The Competitive Effects of Fannie Mae

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I. Introduction

Critics of Fannie Mae appear to allege that the operations of Fannie Mae and Freddie Mac have harmed consumers of mortgages because Fannie Mae and Freddie Mac possess and jointly exercise monopoly power in the purchase and securitization of mortgage debt. The critics appear to base this allegation primarily, if not exclusively, on a claim that these two companies purchase or guarantee a large fraction of the loans issued in the United States in the 1-4 family, first mortgage, prime, conventional, conforming segment.1 Critics of Fannie Mae also allege that Fannie Mae and Freddie Mac are attempting to leverage their alleged joint monopoly power in the so-called secondary mortgage market into an alleged market for automated underwriting (“AU”) systems. The critics assert that Fannie Mae and Freddie Mac “have tied their automated underwriting services to their monopoly in the secondary mortgage market” and are thereby “monopolizing the automated underwriting market.”2

When the critics complain about the behavior and alleged monopoly power of Fannie Mae and Freddie Mac, we presume they are claiming that the activities of these firms are harmful to consumers. Otherwise, from an antitrust perspective, there would be no reason to express any concern about their activities. A key goal of the antitrust laws is to protect consumers. Activity that benefits consumers is procompetitive even if this activity makes life more difficult for competitors. Indeed, economists understand that if competitors are complaining and consumers are not, then it is highly likely that the activity in question is beneficial to consumers and procompetitive. Antitrust law recognizes that one of the principal ways that competition benefits consumers is for rivals to compete to take business away from each other by offering the best products at the lowest prices.

This paper, which has been prepared at the request of Fannie Mae, is a condensed version of Lexecon’s complete report investigating the critics’ claims concerning the consequences of competition in the mortgage industry.3 For the reasons explained below, we conclude that the evidence does not support the critics’ claims that Fannie Mae and Freddie Mac are engaged in conduct that is harmful to consumers. The critics commit a fundamen-

Foreword: The First Fannie Mae Paper

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As 2001 came to a close, the nation hit a new high in homeownership — 68 percent — and the housing sector remained remarkably strong in the midst of a sluggish economy. Not only does homeownership remain a cornerstone of public policy, it has become a bulwark of the economy. As a result of the increasingly efficient flow of capital into housing and technology innovations that help borrowers obtain mortgage financing more quickly than ever before, the housing sector has been able to help mitigate the effects of the current recession.

Fannie Mae, the world’s largest non-bank financial company, has a mission from Congress to promote homeownership. Working with our lender partners, Wall Street, mortgage insurance companies, and others in the housing industry, we have a unique perspective on a wide range of critical public policy issues.

In support of the public discussion of such issues, we have commissioned a series of research projects that will be published periodically as Fannie Mae Papers. The Papers will be thorough, well-researched, and designed to offer a fresh perspective on the rapidly changing marketplace for housing finance. With this first edition of Fannie Mae Papers, I am very pleased to offer an analysis by Lexecon — one of the nation’s preeminent economics consulting firms — of the competitive effects of Fannie Mae’s role in housing finance.


tal error when they attempt to draw conclusions about market performance based solely on claimed market share figures, especially when the shares are calculated within a narrowly defined segment of business activity. The economics profession has recognized for more than 25 years that high shares can be the consequence of products that benefit consumers because of superior efficiency, high quality, and low prices. The fact that Fannie Mae and Freddie Mac purchase or guarantee a high percentage of loans in the segments of the mortgage industry in which they are allowed to participate says nothing by itself about the effects of their activities on consumer welfare or about the degree to which they compete with one another.

When an otherwise competitive industry is monopolized, consumers are harmed by high prices. Instead of high prices, we find that the interest rates paid by consumers are significantly lower on loans in the segments of the mortgage industry in which Fannie Mae and Freddie Mac are allowed to participate. We also find that consumers arrange their financing plans to take advantage of the low rates offered in the segments in which Fannie Mae and Freddie Mac specialize. Thus, the economic evidence indicates that consumers are better off when they are able to take out mortgage loans that Fannie Mae and Freddie Mac are eligible to purchase or guarantee. This outcome – low prices and consumer benefits – is inconsistent with the critics’ claims of anticompetitive conduct that has injured consumers.

The low prices that are observed in the segments of the mortgage industry in which Fannie Mae and Freddie Mac operate are due to efficiencies, liquidity, cost advantages, and competition. Our investigation shows that Fannie Mae and Freddie Mac compete with each other and with other participants in the mortgage industry such as commercial banks and thrifts, the Federal Home Loan Banks (“FHLBanks”), Ginnie Mae, investment banks, private and institutional investors, and mortgage insurance companies. Firms in the mortgage industry compete on multiple dimensions, including price and the introduction of new products and services.

We also examine the critics’ claim that Fannie Mae and Freddie Mac are attempting to harm consumers by monopolizing the market for automated underwriting systems through tying and other allegedly anticompetitive practices. Here again the evidence does not support the critics’ claims. First, Fannie Mae does not tie its purchase and securitization decisions to its AU system. Fannie Mae generally acquires loans that meet its standards regardless of how they are underwritten. For the few high-risk loans that Fannie Mae will acquire only if underwritten using

its AU system, Fannie Mae is able to acquire them only because of its AU system. Second, there are numerous other options for lenders to acquire AU services. Finally, AU systems enhance efficiency and benefit consumers. Rather than reducing competition, AU systems have provided an important source of additional competition between various participants in the mortgage industry.

II. Prices in the mortgage industry

Critics allege that Fannie Mae and Freddie Mac are engaged in anticompetitive behavior that injures consumers. The most direct way of investigating the critics’ claims is to analyze interest rates on conforming mortgages – the loans that Fannie Mae and Freddie Mac are eligible to purchase or guarantee. If the critics are correct then interest rates for conforming mortgages should be the same or higher than interest rates for comparable nonconforming mortgages.

To analyze this issue, we use loan-level survey data from the Monthly Interest Rate Survey (“MIRS”) conducted by the Federal Housing Finance Board (“FHFB”) and weekly average interest rate quotes from HSH Associates, a firm that surveys large segments of the mortgage industry, to investigate how mortgage rates change with loan size. Examination of the data provides overwhelming evidence that interest rates for comparable mortgages are the same or lower in the conforming category in which Fannie Mae and Freddie Mac specialize than in the jumbo category.

**Figure 1** graphs the average effective consumer interest rate for conforming and jumbo 30-year fixed rate mortgages between May 1998 and August 2001. Interest

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1 Antitrust law also recognizes that a high market share does not imply poor market performance. It is not illegal for a firm to have a high market share or to be a monopolist, as long as the firm does not commit “bad acts” that harm competition. For example, the patent laws encourage the formation of temporary monopolies in order to increase the incentive for innovation.

2 Some analysts believe that the ability of Fannie Mae and Freddie Mac to offer low interest rates is related in part to funding advantages enjoyed by these companies and other so-called government-sponsored enterprises (“GSEs”). We understand there is disagreement over the extent to which these advantages are passed on to consumers. For purposes of the analysis in this paper on the effect of Fannie Mae and Freddie Mac on consumers of mortgages, this debate is irrelevant. We do not analyze the broader question as to whether these consumer benefits are outweighed by the cost of any implicit subsidy, or whether the current regulatory structure governing the banking, finance, and mortgage industry should be altered. Our focus instead is on competition under the current regulatory structure, and whether there is any evidence to support the critics’ claims that the existence and activities of Fannie Mae and Freddie Mac are harmful to consumers of mortgages.

rates are always lower for conforming mortgages over this period, with the average spread equal to 30 basis points. This difference between conforming and jumbo interest rates persists despite substantial short term and long term volatility in interest rates.

Figure 2 plots the average effective interest rate, including amortized fees and points, of fixed rate mortgages as a function of loan size relative to the conforming limit for the years 1997 through 2000. The vertical line indicates the conforming limit. As the graph demonstrates, the average interest rate for fixed rate mortgages jumps up at the conforming limit. Similar graphs for each separate year show the same pattern, with the jump in interest rates always taking place at or just beyond the conforming limit for that year. Note that since the average interest rate jumps near the conforming limit, the higher interest rate for jumbo mortgages cannot be explained by a gradual increase in cost or risk associated with larger mortgages.

The data in Figures 1 and 2 tell a clear story. There is a significant and discrete difference between the interest rates on conforming loans (the segment of the mortgage industry in which Fannie Mae and Freddie Mac are allowed to participate) and the interest rates on jumbo mortgages (a neighboring segment). Interest rates are significantly lower on conforming mortgages. The fact that rates are lower in the segment of the mortgage industry in which Fannie Mae and Freddie Mac are allowed to participate is powerful evidence against the critics’ claims that the existence and activities of these firms are anticompetitive and injure consumers.

III. Consumer substitution

The economic evidence indicates that consumers make an effort to take advantage of the lower interest rates in the segment of the mortgage industry in which Fannie Mae and Freddie Mac participate. The evidence indicates that consumers arrange their financing plans to increase their use of fixed rate conforming mortgages. This ability by consumers to substitute across mortgage products provides a potential constraint on Fannie Mae’s and Freddie Mac’s pricing.

A. Consumer substitution between conforming and jumbo mortgages

While Fannie Mae is not eligible to purchase mortgages above the conforming limit, consumers are free to choose the size and type of loan that they desire. Consumer substitution between conforming and jumbo loans could take a variety of forms. First, individuals who are near the conforming limit could choose to put down a larger down payment, lowering their loan amount to the conforming limit. Second, individuals could take out two (or more) loans, with one low cost loan near the conforming limit and with other debt used to cover the remaining balance. When two mortgages have this form, they are sometimes referred to as a “piggyback” loan. Finally, individuals could choose to purchase lower priced homes so that their mortgage debt stays below the conforming limit.

One implication of consumer substitution from jumbo loans to lower rate conforming loans is that there should be a relatively large fraction of mortgages at or just below the conforming limit every year if consumers find that conforming loans offer especially desirable terms. Figure 3 plots a histogram giving the relative frequency of loans by size from the MIRS database in 2000. There is a clear spike in the histogram at the conforming limit. The same analysis for other years confirms that in each year the spike moves so that it is always located at precisely the conforming limit. Since no other causal factor in the housing industry happens to change at the conforming limit each year, we conclude that consumers are substituting from jumbo to conforming mortgages.

An alternative procedure for estimating the degree of substitution from jumbo to conforming mortgage products is as follows. Using data on interest rate differentials, one can calculate the range of mortgage sizes for which it would be optimal for the average consumer to receive a piggyback loan (consisting of one conforming mortgage at the limit and one home equity loan) instead of a single jumbo mortgage. In 2000, for example, the average effective rate for a 30-year fixed rate conforming mortgage was 8.26 percent. For a jumbo the rate was 8.56 percent and for a home equity loan the rate
was 10.05 percent. At these average rates, a piggyback loan would be less expensive than a jumbo loan for loan sizes between the conforming limit of $252,700 and an upper limit of $303,579. In 2000, 32.2 percent of jumbo loans were in this $50,879 range in the MIRS data. Thus, for a significant number of would-be jumbo mortgage consumers, it would be cheaper to follow a piggyback strategy by combining a smaller conforming mortgage with a home equity loan.

These calculations and data show that consumers arrange their financing plans to shift from jumbo mortgages to fixed rate conforming mortgages to take advantage of the low rates in the conforming segment. The fact that consumers substitute towards the segment in which Fannie Mae and Freddie Mac operate is further evidence that, contrary to the critics’ claims, their existence and activities are beneficial and not harmful to consumers.

**B. Consumer substitution between fixed and adjustable rate mortgages**

One important dimension that differentiates consumer mortgage products is the extent to which mortgage rates adjust with changes in prevailing interest rates. Fixed rate mortgages are less risky for consumers, but expose lenders and investors to all of the interest rate risk from the mortgage. Adjustable rate mortgages (“ARMs”) expose consumers to more risk associated with changing interest rates, but are correspondingly safer for lenders or other investors to hold, although ARMs are more likely to be paid in advance than fixed rate mortgages.

Unlike many participants in the mortgage industry, Fannie Mae primarily holds and securitizes fixed rate mortgages. For example, as of December 31, 2000, adjustable rate mortgages only represented 4.6 percent of Fannie Mae’s total holdings of single family, first mortgages. In contrast, banks and thrifts had a combined ARM share for single family, first mortgages of 32.8 percent at that time.

In order to investigate the relation between fixed and adjustable rate mortgages, we analyze how consumers respond to changes in prices between the products. If consumers actively substitute, we would expect the ARM share of mortgages to be sensitive to the spread in the effective rate between fixed rate and adjustable mortgages.

**Figure 4** plots the ARM share and the spread between fixed and adjustable rate mortgages between July 1985 and December 2000 in the MIRS dataset. Casual inspection illustrates that the two series are highly correlated. When the spread is large (so that fixed rate mortgages are relatively expensive) consumers are more likely to obtain an adjustable rate mortgage. Formal regression results confirm this relationship. The spread is a highly statistically significant predictor of the ARM share.

One economically significant illustration of the willingness of consumers to substitute between fixed and adjustable rate mortgages can be seen by comparing the ARM share in the conforming and the jumbo sectors. **Figure 5** plots the ARM share by loan size for 2000 in the MIRS dataset. The ARM share shoots up from about 20 percent at the conforming limit to approximately 70 percent above the limit as the spread in rates between fixed and adjustable rate mortgages rises.

As with jumbo mortgages, this evidence of substitution from adjustable rate conforming mortgages to fixed rate conforming mortgages is significant in two ways. First, it is evidence that consumers seek out the segment of the mortgage industry in which Fannie Mae and Freddie Mac specialize—a pattern of conduct that is inconsistent with the critics’ claim that Fannie Mae and Freddie Mac are injuring consumers. Second, the evidence of substitution implies that interest rates on adjustable rate mortgages affect the demand for fixed rate conforming mortgages and thereby constrain the pricing in this segment.

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7 Source: HSH Associates and Fannie Mae
8 Note that some consumers may not be aware of the piggyback option or may receive better than average quotes on jumbo loans or poor quotes on piggyback loans. As a result some consumers in this range will choose a jumbo loan.
C. Consumer substitution between other mortgage products

Another important dimension that differentiates mortgage products is the eligibility requirements for individuals to receive a loan. Traditionally, mortgages were grouped into two categories: prime (or “A”) mortgages and subprime mortgages (“A-", “B", “C", or “D”). Consumers qualified for prime mortgages based on their credit history, the size of their down payment, and the extent of income documentation that they were able to produce. Fannie Mae and Freddie Mac traditionally purchased and securitized only A mortgages. Ginnie Mae traditionally securitized low down payment, high loan to value mortgages that otherwise would have been classified as sub-prime loans.

The advent of automated underwriting systems has blurred the traditional distinctions between prime and subprime mortgages. Lenders now classify some mortgage products that were traditionally B or C as A- because Fannie Mae and Freddie Mac are willing to purchase these mortgages. And a new product class called Alternative-A (“Alt-A”) has been created for borrowers with good credit who want a non-standard loan – e.g., low documentation loans, loans for second homes, and loans for investor properties. Since A- mortgages represent as much as 60 percent of all subprime production, Fannie Mae’s and Freddie Mac’s entry into this segment has reduced interest rates for a large number of consumers. These lower rates encourage consumers who are eligible to substitute into products offered by Fannie Mae and Freddie Mac.

Many consumers have the ability to substitute between A, Alt-A, A-, sub-prime, and FHA/VA loans. In the last several years, AU systems have increased the ability of consumers who traditionally would have received subprime loans to substitute to prime loans. In addition, some consumers have always been able to substitute across these categories. For example, some consumers of low documentation loans could choose to further document their income with pay-stubs and tax returns, to receive a prime loan. Consumers of high loan to value mortgages could adjust the size of their down payment or the value of the house they purchase to decrease the loan to value ratio for their mortgages.

Consumers of high loan to value mortgages can also substitute between FHA/VA loans and conventional mortgages, as long as their loan size is below the FHA or VA limit. Some FHA and VA loans can have down payments as low as 3 percent. In 1998, Fannie Mae offered a new mortgage with similarly low down payment requirements, targeted to borrowers who otherwise might have received a FHA or VA loan.

Interest rates for mortgages in each of these categories are correlated with each other, reflecting the ability of consumers to substitute between products and the underlying correlation in lender costs to offer these products. We calculated the correlation in weekly average interest rates between March 1999 and July 2001 for mortgages in the following six categories: conforming, FHA, Alt-A, A-, B, and C as defined by Fannie Mae. The lowest correlation among these categories is still 51 percent. The highest correlations are between conforming and Alt-A (96 percent), conforming and FHA (93 percent) and Alt-A and FHA (97 percent).

The evidence in this section shows that consumers can substitute between mortgages traditionally labeled prime and subprime and between conventional and FHA/VA mortgages. This evidence is significant in two ways. First, consumers benefit by arranging their financing plans to achieve the lowest cost or most convenient form of financing. Second, consumer substitution affects the demand for mortgages in these segments thereby constraining prices.

IV. Competition in the conforming loan segment

The low interest rates in the conforming loan segment appear to be the result of cost advantages, efficiencies, liquidity, and competition. This section of the paper discusses the various ways in which competition in the mortgage industry manifests itself. We focus specifically on how Fannie Mae competes with four categories of competitors: Freddie Mac, commercial banks and thrifts, the FHA/Banks, and Ginnie Mae.

A. Competition between Fannie Mae and Freddie Mac

As discussed above, the data on interest rates do not support the critics’ claims that Fannie Mae and Freddie Mac engage in conduct that is harmful to consumers of mortgages. We now analyze in more detail the behavior of Fannie Mae and Freddie Mac to show that, contrary to the critics’ suggestion, the two firms compete and do not behave in a perfectly coordinated, cartel-like pattern.

Competition between Fannie Mae and Freddie Mac occurs along a number of dimensions. One of the ways in which the two firms compete is by attempting to acquire a share of the “flow” of mortgages sold every day by lenders. Another way in which the two firms compete is by bidding against each other and other participants in the mortgage industry to acquire the “bulk transactions” offered by lenders that want to sell a number of mortgages from their existing portfolios. The two firms also compete by introducing new products, which expand the range of choices available to consumers or the services available to lenders.

Traditionally, Fannie Mae and Freddie Mac competed to acquire a share of the flow of mortgages sold from each lender every month. Lenders typically split their flow business between the two firms. If Fannie Mae and Freddie Mac were perfectly coordinating their activities as some critics suggest, we would expect a relatively stable competitive environment between the firms. However, in 1999, Freddie Mac surprised the entire

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mortgage industry, including Fannie Mae, by confirming that it had signed a “strategic alliance” agreement with Norwest Mortgage, the largest mortgage originator at the time. Strategic alliance agreements provide for exclusive or near exclusive sales of flow business from an origi-

Table 1 provides the fraction of mortgages sold to Fannie Mae or Freddie Mac as a share of total mortgages sold to one of the two GSEs, for the top 10 GSE mortgage sellers in 2000. The table displays the shift in industry behavior between 1998 and 2000. In 1998, almost every large firm split its business equally between Fannie Mae and Freddie Mac. In contrast, in 2000, every large firm concentrated its business towards its strategic alliance partner. This type of shift in industry behavior is not consistent with the critics’ view of a stable monopolized environment shared by Fannie Mae and Freddie Mac.

Moreover, strategic alliances have led to increased instability in Fannie Mae’s and Freddie Mac’s shares by exposing the GSEs to consolidation in the banking industry. For example, when Washington Mutual, a large alliance partner of Fannie Mae, acquired PNC Mortgage, a large alliance partner of Freddie Mac in the first quarter of 2001, Freddie Mac lost a substantial quantity of business. Further consolidation among depositories will continue this instability.

Another way in which Fannie Mae and Freddie Mac compete with each other is to acquire a share of the large bulk transactions sold to other firms. In a typical bulk transaction, an originator will offer to sell several thousand “seasoned” mortgages with an outstanding balance in the hundreds of millions of dollars to Fannie Mae and Freddie Mac, as well as to investment banks, large commercial banks and thrifts, or any other investor in the mortgage industry. The originator produces a “tape” with details on each loan in the deal for analysis by potential bidders. Bidders return one or more bids for some or all of the loans. Sometimes bidders prepare joint bids across several different firms, depending on which firm wants to purchase which type of loan or bear which type of risk. Bids are typically confidential and competitive.

Finally, both Fannie Mae and Freddie Mac compete with each other by introducing new products and technological systems. For example, over the last several years Fannie Mae and/or Freddie Mac have offered A- mortgage products, interest only mortgages, reverse mortgages, 100 percent LTV loans, and “best effort execution” products. In addition, one of the most important ways in which the two firms compete is through their automated underwriting systems. AU systems have allowed the firms to introduce new higher risk products in the Alt-A and A-segments. Fannie Mae and Freddie Mac also compete in AU systems by enhancing the services that they offer.

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**Table 1**

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<td>55.5%</td>
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| Average Share of Leading GSE        | 87.6%          | 68.9%            | 60.4%          |

Note: Lenders are ranked based on the sum of sales to Fannie Mae and Freddie Mac in 2000. Source: Inside Mortgage Finance based on Home Mortgage Disclosure Act data released by the Federal Reserve.

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lenders in the underwriting process. Each of these new products benefits consumers and/or lenders by providing additional choices, lower prices, or better service.

B. Competition between Fannie Mae and commercial banks and thrifts

Commercial banks and thrifts are the largest participants in the mortgage industry. As of December 31, 2000, commercial banks held 27 percent of residential mortgage debt outstanding and thrifts held 15.5 percent. Fannie Mae, by comparison, held only 10.8 percent. There are many different ways in which commercial banks and thrifts directly compete with Fannie Mae in the mortgage industry.

Banks and thrifts have several advantages over Fannie Mae that help their competitive position. First, Fannie Mae cannot originate mortgages. The only way that Fannie Mae can acquire a mortgage is if an originator first offers it for sale. Second, banks and thrifts have access to low cost, FDIC insured deposits. Third, banks and thrifts can borrow low cost advances from FHLBanks with similar GSE benefits that accrue to Fannie Mae and Freddie Mac. We will discuss these points further in the remainder of this section and in Part C on the FHLBanks below. As a result of these advantages, commercial banks and thrifts can compete against Fannie Mae in managing interest rate risk and credit risk.

Almost all mortgage originators are either commercial banks, thrifts, or mortgage brokers who work through banks and thrifts. As a result, banks and thrifts have the option of deciding which loans to retain for their own portfolios and which loans to offer for sale to the rest of the mortgage industry. A variety of factors influence the fraction of loans that a bank or thrift decides to retain for its own portfolio versus offering for sale. As a result, Fannie Mae faces uncertain demand for its services.

In addition, as depositories consolidate, their interactions with Fannie Mae change considerably. There has been substantial consolidation among commercial banks and thrifts, increasing both the size of individual firms and concentration in the banking industry. This can be documented using almost any measure of bank activity. For example, the top 5 mortgage originators are expected to increase their share of total originations from 21 percent to 36 percent between 1997 and 2002. Even more striking is the fact that the top ten customers of Fannie Mae and Freddie Mac increased their share of sales to the GSEs from 24 percent to 62 percent between 1993 and 2000.

Bank consolidation has two important effects on Fannie Mae’s competitive position. First, as depositories consolidate, they are more likely to develop and maintain internally the expertise necessary to manage large and complex portfolios with interest rate risk and credit risk. They are also more likely to achieve the scale necessary to securitize their own mortgages. This improved ability to operate as risk-transformers, using complex financial models and accessing derivative markets, strengthens large depositories’ interest rate and credit risk management businesses. Second, as depositories get larger and represent a larger share of sales to Fannie Mae, they enjoy greater bargaining power and thereby encourage Fannie Mae to improve its efficiency. As we discussed in Part A of this section, average guarantee fees charged by Fannie Mae and Freddie Mac have declined substantially. Since most analysts predict consolidation to continue in the banking sector, it is likely that larger firms will continue to put downward pressure on guarantee fees.

C. Competition between Fannie Mae and the FHLBanks

The FHLBank System is a GSE consisting of 12 regional banks that are cooperatively owned by their member financial institutions. Given its status as a GSE, the FHLBank System is able to borrow at interest rates that are generally below the yields on comparable corporate securities. The FHLBanks pass on their low cost of capital to their members in the form of low cost loans, called advances. Because of the cooperative structure of the system, any profits earned by the FHLBanks are redistributed back to their members as returns on their FHLBank stock. The net effect of this ownership structure is to transmit GSE benefits to commercial banks, thrifts, and other financial institutions that are members of the FHLBank System. Fannie Mae and Freddie Mac do not seem to have unique funding advantages arising from their GSE status that are not also available to commercial banks and thrifts that are members of the FHLBank system.

Advances provide a significant fraction of depositories’ total funding of mortgages. As of December 31, 2000, there was approximately $438 billion in advances outstanding. This represents an increase of 231 percent in the level of advances outstanding since December 31, 1995. When a financial institution wants to hold a greater level of mortgage assets than its deposit base, advances typically represent the marginal source of funds.

In the last several years, regional FHLBanks have begun participating in new programs such as the Mortgage Partnership Finance ("MPF") program. The MPF program began in 1997 as a pilot program run by the FHLBank of Chicago. In its current form, the MPF program allows participating FHLBanks to acquire fixed rate conforming mortgages on residential properties. Today, all of the regional FHLBanks either participate in the MPF program or operate similar programs that allow FHLBanks to acquire conforming mortgages.

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16 Source: Annual reports of the FHLBank System.
17 The FHLBanks of Cincinnati, Indianapolis, and Seattle participate in the Mortgage Purchase Program ("MPP"). The other 9 FHLBanks participate in the MPF program (the FHLBank of Indianapolis participates in both the MPF and MPP programs).
The MPF program was designed as a means of competing with Freddie Mac and Fannie Mae. Under the MPF program, member institutions either originate mortgages as agents for their FHLBank or sell mortgages to FHLBanks in much the same way that they would sell mortgages to Freddie Mac or Fannie Mae. The principal difference, however, is that, under the MPF program, member institutions retain a significant portion of the credit risk (and receive “credit enhancement fees” for assuming this risk).

In June of 2000, the Federal Home Finance Board gave the MPF program permanent status and removed the cap of $9 billion that had previously been placed on the amount of outstanding loans. With the removal of this regulatory cap, the amount of outstanding loans in the MPF and MMP programs increased to $22.6 billion by the end of third quarter 2001. The FHLBanks also invest in MBS, holding $85.4 billion by the end of the third quarter 2001.16

Many financial institutions have been reluctant to assume additional mortgage related credit risk. As a result, most of the loans that were initially acquired by the MPF program were FHA/VA loans, which are guaranteed by the government. However, recently the FHLBanks have committed to increasing the share of conventional loans in the MPF program. During the third quarter of 2001, outstanding conventional MPF loans grew at a 210 percent annualized rate, compared with an annualized rate of 48 percent for the entire program.17 As the FHLBanks increase their acquisitions of conventional, conforming mortgages, they increase their competition with Fannie Mae and Freddie Mac to manage mortgage-related interest rate risk.

In addition, recent proposals have been suggested to allow the FHLBanks to securitize mortgages in the same way that Fannie Mae and Freddie Mac currently issue MBS. This would allow FHLBanks to offer nearly all of the services currently provided by Fannie Mae and Freddie Mac in addition to the FHLBanks’ substantial advance business. With or without the ability to securitize mortgages, the FHLBanks compete with Fannie Mae today in the ways described above and have the potential to significantly grow in the future.

D. Competition between Fannie Mae and Ginnie Mae

Ginnie Mae packages and through private agents securitizes MBS backed by FHA and VA mortgages – mortgages insured by the FHA or guaranteed by the VA. Unlike MBS issued by GSEs, the guarantee on Ginnie Mae MBS is backed by the full faith and credit of the U.S. government. FHA and VA loans have low down payment requirements, typically with loan to value ratios of 97 percent or more. As we discussed in Section III(C), in 1998 Fannie Mae offered a new high loan to value product designed to compete with FHA and VA loans. As a result of this and other similar products, FHA and VA loans compete with high loan to value conventional loans.

This competition at the consumer level between conventional and government loan products leads to competition between Fannie Mae and Ginnie Mae. The FHA share of mortgage originations is volatile, typically between 7 and 12 percent. Fannie Mae adjusts its pricing in order to affect this share and increase the size of its high loan to value products. As a result, Ginnie Mae affects the demand for Fannie Mae’s high loan to value products.

In addition, Ginnie Mae directly competes with Fannie Mae, Freddie Mac, the FHLBanks, and other firms in the mortgage industry to acquire FHA and VA loans. Traditionally, Ginnie Mae guarantees well over 95 percent of FHA and VA loans. For the years 1995 through 1998 as well as for the first two quarters of 2001, Ginnie Mae met that standard. However, in 1999 Ginnie Mae’s share of FHA and VA loans fell to 87 percent and in 2000 it was 88 percent. Most of the FHA and VA loans not acquired by Ginnie Mae appear to have been purchased by Fannie Mae, Freddie Mac, and the FHLBanks. Clearly, Ginnie Mae, Fannie Mae, Freddie Mac, and the FHLBanks can compete to acquire FHA and VA mortgages.

V. Concentration in the mortgage industry

 Critics appear to base their claim that Fannie Mae and Freddie Mac injure consumers through the exercise of joint monopoly power on so-called market share evidence. According to the critics, Fannie Mae and Freddie Mac guaranteed or purchased approximately 75 percent of all 1-4 family, first, prime, conventional, conforming mortgages originated in the United States in 2000.17 However, even if there were no dispute about these shares, it would be a fundamental error to jump from market share evidence to a conclusion about harm to consumers. The economics profession has recognized for more than 25 years that high shares can be the consequence of products that benefit consumers because of superior efficiency, high quality, and low prices. Thus, even if Fannie Mae and Freddie Mac purchase or guarantee a high percentage of the loans in the segments of the mortgage industry in which they are allowed to participate, this would say nothing by itself about the effects of their activities on consumer welfare.

Yet, it is worth noting that the critics’ market share calculations are wrong. First, it is not appropriate to add the share of Fannie Mae and Freddie Mac together as if they were a single firm. The evidence in Section IV is that Fannie Mae and Freddie Mac do not behave as if they were a single firm with respect to price and with respect

to new products and services. Second, the denominator in the critics’ calculations of market shares is limited to mortgage debt in a narrow segment – 1-4 family, first, prime, conventional, conforming, mortgages. However, Fannie Mae is eligible to purchase and securitize mortgages outside of this narrow segment. Fannie Mae actively purchases multifamily mortgages, second mortgages, subprime mortgages, and government (FHA/VA) mortgages. In addition, although Fannie Mae cannot purchase or guarantee nonconforming mortgages, there is substantial consumer substitution between conforming and jumbo mortgages. The critics pay no attention to the potential constraining effect on pricing that such substitution can provide, as discussed in Section III. The critics also give no consideration to supply-side substitution and the ability of financial institutions active in other areas of the debt markets to expand or enter the business of purchasing and/or guaranteeing conforming mortgages.31

The final problem with the critics’ share calculations concerns the manner in which shares have been calculated within the narrow segment that they examine. Fannie Mae has two main activities – interest rate risk management and credit risk management.32 On some loans, it provides a financing or interest rate risk management function, but does not bear any credit risk – as when it buys a mortgage-backed security guaranteed by another institution. On other loans, it provides only a guarantee or credit risk management function – as when it issues and guarantees a MBS, but does not hold the MBS in its portfolio. On other loans, it performs both functions – as when it buys and holds whole loans. In addition, on many of the loans that Fannie Mae bears credit risk, other firms, such as mortgage insurance companies, are also bearing credit risk on the same loans.

In view of these different activities and scenarios, it is important to be clear about which activity is being tracked in a particular share calculation. Given the evidence of consumer substitution across different mortgage products, one calculation is to measure the share of residential mortgage debt outstanding based on which firm managed the interest rate risk, either by buying a whole loan or purchasing mortgage-backed securities. Another possibility is to measure the share of residential mortgage debt outstanding based on which firm bore residual credit risk – either by holding a whole loan or acting as a guarantor. However, this calculation ignores the substantial sharing of credit risk that occurs on the same mortgage between multiple firms (for example a mortgage insurance company and the holder of a mortgage.) An alternative calculation is to compute the share of revenues earned for bearing credit risk by participants in the mortgage industry. The analysis below presents all three share calculations – i.e., share of mortgage debt outstanding by bearer of interest rate risk, share of mortgage debt outstanding by bearer of residual credit risk, and share of revenue for management of credit risk.

A. Interest rate risk management

Figure 6 provides the share of total residential mortgage debt outstanding by type of investor, as of December 31, 2000. It includes holdings of mortgages in the form of whole loans as well as mortgage-backed securities. As the figure indicates, Fannie Mae and Freddie Mac have relatively small shares of total residential mortgage debt outstanding. In 2000, Fannie Mae held 10.8 percent of total residential mortgage debt and Freddie Mac held 6.9 percent. Commercial banks and thrifts each held substantially larger portfolios of mortgage debt than either of the GSEs, with commercial banks holding 27.0 percent and thrifts holding 15.5 percent. Numerous other categories of investors held a combined 39.7 percent including life insurance companies, foreign investors, credit unions, pension funds, FHLBs, individuals, and other smaller holders.

Because of changes in the banking industry as a result of the savings and loan crisis, the savings and loan industry has continued to decline relative to other financial

31 The precise definition of the denominator is not particularly important if one understands that the only point of market share calculations is to understand market performance (i.e., do consumers pay lower interest rates in the segments where Fannie Mae and Freddie Mac operate). That key question about performance is one that we have already answered affirmatively. There is no further need therefore to examine shares. The critics’ focus on an alleged high market share in a narrowly defined segment diverts attention from the key evidence and, as we demonstrate, even their share calculations are subject to significant criticisms. The critics’ alleged high share would be relevant only if one had a concern with the economic well being of inefficient rivals to Fannie Mae and Freddie Mac in the critics’ narrowly defined segment. Given that we have shown that the existence and activities of Fannie Mae and Freddie Mac benefit consumers of mortgages, there is no need to calculate shares other than as a descriptive exercise. We provide such alternative share calculations in this section.

32 Fannie Mae and Freddie Mac manage interest rate risk by purchasing and holding mortgage assets in their portfolio, which they fund by issuing debt. Credit risk management involves insuring or guaranteeing mortgages against the possibility of consumer default.
institutions during the 1990s. Holdings of residential mortgage debt have shifted over time as a result. **Figure 7** plots the level of mortgage debt outstanding held by commercial banks, thrifts, Fannie Mae, and Freddie Mac. As the figure shows, while thrifts’ portfolios have remained relatively constant, the portfolios of commercial banks, Fannie Mae, and Freddie Mac have grown with the increase in total mortgage debt outstanding.

The share calculation in Figure 6 is based on a denominator that consists of all residential mortgage debt held in the United States. However, another definition may be reasonable to understand Fannie Mae’s position relative to other firms in the business of bearing interest rate risk. Interest rate risk obviously exists on many kinds of securities and not just on mortgages. If the returns to holding interest rate risk on mortgage investments, for some reason, increased relative to the returns to holding interest rate risk elsewhere in the economy, one would expect investors active in these other instruments to shift their activities towards the mortgage sector. In modern capital markets, abnormally high rates of return are quickly competed away.

Given the ability of investors to shift among instruments, it is not surprising to find that interest rates on fixed rate mortgage loans are closely related to the level and changes in interest rates on other fixed income securities. Lehman Brothers publishes a series of fixed income indices that provide broad coverage of liquid fixed income securities. We analyze the correlation in monthly returns between January 1992 and September 2001 for the five principal components of the U.S. Aggregate Index: U.S. Treasuries, Agency Debt, U.S. Corporate Investment Grade Debt, Fixed Rate Mortgage-Backed Securities, and Asset Backed Securities. We find that monthly returns are highly correlated among all the categories, always above 85 percent. Prices or yields of the underlying instruments should be even more correlated.

Given this evidence of capital mobility, we analyze the position of Fannie Mae and Freddie Mac as holders of interest rate risk relative to all debt outstanding in the U.S. economy. The Federal Reserve measures total debt outstanding in the U.S. economy through the Flow of Funds Accounts. As of December 31, 2000, there was $27.5 trillion of total debt outstanding, of which $6.9 trillion or 25 percent were mortgages. Since Fannie Mae held $607.4 billion of mortgage debt at that time, Fannie Mae only held approximately 2.2 percent ($607.4 / 27481.9) of total debt outstanding in its mortgage portfolio. Freddie Mac only held approximately 1.4 percent of total debt outstanding in its mortgage portfolio.

In addition, the agency debt issued by Fannie Mae and Freddie Mac only represent a small fraction of total debt outstanding. As of December 31, 2000, Fannie Mae had borrowed approximately $643 billion of debt that was still outstanding, equal to 2.3 percent of total debt outstanding. Similarly Freddie Mac had borrowed approximately $427 billion of debt outstanding, equal to 1.6 percent of total debt outstanding. It is clear that agency debt represents a relatively small fraction of total debt outstanding.

### B. Credit risk management

Fannie Mae’s second principal line of business is managing credit risk for the portfolio of mortgages that it owns and for the mortgage-backed securities it guarantees. When a consumer defaults on a mortgage and the collateral is not sufficient to cover the unpaid balance plus fees, the firms that bear the credit risk on the mortgage do not receive full repayment. Holders of whole mortgages bear the residual credit risk on their mortgages beyond what is covered by mortgage insurance. In contrast, holders of Fannie Mae mortgage-back securities do not bear credit risk since Fannie Mae guarantees the timely payment of principal and interest on these securities. Instead, regardless of who owns a Fannie Mae MBS, Fannie Mae bears the residual credit risk for the underlying mortgages beyond what is covered by mortgage insurance and other reinsurance firms. Other firms that securitize mortgages and issue MBS typically provide similar guarantees of timely payment of principal and interest or create highly rated, “risk-tranches” with little remaining credit risk.

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24 Fannie Mae and Freddie Mac issue agency debt to raise funds for their activities. However, unlike the mortgage assets that the firms hold in their portfolio, agency debt is a liability for Fannie Mae and Freddie Mac. As a result, holdings of agency debt should be counted in the shares of the investors who purchase the debt rather than as part of the GSEs’ shares for managing interest rate risk.


26 Note that the $6.9 trillion in mortgage debt includes both residential mortgage debt discussed in the previous section and commercial mortgages.
Firms’ holdings of residual mortgage credit risk are not concentrated. Consider the fraction of residential mortgage debt held by firms providing credit risk management services, based on which firm bears the residual credit risk. As of December 31, 2000, Fannie Mae’s share was 21.7 percent, Freddie Mac’s was 15.7 percent, and Ginnie Mae’s was 10.9 percent. The remainder is split among numerous commercial banks (with a combined share of 18.6 percent), thrifts (with a combined share of 11.7 percent), and firms that issue MBS (with a combined share of 9.8 percent), among others.

Moreover, these figures overstate the true fraction of credit risk borne by firms in the mortgage industry. For many mortgages, the credit risk is shared among multiple firms. For example, if a bank holds a mortgage with mortgage insurance in its portfolio, the bank and the mortgage insurance company each bear some of the credit risk of the mortgage. If Fannie Mae sells some of the credit risk on a pool of mortgages in its portfolio to a reinsurance company, then Fannie Mae, mortgage insurance companies, and the reinsurance company all bear some of the credit risk on the pool of mortgages.

Since the figures above allocate all of the credit risk to the issuer of the MBS and the holder of whole mortgages, they do not properly include many other firms that bear substantial amounts of mortgage related credit risk.

At the request of Fannie Mae, The Cambridge Group constructed alternative share estimates based on the share of revenues earned by firms for managing mortgage related credit risk. The Cambridge Group estimates that total revenues associated with credit risk management for all firms equaled $31.9 billion in 2000. This number is equal to the sum, for each disaggregated loan type weighted by year of origination, of the amount of residential mortgage debt outstanding times the average payment to bearers of credit risk. The average payment to bearers of credit risk for a type of loan equals the average consumer interest rate minus the “pass-through” rate (paid to the mortgage holder to bear the interest rate risk) minus the average servicing fee on the loan.

Of the $31.9 billion total industry revenue to bear credit risk, Fannie Mae received $3.0 billion in revenues that it did not pass on to third parties. Freddie Mac received $2.1 billion in net revenues. The remainder accrued to mortgage insurance companies, Ginnie Mae, issuers of private MBS, and holders of whole mortgage loans. Using these alternative measures of the extent to which firms bear credit risk leads to a lower estimate of concentration for the management of credit risk. In particular, Fannie Mae received only 9.4 percent of revenues for managing mortgage related credit risk and Freddie Mac received only 6.0 percent.

VI. Automated underwriting systems

A. Background on automated underwriting systems and Desktop Underwriter

An automated underwriting (“AU”) system is a software tool that lenders or mortgage brokers use to input data about a prospective mortgage and borrower in order to help determine the borrowers creditworthiness. Fannie Mae provides AU capabilities to lenders with a product called Desktop Underwriter (“DU”). Mortgage brokers can access DU services through a product called Desktop Originator (“DO”). DU software analyzes the data and makes an underwriting recommendation to the lender based on Fannie Mae’s credit assessment. For most loans that meet Fannie Mae’s underwriting standards, DU “approves” the mortgage and Fannie Mae will acquire the mortgage at its standard pricing. For other “expanded approval” mortgages that DU determines are riskier, Fannie Mae will still acquire the loan, but at a higher interest rate. By using risk based pricing for expanded approval mortgages, Fannie Mae is able to accept a larger percentage of mortgage applications including loans that other firms would categorize as A- or subprime mortgages.

There are many providers of automated underwriting services in addition to Fannie Mae. These include Freddie Mac’s Loan Prospector (“LP”) system, proprietary systems owned and employed by mortgage insurers and mortgage lenders, and third-party providers. Freddie Mac’s strategy in AU has differed in some ways from Fannie Mae’s. Nonetheless, LP still provides the same basic service to lenders and borrowers that DU does.

Many large mortgage insurers and mortgage lenders have developed their own proprietary automated underwriting software. Some examples of these firms, with the name of the AU system in parentheses, include Bank of America (LoanSolutions), Caledon (Capital New America), Chase Mortgage (Zippy), Citi Mortgage/Citi Financial (Maestro and LoanQuest), Countrywide (CLUES, eApprove), Downey Savings (DIMES), First Union Capital Markets, GE Capital (Omniscore), Fleet/Celeris Financials (Flashbridge), GMAC/RFC (Assetwise), Impac (IDASL), IndyMac (eMits), Washington Mutual (Optis/Loanworks), and WMC Direct.

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37 These figures provide a relatively crude description of how credit risk is allocated among firms and investors in the mortgage industry for two reasons, as we describe in more detail below. First, multiple firms often bear credit risk on the same mortgage; Second, the first dollar of liability in the event of default has different risk characteristics (and charges for bearing that risk) than the last dollar. These figures are based on which firm bears the last dollar of credit risk.


40 Some analysts argue that Freddie Mac is targeting mortgage brokers more than Fannie Mae is with its AU technology. “Richard Beidell, an independent mortgage industry analyst and consultant in Norwood, Mass., said that while Fannie is working more to promote brand awareness among consumers and supporting lenders, Freddie is targeting brokers, because ‘the broker is the person who servers the borrower.’” Source: “Some Say the GSEs’ Outreach to Brokers Could Disrupt Chain,” The American Banker, October 9, 2001.

41 Examples provided by Fannie Mae using information from company web sites, press releases, news articles, and industry/analyst research papers.
Some AU systems are also available for sale from third party providers to lenders that are not large enough or do not wish to construct their own proprietary system. Some examples of these firms, with the name of the AU system in parentheses, include ARCSystems (LT2K), Keystroke, Mindbox, PMI (Aura), and S&P Documentation and Collateral Scoring System (DACS).\(^5\)

Lenders using proprietary AU systems instead of DU may still sell some of their mortgages to Fannie Mae. They can do this in at least two ways. First, they can take Fannie Mae’s published underwriting standards and implement them in their own software. Second, they can use their own software to determine whether or not to use DU, thereby avoiding the DU usage fee for some mortgages. In addition, some mortgage originators use DU to make an underwriting decision even for loans that they do not sell to Fannie Mae. These loans may include non-conforming mortgages, mortgages that Fannie Mae chooses not to purchase, mortgages that the lender chooses to keep in its portfolio, or mortgages that the lender sells to someone other than Fannie Mae.

The majority of mortgages are underwritten with AU technology and usage of AU systems is likely to continue to grow. “More than 80% of lenders use automated underwriting technology, and they process more than 70% of all loan applications.”\(^5\) While Fannie Mae and Freddie Mac are the largest providers of AU services, other systems process a substantial fraction of mortgage originations. Among loans that are underwritten by an AU system, 38 percent used Fannie Mae’s DU system, 25 percent used Freddie Mac’s LP system, 12 percent used an individual lenders’ proprietary systems, 10 percent used Aura’s PMI system, 8 percent used Chase’s Zippy system, 3 percent used Washington Mutual’s Loanworks system, and 4 percent used an alternative system.\(^5\)

Pricing for DU is typically on a per-application basis, with a small up-front fee (essentially to cover set-up costs), although some pricing is volume-based. A single fee is charged per mortgage application regardless of the number of times the application is run through the system. We understand that the typical fee is less than $20 per loan and it has been steadily declining over time, even as improvements have been incorporated into DU.

Automated underwriting has dramatically increased the efficiency of the loan approval process. One source of these savings is the elimination of labor costs and paperwork associated with determining whether an application meets given underwriting criteria. In addition, in some cases an AU system may determine that certain costly parts of the mortgage application are unnecessary. For example, in some circumstances DU will not require a costly appraisal of the property, saving the applicant several hundred dollars. We understand that by using AU systems lenders may cut mortgage origination costs by as much as $1400 in some instances – a significant fraction of the cost of originating a mortgage.\(^5\) In addition, automated underwriting increases objectivity in the mortgage lending process and may reduce discrimination in mortgage lending. Given these efficiencies, it is not surprising that the majority of mortgages are underwritten through an AU system.

Many modern AU systems use sophisticated statistical models estimated on large historical databases of individual mortgages. The systems evaluate the riskiness of a loan based upon characteristics of the borrower and the loan.\(^6\) AU systems have the potential to trade off different risk characteristics to evaluate more accurately the overall riskiness of a loan application. The systems are updated to incorporate current data and improved over time to reduce the amount of information required and to improve their ability to measure the riskiness of individual mortgages. Better assessments of the riskiness of mortgages can lead to lower default rates as well as more loan approvals.

As a result of the improved ability to measure risk with AU systems, Fannie Mae and Freddie Mac have developed several new mortgage products. Some of the new products that Fannie Mae and Freddie Mac are now purchasing are in the Alt-A, A-, and subprime segments that previously would have failed to meet their underwriting criteria. For example, in 1998 Fannie Mae introduced the “Flex 97” product – a mortgage with a 97 percent loan-to-value ratio. In 1999 Fannie Mae introduced the “Timely Payments Rewards” product – a mortgage for borrowers with blemished credit with an interest rate that falls over time if the borrower repays the mortgage on time. Without the ability to measure risk and use risk based pricing that AU systems offer, we understand that it is unlikely that Fannie Mae would have been able to offer these new products.

In addition, AU systems have been improving through technological innovation. Both DU and LP, as well as proprietary systems have been adding new features, improving integration, and simplifying the underwriting process at a rapid pace. For example, in 1996 Fannie Mae streamlined the appraisal process and allowed underwriting of jumbo and FHA/VA loans. In 1997 Fannie Mae reduced the data requirements for DU while increasing

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\(^5\) Examples provided by Fannie Mae using information from company web sites, press releases, news articles, and industry/analyst research papers. Note that PMI is not licensing new customers.


\(^9\) Fannie Mae has published the fourteen “scorecard” characteristics that DU uses to evaluate a loan. They include the following: equity (i.e., down payment); credit history; liquid reserves; debt-to-income ratios; salaried versus self-employed; loan amortization period; adjustable or balloon mortgage; number of units (e.g., in an apartment complex); co-op, condo or attached; funds from other parties; loan purpose (e.g., purchase, refinance); number of borrowers; prior bankruptcies and foreclosures; and prior mortgage delinquencies. Source: Fannie Mae press release, January 14, 2001, http://www.fanniemae.com/news/pressreleases/0608.html.

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the product offerings and increasing the linkages between
dU and lenders and mortgage insurance companies. In
1999 and 2000 Fannie Mae offered AU services over the
Internet, increasing the accessibility and convenience of
its system. In 2001 Fannie Mae introduced MORNetPlus
Connections, which “gives lenders access to a suite of
services to order, fulfill, and manage origination and
settlement services such as appraisal, flood, title, and
closing/escrow.”30

B. Fannie Mae’s activities in AU systems are not
anticompetitive
Critics of Fannie Mae and Freddie Mac assert that the two
firms “have tied their automated underwriting services to
their monopoly in the secondary mortgage market” and
are thereby “monopolizing the automated underwriting
market.”31 These allegations are incorrect.

Fannie Mae does not tie DU to its acquisition of mortga-
ges.32 In particular, Fannie Mae does not require use of
DU by a lender as a condition for purchase of most of the
mortgages it acquires.33 Instead, a lender is free to use an
alternative AU system of his choice or manually under-
write a loan and still sell the loan to Fannie Mae. Fannie
Mae does not charge any extra fees or offer inferior terms
for not using its AU system. Many lenders and mortgage
insurers have developed and use their own AU systems.
Small originators can purchase AU systems from any of
a number of third party vendors.

The only additional requirement associated with manual
underwriting or use of an alternative AU system is that
the lender must provide representations and warrants
(“reps and warrants”) that it followed Fannie Mae’s
published underwriting standards. Reps and warrants only
certify that a lender checked that the mortgage met Fannie
Mae’s underwriting standards. If a loan with reps and
warrants subsequently defaults and Fannie Mae deter-
mines that the lender failed to follow Fannie Mae’s
underwriting standards, Fannie Mae can force the lender
to repurchase the loan. We understand that Fannie Mae
exercises this right on only a small percentage of
defaulted mortgages. However, if an application is
approved through DU, Fannie Mae waives the reps and
warrants requirement. Since DU implements Fannie
Mae’s underwriting standards and will not approve a loan
unless all of the necessary information has been entered,
reps and warrants from a lender that uses DU are
unnecessary.

It is true and obviously necessary that lenders must
implement Fannie Mae’s underwriting criteria before
Fannie Mae will acquire their loans. The only additional
cost of not using DU to underwrite a loan sold to Fannie
Mae is the loss of the reps and warrants waiver. If lenders
implement Fannie Mae’s criteria correctly, these costs are
zero. As a result, for the majority of loans that Fannie
Mae will acquire outside of DU, Fannie Mae does not tie
DU to its mortgage acquisition decision.

Fannie Mae does require that lenders use DU for its
higher risk expanded approval mortgages. The underwrit-
ing criteria for these loans require complex scoring rules
that change over time. DU uses information about the
borrower and the mortgage to evaluate the riskiness of
the application and to offer risk based pricing. These
algorithms can be implemented effectively in DU but
cannot easily be implemented through published
standards. It would thus be expensive and inefficient for
Fannie Mae to not require the use of DU for its expanded
approval mortgage products. In fact, Fannie Mae did not
even offer these products before the advent of DU.
Therefore the use of DU expands the range of available
products and its use benefits, not harms, consumers.

Rather than being a source of anticompetitive harm,
Fannie Mae’s activities in AU systems have been an
important source of competition between Fannie Mae,
Freddie Mac, and other providers of these services. One
aspect of competition between Fannie Mae and Freddie
Mac is the attempt to attract originators by making the
process of selling mortgages easier. The ease of use,
price, and technological capabilities of AU systems has
been an important element of that competition. Not only
is there competition among AU systems, but Fannie Mae
and Freddie Mac have used their competition in AU
systems as a way to compete to purchase and securitize
mortgages. Fannie Mae’s activities in AU have expanded
the number of consumers who can benefit from Fannie
Mae’s efficient provision of interest rate and credit risk
management services.

In short, AU systems enhance efficiency and benefit
consumers. There are numerous options for lenders to
acquire AU services. Fannie Mae does not tie its AU
system to its mortgage acquisition decision. Fannie Mae
generally acquires loans that meet its standards regardless
of how they are underwritten. For the few high-risk loans
that Fannie Mae will acquire only if underwritten using
its AU system, Fannie Mae is able to acquire them only
because of its AU system. Fannie Mae did not offer those
products before the advent of its AU system and likely
would not offer them in the future without its DU system.
Rather than reducing competition, AU systems have
provided an important source of additional competition
between various participants in the mortgage industry.

VII. Summary of conclusions
This paper investigates the competitive effects of Fannie
Mae on the mortgage industry. We examine how Fannie
Mae and Freddie Mac affect consumers and we investi-
gate the state of competition between Fannie Mae,
Freddie Mac, commercial banks and thrifts, the
FHLBanks, Ginnie Mae, and other participants in the
mortgage industry. We conclude that the evidence does
not support the critics’ claims that Fannie Mae and
Freddie Mac are engaged in anticompetitive conduct that
is harmful to consumers of mortgages.

32 Note that we do not analyze the legal question of whether AU systems represent a separate product market.
33 The only loans for which this is not true are expanded approval mortgages. The reasons for this exception are discussed below.
We find that the interest rates paid by consumers are significantly lower on loans in the segments of the mortgage industry in which Fannie Mae and Freddie Mac are allowed to participate. Interest rates for 30-year fixed rate conforming mortgages average 30 basis points less than similar jumbo mortgages. Thus, the economic evidence indicates that consumers are better off when they are able to take out mortgage loans that Fannie Mae and Freddie Mac are eligible to purchase or guarantee. This outcome – low prices and consumer benefits – is inconsistent with the critics’ claims of anticompetitive conduct that has injured consumers.

We also find that consumers arrange their financing plans to take advantage of the low rates offered in the segments in which Fannie Mae and Freddie Mac specialize. There is a significant spike in the number of mortgages with a balance equal to the conforming limit each and every year because consumers substitute from the jumbo segment to the conforming segment. We also find that consumers substitute between the fixed rate mortgages in which Fannie Mae and Freddie Mac specialize and adjustable rate mortgages when interest rates change. Finally, we find that consumers have the ability to substitute between conventional mortgages, FHA and VA mortgages, and subprime mortgages. This ability by consumers to substitute across mortgage products constrains Fannie Mae’s and Freddie Mac’s pricing.

Our investigation shows that Fannie Mae and Freddie Mac do not behave in the perfectly coordinated, cartel-like pattern that the critics suggest. Instead, we find that the firms compete to acquire both the “flow” of new mortgage sales as well as to acquire “bulk transactions” of portfolios of seasoned mortgages. We also find that Fannie Mae and Freddie Mac compete with each other and the rest of the mortgage industry by introducing new products and technologies. This is not the type of behavior that we would expect if the firms perfectly coordinate their activities like the critics suggest.

Our investigation also shows that Fannie Mae and Freddie Mac compete with each other and with other participants in the mortgage industry such as commercial banks and thrifts, the Federal Home Loan Banks, Ginnie Mae, investment banks, private and institutional investors, and mortgage insurance companies. Firms in the mortgage industry compete on multiple dimensions, including price and the introduction of new products and services.

We also examine whether Fannie Mae has engaged in anticompetitive conduct that harms consumers through its automated underwriting system as some critics have suggested. We find that Fannie Mae does not tie its purchase and securitization decisions to its AU system. Moreover, there are numerous other options for lenders to acquire AU services. While there are some high-risk loans that Fannie Mae will acquire only if underwritten using its AU system, these new products most likely would not be offered by Fannie Mae without its AU system. Finally, AU systems enhance efficiency and benefit consumers.

Rather than reducing competition, AU systems have provided an important source of additional competition between various participants in the mortgage industry.

In short, we do not find evidence supporting the critics’ claims that Fannie Mae and Freddie Mac engage in anticompetitive conduct that has injured consumers. Instead, we find that Fannie Mae and Freddie Mac benefit consumers by lowering interest rates in the segments of the market in which they specialize. This outcome – low prices and consumer benefits – is exactly the outcome that the antitrust laws are designed to achieve.