Is There a Link Between Money Illusion and Homeowners’ Expectations of Housing Prices?

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Abstract

Money illusion is a behavioral bias in which a person thinks in terms of nominal, rather than real, values. This paper reports homeowners’ responses to a survey designed to measure the extent of money illusion as well as homeowners’ expectations regarding home valuations. We find that our survey respondents suffer from money illusion, yet they have reasonable expectations of home prices. Even though the time period is one characterized by low inflation and mortgage rates, the majority believed their home valuations were fair and did not expect extremely high valuations in the future. Overall, our evidence suggests that low inflation and money illusion are not sufficient conditions for homeowners to generate unrealistic expectations about home values.

Keywords: housing prices, bubbles, money illusion

JEL Codes: G10, R20
Is There a Link Between Money Illusion and Homeowners’ Expectations of Housing Prices?

For many Americans, their home is their largest and most important investment. A sense of security derives from home ownership and increasing housing prices. However, economists and the popular press question whether home prices in recent years reflected a price bubble in which case valuations were incorrect. A price bubble may be generated when people believe prices in the future will be even higher and, thus, are not concerned about paying a high price today. When homes are overvalued and prices are out of line with true economic valuations, a sharp downward adjustment at some point is to be expected. This paper provides direct insight into how homeowners’ perceived valuations at the height of the housing price bubble and whether their expectations were reasonable.

Perceived home valuations have been linked to money illusion. Research suggests that people are subject to money illusion, a behavioral bias that results in decisions that are inconsistent with theory (Shafir, Diamond, and Tversky, 1997). A person who suffers from money illusion bases decisions on nominal rather than real values. When inflation is high, a person can suffer a real loss despite a nominal profit. A person with money illusion might actually prefer this outcome to one with a real gain. Recent research concludes that stock market participants suffer from money illusion (Cohen, Polk, and Vuolteenaho, 2005).

In the late 1990s and early 2000s low inflation was experienced in the U.S. Brunnermeier and Julliard (2008) argue that low inflation in combination with money illusion fueled the housing price bubble. When people with money illusion compare the
monthly rent on a home to the mortgage payment with a fixed rate loan, they assume that real and nominal rates move together. When inflation is low, they believe that the real rate is low and, thus, undervalue the cost of future mortgage payments. If lower inflation leads people to expect low mortgage payments, money illusion may lead to upward price pressure on homes.

There are important, real effects of housing price changes. Large changes in home valuations can lead to considerable wealth transfers between buyers and sellers. In addition, an area viewed as having a housing price bubble will not be desirable for people considering relocation which will lead to lower employment growth. Perhaps most importantly, a price bubble can have a significant impact on supply with overbuilding in areas of high price (Glaeser, Gyourko, and Saiz, 2008). Real resources are misallocated when prices are volatile and unconnected with fundamental valuations. When a bubble bursts, losses in productivity and regional recessions can result, as the price adjustment at the end of the 1980s shows (Case and Shiller, 2003). The impact can be far-reaching, as we are all very well aware given the current world-wide financial crisis.

Real losses from a housing price bubble may be persistent because, even if many believe that home prices are disconnected from underlying fundamentals, adjustment toward reasonable valuations can take a great deal of time. It is difficult to take advantage of mispricing in the housing market because the transactions costs are significant, carrying costs are large, and there is no short-selling. Especially when compared to other asset markets, arbitrage in housing markets is extremely difficult, if at
To provide insight into the conjecture that homeowners suffer from money illusion, which translates into unreasonable home valuations, we conduct a survey of local homeowners. Though surveys have numerous limitations, we believe our research has the potential to provide important insight. Behavioral regularities are often first documented with survey methods (see, e.g., Shafir, Diamond, and Tversky, 1997). Our results provide insight into how Americans view and respond to the level of housing prices and, further, offer direction for future empirical and theoretical research.

The remainder of this paper is organized as follows. Section I describes the housing price experience in the U.S. from January 2000 through July 2008, and section II describes the research method. Section III provides information on our sample of respondents and their attitudes toward mortgage financing. Section IV proffers evidence on whether the homeowners suffered from money illusion. Section V reports homeowners’ expectations at the height of the housing bubble and considers whether the expectations are consistent with reasonable expectations about home values. Finally, section VI concludes with a discussion of the results and directions for future research.

I. Home Prices in the United States

Figure 1 shows a U.S. housing price index for January 2000-July 2008. This index is the S&P/Case-Shiller Home Price Index, published on the last Tuesday of each month.² Twenty U.S. metropolitan areas are followed and indexes are designed to mirror

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¹ Case and Shiller (1989) argue that excess returns are forecastable based on their model, though they recognize that their evidence is not definitive because it is difficult to measure both tax effects and the implicit rent of a home.

² The price index data is available at www.homeprice.standardandpoors.com.
prices for typical single-family homes in each area. The composite shown in the figure is a value-weighted measure of the 20 metropolitan areas followed. As the figure illustrates, overall U.S. home prices soared 106.52% from January 2000 to a peak in July 2006.

Although the overall market in the U.S. rose in the 2000s, the extent of price appreciation varied across the country. Figure 2 illustrates the price index for Atlanta, Boston, Los Angeles, and Miami from January 2000-July 2008. Across the twenty metropolitan areas followed by S&P/Case-Shiller, the largest price increase was experienced in Miami. At the peak in December 2006, home prices in Miami increased a whopping 181%. The experience in Los Angeles was similar: housing prices peaked in September 2006 with an increase of 174% since the inception of the index (in 2000). The home market in Boston peaked a year earlier in September 2005 with an increase of 82%. Other metropolitan areas experienced more moderate increases and peaked later, such as Atlanta with an increase of 36% as of July 2007.

The price bubble in Atlanta, if one existed, was approximately one-third of the magnitude of the U.S. price index. Atlanta home prices peaked in July 2007, a year later than overall U.S. home prices, and the increase was comparatively small. In July 2008, the Atlanta home price index was not far from its value in October 2005, the time our survey was administered. The survey of homeowners, described in the following section, was administered in suburban Atlanta. We chose this location because, though there was price appreciation to some extent, the mispricing was relatively small, if there was

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3 Case and Shiller (2003) considered Boston, Los Angeles, Milwaukee, and San Francisco, while Case and Shiller (1989) included Atlanta, Chicago, Dallas, and San Francisco. The four cities we highlight are chosen as representative of the U.S. experience.

4 Of the cities included in the index, the smallest home price appreciation was observed in Cleveland with a peak increase of 23% in July 2006.
mispricing at all. Our goal is to examine whether in this environment of rising U.S. home prices, our sample of residents suffered from money illusion and, in turn, had unrealistic expectations about the future values of their homes.

II. Research Method

In October 2005, we surveyed residents of a community in a suburban area close to Atlanta, Georgia (i.e., part of the greater metropolitan area). The “townpark” community includes thirteen neighborhoods and various amenities such as pools, playgrounds, tennis courts, and other shared recreational areas. In total, 1,961 homes were built between 1992 and 2005. We report on the responses of 141 adult residents who completed the survey at various community events, including children’s soccer games and a chili cook-off. Respondents were recruited using flyers and word-of-mouth and were paid for completing the survey, which typically required 20-30 minutes. Casual observation suggests that respondents took the task seriously and answered questions diligently.

The full survey is included in the appendix to this paper. In addition to demographic questions, we asked respondents a number of questions regarding home valuations and types of loans (mortgages). We also included questions modeled after those reported in Shafir, Diamond, and Tversky (1997) in order to measure whether the homeowners fell prey to money illusion.

III. Respondents and Attitudes Toward Mortgage Financing

Descriptive Information on Homeowners
Of the 141 homeowner respondents, 87 were female and 54 male. The average age was 37 years, with a range of 24 to 70. Nearly everyone (91.5 percent) indicated that they were the primary decision maker in household financial decisions or that decision making was shared equally with another.

All respondents were homeowners, and most (or 69.5 percent) had owned more than one home. The vast majority purchased their current home in the $100,001 to $200,000 (60.3 percent) or $200,001 to $300,000 (29.1 percent) price range. A small minority (n=6 or 4.3 percent) were currently selling their home. The vast majority had household income in the $0 to $100,000 (49.6 percent) or $101,000-$200,000 (41.1 percent) range.

Financing Attitudes

Respondents were asked how the purchase of their home was financed. For a handful, their home was fully paid for (4.3 percent). Others used fixed-rate, adjustable-rate, or interest-only mortgages. They later were asked to identify the preferred mortgage type (fixed-rate, adjustable-rate, or interest-only) under three conditions: assuming that prices in the community would rise, fall, or remain constant. Responses (in percentages) follow.

<table>
<thead>
<tr>
<th>Financing method</th>
<th>Fixed-rate</th>
<th>Adjustable-rate</th>
<th>Interest-only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>69.50</td>
<td>19.86</td>
<td>6.38</td>
</tr>
<tr>
<td>Preferred with price condition</td>
<td>Increase</td>
<td>66.4</td>
<td>13.6</td>
</tr>
<tr>
<td></td>
<td>Decrease</td>
<td>68.1</td>
<td>20.6</td>
</tr>
<tr>
<td></td>
<td>Do not change</td>
<td>75.9</td>
<td>13.5</td>
</tr>
</tbody>
</table>

We observe a slight change in preference toward an interest-only mortgage when price
increases, and a slight change in preference toward an adjustable-rate mortgage when price decreases.

Further inspection of the data, indicates that nearly half of the respondents’ mortgage preference did not vary by price condition. We found that 63 respondents (44.7 percent) chose a fixed-rate mortgage regardless of change in housing prices, three (2.1 percent) chose an adjustable-rate mortgage, and four (2.8 percent) chose an interest-only mortgage.

We also asked respondents to rank the importance of five factors when financing the purchase of a new home, including mortgage interest rate, monthly payment, total loan amount, length of mortgage, and expected increase in new home prices. Participants ranked mortgage interest rate and monthly payment as the most important factors. We performed Bonferroni comparisons and found that mortgage interest rate was ranked as more important than monthly payment at p = 0.056. Both factors were ranked as more important than each of the other three factors at p < 0.001.

IV. Do Homeowners Suffer from Money Illusion?

Money Illusion and Income

Following Shafir, Diamond, and Tversky (1997) we presented respondents with a scenario involving two people, Ann and Barbara. The scenarios are identical except that we have increased the salary levels to more closely align with current market conditions. The scenario below is used to assess how respondents view changes in income level.

Scenario 1:

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5 In addition to the salary adjustment, our survey design differs in that Shafir, Diamond, and Tversky (1997) asked these questions across subjects. In our survey we ask all respondents the same set of questions.
Consider two individuals, Ann and Barbara, who graduated from the same college a year apart. Upon graduation, both took similar jobs with publishing firms. Ann started with a yearly salary of $50,000. During her first year on the job there was no inflation, and in her second year Ann received a 2% ($1,000) raise in salary. Barbara also started with a yearly salary of $50,000. During her first year on the job there was 4% inflation, and in her second year Barbara received a 5% ($2,500) raise in salary.

a. As they entered their second year on the job, who was doing better in economic terms?
   Ann 78.42%   Barbara 21.55%

b. As they entered their second year on the job, who do you think was happier?
   Ann 27.34%   Barbara 76.66%

c. As they entered their second year on the job, each received a job offer from another firm. Who do you think was more likely to leave her present position for another job?
   Ann 75.54%   Barbara 24.46%

Below each question and to the right of the name of each individual in the scenario we report the percentage of respondents making that choice. Respondents recognized that Ann was doing better in economic terms due to differences in inflation. However, subsequent responses suggest that nominal salaries matter: Ann makes less in nominal terms and, as such, is less happy and more likely to change jobs.

Money Illusion and Transactions in Housing

We include three scenarios to gain insight into how respondents perceive mortgages and housing prices. The first considers how people evaluate a transaction, again following Shafir, Diamond, and Tversky (1997).6

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6 As noted above, our survey design differs in that Shafir, Diamond, and Tversky (1997) asked these questions across subjects and we ask all respondents the same set of questions. Shafir, Diamond, and Tversky reverse the order of presentation within the scenario (i.e., Carl, Ben, Adam) for half of their subjects and find that order does not matter.
**Scenario 2:**
Consider the following. Adam, Ben, and Carl each received an inheritance of $200,000, and each used it immediately to purchase a house. Suppose that each of them sold the house a year after buying it. Economic conditions, however, were different in each case.

- When Adam owned the house, there was 25% deflation – the prices of all goods and services decreased by approximately 25%. A year after Adam bought the house, he sold it for $154,000 (23% less than he paid).

- When Ben owned the house, there was no inflation or deflation – the prices of all goods and services had not changed significantly during that year. He sold the house for $198,000 (1% less than he paid for it).

- When Carl owned the house, there was 25% inflation – the prices of all goods and services increased by approximately 25%. A year after he bought the house, Carl sold it for $246,000 (23% more than he paid).

Please rank Adam, Ben, and Carl in terms of the success of their house transactions. The person assigned a ‘1’ made the best deal and a ‘3’ the worst deal.

The following table summarizes nominal and real gains as well as the homeowners’ responses:

<table>
<thead>
<tr>
<th>Nominal value</th>
<th>Adam</th>
<th>Ben</th>
<th>Carl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal value</td>
<td>-23%</td>
<td>-1%</td>
<td>+23%</td>
</tr>
<tr>
<td>Real value</td>
<td>+2%</td>
<td>-1%</td>
<td>-2%</td>
</tr>
<tr>
<td>Ranking</td>
<td>1 21.28%</td>
<td>22.70%</td>
<td>57.45%</td>
</tr>
<tr>
<td></td>
<td>2 19.15%</td>
<td>70.21%</td>
<td>17.73%</td>
</tr>
<tr>
<td></td>
<td>3 59.57%</td>
<td>7.09%</td>
<td>24.82%</td>
</tr>
</tbody>
</table>

As with scenario 1, the evidence suggests that the homeowners are subject to money illusion. Our respondents seem to rank in terms of nominal values (Carl, Ben, Adam).

Because our focus is on home prices, we add two questions specifically designed to elicit views on money, mortgages, and the sale of a home. We next consider how
mortgage payments impact the value of a transaction.

Scenario 3:
Donna and Jill each acquired similar new homes for $175,000. Both obtained a mortgage for $150,000 at the time of purchase.

- Donna obtained a fixed-rate mortgage. Over five years she made monthly payments totaling $48,000 ($800 per month x 60 months). The outstanding loan balance is $138,000 at the end of five years.

- Jill obtained an interest-only mortgage. Over five years she made monthly payments totaling $36,000 ($600 per month x 60 months). The outstanding loan balance is $150,000 at the end of five years.

Donna and Jill are now selling their homes. Assume that over the five years interest rates have not changed.

a. Donna and Jill each sell their home for $215,000. As a result, Donna walks away with cash of $77,000, whereas Jill walks away with cash of $65,000. Who has done better on the sale of her home? *Check the one who has done better.*
   - Donna 30.00%
   - Jill 22.86%
   - Equally 47.14%

b. Who is happier as a result of the sale transaction described in (a)?
   - Donna 48.92%
   - Jill 19.42%
   - Equally 31.65%

c. Now assume that Donna and Jill each sell their home for $140,000. As a result, Donna walks away with $2,000 in cash, whereas Jill has to pay $10,000 in cash. Who has done better on the sale of her home? *Check the one who has done better.*
   - Donna 60.71%
   - Jill 12.14%
   - Equally 27.14%

d. Who is happier as a result of the sale transaction described in (c)?
   - Donna 77.70%
   - Jill 13.67%
   - Equally 8.63%

Following each question, we report the percentage of respondents choosing Donna, Jill, or equality between the two. When the homes were sold at a gain, the majority of respondents indicated that the Donna and Jill did equally well, but that Donna was happier – presumably because Donna received more cash. In contrast, when the homes are sold at a loss, the majority indicate that Donna did better and was happier –
presumably because Jill had to pay out of pocket at closing.

In the final scenario presented to homeowners, we asked them to consider whether a couple should purchase a home that had a price that was higher than the maximum amount that they had determined they should spend. According to Case and Shiller (2003) in a bubble environment homebuyers will conclude that it is acceptable to buy a home that would usually be too expensive because prices will continue to rise.

**Scenario 4:**
Consider the following. Jane and John Doe currently rent an apartment, but have been saving in hopes of buying their first home. The couple determined, based on a personal assessment of their financial affairs, that they have the means to purchase a $200,000 home. They determined that $200,000 is the most that they should spend. After spending countless hours looking, the Doe’s identified a new home that has everything that the couple wants and needs: the house is perfect. Unfortunately, the new home costs 25% more than the couple planned to spend: the price of the new home is $250,000. The couple, however, has qualified for a mortgage to finance the new home – so there are no obstacles preventing the purchase.

a. Should the couple purchase the new home?

<table>
<thead>
<tr>
<th>Definitely Do</th>
<th>Definitely Not Purchase</th>
<th>Don’t Know</th>
<th>Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

b. Assume that the Doe’s qualified for a fixed-rate mortgage as well as an interest only mortgage. Which type of mortgage should the Doe’s use to finance the purchase of the new home?

| fixed-rate 65.00% | interest-only 35.00% |

For the first question of scenario 4 we find a mean response of 4.9, median response of 4.0, and modal response of 1.0 (16.4 percent), indicating that many respondents thought the purchase might not be such a good idea. Figure 3 reports the response frequencies. Though some respondents thought the Doe’s should not buy the
home (41% responded 1, 2, or 3), many were unsure or thought they should go ahead with the purchase (45% responded 6-11). For the second question the percentage of respondents who indicated interest-only financing was fairly high in relation to figures presented earlier: e.g., less than 7 percent of our respondents had an interest-only mortgage and under conditions that were most conducive to such loans (rising home prices), this type of financing was favored by only 20 percent of the respondents.

V. Were Homeowners Reasonable?

In the previous sections we document money illusion among our sample of homeowners. Many of these homeowners also recommended buying a home whose price was outside the family budget. Did money illusion translate into unreasonable expectations about the values of their homes in the future? Brunnermeier and Julliard (2008) argue that the bulk of the mispricing in the housing market in recent years can be explained by money illusion and changes in inflation. Recall that decreases in inflation potentially can lead to increases in home prices if people fall prey to money illusion. When inflation falls, people who are subject to money illusion believe that low inflation translates into low real interest rates so they underestimate the current value of future mortgage payments. This, in turn, leads to higher home prices.

The 2000s were characterized by relatively low inflation and low mortgage rates. Figure 4 illustrates inflation measured using the percentage change in the consumer price index and 30-year conventional mortgage rates in the U.S. from April 1971 through July 2008.7 The average inflation and mortgage rates for the period from January 2000

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7 Mortgage rates for conventional 30-year mortgages are from the Federal Reserve Bank of St. Louis and are available at http://research.stlouisfed.org/fred2/series/MORTG/downloaddata?cid=114. While there are
through July 2008 were 3.2% and 6.45%, which are low in comparison to the experience since 1971 for which the averages were 4.7% and 9.15%, respectively.

So, it seems that our sample of homeowners lived in a time of low inflation and mortgage rates and also fell prey to money illusion. Did they believe their home values were out of line? Our respondents were asked to evaluate the current level of home prices on an 11-point scale, labeled by 1 = too low, 6 = just about right, and 11 = too high. The mean, median, and modal responses were 6.0, which was labeled as housing prices being just right. We found that 60 respondents (or 42.6 percent) indicated 6.0. Moreover, 109 of 141 (77.3 percent) responded that prices were close to the appropriate level (responses of 5.0, 6.0, or 7.0). The evidence suggests that this sample of homeowners did not have unrealistic valuations of their homes, even with money illusion and in an atmosphere of low rates. Other evidence suggests that their valuations were reasonable even though many were willing to recommend buying a house that was outside their budget. In the summer of 2005, two real estate valuation providers rated home prices in Atlanta as fair, with one estimate indicating slight overvaluation and another slight undervaluation (Smith and Smith, 2006). Using their own model, Smith and Smith (2006) conclude that prices in Atlanta were actually below fundamental values.

Did homeowners expect to make large gains in home values in the future? Respondents were also asked to assess the expected selling price of their home in relation to the purchase price at the current time, in one year, and in five years. Their responses indicated that they expected, on average, price increases of 1.6% over the coming year.

many ways to measure inflation, we use the compounded rate of change of the Consumer Price Index (CPI) available from the same source. Our figure begins in April 1971 as that is the start of the mortgage rate series.
and 2.86% per year over the next five years. These expectations seem very reasonable given that home prices in the U.S. have historically grown at a real rate of 1.4% per year (Himmelberg, Mayer, and Sinai, 2005). Even with relatively low inflation expectations homeowners reported expected nominal growth rates are rather conservative.

VI. Discussion and Concluding Remarks

This paper reports homeowners’ responses to a survey designed to measure the extent of money illusion as well as homeowners’ expectations regarding home valuations. We find that our survey respondents suffer from money illusion, yet they have reasonable expectations of home prices. Given that our sample of homeowners resided in an area of relatively low mispricing, what can we conclude about housing price bubbles in other regions of the U.S.?

While we cannot rule out a role for money illusion, our evidence suggests that low inflation and money illusion are not sufficient conditions for homeowners to generate unrealistic expectations about home values. The responses of our sample of homeowners clearly indicate that they think in terms of nominal, rather than real, valuations. The time period is one characterized by low inflation and mortgage rates. Yet, the majority believed their home valuations to be close to fair value and did not expect extremely high valuations in the future.

Some housing markets may be subject to extreme mispricing due to “a perfect storm” created by a confluence of factors. Supply and demand each play important roles.
The literature has documented the importance of fundamental factors. The metropolitan areas with the largest price run-ups tend to have limited land available for expansion due to geography, such as coastal cities (e.g., Los Angeles, Boston, Miami). On the demand side, loose lending practices tied with low mortgage rates are contributors. Money illusion could add to the mania on both the demand and supply sides, as home buyers bid up prices and developers over-build. All of these fundamental and behavioral factors play a part in the outcome, but it is unlikely that any one is a determining factor.

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8 See, for example, Himmelberg, Mayer, and Sinai (2005) who question whether there was a housing price bubble at all in 2004. As they point out, a decline in prices is not adequate evidence that a bubble existed in the past because a real shift in fundamentals may have been the spur.
Appendix

We have replaced the community name with XXXX.

Housing Questionnaire

To complete this questionnaire, you must be a XXXX homeowner (only one per home) and you must actively participate in household financial decisions.

1. What is your gender? _____ male _____ female

2. What is your age? _____ years

3. Is your home currently for sale? _____ yes _____ no

4. How much did your home cost?
   _____ $0 - $100,000
   _____ $100,001 - $200,000
   _____ $200,001 - $300,000
   _____ $300,001 - $400,000
   _____ $400,001 - $500,000
   _____ More than $500,000

5a. When did you purchase your home? _____ month _____ year

5b. Is it the first home you have purchased? yes _____ no _____

5c. If no, how many prior homes have you purchased? ______ homes

6. How was the purchase of your home financed?
   _____ fixed-rate mortgage
   _____ adjustable-rate mortgage
   _____ interest-only mortgage
   _____ home is paid for
   If other, please explain. ____________________________________________________

7. How would you characterize the current level of housing prices in XXXX?
   Too low      Just Right    Too high
   1--------2------3-------4--------5-------6--------7--------8--------9------10--------11

8. If you sold your home today, what is the expected selling price in relation to the price at which you purchased?
   Lower    No change    Higher
   100% ----80%----60%-----40%----20%-----0%------20%-----40%-----60%-----80%----- ≥100%
9. If you sold your home in one year, what is the expected selling price in relation to the price at which you purchased?

Lower          No change             Higher
100% ----80%----60%----40%----20%----0%----20%----40%----60%----80%---- ≥100%

10. If you sold your home in five years, what is the expected selling price in relation to the price at which you purchased?

Lower          No change             Higher
100% ----80%----60%----40%----20%----0%----20%----40%----60%----80%---- ≥100%

Background information on types of mortgages: Today’s market offers three broad types of mortgages: fixed-rate, adjustable-rate, and interest-only. A fixed-rate mortgage locks in an interest rate, whereas adjustable-rate and interest-only loans allow the interest rate to vary for a period of time and then lock in a rate. For fixed-rate and adjustable-rate mortgages, monthly payments go toward the loan balance and interest – the outstanding loan balance declines over time. For interest-only loans, monthly payments for an initial period only go toward interest – the outstanding loan balance does not decline. But, monthly payments often are substantially lower for interest-only loans.

11. Assume that today you are purchasing a new home in XXXX and you have the opportunity to finance the purchase using a fixed-rate mortgage, an adjustable-rate mortgage, or an interest-only mortgage. For each of the following, please check the type of mortgage that you would prefer to use to finance your purchase.

a. Housing prices in XXXX are expected to rise in the future.
   ______ fixed-rate   ______ adjustable-rate   ______ interest-only

b. Housing prices in XXXX are expected to fall in the future.
   ______ fixed-rate   ______ adjustable-rate   ______ interest-only

c. Housing prices in XXXX are expected to remain unchanged in the future.
   ______ fixed-rate   ______ adjustable-rate   ______ interest-only

12. Please rank the following in terms of importance when financing the purchase of a new home. Assign a ‘1’ to the feature that is most important, a ‘2’ to the feature that is next most important, and so forth.

   ______ Length of Mortgage
   ______ Interest Rate on Mortgage
   ______ Monthly Payment
   ______ Total Loan Amount
   ______ Expected Increase in New Home Prices

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13. Consider two individuals, Ann and Barbara, who graduated from the same college a year apart. Upon graduation, both took similar jobs with publishing firms. Ann started with a yearly salary of $50,000. During her first year on the job there was no inflation, and in her second year Ann received a 2% ($1,000) raise in salary. Barbara also started with a yearly salary of $50,000. During her first year on the job there was 4% inflation, and in her second year Barbara received a 5% ($2,500) raise in salary.

a. As they entered their second year on the job, who was doing better in economic terms?
   _____ Ann  _____ Barbara

b. As they entered their second year on the job, who do you think was happier?
   _____ Ann  _____ Barbara

c. As they entered their second year on the job, each received a job offer from another firm. Who do you think was more likely to leave her present position for another job?
   _____ Ann  _____ Barbara

14. Donna and Jill each acquired similar new homes for $175,000. Both obtained a mortgage for $150,000 at the time of purchase.

- Donna obtained a fixed-rate mortgage. Over five years she made monthly payments totaling $48,000 ($800 per month x 60 months). The outstanding loan balance is $138,000 at the end of five years.
- Jill obtained an interest-only mortgage. Over five years she made monthly payments totaling $36,000 ($600 per month x 60 months). The outstanding loan balance is $150,000 at the end of five years.

Donna and Jill are now selling their homes. Assume that over the five years interest rates have not changed.

a. Donna and Jill each sell their home for $215,000. As a result, Donna walks away with cash of $77,000, whereas Jill walks away with cash of $65,000. Who has done better on the sale of her home? Check the one who has done better.
   _____ Donna  _____ Jill  _____ Donna and Jill have done equally well

b. Who is happier as a result of the sale transaction described in (a)?
   _____ Donna  _____ Jill  _____ Donna and Jill are equally happy

c. Now assume that Donna and Jill each sell their home for $140,000. As a result, Donna walks away with $2,000 in cash, whereas Jill has to pay $10,000 in cash. Who has done better on the sale of her home? Check the one who has done better.
   _____ Donna  _____ Jill  _____ Donna and Jill have done equally well

d. Who is happier as a result of the sale transaction described in (c)?
   _____ Donna  _____ Jill  _____ Donna and Jill are equally happy
15. Consider the following. Jane and John Doe currently rent an apartment, but have been saving in hopes of buying their first home. The couple determined, based on a personal assessment of their financial affairs, that they have the means to purchase a $200,000 home. They determined that $200,000 is the most that they should spend. After spending countless hours looking, the Doe’s identified a new home that has everything that the couple wants and needs: the house is perfect. Unfortunately, the new home costs 25% more than the couple planned to spend: the price of the new home is $250,000. The couple, however, has qualified for a mortgage to finance the new home – so there are no obstacles preventing the purchase.

a. Should the couple purchase the new home?

<table>
<thead>
<tr>
<th>Definitely</th>
<th>Do</th>
<th>Definitely</th>
<th>Don’t Know</th>
<th>Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-----------</td>
<td>2--------3--------</td>
<td>4----------</td>
<td>5----------</td>
<td>6--------</td>
</tr>
</tbody>
</table>

b. Assume that the Doe’s qualified for a fixed-rate mortgage as well as an interest only mortgage. Which type of mortgage should the Doe’s use to finance the purchase of the new home?

_____ fixed-rate mortgage _____ interest-only mortgage

16. Consider the following. Adam, Ben, and Carl each received an inheritance of $200,000, and each used it immediately to purchase a house. Suppose that each of them sold the house a year after buying it. Economic conditions, however, were different in each case.

- When Adam owned the house, there was 25% deflation – the prices of all goods and services decreased by approximately 25%. A year after Adam bought the house, he sold it for $154,000 (23% less than he paid).
- When Ben owned the house, there was no inflation or deflation – the prices of all goods and services had not changed significantly during that year. He sold the house for $198,000 (1% less than he paid for it).
- When Carl owned the house, there was 25% inflation – the prices of all goods and services increased by approximately 25%. A year after he bought the house, Carl sold it for $246,000 (23% more than he paid).

Please rank Adam, Ben, and Carl in terms of the success of their house transactions. The person assigned a ‘1’ made the best deal and a ‘3’ the worst deal.

_____ Adam
_____ Ben
_____ Carl
17. What is your total household income?

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 - $100,000</td>
<td></td>
</tr>
<tr>
<td>$100,001 - $200,000</td>
<td></td>
</tr>
<tr>
<td>$200,001 - $300,000</td>
<td></td>
</tr>
<tr>
<td>$300,001 - $400,000</td>
<td></td>
</tr>
<tr>
<td>$400,001 - $500,000</td>
<td></td>
</tr>
<tr>
<td>More than $500,000</td>
<td></td>
</tr>
</tbody>
</table>

18. Does anyone in your household work in the following occupations? Check all that apply.

- Real Estate Agent
- Lending Related (e.g., loan officer, mortgage broker)
- Home Builder
- Other Home Related (Specify) _________________
- None Apply (check if nothing else is checked)

19. In your home, how would you characterize your role in household financial decisions?

- I am the primary decision maker
- I am a secondary decision maker
- I share the decision making equally with another
- Other (explain) _____________________________________________________

________________________________________________________________________
References


Figure 1: Housing Prices in the United States from January 2000-July 2008
Figure 2: Housing Prices in Atlanta, Boston, Los Angeles, and Miami from January 2000-July 2008
Figure 3: Evaluations of a Home Purchase Decision
Figure 4: 30-Year Conventional Mortgage Rates in the United States from April 1971-July 2008