

# THE HIDDEN RISKS OF PIGGYBACK LENDING

by

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## EXECUTIVE SUMMARY

Since the mid-1990s, low interest rates and rapidly appreciating home values have contributed to a significant increase in high-loan-to-value mortgage lending in the United States.\* In recent years, piggyback loans—simultaneous first and second liens—have become increasingly popular, for purchases and refinancing.\*\*

This paper examines the extent and nature of piggyback lending, including:

- The rapid increase in high-LTV lending and the use of simultaneous second liens;
- Potential motivations of lenders, mortgage brokers, and secondary market institutions in promoting piggyback lending;
- Borrower perceptions of the benefits and costs of piggyback loans;
- Reporting and disclosures of simultaneous second mortgages; and
- Capital regulations for piggyback mortgages.

It articulates the benefits and potential risks engendered by the rapid growth of piggyback lending to mortgage market participants, including:

- Borrowers
- Originators and banks
- Security investors
- Secondary market institutions
- GSEs

Piggyback lending has significantly altered the historical relationships among secondary market institutions, primary lenders, and mortgage insurers, and poses substantial, and as-yet-unrealized, risks to the mortgage banking system. The numerous reporting, disclosure, and regulatory issues resulting from this rapidly growing market segment merit further consideration by policy makers.

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\*A high-LTV mortgage is a mortgage loan for more than 80% of the value of the property.

\*\* Piggyback loans typically combine a “conforming” fixed-rate first mortgage with a closed-end second lien or home equity line of credit (HELOC) originated simultaneously. The first mortgage is sized to meet loan-limit and LTV requirements for sale in the secondary mortgage market without private mortgage insurance (MI), while the simultaneous second lien enables the borrower to receive a larger loan requiring a lower down payment. The first and second mortgages used in piggybacks are often originated by the same lender, but can also involve simultaneous loans issued by different lenders.

## INTRODUCTION

Since the mid-1990s, low interest rates and rapidly appreciating home values have contributed to a significant increase in high loan-to-value (LTV) mortgage lending in the United States.<sup>1</sup> In recent years, piggyback loans—simultaneous first and second liens—have claimed a spot among the most popular high-LTV mortgages for both purchase and refinancing. Piggyback loans typically combine a “conforming” fixed-rate first mortgage with either a closed-end second lien or a home equity line of credit (HELOC) originated simultaneously with the first lien.<sup>2</sup> The first mortgage is sized to meet loan-limit and LTV requirements for sale in the secondary mortgage market without private mortgage insurance (MI), while the simultaneous second lien enables the borrower to receive a larger loan with a smaller down payment. The first and second mortgages used in piggybacks are often originated by the same lender, but can also involve simultaneous loans issued by different lenders.

The rapid growth of piggyback lending has introduced both benefits and potential risks to mortgage market participants. Piggyback loans enable borrowers to afford higher-cost homes with smaller down payments. However, in contrast to borrowers with more standard fixed-rate or adjustable-rate mortgages, piggyback borrowers with HELOC second liens have greater exposure to rapidly increasing interest rates and monthly payment burdens. The potential risks of piggyback loans are magnified by the particular circumstances under which this market developed—historically low mortgage interest rates and historically high house price appreciation. While it’s easy to see why piggyback loans became popular in this environment, because of this unique timing there has not been a true market test of the product under adverse economic conditions. Empirical evidence shows that piggyback lending tends to be concentrated in metropolitan areas with the highest risk of experiencing declining house prices, implying even greater risk to borrowers and investors in high-LTV piggyback loans.

Piggyback loans raise reporting, disclosure, and regulatory issues that represent the unanticipated consequences of a rapidly growing market segment. The structuring of piggyback loans to facilitate the sale of 80-LTV conforming first liens without mortgage insurance to government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac affects not only the MI industry, but has implications for GSE risk management, regulatory reporting, security disclosures, and market liquidity. Current GSE regulatory reporting and risk-based capital standards were developed prior to the rapid growth in the piggyback market, and did not anticipate the significance of the potential risk. Similarly, loan eligibility requirements for GSE securities traded in forward “To-Be-Announced” (TBA) markets do not account for the potential impact of piggyback seconds on the payment performance of securitized first mortgages, but under current disclosure practices investors are generally not informed about the presence of simultaneous second liens.

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<sup>1</sup> Throughout the paper we refer to high-LTV mortgages generally as those with original loan balances greater than 80 percent of the value of the collateral property. However, we will also discuss supervisory limits on high-LTV lending that apply specifically to one- to four-family residential mortgages with LTVs of 90 percent and above.

<sup>2</sup> Piggyback loans are also called “80-10-10” mortgages, to indicate the combination of an 80-LTV first mortgage, a 10 percent second mortgage, and a 10 percent down payment, although other combinations with lower down payments and higher combined LTVs are common in high cost regions.

Piggyback lending has significantly altered the historical relationships among secondary market institutions, primary lenders, and mortgage insurers, and increased the total level of uninsured or lender-insured credit risk exposure in the mortgage banking system. From borrowers, who may not be prepared for higher payments due to increasing interest rates, to lenders, who may not be prepared for increasing defaults, to the GSEs, who may be purchasing and securitizing first liens while unaware of the existence of silent seconds, as well as holders of mortgage-backed securities, piggyback loans pose a substantial, and as-yet-unrealized, risk to the financial strength of the mortgage banking system. As U.S. policy makers consider major revisions to bank capital standards and GSE regulatory oversight, there is an opportunity to address some of the unanticipated consequences of the recent rapid growth in piggyback lending, at a minimum through improved reporting and disclosure requirements, but ultimately by implementing appropriate risk-based capital requirements for these high-risk loan products.

### **EVOLUTION AND CURRENT STATE OF PIGGYBACK LENDING**

With the exception of the recent study of piggyback lending conducted by SMR Research Corporation, centralized information on piggyback lending is quite limited.<sup>3</sup> As documented by SMR, piggyback lending grew rapidly from 2001 to 2004 (Exhibit 1). Approximately 42 percent of home purchase mortgage loan dollars involved piggyback loans during the first half of 2004, compared with 20 percent in 2001. The piggyback share of all loan dollars, including both home purchase and refinance transactions, nearly doubled from 12 percent in 2001 to 22 percent in 2004 (Exhibit 2). The trends in piggyback lending have affected the flow of traditional first mortgages with MI, and increased the total volume of uninsured and lender-insured credit risk exposure in U.S. mortgage markets.<sup>4</sup>

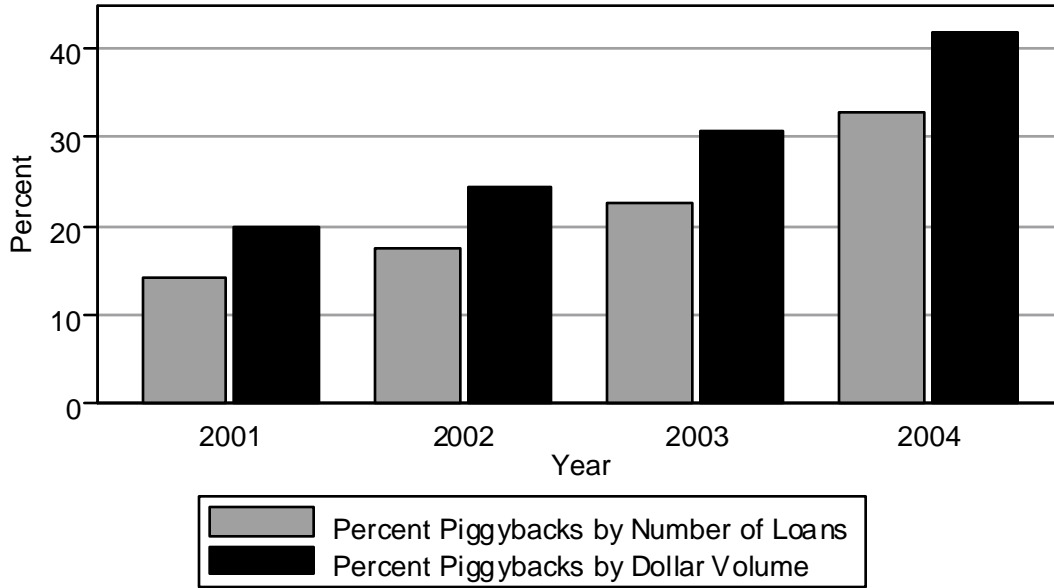
Piggyback loans are used primarily to support the purchase of housing in high-cost areas requiring larger loans. Taken together, the total combined loan size of piggyback first and second liens is 43 percent larger than single-loan mortgages. First liens in piggyback deals were larger on average than first-lien single loans in all years from 2001-2004 — \$242,990 versus \$205,777 in 2004. Even more surprising is that the average size of the second-lien component of piggyback loans increased at about twice the rate of the average size of first liens. Between 2001 and 2004 the average size of second liens in piggyback loans increased by 36.7 percent — from \$37,757 to \$51,617 — while first liens in piggyback structures increased by 19.1 percent.

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<sup>3</sup> SMR Research Corporation, “Piggyback Mortgage Lending,” November 2004.

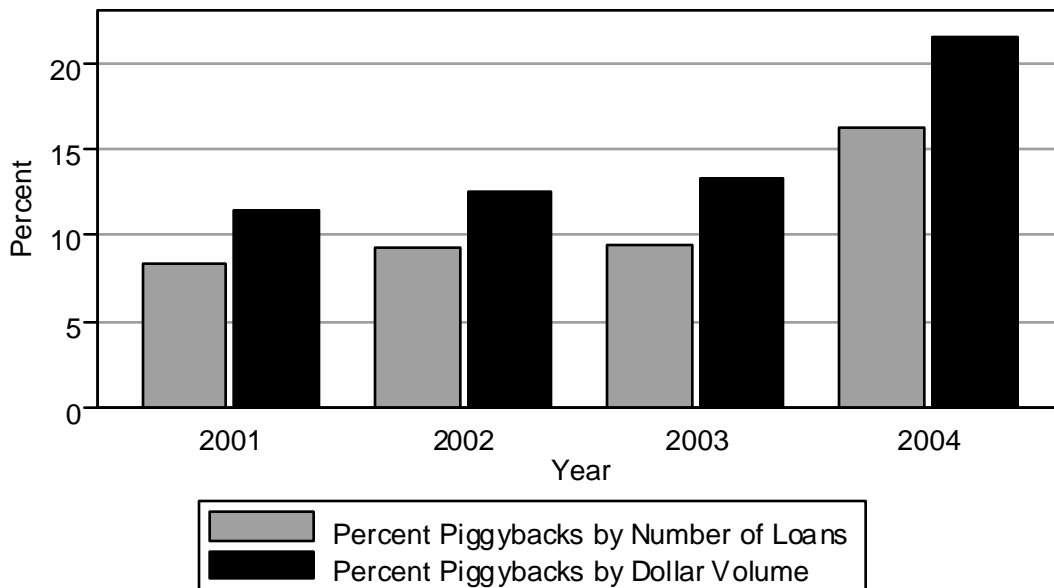
<sup>4</sup> See Bruce W. Harting, “A Closer Look at Subprime and Home Equity: Recent Trends and the 2005 Outlook,” Lehman Brothers Global Equity Research, January 6, 2005, p. 30.

Exhibit 1  
Growth in Piggyback Lending  
for Home Purchase 2001-2004



Source: SMR Research Corporation study on Piggy-Back Lending, November 2004.

Exhibit 2  
Growth in Piggyback Lending  
Home Purchase and Refinance 2001-2004



Source: SMR Research Corporation study on Piggy-Back Lending, November 2004.

Piggyback loans are used primarily in purchase money transactions, and utilization of piggyback loans for home purchase grew rapidly among large lenders between 2003 and 2004. According to the SMR piggyback study, a significant number of the nation's largest lenders originated more than 50 percent of their total lending for home purchases in piggyback loans in 2004. Among the top 20 lenders, 10 had more than half of their home purchase lending in piggyback loans, and two of the top ten lenders attained piggyback lending rates of almost 60 percent in 2004. Piggyback lending rates increased significantly between 2003 and 2004, with growth rates exceeding 20 percent for 11 of the top 20 lenders.

Home equity line of credit (HELOC) loans are an important component of piggyback lending.<sup>5</sup> For home purchases, a separate SMR study on home equity loans found that borrowers using HELOCs as simultaneous second liens use nearly the entire credit line at origination. This means that the growth of piggyback lending has also increased overall average HELOC utilization (drawdown) rates to over 50 percent for the first time since 1995, with rates ranging as high as 80 percent for some piggyback lenders.<sup>6</sup>

Following already impressive growth since 1999, the annual rate of growth in second-lien home equity lending has been estimated at nearly 39 percent for 2004, and is expected to exceed 30 percent in 2005. Only subprime first-lien mortgage lending is expected to grow as fast as second-lien home equity lending in 2005.<sup>7</sup> Most second-lien home equity loans are prime-quality loans, and the majority of home equity loans are revolving credit HELOC products.<sup>8</sup> According to the FDIC, HELOC lending now dominates overall home equity lending, with almost 80 percent market share versus 20 percent for closed-end home-equity loans.<sup>9</sup> Many lenders are also promoting first-lien HELOC products for both home purchase and refinancing.

## **ATTRACTION OF PIGGYBACK LENDING**

### **Borrowers**

Borrowers have been receptive to the apparent benefits of piggyback loans—avoiding premium payments for private mortgage insurance and taking advantage of the fact that interest payments on second liens are tax-deductible, whereas MI premiums are not—but some of these apparent benefits to borrowers may be illusory or at best short-lived. Although piggyback borrowers avoid direct payment of MI premiums, the lender may require a higher interest rate to compensate for the increased risk of loss on high-LTV lending. This assumes, of course, that the loans have been priced according to their actual risks, which some have questioned given the limited experience with these mortgages during periods of economic stress.<sup>10</sup>

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<sup>5</sup> HELOCs generally have an initial draw period of 5 to 10 years during which time the loan operates very much like a credit card, and payments are required to cover interest only. At the end of the draw period the loan begins to amortize like a closed-end second mortgage.

<sup>6</sup> SMR Research Corporation, "Home Equity Loans: 2005 Outlook," November 2004, p. 13.

<sup>7</sup> SMR Research Corporation, "Home Equity Loans: 2005 Outlook," November 2004, p. 1.

<sup>8</sup> SMR Research Corporation, "Home Equity Loans: 2005 Outlook," November 2004, pp. 47-48.

<sup>9</sup> FDIC Outlook, Winter 2004, p. 18.

<sup>10</sup> FDIC Outlook, Winter 2004, p. 22.

With regard to tax deductibility, the actual value of this benefit will depend on both the level of interest rates and how long the borrower maintains a balance on the second mortgage. In the case of private MI on a high-LTV first-lien mortgage, borrower premium payments are cancelled automatically once the loan is paid down to 78 percent of the original property value. In addition to the automatic MI cancellation provisions required under federal law, GSE loan servicing guidelines allow for borrower-initiated cancellation based on a current property appraisal.<sup>11</sup> With a piggyback loan, in contrast, regardless of amortization of the first and second mortgages, the borrower may continue to pay the higher interest rate on the first mortgage — because it has a higher combined LTV than a stand-alone first-lien — and on the second mortgage — because it is in a higher-risk second-lien position — for as long as the loans are outstanding. Thus, not all borrowers benefit financially by choosing a piggyback loan, and any actual savings will depend on individual planning horizons, the borrower's ability to utilize tax deductions, and the ability to negotiate favorable loan terms on both mortgages.

### **Originators and Banks**

Originators have numerous motivations to promote piggyback lending, including: (1) the additional fee income generated by originating two mortgages instead of one; (2) the conforming loan limitations of secondary market agencies Fannie Mae and Freddie Mac; (3) capital market efficiencies related to risk-based pricing; and (4) a potential for capital arbitrage under regulatory standards for minimum capital on residential mortgages.

The potential for increased fee income is one of the more obvious explanations for the aggressive marketing of piggyback loans. In part, this is a response to declining refinance activity and the need for lenders to generate additional fee income to offset the decline in overall originations. According to the SMR piggyback study, even the first-lien portion of piggyback loans tend to be larger than first liens used in single loan transactions, which also makes them attractive to lenders and mortgage brokers whose commissions are based on loan size.

GSE loan purchase requirements create an additional push toward piggybacks. Lenders have been motivated to originate piggyback loans because the 80-LTV first mortgages can be sold in the secondary market without mortgage insurance; and because with these structures the first — and possibly second — mortgages have original balances below the conforming loan limits for sale to Fannie Mae or Freddie Mac. Lenders expect better execution through loan sales to the GSEs due to their greater liquidity and lower capital requirements relative to banks and mortgage insurers. Capital market inefficiencies, such as limitations on full risk-based pricing of high-LTV loans, have been cited as another motivation for originating piggy-back structures.<sup>12</sup> For example, one way to attain a better alignment between price and risk is to separate a high-LTV loan into an 80 LTV first lien and a second lien and price each piece accordingly.

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<sup>11</sup> “Fannie Mae Single-Family Servicing Guide, Part II, Chapter 1, Exhibit 3: Borrower-Initiated Cancellation of Conventional Mortgage Insurance Based on Current Value (12/01/00).”

<sup>12</sup> Bruce W. Harting, “A Closer Look at Subprime and Home Equity: Recent Trends and the 2005 Outlook,” Lehman Brothers Global Equity Research, January 6, 2005, p. 29.



Piggyback lending provides an opportunity for capital arbitrage given the current regulatory treatment of high-LTV mortgages without MI. Residential mortgages with LTVs above 90 percent are assigned a 100-percent risk weighting — 8 percent capital requirement — on the entire loan balance. Structuring the loan as a piggyback transaction can result in a lower 50-percent risk weighting — 4 percent capital requirement — on the first lien as long as the lender does not retain both the first and second mortgage.<sup>13</sup> Lenders working in cooperation with mortgage brokers can arrange to provide first-lien financing on a piggyback structure where the second lien is funded by a different lender. Although the dollar volume of the first lien is reduced on that transaction, the reduction in the capital requirement on the first-lien exposure from 8 percent to 4 percent would enable the lender to support an even larger total lending volume. For example, originating a 95-LTV mortgage without MI to purchase or refinance a \$100,000 house would require a lender to hold a minimum of \$7,600 in capital ( $\$95,000 \times 8\%$ ). But if a first lien of \$80,000 is issued simultaneously with a second lien of \$15,000, the required capital on the first lien can be reduced to \$3,200. The difference of \$4,400 ( $\$7,600 - \$3,200$ ) in capital could be used to support an additional \$110,000 ( $\$4,400 \div 4\%$ ) of similar lending activity. The second lien component without MI still receives the full 100-percent risk weighting, but assuming it is priced according to its higher risk, provides an opportunity to earn a higher return on equity.<sup>14</sup>

## Security Investors

The benefits of piggyback loans to security investors are similar to those of other revolving credits used as collateral in asset-backed securities (ABS). Second-lien HELOCs are increasingly securitized into multi-class securities that can be structured to meet the particular risk exposure or hedging requirements of investors. The payoff characteristics afforded by these instruments may be attractive to investors seeking to match liabilities of similar duration. In addition to reduced interest-rate risk, securitization of piggyback second liens may also provide some additional opportunities for capital arbitrage.<sup>15</sup>

Securities backed by revolving credit lines such as HELOCs are structured to maintain investor financial interest in the pool at more or less a constant level for some initial period of time corresponding to the draw period on the underlying loans, and payoffs by some borrowers are

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<sup>13</sup> Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, “Risk-Based Capital Standards: Construction Loans on Presold Residential Properties; Junior Liens on 1- to 4-Family Residential Properties; and Investments in Mutual Funds; Leverage Capital Standards: Tier 1 Leverage Ratio; Final Rules,” Federal Register, Tuesday, March 2, 1999, pp. 10194-10201; and Office of Thrift Supervision, “Thrift Financial Report Instruction Manual, Schedule CCR – Consolidated Capital Requirement, Section CCR460: Qualifying Single-family Residential Mortgage Loans,” pp. 1524-1525, December 2003.

<sup>14</sup> The forthcoming Basel II minimum capital standards are intended to reduce opportunities for capital arbitrage by improving the alignment of capital with actual risk, so this form of capital arbitrage may be less readily available in the future.

<sup>15</sup> As mentioned, the Basel II minimum capital standards may reduce such opportunities for capital arbitrage. Furthermore, the majority of leading banking institutions currently manage their capital to higher levels in response to rating agency requirements and the desire to attain classification as “well-capitalized” under current bank regulatory capital standards. See Kenneth Spong, Banking Regulation: Its Purposes, Implementation, and Effects, Fifth Edition, Federal Reserve Bank of Kansas City, Division of Supervision and Risk Management, 2000.

used to purchase investor interest in new loans or new credit draws by other borrowers. Because payoffs go to purchase additional credit draws, the duration of HELOC-backed securities will be extended relative to ABS backed by closed-end home-equity loans or RMBS backed by first-lien mortgages. This feature makes them suitable for liability matching.<sup>16</sup>

According to S&P, while HELOC securitizations have traditionally comprised 100 percent second-lien mortgages, the first transactions backed by 100 percent first-lien mortgages were rated in 2004, paralleling the introduction of first-lien HELOC mortgage products. Another recent development noted by S&P analysts was a legislative change to allow HELOCs to be securitized in REMIC structures, which is expected to facilitate future growth. The closed-end second-lien mortgage market continues to be dominated by purchase-money piggyback loans, while stand-alone seconds are expected to increase, and cash-out refinances to decrease, as rates rise during 2005. S&P also noted an increasing number of multiple-seller issues in which credit quality can differ greatly, requiring greater attention on the part of investors in these issues.<sup>17</sup>

## **Secondary Market Institutions**

The growth of piggyback lending has enabled the GSEs to participate directly in the jumbo segment of the mortgage market. Both Fannie Mae and Freddie Mac purchase conforming first mortgages up to their conforming loan limits (\$359,650 for 2005), including those that are part of jumbo piggyback structures. Fannie Mae purchases second mortgages that are part of these structures when they do not hold the first mortgage. The GSEs have also supported the growth and development of this market through their own programs for conforming piggyback structures. Fannie Mae will purchase both first and simultaneous second mortgages originated under their own program as long as the total loan balance meets the conforming loan limit.<sup>18</sup> Freddie Mac will purchase only first mortgages originated under their simultaneous second-lien program.<sup>19</sup> One additional consideration in purchasing both the first and second mortgages is that each loan in a piggyback structure counts separately toward HUD's affordable lending goals for the GSEs, under which performance is measured by number of loans rather than dollar volume.<sup>20</sup>

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<sup>16</sup> The issuer of a multi-class security backed by second-lien mortgages typically retains a residual interest that provides credit enhancement — in the form of over-collateralization — to the higher-rated classes. Capital requirements on residual interests are applied on a dollar-for-dollar basis, which means that if the residual interest is 10 percent of the total mortgage balance, the capital requirement equates to 10 percent. However, depending on the structuring and execution desired on the higher-rated tranches, the over-collateralization required for credit enhancement could actually be lower than 8 percent, which reduces the size of the residual interest and the resulting capital requirement below that corresponding to the original second-lien exposures. Thus, in addition to reduced interest-rate risk, securitization of piggyback second liens may also provide some additional opportunities for capital arbitrage.

<sup>17</sup> "Trends in U.S. Residential Mortgage Products: Closed-End Seconds and HELOCs Sector, Third-Quarter 2004," Standard & Poor's, December 21, 2004.

<sup>18</sup> Fannie Mae, "Simultaneous Second Mortgage: Lender Sales Kit," 2001.

<sup>19</sup> Freddie Mac, "Freddie Mac Sale Tips: Low-Down Payment Options for Any Market," August 2003.

<sup>20</sup> "HUD's Housing Goals for the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) for the Years 2005-2008 and Amendments to HUD's Regulation of Fannie Mae and Freddie Mac," Federal Register, November 2, 2004.

## RISKS OF PIGGYBACK LENDING

### Concentrations of Piggyback Lending and Market Risk

Although a relatively recent phenomenon, the rapid growth in piggyback lending has generated significant concentrations in metropolitan areas that have the greatest risk of experiencing a housing market recession within the next one to two years. The concentration of high-LTV piggyback loans in these high-risk markets portends increasing rates of mortgage default and losses. Piggyback loans may contribute to the risk of speculative bubbles in local housing markets by qualifying borrowers for larger loans at higher LTVs, thus initially supporting a rapid rise in housing values, but may ultimately fail in greater numbers, generating higher loss rates in response to declining housing values.

The PMI Risk Index estimates the likelihood that an MSA will experience a decline in housing values within the next two years, taking into account trends in housing prices, employment, and housing affordability.<sup>21</sup> We have combined data from the SMR piggyback study on the rate of utilization of piggyback loans in individual counties to create similar estimates for MSAs, and compared these to the latest PMI Risk Index values. Table 1 provides a numbered listing of the MSAs along with PMI Risk Index values, piggyback lending percentages, and total lending volumes measured by the SMR sample.<sup>22</sup> Table 1 indicates a strong positive association between the rate of utilization of piggyback loans and market risk. Among the MSAs ranked in the top 10 in terms of market risk, 7 regions had more than half of their mortgage lending for home purchases in piggybacks during the first half of 2004, and all are located in California. By comparison, among the remaining 38 MSAs in Table 1 with lower risk index values, only 5 had more than half of their 2004 home purchase loan production in piggybacks. We have highlighted the entries for the 8 California MSAs in Table 1, all of which have piggyback lending rates over 50 percent. The Risk Index values of the California MSAs range from 339 to 488, indicating probabilities of declining home values within the next two years between 34 percent and 49 percent.

Exhibit 3 plots the rates of piggyback lending against the values of the PMI Risk Index for the MSAs listed in Table 1. The chart also gives an indication of the relative lending volume for MSAs in which total lending in the SMR sample was above \$3.5 billion during the first half of 2004. Each MSA identifier on the chart is numbered with the corresponding MSA number from Table 1. For example, the Riverside-San Bernardino-Ontario MSA is listed as number 13, with a risk index value of 339, piggyback percentage of 56.6 percent, and total lending volume of nearly \$3.8 billion. The marker and identifying number for this MSA are located near the top center portion of the chart and indicated by a grey box containing the number 13. MSAs with larger lending volumes are indicated by relatively larger boxes, while MSAs with lending volumes below \$3.5 billion are indicated by placing their MSA numbers next to smaller solid

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<sup>21</sup> “Economic and Real Estate Trends,” PMI Mortgage Insurance Company, Spring 2005. The PMI Risk Index values are scaled so that a value of 100 indicates a 10-percent probability of a decline in housing values within two years. A value of 200 would indicate a 20 percent chance and a value of 50 a 5-percent chance.

<sup>22</sup> The MSA definitions correspond to those used by the Office of Federal Housing Enterprise Oversight (OFHEO) to produce their quarterly House Price Index. Estimates of the rate of piggyback utilization are based on the SMR study on piggyback lending, and reflect the coverage by county of the SMR data.

grey squares. To further quantify the strength of the statistical association between piggyback lending and market risk, the grey line in the chart plots the overall linear fit, around which is shown a shaded area corresponding to the 95-percent confidence region.<sup>23</sup>

In the upper right of Exhibit 3, one can see the congregation of eight California MSAs that combine high Risk Index values and high piggyback percentages. These MSAs are also among the regions with the largest volumes of piggyback lending. This collection of MSAs can be contrasted with the even larger group of MSAs in the lower left portion of the chart having lower piggyback percentages, lower Risk Index values, and generally smaller total lending volumes. Piggyback loans have both facilitated high rates of house price appreciation and increased exposure to the risks of declining housing values. This represents a significant layering of risks to both mortgage lenders and borrowers within specific market regions having the very highest risks of market decline over the next one to two years.

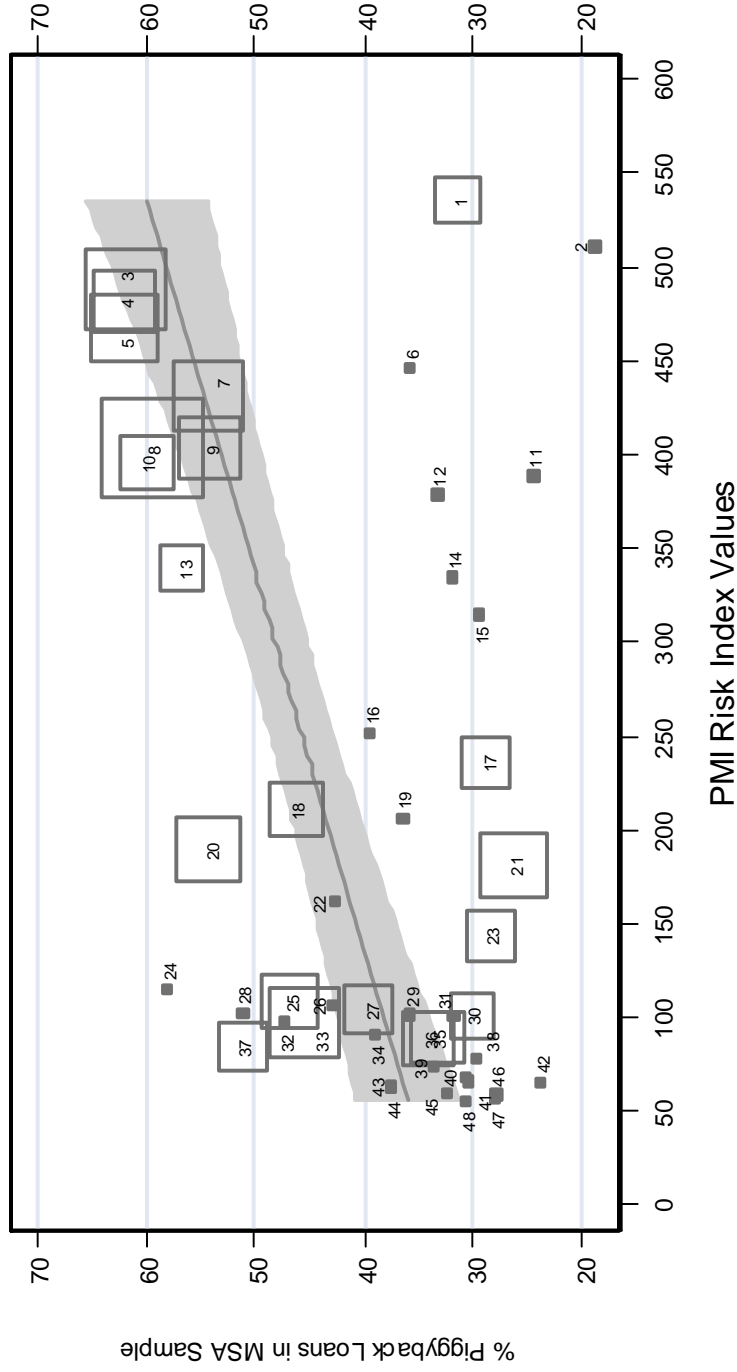
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<sup>23</sup> The confidence region shows the range of values having a 95-percent probability of containing the “true” line. This is a standard statistical concept similar to that used in reference to survey estimates reported, for example, as being accurate within plus or minus 2 or 3 percentage points. The wider the confidence region the more likely it contains the “true” line, so that a 95-confidence band that is narrowly distributed around the fitted line indicates greater statistical confidence in the estimated relationship.

**Table 1**  
**PMI Risk Index Values and Piggyback Lending by MSA**

<b>MSA Number</b>	<b>MSA Description</b>	<b>PMI Risk Index</b>	<b>Percent Piggyback</b>	<b>Total Loan Volume in SMR Sample \$(000)</b>
1	Boston-Quincy, MA	535	31	4,063,239
2	Nassau-Suffolk, NY	511	19	69,924
<b>3</b>	<b>Oakland-Fremont-Hayward, CA</b>	<b>488</b>	<b>62</b>	<b>13,042,554</b>
<b>4</b>	<b>San Jose-Sunnyvale-Santa Clara, CA</b>	<b>481</b>	<b>62</b>	<b>7,460,061</b>
<b>5</b>	<b>San Diego-Carlsbad-San Marcos, CA</b>	<b>467</b>	<b>62</b>	<b>8,853,759</b>
6	Cambridge-Newton-Framingham, MA (MSAD)	446	36	3,431,815
<b>7</b>	<b>Santa Ana-Anaheim-Irvine, CA</b>	<b>431</b>	<b>54</b>	<b>9,760,129</b>
<b>8</b>	<b>Los Angeles-Long Beach-Glendale, CA</b>	<b>404</b>	<b>59</b>	<b>20,743,674</b>
<b>9</b>	<b>Sacramento-Arden-Arcade-Roseville, CA</b>	<b>403</b>	<b>54</b>	<b>7,454,132</b>
<b>10</b>	<b>San Francisco-San Mateo-Redwood City, CA</b>	<b>396</b>	<b>60</b>	<b>6,342,361</b>
11	Providence-New Bedford-Fall River, RI-MA	389	24	805,778
12	Detroit-Livonia-Dearborn, MI	379	33	80,375
<b>13</b>	<b>Riverside-San Bernardino-Ontario, CA</b>	<b>339</b>	<b>57</b>	<b>3,786,342</b>
14	New York-Wayne-White Plains, NY-NJ	334	32	1,292,441
15	Edison, NJ	315	29	2,566,656
16	Minneapolis-St. Paul-Bloomington, MN-WI	251	39	539,173
17	Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	236	29	4,784,632
18	Denver-Aurora, CO	211	46	6,346,869
19	Newark-Union, NJ-PA	206	36	1,211,803
20	Washington-Arlington-Alexandria, DC-MD-VA-WV	189	54	7,979,988
21	Miami-Miami Beach-Kendall, FL	181	26	8,764,977
22	Warren-Farmington Hills-Troy, MI	161	43	1,280,906
23	Tampa-St. Petersburg-Clearwater, FL	143	28	4,941,853
24	Baltimore-Towson, MD	115	58	473,303
25	Las Vegas-Paradise, NV	108	47	6,091,019
26	Atlanta-Sandy Springs-Marietta, GA	107	43	2,863,950
27	Dallas-Plano-Irving, TX	104	40	4,382,014
28	Portland-Vancouver-Beaverton, OR-WA	103	51	2,830,720
29	Austin-Round Rock, TX	102	36	1,806,839
30	Orlando, FL	101	30	3,758,494
31	Kansas City, MO-KS	101	32	913,954
32	Charlotte-Gastonia-Concord, NC-SC	97	47	2,083,129
33	Phoenix-Mesa-Scottsdale, AZ	97	45	9,546,599
34	St. Louis, MO-IL	91	39	2,870,168
35	Houston-Baytown-Sugar Land, TX	89	33	5,112,037
36	Chicago-Naperville-Joliet, IL	89	34	5,385,496
37	Seattle-Bellevue-Everett, WA	84	51	4,908,318
38	Fort Worth-Arlington, TX	78	30	2,120,151
39	Philadelphia, PA	73	34	2,136,592
40	Milwaukee-Waukesha-West Allis, WI	68	31	472,602
41	Cleveland-Elyria-Mentor, OH	66	30	1,800,075
42	San Antonio, TX	65	24	1,167,577
43	Nashville-Davidson-Murfreesboro, TN	63	37	1,519,709
44	Columbus, OH	63	37	409,614
45	Memphis, TN-MS-AR	60	32	1,141,860
46	Cincinnati-Middletown, OH-KY-IN	59	28	1,000,128
47	Indianapolis, IN	56	28	711,116
48	Pittsburgh, PA	55	31	215,709

## Exhibit 3 Piggyback Loan Concentration and MSA Market Risk



MSA Vol > \$3.5B   
  MSA Vol ≤ \$3.5B   
  Linear Fit   
  95% Confidence Interval  
 Note: MSA marker proportional to MSA loan volume greater than \$3.5B. See Table 1 for MSA listing.

Sources: SMR Research Corporation study on Piggyback Lending, PMI Risk Index, and author's calculations.

## Risks to Borrowers

The primary risks to borrowers of piggyback structures are high combined LTV ratios and floating-rate second liens that offer less protection against rapid increases in interest rates and monthly payment burdens than standard first-lien ARM products. The risks of high-LTV loans are well documented. In fact, no single factor is more important for predicting the likelihood of mortgage default. The relationship between initial LTV and the long-term risk of mortgage default is magnified in high-cost regions like California.<sup>24</sup> Borrowers in high-cost areas are more likely to need a high-LTV loan to purchase the average-priced home, which explains a greater prevalence of piggyback lending in the state. Although historically this region has produced higher long-term rates of property appreciation, it has also experienced much greater volatility in housing values, more severe downturns in housing markets, and higher incidence and severity of mortgage credit losses.<sup>25</sup> Since piggyback loans tend to have higher LTVs, borrowers are already more likely to be in a negative equity position and be at risk of losing their homes.

An additional risk faced by borrowers with piggyback loans is an unexpectedly large and rapid rise in short-term interest rates and a resulting increase in monthly payments on the HELOC component of a piggyback structure. In the current economic environment, where interest rates have risen multiple times and could continue to do so for the foreseeable future, the potential combined impact of these risks is an additional concern. Unlike a conventional first-lien ARM, periodic interest rate adjustments on HELOCs are not limited by annual adjustment caps, so monthly payments adjust fully in response to increases in short-term interest rates. In addition, HELOC rates may reset monthly instead of annually, so rate adjustments occur more frequently than the annual adjustments on standard ARM contracts. In addition, lifetime interest rate caps are much higher on HELOCs than on standard ARM contracts, typically on the order of 18 percent.

An unexpected increase in the payment burden on an ARM loan is a type of “trigger event” known to lead to higher mortgage default rates. Other default trigger events, such as unemployment resulting from layoffs or illness, may require the borrower to take advances on their HELOC just as rates are rising, thereby magnifying the impact of the increasing payment burden. To add to these concerns, some lenders are now offering piggyback structures that combine non-amortizing interest-only first-lien ARMs with HELOC seconds. This is a particularly risky combination undertaken solely to lower a borrower’s initial payment burden, with little regard for the potential impact of rising interest rates or declining house price appreciation on future default rates.<sup>26</sup>

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<sup>24</sup> California now represents about 24 percent of the prime market and 38 percent of the subprime market, as described in Bruce Harting, “A Closer Look at Subprime and Home Equity: Recent Trends and the 2005 Outlook,” Lehman Brothers Global Equity Research, January 6, 2005.

<sup>25</sup> Fitch IBCA ratings criteria for residential MBS now use the Southern California experience of the 1990s as the best proxy for a national AA scenario based on the severity of the downturn and the availability of data on non-conforming mortgages. This replaced the Texas experience of the 1980s oil belt depression as the source of stressed foreclosure rate benchmarks. See “Fitch Residential Mortgage-Backed Securities Criteria, Appendix E – Whatever Happened to Texas?” Fitch IBCA, December 16, 1998.

<sup>26</sup> See “The Risk of Interest-Only ARMS in a Rising Interest Rate Environment,” Economic and Real Estate Trends, PMI Mortgage Insurance Company, Winter 2005, pp. 4-5.

Because piggyback loans are a new product and have not been through a market cycle, there is no definitive data on how they will perform. A longstanding industry practice has been to look at FHA loan performance as a first approximation to the performance of conventional loans, as occurred in the development of the PSA standard prepayment model and SDA benchmark for default.<sup>27</sup> While FHA borrowers are a lower-income population than most piggyback borrowers, and FHA loans are sometimes viewed as subprime credits, there is actually considerable overlap in the credit quality of FHA and conventional mortgage borrowers, and FHA data is the best proxy available to indicate the likely performance of piggyback loans.

Exhibit 4 shows FICO score distributions for FHA, GSE, and non-GSE conventional-conforming mortgage borrowers, and indicates the category corresponding to the median score for each borrower type.<sup>28</sup> HUD reports average credit scores of 642 for FHA, 703 for non-GSE conventional conforming, and 725 for GSE borrowers. One common threshold for classification as a subprime borrower is a FICO score of 620 or lower, although there may be other factors such as loan product type — home equity loans, for example — that are closely associated with the subprime sector. Nevertheless, Exhibit 4 clearly shows that a relative majority of FHA borrowers have FICO scores well above the 620 threshold, and many have FICO scores above the average FICO score for GSE borrowers. The chart also shows that many GSE and non-GSE borrowers fall into the subprime range of FICO scores. These comparisons indicate that the projected performance of FHA’s high-LTV ARM’s may be a reasonable proxy for the potential performance of piggyback seconds under the types of economic stress of greater concern to observers of this market.

Analysis of FHA mortgage performance indicates that high-LTV adjustable-rate mortgage loans can perform well under favorable economic conditions like those of recent years, yet still have the potential to generate rapid increases in mortgage default and foreclosure rates under less favorable conditions. The most recent annual actuarial review of the FHA Mutual Mortgage Insurance Fund (MMIF) developed projections of future FHA claim rates under scenarios for rapidly increasing interest rates and declining house price appreciation rates—exactly the scenario that is beginning to worry analysts tracking the mortgage sector who have expressed concern about the future performance of piggyback loans.<sup>29</sup> Exhibit 5 shows these projections for FHA adjustable-rate mortgages.<sup>30</sup> The results show dramatic increases in conditional claim

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<sup>27</sup> For a summary of the PSA (Public Securities Administration) standard prepayment model, see F.J. Fabozzi, and F. Modigliani, “Factors Affecting Prepayment Behavior,” Chapter 10 in *Mortgage and Mortgage-Backed Securities Markets*, Harvard Business School Press, 1992. The SDA (Standard Default Assumption) benchmark is discussed in F.J. Fabozzi, A.B. Saunders, D. Yuen, and C. Ramsey, “Nonagency CMOs,” Chapter 14 in F.J. Fabozzi (ed.), *The Handbook of Mortgage-Backed Securities*, Fifth Edition, McGraw-Hill, 2001.

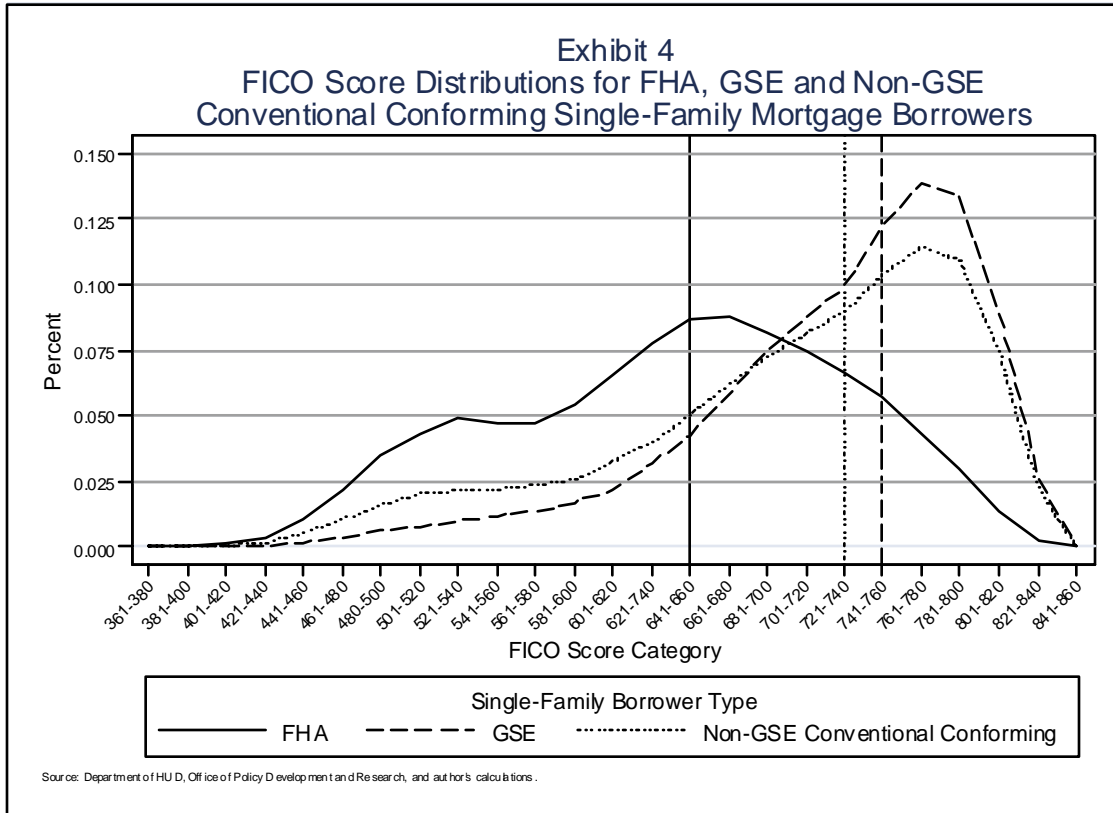
<sup>28</sup> The data used in these comparisons are described in: “Regulatory Analysis for The Secretary of HUD’s Final Rule on HUD’s Regulation of The Federal National Mortgage Association (Fannie Mae) and The Federal Home Loan Mortgage Corporation (Freddie Mac), U.S. Department of Housing and Urban Development, Office of Policy Development and Research, October 2004.

<sup>29</sup> “An Actuarial Review of the Federal Housing Administration Mutual Mortgage Insurance Fund for Fiscal Year 2004,” prepared for the U.S. Department of Housing and Urban Development by Technical Analysis Center, Inc. and Integrated Financial Engineering, Inc., October 19, 2004.

<sup>30</sup> The baseline projections of future FHA loan performance shown in the exhibits were based on Global Insight forecasts of U.S. economic performance. These scenarios are identical to those used to render an opinion on the soundness of the MMI Fund for the FY 2004 Actuarial Review. Additional sensitivity analysis was conducted based on an alternative scenario that combined additional increases in interest rates with slower house price



rates for the 2004, 2005, and 2006 loan cohorts just as they enter the peak years of default – roughly tripling conditional claim rates for the 2004 cohort between 3 and 5 years following loan origination. The results are more moderate for the 2007 cohort as these loans are originated just as the economic factors are returning to the baseline assumptions. The FHA results are particularly worrisome given that FHA’s ARM loans provide greater protections to borrowers in the form of annual and lifetime interest rate caps compared with those for most piggyback loans.<sup>31</sup>

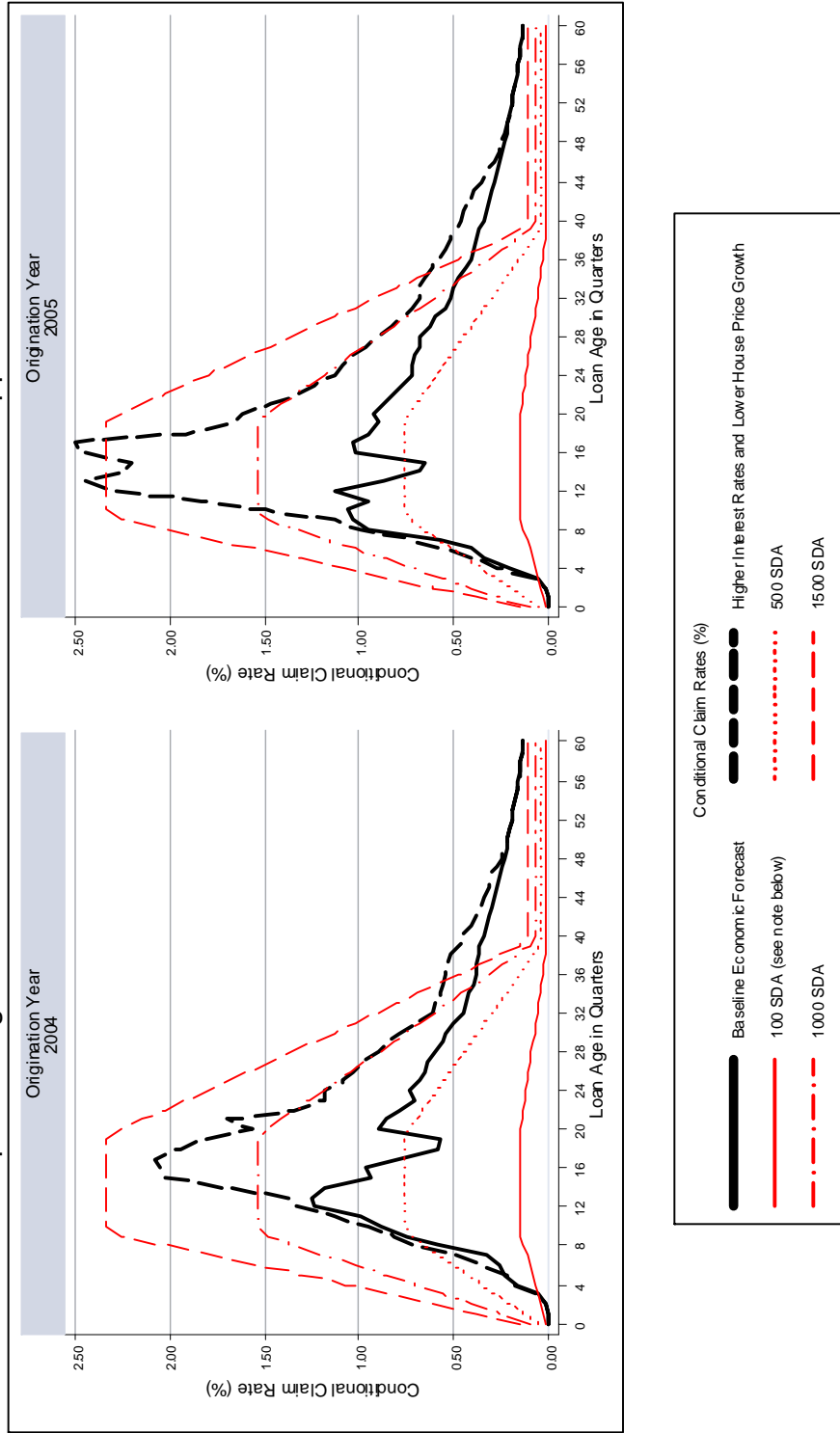


appreciation. The alternative scenario assumes an additional positive 300 basis point shock to interest rates between 2005 and 2007, combined with national house price appreciation rates 5 percent below the Global Insight forecasts for 2005 through 2007, with a return to baseline levels in 2008. The FHA MMIF actuarial review requires projection of the performance of both existing and future loans, so our comparisons include both the recent 2004 cohort and future (2005-2007) loan cohorts. As a point of reference, the exhibits also plot multiples of Standard Default Assumption (SDA) benchmark curves developed by the Public Securities Association.

<sup>31</sup> The projected performance of FHA loans summarized in Exhibit 5 is based on statistical models that do not include FICO scores. Therefore, the results are driven primarily by the same types of responses to changes in housing values and interest rates that characterize the performance of conventional mortgage loans, not by fundamental differences in the credit quality of FHA borrowers.

## Exhibit 5

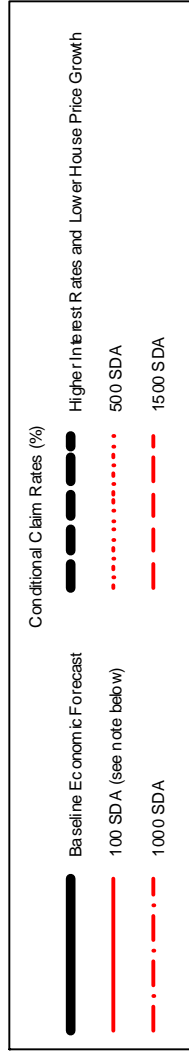
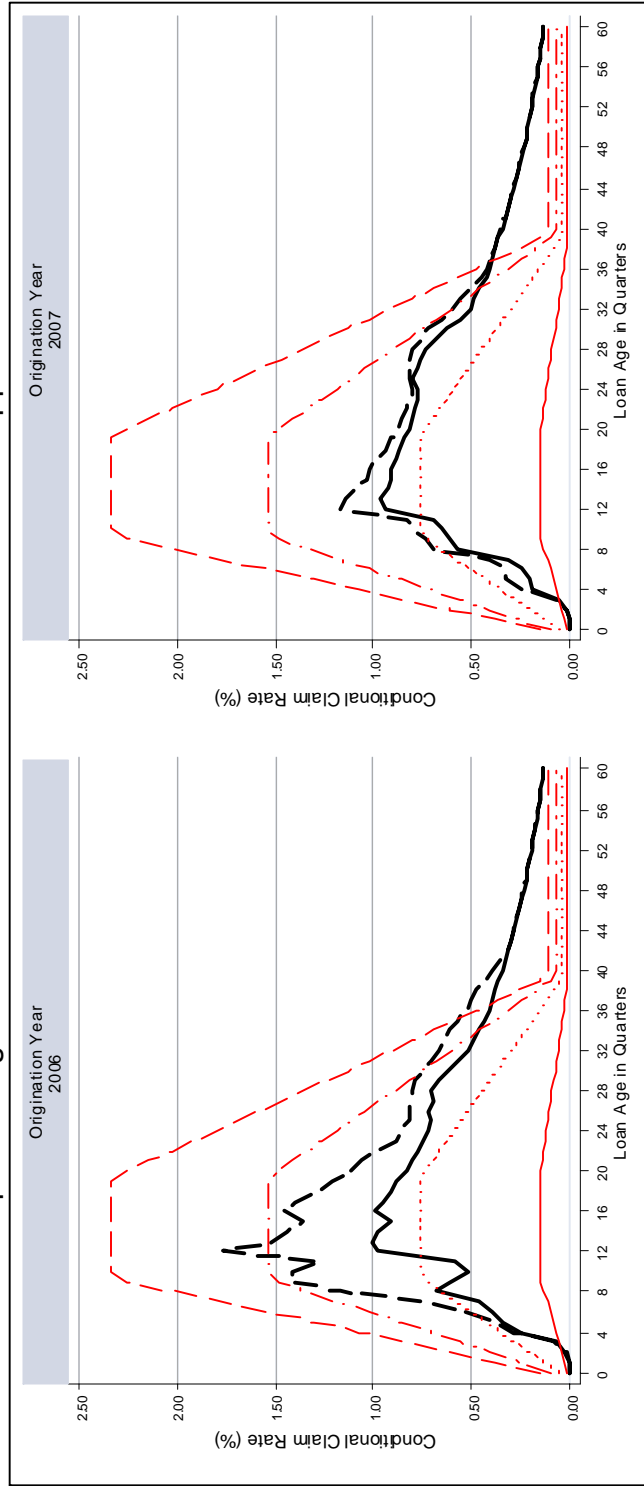
### Projected FHA Conditional Claim Rates for High-LTV ARM Loans Impact of Higher Interest Rates and Lower House Price Appreciation



Note: SDA is the Standard Deviation benchmark of the Bond Market Association (formerly Public Securities Association).  
Source: FHA Mutual Mortgage Insurance Fund (MMIF) Annual Actuarial Review for FY 2004

## Exhibit 5 (continued)

### Projected FHA Conditional Claim Rates for High-LTV ARM Loans Impact of Higher Interest Rates and Lower House Price Appreciation



Note: SDA is the Standard Default Assumption benchmark of the Bond Market Association (formerly Public Securities Association).  
Source: FHA Mutual Mortgage Insurance Fund (MMIF) Annual Actuarial Review for FY 2004

## Risks to Originators, Banks, and Security Investors

Because these loan products are so new, data on behavior through an adverse economic cycle does not exist. The FHA data presented above, however, suggest that these loans will fare poorly under a one-two punch of increasing interest rates and declining house price appreciation, particularly since most piggybacks have less protection against rapid changes in monthly payment obligations. The FDIC has raised concerns about the potential for model risk due to the fact that these new types of loan structures have yet to go through an adverse economic cycle.<sup>32</sup> One recent study by Credit Suisse First Boston indicates that piggyback first liens are 30 percent more likely to become delinquent than non-piggybacks even after controlling for other loan characteristics.<sup>33</sup> Another study by Lehman Brothers reports that although home equity loans tend to have higher FICO scores than subprime first-lien mortgages, the higher combined LTVs and second-lien position can result in losses that exceed those of subprime loans.<sup>34</sup> That study also notes that although home equity loan delinquency rates are much lower than those for subprime loans, lenders tend to write off delinquent home equity loans much faster than delinquent first-lien mortgage due to their smaller balances.

Banking regulators are beginning to highlight their own concerns with products like piggyback loans that push the envelope to qualify borrowers, assuming the continuation of a relatively benign interest rate environment.<sup>35</sup> Most recently, the federal bank, thrift, and credit union regulatory agencies have issued new guidance on the credit risk management of HELOCs and other home equity loans.<sup>36</sup> Among their concerns with HELOCs are: (1) interest only features that require no amortization of principal for a protracted period; (2) “low doc” or “no doc” underwriting; (3) high LTV and debt-to-income (DTI) ratios; (4) reduced credit score requirements for underwriting home equity loans; (5) greater use of automated valuation models (AVMs) in lieu of actual property appraisals; and (6) the increasing number of transactions generated through loan brokers and correspondent lenders. These factors represent multiple layers of risk to banks and mortgage security investors, against which there may be insufficient protections in the form of bank capital or offsetting third-party credit enhancements.

The interagency guidance also highlights a potential source of “reputation risk” to banking institutions engaged in home equity lending.<sup>37</sup> The agencies report that recent banking examinations have uncovered many instances of non-compliance with supervisory limits on high-LTV lending. The supervisory limits require that the aggregate of high-LTV one- to four-

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<sup>32</sup> FDIC Outlook, Winter 2004, p. 20.

<sup>33</sup> “Silents Are Not Golden: Silent Seconds and Subprime Home Equity ABS,” Credit Suisse First Boston, March 24, 2005.

<sup>34</sup> Bruce W. Harting, “A Closer Look at Subprime and Home Equity: Recent Trends and the 2005 Outlook,” Lehman Brothers Global Equity Research, January 6, 2005, p. 37.

<sup>35</sup> “Remarks by Julie L. Williams, Acting Comptroller of the Currency, before the BAI National Loan Review Conference,” New Orleans, LA, March 21, 2005.

<sup>36</sup> “Credit Risk Management Guidance for Home Equity Lending,” Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, and National Credit Union Administration, May 16, 2005.

<sup>37</sup> See also “Remarks by Julie L. Williams, Acting Comptroller of the Currency, before the Conference on Bank Structure and Competition,” Federal Reserve Bank of Chicago, Chicago, Illinois, May 6, 2005.

family residential loans should not exceed 100 percent of an institution's total capital.<sup>38</sup> This limitation also applies to first liens and requires that the combined LTV be applied to all liens on the same property, thus a bank potentially risks non-compliance even if it holds only first liens originated as part of piggyback structures. The recent high levels of originations of high-LTV piggyback loans without MI are an obvious source of concern on this point. The agency guidance also reviews the requirement that financial institutions should hold capital commensurate with the riskiness of their portfolios, and specifically recommends that institutions consider how HELOC interest-only and revolving credit features affect the loss curves used to assess capital adequacy.

Security investors face both credit and prepayment risks associated with the growth in piggyback lending, primarily in the form of uncertainty over how these loans will perform under adverse economic conditions, and differences in the timing of payments relative to more standard RMBS issues. Model risk is a particular concern, and well-known rating agency models, such as S&P's LEVELS<sup>®</sup>, are not recommended for application to high-LTV mortgages and second-lien pools.<sup>39</sup> As discussed previously, securities backed by revolving credit lines such as HELOCs are structured to maintain investor financial interest in the pool at more or less a constant level for some initial period of time corresponding to the draw period on the underlying loans. This has the potential to generate changes in the credit quality of the underlying collateral over time, perhaps in ways that could not be foreseen during the initial assignment of risk ratings to specific security classes.<sup>40</sup>

Simultaneously, the investor faces different forms of prepayment risk that could result in a mismatch with an investor's liabilities. Generally speaking, payoffs that go to purchase additional credit draws extend the duration of HELOC-backed securities relative to ABS backed by closed-end home-equity loans or RMBS backed by first-lien mortgages. However, securitizations backed by HELOC loans, like issues backed by non-mortgage revolving credits, may also include early-amortization provisions that can result in more rapid pay down of certificate balances, and these may be triggered by an unexpected increase in the number of defaults resulting from increasing interest rates.<sup>41</sup> Consequently, rising interest rates may compound both the prepayment and credit risks of these instruments.

The recent introduction of first-lien HELOCs and related securities extends the characteristics of revolving credit to even larger first mortgages, magnifying the potential interest-rate risk to borrowers and security investors. Early amortization triggers also represent a risk to security issuers, and originating banks that retain residual interests are required to hold additional capital against these risks. Securities based on revolving credits will, under normal conditions, begin to amortize in parallel with the repayment periods on the underlying loans. However, failure to

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<sup>38</sup> "Interagency Guidance on High LTV Residential Real Estate Lending," Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, October 8, 1999; and "Thrift Financial Report Instruction Manual, Schedule CCR – Consolidated Capital Requirement, Section CCR460: Qualifying Single-family Residential Mortgage Loans," Office of Thrift Supervision, page 1524-1525, December 2003.

<sup>39</sup> See Standard & Poor's LEVELS<sup>®</sup> v5.6b, February 1, 2005, p. 16.

<sup>40</sup> "Industry Practices in Estimating EAD and LGD for Revolving Consumer Credits – Cards and Home Equity Lines of Credit," Risk Management Association, March 2004.

<sup>41</sup> Floating-rate revolving credits would normally entail less interest-rate sensitivity than fixed-rate exposures, but the early amortization provisions associated with HELOC securitizations may add an additional layer of uncertainty.

maintain sufficient overcollateralization may trigger a requirement to apply all excess interest to amortize the most senior positions as protection against credit losses.

Principal payments to certificate holders in HELOC-backed securitizations using overcollateralization as credit support may be very irregular because investors are promised only ultimate payment of principal, not timely payment. Thus, if credit losses have exhausted the available overcollateralization, payments will either be limited to the excess spread or delayed until the excess spread can be used to create additional overcollateralization. Even if the security is backed by bond insurance, the insurance payments will not occur until the mortgage balances decline below the certificate balance. By contrast, in conventional first-lien senior subordinated transactions, principal losses are allocated to investors when they occur.<sup>42</sup> Although this additional cash flow uncertainty does not affect the rating process, it represents an additional source of uncertainty in the timing of payments to investors that is not present in first-lien securitizations.

Another potential risk to security investors is a possible mark-to-market devaluation, downward ratings transition, or reduced liquidity that could result following implementation of the Basel II capital accord in the United States. The residual interests created through second-lien securitizations are deeply subordinated unrated credit exposures, and the lack of an active market makes these assets illiquid, difficult to value, and of particular concern to banking regulators. More favorable treatment of GSE mortgage-backed securities under Basel II could significantly reduce investor interest in piggyback loans, resulting in devaluation of existing HELOC-backed securities. Furthermore, piggyback loans and related securities could receive less favorable capital treatment under Basel II due to a lack of geographic diversification resulting from their concentration in high-cost areas.<sup>43</sup>

Somewhat tangentially, the proliferation of anti-predatory lending laws at the state and municipal level has introduced an additional risk factor to securitization of non-traditional credits. S&P now requires additional credit support for loans governed by anti-predatory lending laws if the loans are to be eligible for inclusion in rated transactions.<sup>44</sup> The primary concern is with laws that impose assignee liability on purchasers of these loans that may exceed the original principal balance of the loans, and the increased risk of laws that include subjective standards to determine whether a loan is “predatory.” This is mainly an issue for subprime lending but the trend could carry over to piggyback lending to prime and near-prime borrowers if economic conditions were to worsen, loans to default in significant numbers, and more attention to be focused on the adequacy of disclosures to borrowers. The recent interagency guidance on home equity lending cautions lenders that the nature of their relationships with brokers and correspondents may have implications for liability under the Equal Credit

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<sup>42</sup> “Moody’s Approach to Analyzing Home Equity Loans,” Moody’s Investors Service, Global Credit Research, Structured Finance, Special Report, March 8, 1996, p. 11.

<sup>43</sup> “Risk-Based Capital Guidelines; Implementation of the New Basel Capital Accord; Internal Ratings-Based Systems for Corporate Credit and Operational Risk Advanced Measurement Approaches for Regulatory Capital; Proposed Rule and Notice,” Department of the Treasury, Office of the Comptroller of the Currency, 12 CFR part 3; Federal Reserve System, 12 CFR Parts 208 and 225; Federal Deposit Insurance Corporation, 12 CFR Part 325; and Department of the Treasury 112 CFR part 567, Federal Register, August 4, 2003, pp. 45900-45948.

<sup>44</sup> “Standard & Poor’s Implements Credit Enhancement Criteria and Revises Representation and Warranty Criteria for Including Anti-Predatory Lending Law Loans in U.S. Rated Structured Finance Transactions,” Standard & Pools, May 13, 2004.

Opportunity Act (ECOA), and for reporting responsibilities under the Home Mortgage Disclosure Act (HMDA). It is not an entirely abstract issue, as piggyback loans figured prominently in a recent \$484 million settlement between Household Finance and 19 states and the District of Columbia.<sup>45</sup> S&P now publishes a periodic “Anti-Predatory Lending Law Update” with the stated purpose of increasing overall market awareness of the issue of assignee liability.

## **Secondary Market Institutions**

The emergence of piggyback loans without MI has increased the overall level of uninsured and lender-insured credit risk in U.S. mortgage markets. Fannie Mae and Freddie Mac were originally chartered to serve as ultimate guarantors against this type of risk, utilizing third-party credit enhancements — primarily MI — to provide first-loss protection on conventional conforming high-LTV mortgages. In the case of piggyback loans, not only is the high-LTV debt, or some portion of it, uninsured, but the types of loans involved are inherently more risky than traditional first liens with MI. The rapid growth in the use of adjustable-rate HELOCs with less restrictive caps on interest rate adjustments, and the emergence of non-amortizing interest-only second mortgages, sometimes combined with adjustable-rate non-amortizing interest-only first liens, has introduced entirely new dimensions of risk into mortgage credit markets.

Reporting and disclosure of simultaneous second liens to regulators and secondary market guarantors has been inadequate in the face of these developments. First-lien purchasers like Fannie Mae and Freddie Mac may not always know about the existence of simultaneous second liens, much less second liens that are originated at different times or by different primary lenders. Notwithstanding GSE requirements for sellers to report the existence of second liens, if Fannie Mae or Freddie Mac purchase only the first lien there may be no reliable way to determine whether this additional risk exposure exists. Mortgage brokers help to provide plausible deniability to lenders, guarantors, and their regulators by structuring piggyback loans from different lenders who may place the loans separately in the secondary market. Some lenders are reluctant to lose potential piggyback business even when borrowers do not qualify for simultaneous second liens. For example, in circumstances where a second lien not eligible for concurrent closing would be allowed on a stand-alone basis, some mortgage brokers and correspondent lenders have been instructed to comply with applicable underwriting guidelines by dating the second mortgage application one day after the funding of the first mortgage. It is not clear what additional credit protection is provided by such a practice, since the total credit exposure is effectively the same. However, it does allow the first lien to be sold, to Fannie Mae, Freddie Mac, or another investor, based on a lower reported combined LTV, again pointing to one of many problems with disclosures on first liens in piggyback structures that are sold into the secondary market.

GSE underwriting guidelines clearly require that subordinate financing must be disclosed prior to the GSEs’ purchase of first liens. Lenders must disclose subordinate financing repayment terms to the GSE, the appraiser, and the mortgage insurer regardless of whether the subordinate

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<sup>45</sup> See Steven W. Kuehl, “High-Profile Predatory Lending Cases,” Profitwise News and Views, Federal Reserve Bank of Chicago, Spring 2003.

financing already exists or is taken simultaneously with the first lien.<sup>46</sup> Regardless of whether lenders comply with this requirement, there are data and methods available to determine the presence of subordinate financing. For example, Fannie Mae and Freddie Mac and many large lenders have data sharing agreements with property and mortgage data repositories like First American Real Estate Solutions, DataQuick, and Case-Shiller-Weiss. These data vendors collect data directly from county recorders and tax assessors to develop information at the loan and property level to support a number of automated underwriting and property valuation systems. This process includes matching property and mortgage records from home sales and mortgage transactions to identify repeated transactions on the same property or by the same borrower.<sup>47</sup> The same methods and data can be used to flag the occurrence of a concurrent or subsequent second-lien mortgage to the same borrower, and to obtain the information needed to account for the risk associated with combined high-LTV mortgages. SMR Research Corporation's recent study of piggyback lending is a step in this direction. The process should be much simpler for large lenders or credit guarantors holding first liens and having access to borrower credit information.

Investors in agency mortgage-backed securities are exposed to additional prepayment uncertainty because GSE prospectus supplements do not disclose simultaneous second-lien involvement or combined LTVs for first-lien mortgages originated as part of piggyback structures. In July 2002 Fannie Mae and Freddie Mac announced that they would submit to voluntary registration of their common stock under the Securities and Exchange Act of 1934. This action triggered a range of periodic disclosures by the GSEs, but did not require additional disclosures on their mortgage-backed securities. The SEC, Treasury, and OFHEO subsequently formed a task force to review disclosure practices in MBS markets and to make recommendations on additional disclosure items that would present few practical obstacles. In response, the GSEs agreed to include data on the following items in their security disclosures: loan purpose, original LTV ratios, standardized credit scores of borrowers, servicer information, occupancy status, and property type.<sup>48</sup> This information is currently provided by the GSEs in their standard prospectus supplements, which may be accessed on the internet. However, neither the agency task force nor the GSEs appear to have anticipated the growing importance of piggyback lending in this context, thus warranting another look at the disclosure standards.

As discussed in the joint staff report on MBS disclosures, the majority of Fannie Mae and Freddie Mac single-family MBS are eligible for sale in the "to-be-announced" or TBA market.<sup>49</sup> The TBA market enables GSE securities to be sold on a forward or delayed delivery basis, which allows borrowers to lock in their interest rates prior to settlement. The Bond Market Association has established standards for trading and settling GSE mortgage-backed

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<sup>46</sup> For example, see "Fannie Mae Single-Family Selling Guide, Part VII, Section 104.08, Subordinate Financing (06/30/02)."

<sup>47</sup> This is the approach used to develop repeat transactions house price indexes like the OFHEO HPI. See C.A. Calhoun, "Property Valuation Methods and Data in the United States," Housing Finance International, 16(2):12-23, December 2001.

<sup>48</sup> Department of Treasury, Office of Federal Housing Enterprise Oversight, and Securities and Exchange Commission, Staff Report: Enhancing Disclosure in the Mortgage-Backed Securities Markets, A Staff Report on the Task Force on Mortgage-Backed Securities Disclosures, January 2003.

<sup>49</sup> See Jeffrey D. Bibby, Srinivas Modukuri, and Brian Hargrave, "Trading, Settlement, and Clearing Procedures for Agency MBS," pp. 105-114 in Frank J. Fabozzi (ed.), The Handbook of Mortgage-Backed Securities, Fifth Edition, McGraw-Hill, 2001.



securities in the TBA market, known as the Good Delivery Guidelines.<sup>50</sup> Under these guidelines buyers and sellers agree to five pieces of information: (1) type of security; (2) coupon or interest rate; (3) face value; (4) price; and, (5) settlement date. Although each pool is unique, pools eligible for trading in the TBA market are viewed as generic as long as they conform according to these five characteristics.

GSE selling guides parallel the Good Delivery Guidelines in terms of the requirement that MBS pools share common characteristics. Factors such as the presence of simultaneous second liens are not considered. For example, Fannie Mae's selling guide imposes delivery limitations only for mortgages that have at least one of three special product characteristics: (1) mortgages with significant interest rate buydowns; (2) certain types of relocation mortgages; and (3) cooperative share loans. Loans with these features are likely to exhibit significant differences in prepayment and default characteristics that could alter the performance of MBS pools backed by these loans.<sup>51</sup> The presence of simultaneous second liens implying higher combined LTVs on first liens similarly undermines the perceived generic quality of TBA securities and thus warrants either additional disclosure to participants in these markets or modification of the loan eligibility requirements.

### **GSE Safety and Soundness Risks**

From a risk-management perspective, the GSEs clearly have incentive to measure the increased credit risk associated with piggyback mortgages. To help manage this risk, GSE loan purchase guidelines require sellers to report combined LTVs on first liens that are part of piggyback structures. Fannie Mae and Freddie Mac then apply standard pricing adjustments to reflect the higher default risk on these loans. However, from a regulatory capital perspective, weaknesses in the reporting of simultaneous second-lien exposures by Fannie Mae and Freddie Mac may actually result in lower, rather than higher, risk-based capital requirements. OFHEO's risk-based capital calculations for the GSEs are based on quarterly data submissions, known as RBC Reports, which provide the starting positions for running OFHEO's stress test simulation model. OFHEO does not require the GSEs to account for the existence of simultaneous second liens and combined LTVs in their RBC Reports. As explained in the preamble to OFHEO's risk-based capital regulation, this decision was originally justified by GSE representations that they were unable to know with certainty about the existence of a structured second lien when they are purchasing only the first lien. Although OFHEO's stress test model does not account for either the higher combined LTVs or higher default rates implied by these loans, it does recognize the additional guarantee fee income associated with the standard pricing adjustments, thereby making the first liens appear more profitable and resulting in lower rather than higher capital requirements in the presence of piggyback loans. Given the rapid increase in piggyback lending since the original development of OFHEO's RBC model, this would appear to be a potentially serious shortcoming.

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<sup>50</sup> See "Uniform Practices for the Clearance and Settlement of Mortgage-Backed Securities and Other Related Securities," The Bond Market Association (formerly Public Securities Association), 1981 and updates.

<sup>51</sup> See "Fannie Mae Single-Family Selling Guide, Part II, Section 207.06, Delivery Limitations for Certain Product Characteristics (06/30/02)."

## CONCLUSION

The recent explosion in piggyback loan originations has facilitated increased volumes of high-LTV lending, geographically concentrated in high-cost areas like California, where rapidly appreciating housing values and lagging incomes have increased the need for high-LTV purchase money mortgages. Piggyback loans have been successfully marketed to borrowers who would like to purchase homes with smaller down payments, and those seeking cash-out refinancing and the convenience of a revolving credit line. Mortgage brokers and primary lenders benefit from the increased fee income associated with originating two loans, and from the increased lending volume associated with the HELOC second liens commonly used to structure piggyback loans. Requirements for selling loans to Fannie Mae or Freddie Mac are another factor encouraging piggyback lending, as lenders receive better execution on conforming first liens sold to the GSEs than on jumbo loans sold into the non-conforming secondary market. Lenders have also touted the ability of borrowers to avoid MI premium payments in marketing piggybacks, although the actual benefits, if any, to individual borrowers will depend on how long they keep the loans and whether interest rates increase following origination.

Risk-based pricing differentials on high-LTV second liens will do little to reduce demand for these loans when interest rates are at such low levels and borrowers face rapidly increasing house prices. Even in the case of refinancing, where a high-LTV loan might not be required, the increase in borrower equity due to rising housing values makes a piggyback loan with a second-lien HELOC — or even a first-lien HELOC — an attractive option. Nevertheless, the economic environment that has been so propitious for the growth of piggyback lending entails substantial risks for borrowers and investors in second-lien mortgage exposures, as confirmed by evidence on the association between piggyback lending concentrations and indicators of market risk. Borrowers are exposed to the risks of rapidly increasing payments that will result as interest rates rise in future years, while investors in securitizations backed by revolving-credit exposures such as HELOCs face both credit and prepayment risks of indeterminate magnitude. While there is little direct evidence of the performance of piggyback loans through an adverse economic cycle, the best proxy data available suggest that high-LTV adjustable-rate mortgages will not fare as well in an environment characterized by increasing interest rates and slower house price appreciation. Piggyback borrowers could fare even worse due to the lack of protection against rapid changes in interest rates.

Piggyback lending has significantly altered the historical relationships among secondary market institutions, primary lenders, and mortgage insurers, and increased the total level of uninsured credit risk exposure in the mortgage banking system. Although HELOCs and other home equity lending are receiving increased attention from regulators, thus far these efforts have fallen short of increasing risk-based capital requirements on these loans. Piggyback lending raises numerous reporting, disclosure, and regulatory issues that represent the unanticipated consequences of a rapidly growing market segment. These issues and the risks associated with piggyback lending merit further consideration by policy makers.