

A Discussion of the Economics of G-Fees

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What is a G-fee?

The amount paid to the GSE each month to compensate the GSE for:

- 1) collecting cash flows from servicers.
- 2) paying the holders of the mortgage-backed securities.
- 3) providing information to investors on the underlying loans.
- 4) guaranteeing the timely payment of all principal and interest to investors.

Example of a G-fee

Note rate on mortgage:	5.95%
Less servicing fee	.25%
Rate passed through to GSE:	5.70%
G-fee retained by GSE:	.20%
Rate passed on to MBS investor:	5.50%

Recent Questions About the Economics of G-fees?

- 1) Why have not G-fees fallen as credit losses have fallen?
- 2) Absent regulation, are the G-fee levels set competitively with only two principal providers of this type of insurance?
- 3) What should be considered allowable costs in the guaranty business?
- 4) Are there alternative guaranty structures that would work more efficiently and perhaps lower costs to borrowers?
- 5) Could alternative secondary market G-fee structures have differing implications for the structure of the primary market?

History of Average G-Fees and Credit Losses

	Fannie Mae			Freddie Mac		
	Average G-Fee Rate	Credit Loss Ratio	G-Fees to Credit Loss Ratio	Average G-Fee Rate	Credit Loss Ratio	G-Fees to Credit Loss Ratio
1995	22.0	5.0	4.4	23.8	10.9	2.2
1996	22.4	5.3	4.2	23.4	10.4	2.3
1997	22.7	4.1	5.5	22.9	8.4	2.7
1998	20.2	2.7	7.5	21.4	4.1	5.2
1999	19.3	1.1	17.5	19.8	2.0	9.9
2000	19.5	0.7	27.9	19.3	1.1	17.5
2001	19.0	0.6	31.7	23.6	0.5	47.2
2002	19.1	0.5	38.2	22.0	0.7	31.4
2003	20.2	0.6	33.7	23.0	0.7	32.9

However, there are many more influences on G-fees than credit losses so numbers like this, presented in isolation, can be misleading.

Simplified example of a G-fee calculation

Pick the G-fee (GF) such that the present value of the revenue stream equals the capital that must be held against potential stress period losses:

$$CAP = (1 - T) \left[\sum_{t=1}^n \frac{GF * UPB_t}{(1 + r)^t} + \sum_{t=1}^n \frac{FL * i * (UPB_t + P_t)}{(1 + r)^t} - \sum_{t=1}^n \frac{AD}{(1 + r)^t} - \sum_{t=1}^n \frac{CL * UPB_t}{(1 + r)^t} \right]$$

Where:

CAP = Required capital

GF = Guarantee fee

UPB = Unpaid balance of mortgages

FL = Float interest rate (usually Fed Funds rate for 6 days per month)

P = Principal payoff amounts

AD = Administrative expenses

CL = Credit loss rate (default rate times severity rate)

r = required return on equity

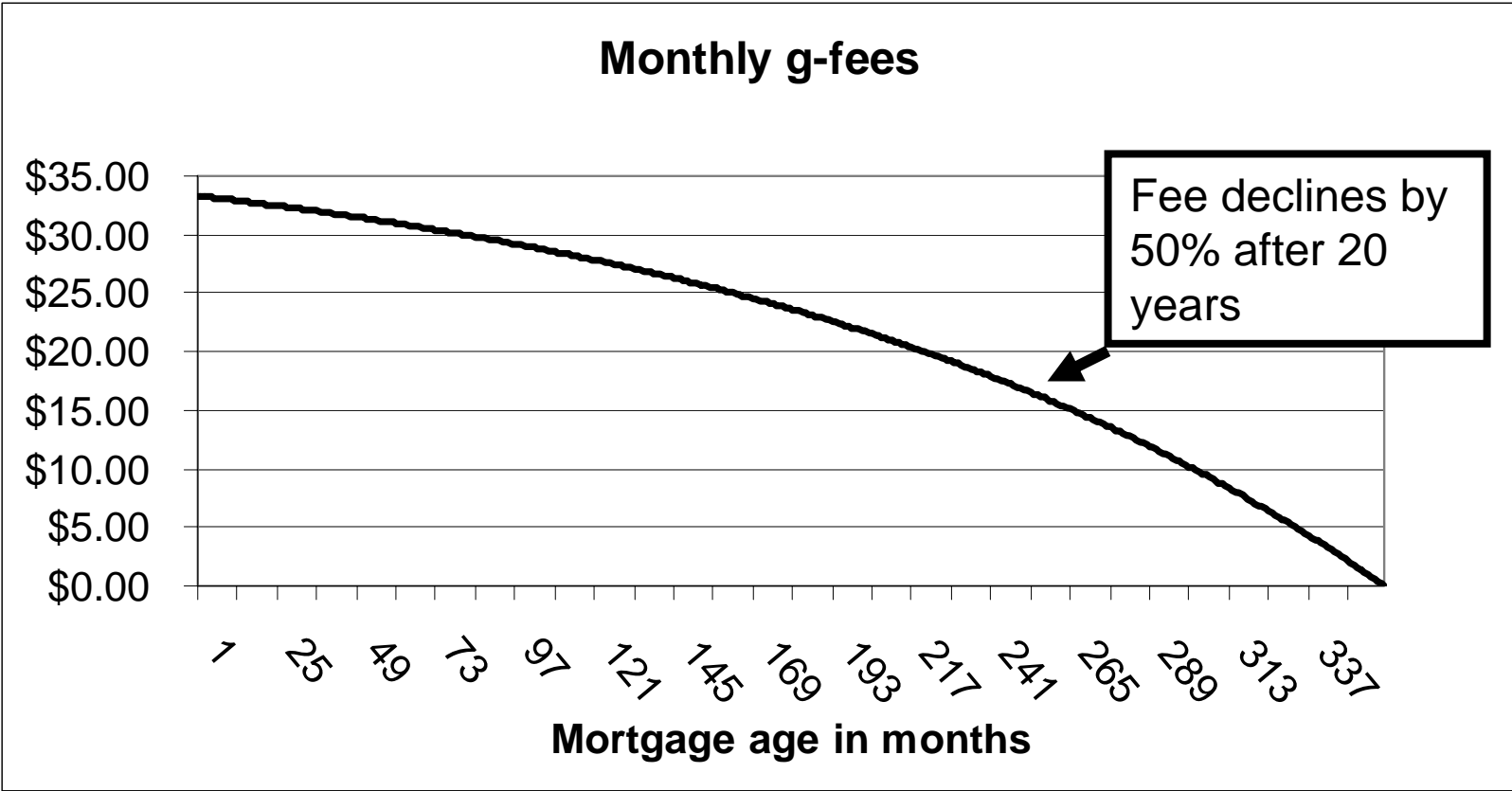
n = expected amortization period of mortgages

T = Tax rate

Why Simplified? Some Complicating Issues:

- Risk-based capital is not constant but generally declines over time. G-fee levels that generate low ROEs initially may generate very high ROEs in later years.
- No closed form solution, so key variables like interest rates and house prices must be simulated over a number of different paths.
- G-fee is a constant rate. Earnings decline with principal balances but operational costs remain constant.
- Losses tend to happen early in a mortgage's life, so have higher present value relative to fees received later.

Monthly income from a 20BP G-fee on a \$200,000 mortgage



Examples of Risk-Based Capital Runoff by LTV

	Initial LTV					
	95	90	80	75	70	60
Year 1	10.2%	6.2%	3.2%	2.2%	0.5%	0.1%
Year 2	8.4%	5.0%	2.5%	1.6%	0.4%	0.1%
Year 3	7.1%	3.9%	2.1%	0.8%	0.3%	0.0%
Year 4	5.7%	3.0%	1.8%	0.5%	0.2%	0.0%
Year 5	4.3%	2.0%	1.4%	0.4%	0.1%	-0.1%
Year 6	2.8%	1.4%	1.0%	0.7%	-0.1%	-0.2%

30-year, fixed rate mortgages. Assumes annual home price growth of 2.5%, 20 BP G-fee, 30% dividend payout rate and 20% effective tax rate, along with numerous other simplifying assumptions. Calculations are based on the author's approximation of the OFHEO model.

Example of Capital Runoff and G-fee for a \$200,000, 75% LTV, 30-Year FRM

Year	Risk-based Capital (\$)	G-Fee (\$)	Ratio of G-fee to Capital
1	4,360.00	400.00	9.17%
2	3,203.62	395.51	12.35%
3	1,619.83	390.32	24.10%
4	1,019.75	384.81	37.74%
5	663.18	378.96	57.14%
6	130.46	372.75	285.71%
7	18.31	366.16	2000.00%
8	(89.79)	359.16	
9	(211.04)	351.73	
10	(309.46)	343.84	
11	(385.78)	335.46	

Assumes 2.5% annual house price growth.

Factors that cannot controlled

- Home prices, the economy and thus credit losses
- Interest rates and prepayments
- Required capital (external factors)
- Taxes

Factors that can be controlled

- Administrative expenses
- Required return on equity
- Required capital (internal factors)
- Dividend payout rates

An even more simplified example of a G-fee calculation based on GSE averages

Assume:

Float earnings of 2 BPS

(2% FF rate for 5 days per month on a pass-through interest rate of 5.5% and principal payments of 1.5% per month)

Administrative costs of 3 BPS

Credit losses of 1 BP

Average required capital of 45 BPS

Marginal tax rate of 35%

Target ROE of 15%

Then:

$$.15 = (G\text{-fee} + .0002 - .0003 - .0001) * (1 - .35) / .0045$$

$$G\text{-fee} = .00124 \text{ or } \underline{12.4} \text{ basis points}$$

Implied ROE based on average G-fees in public filings

Since we know the average G-fee has been a little over 20 BPS, we can solve for ROE:

$$\text{ROE} = (.0020 + .0002 - .0003 - .0001) * (1 - .35) / .0045$$

$$\text{ROE} = 26.0\%$$

Does OFHEO's 30% capital surcharge have a potential impact on G-fees?

OFHEO has imposed a 30% surcharge on the minimum capital requirements of the two GSEs. Assuming the same target ROE of 26.0%, this translates directly into an increase in G-fees:

Assume required capital goes from 45 BPS to 58.5 BPS:

$$.26 = (\text{G-fee} + .0002 - .0003 - .0001) * (1 - .35) / .00585$$

G-fee = .00254 or 25.4 basis points

Implied ROEs on GSE Credit Business, 1995 to 2003

	<u>Estimated</u>	<u>Fannie Mae</u>			<u>Freddie Mac</u>		
		<u>Average</u>	<u>Credit</u>	<u>Implied</u>	<u>Average</u>	<u>Credit</u>	<u>Implied</u>
	<u>Float</u>	<u>G-Fee</u>	<u>Losses</u>	<u>ROE*</u>	<u>G-Fee</u>	<u>Losses</u>	<u>ROE*</u>
	<u>Earnings</u>	<u>(BPS)</u>	<u>(BPS)</u>	<u>(%)</u>	<u>(BPS)</u>	<u>(BPS)</u>	<u>(%)</u>
1995	2.8	22.0	5.0	24.3%	23.8	10.9	17.0%
1996	2.5	24.0	5.3	26.3%	23.4	10.4	16.2%
1997	2.6	22.7	4.1	26.3%	22.9	8.4	19.1%
1998	2.6	20.2	2.7	24.6%	21.4	4.1	23.2%
1999	2.4	19.3	1.1	25.4%	19.8	2.0	23.8%
2000	2.9	19.5	0.7	27.1%	19.3	1.1	24.8%
2001	1.8	19.0	0.6	24.8%	23.6	0.5	30.8%
2002	0.8	19.1	0.5	23.6%	22.0	0.7	27.8%
2003	0.5	20.2	0.6	24.7%	23.0	0.7	28.6%

*Assumes 45 BPS required capital, 3 BPS of admin expense, and 35% tax rate. Float earnings are not directly applicable to Freddie Mac due to differences in remittance policies, but results are presented for comparison purposes.

Possible reasons why these apparently high ROEs persist over time?

- 1) No one could have predicted the excellent credit environment.
- 2) It is one result of a chartering structure that creates barriers to entry. No new capital allowed to enter business to compete returns down to market returns.
- 3) Limited alternative pricing structures, such as giving sufficient G-fee reductions for allowing others to participate in credit risk, particularly when initial capital is so high.
- 4) No regulatory oversight.

How does accounting compare with other forms of insurance?

- 1) Property and casualty – Similar accounting to the GSEs in that premium income and losses are all taken in the same year. But P&C premiums are repriced annually, based on risk and loss experience, and fixed period exposure.
- 2) Life (typical whole life and certain guaranteed return annuities) – Fixed premiums and fixed exposure. Premiums are booked into reserves against long-term policy liabilities of uncertain duration and income is based on earnings on reserve accounts.
- 3) GSEs – Declining premiums against declining exposure of uncertain duration, but the risk declines much faster than the premiums. Premiums and losses are booked as income in the same year in which they occur, with only a modest allowance for loan losses.

Potential market impacts of having a wide range of profitable GSE G-fees

- 1) Reported average is a little over 20 basis points, with a range on either side that is not clearly related to the risk of the loans delivered.
- 2) Many small lenders have sought shelter under the low negotiated fees of the giant lenders, and that has driven some of the consolidation in servicing.
- 3) Other lenders have combined to form negotiating groups that often include concessions in other areas.

Market impact (cont)

- 4) If an estimated profitable G-fee can be as low as 12.4 BPS, what is the potential to influence the structure of the primary market?
 - Who decides what best meets the needs of borrowers?
 - Who decides the winners and losers?

- 5) The lack of market competition resulting in an opaque G-fee setting process, required nondisclosure agreements and lack of an avenue of appeal, make many lenders reluctant to speak up on issues where they might differ with the GSEs.

Ways to Reduce Costs to Borrowers

- 1) More competition, particularly in the long-term fixed rate mortgage market.
- 2) More innovative fee structures to allow greater credit for risk sharing in the early years of a mortgage.
- 3) Greater disclosure to lenders what fees are charged for what risk, and, absent greater competition, involvement of a regulator in pricing practices and creating an avenue of appeal.