1-12/85| $639.25       | $68,648.25   | 6.21% 1-12/85|
| 1980 | 9.00% 1-12/79| $643.70         | $76,703.97   | 8.00% 1-12/86| $587.02        | $77,705.55   | 9.97% 1-12/87| $688.90       | $75,304.70     | 7.00% 1-12/87| $532.25       | $75,304.70   | 8.13% 1-12/87|
| 1981 | 9.00% 1-12/79| $643.70         | $76,162.04   | 8.00% 1-12/88| $587.02        | $77,637.84   | 9.97% 1-12/89| $684.38       | $75,250.97     | 7.00% 1-12/89| $532.25       | $75,250.97   | 8.13% 1-12/89|
| 1982 | 9.00% 1-12/80| $643.70         | $75,548.19   | 8.00% 1-12/90| $587.02        | $77,126.71   | 9.97% 1-12/91| $684.38       | $74,882.25     | 7.00% 1-12/91| $532.25       | $74,882.25   | 8.13% 1-12/91|

**Note:** 
- **S** represents year the loan is refinanced. 
- **P** represents year the loan is prepaid. 
- **R** represents year the loan is reset. 

**S** $80,000 loan, originated January 1, 1975, 30 year amortization.
OUTSTANDING BALANCE ON AN $80,000 MORTGAGE

Outstanding Balance

$100,000

Year

$10,000

$5,000

$0

AML
FIXED
VRM
ARM
SAM

GPM
BASIC PROGRAM FOR GPM MORTGAGE

100 DIM B(360), M(30), P(30)
110 DEF FNA(N, I) = (1-I/(1+I)^N)/I
120 READ I1, N, K, R, B(0)
130 data 0.095, 30, 5, 0.075, 80000
140 I1 = I1/12
150 N = N*12
160 Z = (1+I1)^12/(1+R)-1
170 M1 = FNA(12, I1)*FNA(K, Z)*(1+Z)
180 M2 = FNA(N-K*12, I1)*(1+R)^K/(1+I1)^K*(K/12)
190 M(1) = B(0)/(M1+M2)
200 FOR I = 2 TO N/12
210 IF I > K + 1 THEN 240
220 M(I) = M(1)*(1+R)^((I-1)
230 GO TO 250
240 M(I) = M(K+1)
250 NEXT I
260 FOR I = 1 TO N
270 FOR L = INT((I-1)/12)+1
280 B(I) = B(I-1)*(1+I1)-M(L)
300 NEXT I
310 PRINT "GRADUATED PAYMENT MORTGAGE PLAN"
320 PRINT "WITH"; K; "YEARS OF PMTS INCREASING AT"; R*100;
"PERCENT PER YR"
330 PRINT "CONTRACT RATE"; I1*1200; "PERCENT"
340 PRINT "TERM"; N/12; "YEARS"
350 PRINT "ORIGINAL LOAN PROCEEDS"; B(0)
360 PRINT
370 FOR I = 1 TO K
380 PRINT "YEAR"; I; "MO PMT"; M(I)
390 NEXT I
400 PRINT "REM PMTS"; M(K+1)
410 FOR I = 1 TO N/12
420 PRINT "YEAR"; I; "MTG BAL-EOY"; B(I*12)
430 NEXT I
440 END


EXHIBIT 11
The following working papers in this series are available from the above address at a charge of $ .00 each, which partially covers the cost of reproduction and postage. Checks should be made out to the Regents of the University of California.


