A Note on Agency Size and Brokerage Commission Splits

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Abstract. **This paper develops a model to explain the commission split among cooperating real estate brokers operating within a multiple listing service where individual agencies are free to negotiate. The paper provides theoretical and empirical evidence that suggests that the amount of the total commission paid to a cooperating broker is a negative function of the size of the agency that lists the property for sale.**

Introduction

Analyzing multiple listing service participation in the real estate brokerage industry, Frew (1987) showed that sharing information is often inconsistent with income maximization. If a broker expects to match a listing with his own buyer, his expected income will sometimes be maximized by cheating—that is, withholding the listing from the MLS to avoid the possibility of splitting the commission with another broker. Frew's paper examined the incentive to cheat primarily from the perspective of the 50–50 commission split that is often customary among brokers, although it is illegal if mandatory. After showing how the incentive to cheat is a function of the probabilities that the listing agency of size N will produce a sale by either (1) finding its own buyer while withholding the listing, $P(N,W)$, or (2) sharing with the MLS, $P(N,L)$, Frew demonstrated theoretically and empirically that, given an even commission split, the incentive to cheat increases with agency size. His result was derived from Yinger's model (1981), which established that because larger agencies assist a great number of buyers and sellers, they have a higher probability of finding matches. The present paper examines the relationship between the size of a brokerage agency (N) and the proportion of the commission that it is willing to sacrifice (B) when no customary split inhibits the co-brokerage terms that it sets and advertises. Under these conditions, we assume efficient and open information sharing within the firm and MLS.

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Commission Splits and Firm Size

From Frew's equation 2, it is clear that a gain to withholding exists when:

$$P(N,W) - P(N,L) > (1 - B)(1 - P(N,L)). \quad (1)$$

Here $P(N,W)$ is the probability that a sale will be produced by a firm of size N that withholds the listing from the MLS and $P(N,L)$ is the probability of producing a sale with a shared listing. The symbol B shows the portion of the commission sacrificed to the selling agency, so $(1-B)$ is the portion retained by the listing agency. Frew established that "the greater the portion of commission sacrificed . . . the greater the gain from withholding for an agency of any size" (p. 274). This may be easily verified by examining the above expression. Since B only appears on the right-hand side, it is clear that as it rises, the inequality becomes stronger as the value of the right side falls. Frew showed that with the convention of even commission splits, larger firms gain more from withholding. But if commission rates fluctuate, larger firms could agree to sacrifice less of the commission. As a lower portion of the commission is sacrificed (lower B), the right side of the inequality will rise until the gain from withholding is eliminated, thus completely lowering the barrier to listing with the MLS.

To see the affect on B more directly, note that since an agency will be indifferent between maintaining an exclusive listing (withholding) and sharing the listing with the MLS (listing) when the withholding benefit is zero, equation (1) may be solved to yield:

$$1 - B = \left[\frac{P(N,W) - P(N,L)}{1 - P(N,L)} \right]. \quad (2)$$

To illustrate the inverse relationship between the size of firm and the portion of the commission it will agree to sacrifice to the "selling" broker, it is easiest to rewrite (2) as:

$$B = 1 - \left[\frac{P(N,W) - P(N,L)}{1 - P(N,L)} \right]. \quad (3)$$

Note that an agency large enough to be certain of selling an exclusive listing $[P(N,W) = 1]$ will not willingly sacrifice any of the commission $(B = 0)$. Since Frew shows (1987, p. 277) that this can occur even when other MLS agencies make $P(N,L)$ less than one, this point is empirically relevant.[1]

To better envision the relationship between these quantities, consider this example: Smaller agency A faces the probabilities $P(N,W)$ and $P(N,L)$ of .5 and .25, respectively, whereas larger agency A' enjoys .75 and .5. From equation (3), A is willing to sacrifice .67 of the commission, while A' (where $B = .5$) will only engage in the more common 50–50 split. This illustrates the inverse relationship between agency size and B which holds in this mid-range.

Exhibit 1

Firm No.	Average Co-Brokerage Commission (*B*)	Agency Size (*N*)	No. of Observations (*n*)
	%		
1	50	1	1
2	25	4	2
3	25	5	2
4	25	11	1
5	0	12	1
6	0	13	1
7	50	16	2
8	50	17	1
9	25	18	2
10	25	19	2
11	0	24	1
12	25	28	2
13	50	31	2
14	0	36	1
15	0	46	1
16	33	60	4
17	50	64	1
18	0	72	2
19	45	74	2
20	20	81	7
21	50	83	1
22	33	108	3
23	50	109	2
24	25	166	2
25	11	938	22
Total			68

Empirical Analysis

A random sample of 100 transactions from the Multiple Listing Service in Lexington, Kentucky during 1987 provided data to estimate the relationship between co-brokerage commission (B) and agency size (N) where N is the number of listings sold during the period. Compete data were available for 68 of the 100 transactions. Exhibit 1 shows the agency sizes and commission splits. Our sample data includes transactions from 25 firms of the 341 agencies operating in Lexington. When posting the listing with the MLS, each broker lists the portion of the commission that will be paid to the agency that finds a buyer. As the exhibit shows, a 50% split was common but a number of other splits were also arranged.

The following regression results were obtained (t-values in parentheses):[2]

$$B = .288 - .000188*N \qquad R^2 = .10, \qquad n = 68$$
$$\quad (7.78) \quad (2.73)$$

where,

B = the fraction of the total commission paid to the cooperating broker,

N = the size of the listing agency, measured by the number of listings in the Lexington MLS in 1987.

The OLS results clearly indicate a negative relationship between B and agency size. However, a potential source of bias in the results stems from the large number of observations in which B was zero, that is, where the listing agency sold its own listing and thus did not pay a co-broker. This occurred in 37 of the 68 transactions included in the sample.

The estimated constant term in the OLS regression equation shown above reflects the bias of the estimation procedure. The constant term establishes what commission split (B) would prevail if agency size (N) were zero. The estimated constant term shown above of .288 (28.8%) seems too low to be realistic, since small firms should be more willing to sacrifice a larger portion of the commission.

To overcome this problem the relationship was reestimated using Tobit analysis. Tobit analysis was formulated by James Tobin (1958) to cope with samples such as this where the dependent variable in the regression has a number of observations clustered at a limit.[3] Because Tobit estimators are maximum likelihood estimators, they have the large sample properties of consistency and asymptotic efficiency. Using the Tobit model, the following results were obtained (t-values in parentheses):

$$B = .521 - .000313*N \qquad n = 68$$
$$(7.48) \quad (1.86)$$

$$\text{Log likelihood} = -45.43$$

The Tobit results confirm that the relationship between the co-broker's commission and agency size is negative. The relationship is statistically significant at the .05 level, using a one-tail test. The estimated coefficient on agency size (N) indicates that an increase in firm size of 100 is associated with a three-percentage point fall in the co-brokerage commission split.

The constant term estimated in the Tobit regression is .521. Thus, if the size of the listing agency (N) were zero, the size of the constant terms suggests that the listing agency would be willing to offer a cooperating broker 52.1% of the commission.

Conclusion

The purpose of this paper has been to formulate a model to explain the size of the co-broker commission (the commission split) in a MLS where cooperating agencies are free to negotiate. It has been shown that the amount of the total commission paid to a cooperating broker is a negative function of the size of the listing agency. Empirical evidence supporting this relationship was found in a sample of MLS transactions drawn from Lexington, Kentucky.

Notes

[1]One also can argue that a large firm is similar to a smaller MLS—agents could cheat within the *firm* and keep a listing exclusive. In our sample data, listings must be filed within forty-eight hours of receiving them. If agents are caught cheating they are brought before the professional standards board of the Board of Realtors for disciplinary action. Since cheating within the agency is more likely to be detected, this penalty may be a great enough deterrent. But it would be best if agencies also maintain a flexible arrangement when splitting commissions within the firm itself.

[2]The following shows the means and standard deviations of sample variables:

	Mean	Std Dev.
B	.227	.249
N	339.8	418.2

[3]For an excellent discussion of Tobit analysis, see Laura L. Greene (1989). Also see, McDonald and Moffitt (1980).

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