Measuring the Benefits of Fannie Mae and Freddie Mac to Consumers: Between De Minimis and Small?

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Abstract

Measuring the benefits to consumers from Fannie Mae and Freddie Mac activities has received considerable attention, particularly in recent months. Recently, Federal Reserve Board Chairman Alan Greenspan commented in his U.S. Senate Banking Committee testimony on the Government Sponsored Enterprises that the benefits of Fannie Mae and Freddie Mac as measured by the Jumbo-Conforming mortgage spread was "between de minimis and small." The basis for Greenspan's comment is the seemingly small benefit to consumers in terms of the basis point spread (generally, 20 to 30 basis points). First, the estimates of the benefits may be too low if they fail to consider subsidies to commercial banks. Second, the dollar amount of the benefits to consumers ranges from $6.76 billion based on the Passmore et al (2005) study to quite large ($9.25 billion for the Cotterman and Pearce (1996) study. The adjusted Ambrose, LaCour-Little and Sanders (2004) spread generates benefits in the order of $7.89 billion.

1. Introduction

The government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, provide a range of benefits to consumers. These benefits include lower mortgage rates, increased liquidity for the mortgage markets, improved access for homeowners to mortgage markets, improved homeownership rates, greater stability in mortgage credit flows and in economic growth, and the ability of Fannie Mae and Freddie Mac to provide liquidity in a financial crisis. The most obvious benefit is the difference in mortgage rates between conforming loans (the loans that conform to the standards on Fannie Mae and Freddie Mac) and jumbo loans (those loans that exceed the maximum loan size that Fannie Mae and Freddie Mac are allowed to purchase). The difference between the conforming loan rate and the jumbo loan rate is often referred to as the "jumbo-conforming spread."

A recent Federal Reserve study by Passmore et al (2003, 2005) finds that the benefits to consumers as measured by the jumbo-conforming spread is only 15-18 basis points.[1] The Passmore (2003, 2005) study contrasts sharply with the Congressional Budget Office (CBO) study in 2001 that finds the jumbo-conforming spread to be 23 basis points.[2] A more recent paper by Ambrose, LaCour-Little and Sanders (2004) study finds the jumbo-conforming spread to be 28 basis points. Other studies such as Hendershott and Shilling (1989) and Cotterman and Pearce (1996) find to the jumbo-conforming spread to be 30 basis points and higher.

The variation of these estimates of the jumbo conforming can be attributed to a variety of reasons. First, the jumbo-conforming spread changes over time, so studies may

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[1] Several papers are critical of the Passmore (2003, 2005) paper. See, for example, Greene (2004) and Blinder, Flannery and Kamihachi (2004).
[2] See Torregrosa (2001).

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vary by the sample period selected.[3] Second, the jumbo-conforming spread is a function

of a number of factors (such as borrower characteristics, subsidies, and market risk

premiums) and the each study makes different assumptions about these factors. Third,

and most vexing, are the spillover effects in terms of the downward pressure of jumbo

rates attributable to the activities of Fannie Mae and Freddie Mac; that is, what would the

jumbo loan rate look like if Fannie Mae and Freddie Mac ceased or greatly curtailed their

operations?

2.   Direct Measurement of the Jumbo-conforming Spread

The simplest and most conservative measure of the benefits of Fannie Mae and Freddie

Mac is the observed jumbo-conforming spread.[4] The jumbo and conforming rates over

time based on the HSH Retail Mortgage Survey and BanxQuote are presented in Figure

1. Both the conforming and jumbo rates are generally falling over the period of 1990 to

2003 with three noticeable troughs in 1993, 1998 and 2003. The jumbo conforming

spread itself is presented in Figure 2. Like the jumbo and conforming rates, the jumbo-

conforming spread has three noticeable troughs although at slightly different times: 1993,

1997 and 2003. The long-term average (1990-2003) of the jumbo-conforming spread is

30 basis points. Perhaps the most interesting aspect of Figure 2 is that while the long-term

average of the jumbo-conforming spread is 30 basis points, any study that focuses on

particular sub-periods may either upward or downward bias the jumbo-conforming

spread.

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[3] For example, Ambrose, LaCour-Little and Sanders (2004) use the 1995-1997 sample
period while Hendershott and Shilling (1989) use May to July, 1986.
[4] See McManus and Ramagopal (2004) for an excellent review of the jumbo conforming
spread and an alternative way of measuring the spread.

Clearly, the jumbo-conforming spread is not constant over time (although it is consistently positive). As a consequence, various studies have tried to more accurately model the jumbo-conforming spread by attributing the spread (and its inter-temporal dynamics) to a variety of factors such as loan terms, borrower characteristics and macroeconomic factors.

3.   Modeling the Jumbo-Conforming Spread

The range of estimates for the jumbo-conforming spread demonstrates the difficulty of deriving an appropriate test or using an appropriate dataset (see Table 1).   The one extreme is Passmore, Sherlund and Burgess (2005) who estimate the jumbo-conforming spread to be 7 basis points (although their actual measure of the jumbo-conforming spread is between 15 and 18 bps which is then adjusted by portfolio holdings).[5] Cotterman and Pearce (1996), on the other hand, estimate the basis point to be as high as 40 basis points. The majority of studies find the jumbo-conforming spread to be in the 20-30 basis point range.

There are clear advantages to studies that use information about individual loans that allow for the identification of borrower and property risk characteristics. One of the first studies to use loan-level data rather than macro data, Hendershott and Shilling (1989) found that conforming loans had rates that were 24 to 39 basis points lower than non-conforming loans after controlling for loan characteristics. They regressed effective mortgage interest rate against a set of variables to control for jumbo loan status, loan size,

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[5] In order to have a more accurate comparison between the different jumbo-conforming studies, we will use the first phase of the Passmore et al (2005) study which finds a jumbo-conforming spread of 15-18 basis points. For the sake of simplicity, we will use the average of 15 and 18 basis point or 16.5 basis points for comparison sakes.

loan-to-value ratio, new versus existing home status, as well as dummy variables to capture temporal and regional variations.   The drawbacks to their study are 1) the data is from before 1990 and 2) they were not able to control for the credit risk of the borrower.

Building on the Hendershott and Shilling (1989) loan-level study is Ambrose, LaCour-Little and Sanders (2004). They use loan-level data from major commercial banks and loan correspondents during 1995-1997 and additional variables to measure the borrower's risk (such as credit scores). Their conclusion is that conforming loan rates are 28 basis points beneath jumbo loan rates after adjusting for loan characteristics, borrower credit, location and other variables. It should be noted that the 1995-1997 period had an average jumbo-conforming spread average of 26 basis points (below the 30 basis point average for 1990-2003). The regression-based methodology of both Hendershott and Shilling (1989) and Ambrose, LaCour-Little and Sanders (2004) has significant advantages over the macro variable models since the control variables such as LTV and credit scores can be used to correct for varying risk exposures over the breadth of loans.

4.   The Value of the Benefits

In order to measure the benefits of Fannie Mae and Freddie Mac to consumers, we should scale the estimates of basis point benefit by the total mortgage portfolio of Fannie Mae and Freddie Mac.[6]

In order to measure the benefits, we assume (for the sake of simplicity) that all mortgages in the mortgage portfolio in 2004 by Freddie Mac were 30-year fixed-rate mortgages. We obtained the total mortgage portfolio for 2004 from the Monthly Volume

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[6] In this draft, we are only using the total portfolio amount of Freddie Mac in 2004 to illustrate the magnitude of the savings.

Reports on Freddie Mac's website. For each month, we divided the total amount of the total mortgage portfolio by the average Freddie Mac loan size of $147,000 to get a measure of the number of loans purchased by Freddie Mac in a given month.[7] We then multiply the number of implied mortgages by the sum of the difference in mortgage payments between the base rate and several of the basis point spreads (Passmore (2003, 2005), Ambrose LaCour-Little and Sanders (2004) and Cotterman and Pearce (1996)). The results are presented in Table 2.

Based on Passmore's estimate of 16.5 basis points, the benefit to consumers is $1,854,608,005 or just under 2 billion. Based on the 28 basis point spread, the total benefits to consumers from Freddie Mac for 2004 is $3,155,527,412 or $3.16 billion. If we increase the basis point spread to 40 basis points, the benefits rise to $4,520,863,928 or $4.52 billion.

5.   PC Issuances and the Retained Portfolio

An alternative approach to measuring the benefits generated by Fannie Mae and Freddie Mac is to calculate the savings on a per-loan basis. This approach would require examining the PC Issuance from Freddie Mac's Monthly Volume Report and examine the savings on these "new" purchases (see Table 2). For the Passmore (2003, 2005) spread of 16.5 bps, the benefits are $1,828,944,883 or just under $2 billion. For the Ambrose, LaCour-Little and Sanders (2004) case, the benefits are $3,112,084,885 or just over $3 billion. Finally, for the Cotterman and Pearce (1996) case, the benefits are $4,458,286,347 or just over $4.5 billion.

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[7] Average loan size is reported in Freddie Mac's Annual Housing Activities Report filed with the U.S. Department of Housing and Urban Development.

6.   Dueling Subsidies and the Impact on the Jumbo-Conforming Spread

One of the problems with using the jumbo-conforming spread is the both banks and the GSEs receive subsidies.   While we have a good understanding of the subsidies to conforming loans (based, for example, on numerous papers regarding the alleged funding advantage of the GSEs over banks), we have a less clear idea of the subsidies to jumbo loans. Several studies have documented that subsidies to banks exist in the form of FDIC deposit insurance (see, for example, Hutchinson and Pennacchi (1996) and Jarrow and van Deventer (1998)). To the extent that both the GSEs and banks receive subsidies, it would be informative to examine the jumbo-conforming spread in light of the "dueling subsidies" received by both the banks and GSEs.[8]

In order to measure the jumbo-conforming spread and control for the "dueling subsidies," we will begin with constructing a synthetic conforming loan rate and a synthetic jumbo loan rate (see the appendix for a detailed description of the methodology). Once we control for the competing subsidies (and risks), we find that the jumbo-conforming spread as measured in most studies provides a downward bias in the benefits of the GSEs. We find that the jumbo-conforming spread should be adjusted upwards by 43 bps (although this adjustment is sensitive to the current term structure of interest rates and other market indicators).   As a result, of example, the Ambrose, LaCour-Little and Sanders (2004) estimate for 28 bps for the jumbo-conforming spread

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[8] See Van Order (2000) "The U.S. Mortgage Market: A Model of Dueling Charters" *Journal of Housing Research* for an excellent discussion of the evolution of both bank and GSEs charters over time.

should be increased to 71 bps in order to control more carefully for the "dueling subsidies."

The results for the adjustments to the jumbo-conforming spread measures reveal that the benefits to Freddie Mac increase significantly (see Table 3). By adding 43 basis points to each of the spreads in Table 2, the benefits to consumers from Freddie Mac for 2004 rise from $1.85 billion for Passmore's 16.5 basis point spread to $6.60 billion. Similar results are found for the other spread studies. In fact, the adjusted Cotterman and Pearce study (1996) increases the value of the benefits to just under $9.5 billion.

7.   Summary

There exists a wide range of estimates of the jumbo-conforming spread, ranging from the Federal Study of 16.5 basis points to the Cotterman and Pearce (1996) spread of 40 basis points. The adjusted benefits range from $6.60 billion to $9.5 billion for Freddie Mac alone during 2004.

Clearly, we do not measure additional sources of value to consumers (such as Freddie Mac's credit study and education programs). Also, we do not have an accurate measure of the costs of the GSEs in terms of potential costs to taxpayers in case of a financial meltdown. Unfortunately, very little research has been done on a potential GSE meltdown (due to a rapid increase in interest rates or a global economic collapse), so it is difficult to measure whether these benefits outweigh the potential costs. However, barring substantive research documenting these costs, it remains a speculative and unsubstantiated measure.

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Appendix

Envision a world in which banks and the GSEs did not hold mortgage debt in their portfolios. Instead, we assume that mortgage debt is held through vehicles such as real estate investment trusts (REITs). In this stylized world, the 30-year mortgage rates would be determined through what is called an arbitrage-free pricing. The "no governmental intervention" mortgage rate could be constructed from debt costs plus hedging costs plus credit costs plus capital costs plus servicing costs. This synthetic rate would give a benchmark for mortgage rates in the absence of banks, thrifts, or GSEs. The difference between this rate and the Jumbo rate could proxy the subsidy passed through depositories to Jumbo borrowers.

To get a debt rating of AA, the REIT would likely have to hold about 10% capital and would need a ROE of about 10% to attract that capital. That would come at a cost of about 100 bps on the rate. Approximating a duration-matched yield on AA rated financials could give an approximation for the debt costs. A rough approximation might be to weight 40% on 10-year, 40% on 5-year, and 20% on 2-year rate. Recently, rates on AA US financials can be found on Bloomberg as well a 2-year rate of 4.0729%, a 5-year rate of 4.4639%, and a 10-year rate of 4.9059%. This translates into an approximate debt funding cost of 4.5625%. This combines to give a funding cost of .1*10% + .9*4.5625 = 5.10625%

The hedging costs could be reasonably approximated by comparing zero-volatility OAS against regular OAS for current-coupon MBS. The difference between these two would give a reasonable estimate of hedging costs. This information is available on "Yieldbook" (an on-line fixed-income analysis system). The primary mortgage rate is

5.87% so the current coupon MBS at 5.5% (using 6% gives almost the same answer). For Fannie MBS using the swap curve, the implied-volatility OAS is –21 and the zero-volatility OAS is 67, suggesting hedging costs of about 88 bps. To this, we can add an additional 23 bps for the guaranty fee and another 25 bps for servicing.

Thus, the synthetic rate would be about 6.46% (5.10 + 0.88 + 0.23 + 0.25 = 6.46). The difference between this synthetic rate and the conforming rate would provide a measure of the degree of subsidy to conforming mortgages. Using the conforming rate of 5.87% would imply a current absolute subsidy to conforming rates of about 59 bps. Based on the HSH average 30-year fixed jumbo-conforming spread of 16 bps, the jumbo segment receives a subsidy of about 43 bps (59 – 16 = 43) under the assumption that the difference in hedging costs is approximately the same for conforming and jumbo loans.[9]

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[9] In reality, the point estimate of 43 bps should be surrounded by a range of possible values, both high and lower. However, for the purposes of this exercise, I will use 43 bps as the appropriate addition to the original basis point spread estimates.

Table 1: Basis Point Estimates of the Jumbo-Conforming Spread

| Study	Period	Estimate
Hendershott and Shilling (1989)	1986	30
Cotterman and Pearce (1996)	1989-1993	25-40
Ambrose, Buttimer and Thibodeau (2001)	1990-1999	16-24
Torregrosa (2001)	1995-2000	23
Passmore, Sparks and Ingpen (2002)	1992-1999	18-23
McKenzie (2002)	1986-2000	19-22
Passmore (2003, 2005)	1997-2003	15-18
Ambrose, LaCour-Little and Sanders (2004)	1995-1997	28

Table 2: Value of Benefits Based on Basis Point Estimates

Mortgage Portfolio Approach	Estimate	Value
Passmore (2005)	16.5	$1,854,608,005
Ambrose, Lacour-Little and Sanders (2004)	28	$3,155,527,412
Cotterman and Pearce (1996)	40	$4,520,863,928

| PC Issuance Approach (4.5 year holding Period)	Estimate	Value
Passmore (2003, 2005)	16.5	$1,828,944,883
Ambrose, Lacour-Little and Sanders (2004)	28	$3,112,084,885
Cotterman and Pearce (1996)	40	$4,458,286,347

Table 3: Value of Benefits Based on Basis Point Estimates with Net Subsidy Adjustments

Mortgage Portfolio Approach	Estimate	Value
Passmore (2005)	59.5	$6,598,635,287
Ambrose, Lacour-Little and Sanders (2004)	71	$7,894,595,857
Cotterman and Pearce (1996)	83	$9,253,805,644

PC Issuance Approach (4.5 year holding Period)	Estimate	Value
Passmore (2003, 2005)	59.5	$6,757,257,100
Ambrose, Lacour-Little and Sanders (2004)	71	$8,083,640,421
Cotterman and Pearce (1996)	83	$9,474,510,520

**Figure 1. Jumbo and Conforming Mortgage Rates
January 1990 - December 2003**
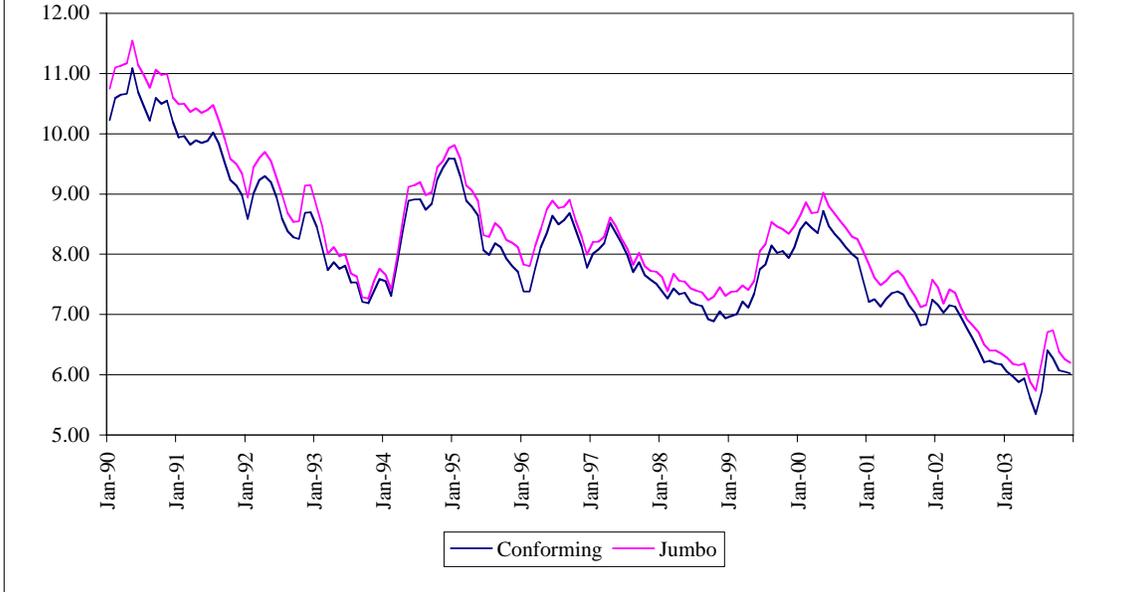
**Figure 2. Jumbo - Conforming Differential based on 30-year Fixed-rate
Mortgages: January 1990 - December 2003**
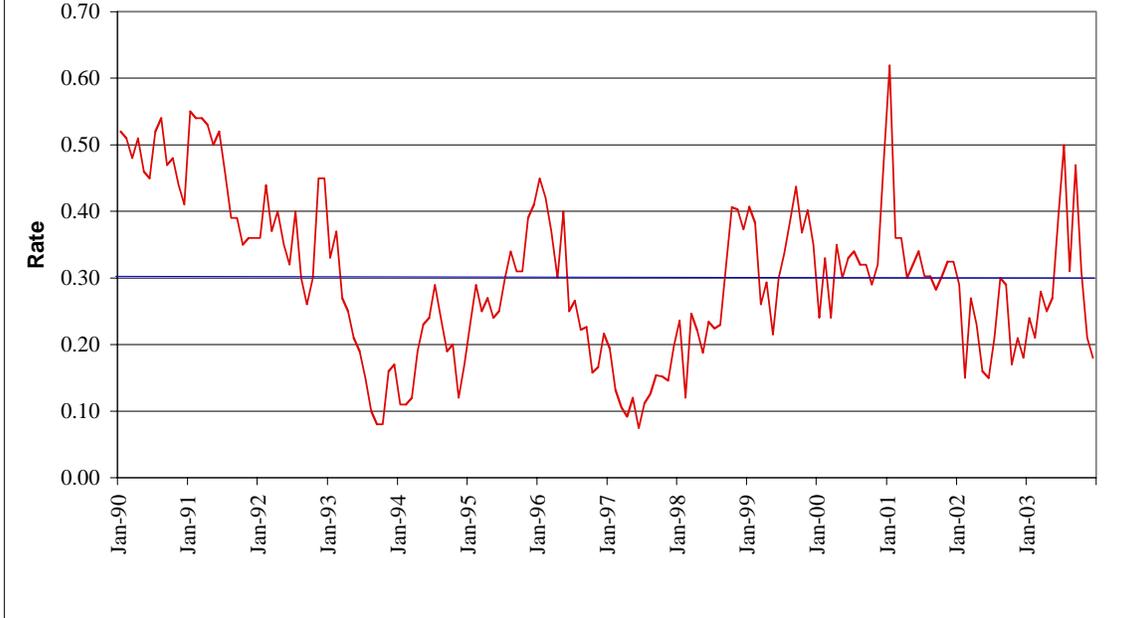
Figure 3. Jumbo - Conforming Differential and Baa-Aaa Corporate Bond Spread: January 1990 - December 2003

Legend: Jumbo - Conforming Spread — — Baa-Aaa