Bond Rating Discrepancies and the Effect on Municipal Bond Yields

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Abstract

This paper examines municipal bond rating discrepancies and their impact on interest yield premia. The results indicate that there is no systematic difference between Moody's and S&P's assigned ratings, regardless of whether generic or modified rating systems are employed. The results also indicate that when generic rating systems are used, there is no significant difference in yield premia between bonds with split ratings and bonds with equivalent ratings. Results are different, however, when modifiers are considered. Although superior and inferior S& P's ratings (holding Moody's ratings fixed) still do not affect the yield premium, superior ratings assigned by Moody's (holding S&P's fixed) do lower the interest yield premium significantly.

Introduction

The volume of tax exempt bonds issued by state and local governments has increased tremendously during the past few decades. Although only $66 billion of municipal bonds were outstanding in December 1960, $735 billion were outstanding at year-end 1985. These figures represent more than a 1000 percent growth rate in outstanding municipal bond issues over a 25 year period. The value of municipal bonds now accounts for about 25 percent of all the bonds issued in the U.S., including bonds issued by the U.S. Treasury, federal agencies, and corporations. Of the nearly 100,000 governmental bodies capable of issuing municipal bonds, more than 40,000 have debt outstanding.

Although the Tax Reform Act of 1986 eliminated the tax exemption status of many investments, the status for municipal bonds is still intact, making

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municipal bonds more attractive relative to other investments. Nevertheless, information about the issues of municipal bonds is not readily available to interested investors (unlike information about Treasury or corporate bonds). Moreover, the financial accounting information for municipalities is generally less reliable, less timely, and less comparable cross-sectionally than information about corporations. Municipals are also exempt from the disclosure and registration requirements that apply to other securities. Because investors do not have adequate access to information about municipal issues, they have to rely on a limited number of private credit rating agencies to produce information about the credit quality of issuers.

Most bonds issued in the U.S. are rated by one or both of the two prominent rating agencies--Moody's Investors Services and Standard & Poor's Corporation (S&P, henceforth). Reliance on rating agencies for investment information does not seem unreasonable until one realizes that the two agencies do not agree always on their assessment of a municipality's creditworthiness. When ratings issued by the two agencies are in disagreement, a split rating is said to occur. The splits may occur in the agencies' generic rating systems or in their modified rating systems. In 1982, Moody's refined its rating system by adding three numerical indices ("1," "2," and "3") to its generic rating categories for corporate bonds. It added only one numerical index ("1") to its original generic rating category (for example A1) for municipal bonds, however, to indicate that the ratings with the index "1" have higher quality than the ratings without the index. S&P added plus and minus modifiers to its broad rating classes in 1974 for both corporate and municipal bonds. The modified rating systems currently used for municipal bonds by the two agencies and the codes used in this paper are presented in Table 1.

Although the purpose of the modified rating systems is to give investors a more precise indication of relative quality in each generic category, it also may lead to more frequent splits in ratings assigned by the two agencies. The possibility of more frequently occurring split ratings raises several questions: Just how frequently do split ratings occur on municipal bonds? Do the rating agencies assign significantly different ratings? Do the split ratings impact the yields on the bonds? If so, in what way and by how much are the yields impacted? The purpose of this paper is to answer the preceding questions.

One approach to answering the questions concerning split ratings on municipal bonds is to review the related corporate bond research on split ratings in order to apply those conclusions to municipal bonds. Because information is less available and reliable in the municipal bond market than in the corporate bond market and because municipal bonds are traded less actively than corporate bonds, corporate bond results may be only suggestive of performance in the municipal bond market.

Survey of Related Literature

In a recent study, Ederington (1986) examined whether one rating agency systematically assigns lower ratings to corporate debts than the other. In an extensive study of 494 industrial bonds, he found no evidence that either Moody's or S&P consistently assigns higher or lower ratings than the other. He concluded that the split ratings in the corporate bond market are not caused by any systematic difference in rating methodology taken by the rating agencies.

The impact of split rating on yields in the corporate bond market has been studied by Billingsley, Lamy, Marr, and Thompson (1985), Liu and Moore (1987), and Perry, Liu, and Evans (1988). Billingsley, Lamy, Marr, and Thompson (1985) concluded that the reoffering yields on split rated bonds are not significantly different from the inferior rating involved in the split. In contrast, the reoffering yields are significantly different from the yields on the superior rating involved in the split. They only used generic rating systems, however; modified ratings were not considered.

Perry, Liu, and Evans (1988) studied the effect of split ratings on corporate bond yields with both modified and generic ratings. Using the differential yield premium methodology established by Ingram, Brooks, and Copeland (1983), the results were consistent with Billingsley, Lamy, Marr, and Thompson (1985) with generic ratings. When modified ratings were used, however, no significant differences were found in yields due to split ratings. The study by Liu and Moore (1987) has similar findings. The different results with modified versus generic ratings suggest that the impact of split ratings on municipal bond yields should be explored with both rating methods.

Although the problem of split ratings has generated considerable research interest with corporate bonds, the literature on municipal bonds is sparse. The only related work is the study by Hsueh and Kidwell (1988). They examined the effect of second ratings on municipal bonds and reported that the second rating can lower the interest costs of municipal issues, regardless of whether the second rating is a split or congruent rating.

Because information is less available and reliable in the municipal bond market than in the corporate bond market, it is logical that split ratings would have greater impact on interest costs in the municipal market. Hence, it is important to study the municipal bonds independent of corporate bonds. The purpose of this paper is to examine the impact of split ratings (both modified and generic) on municipal bonds--their frequency, any systematic inferior ratings by one of the agencies, and, most importantly, the effect of split ratings on yields.

Hypotheses, Methodology, and Data

There are two groups of hypotheses. The first null hypothesis concerns the agencies' rating behavior. The last three null hypotheses concern the yields on bonds with split ratings.

H_{01}: There is no systematic difference in the ratings assigned to municipal bonds by Moody's and S&P.

H_{02}: For a given Moody's (S&P) bond rating class, a split rating caused by different S&P (Moody's) ratings does not decrease bond yields.

H_{03}: For a given Moody's (S&P) bond rating class, a split rating caused by superior S&P (Moody's) ratings does not decrease bond yields.

H_{04}: For a given Moody's (S&P) bond rating class, a split rating caused by inferior S&P (Moody's) ratings does not increase bond yields.

Prior to testing the interest yield hypotheses, a matched pairs sign test (Daniel and Terrell, 1975) and the Goodman-Kruskal (1954, 1959, 1963, 1967) gamma statistic are used to determine whether Moody's and S&P rate bonds similarly or whether they assign significantly different ratings.

The differential yield premium methodology developed by Ingram, Brooks, and Copeland (1983) is used to test the three yield hypotheses. The method is useful in controlling the differences in interest yield caused by differences in coupon rates and terms to maturity. The yield premium for each bond at time t is defined as the difference between the yield to maturity of each bond and the estimated yield to maturity of a U.S. Treasury bond with the same coupon rate and the same maturity date at the same time t. According to Ingram, Brooks, and Copeland, if YP_{jt} is denoted as the yield premium on bond j at time t, then

$$(1) \quad YP_{jt} = Y_{jt} - \hat{Y}_{ut}(M_{jt}, C_{jt})$$

where:

Y_{jt} = yield to maturity on bond j at time t; and

$\hat{Y}_{ut}(M_{jt}, C_{jt})$ = estimated yield to maturity on a U.S. Treasury bond with the same term to maturity, M_{jt}, and coupon rate, C_{jt}, as municipal bond j.

The estimated yields to maturity on a Treasury bond with given coupon rate and maturity, $\hat{Y}_{ut}(M_{jt}, C_{jt})$, are obtained from the following regression equation:

(2) $Y_{ut} = \alpha_t + \beta_t C_{ut} + r_t M_{ut} + \varepsilon_{ut}$

where:

Y_{ut} = yield to maturity on the Treasury bonds;
α_t = intercept of the regression equation;
β_t and r_t = estimated coefficients associated with coupon rate, C_{ut}, and term to maturity, M_{ut} (in logarithm of months);[1] and
ε_{ut} = residual term of the regression equation.

The estimated Treasury bond yields are used because it is impossible to find for every bond in the sample a Treasury bond with exactly the same maturity and coupon rate.

Although the Ingram, Brooks, and Copeland (1983) methodology was developed for use in studying municipal bonds, it did not consider the tax exempt status of the municipals. One way for the federal government to provide financial assistance to state and local governments is to exempt their bond interest from federal income taxes. Interest income from Treasury bonds, however, is not tax exempt. In order to compute the yield premia of municipal bonds over Treasury bonds, the difference in coupon rate, term to maturity, and tax treatment must be considered.

Miller's (1977) analysis offers a simple adjustment. In explaining the joint impact of corporate taxes and differential personal taxes on the corporate capital structure decision, Miller shows that the following relationship should hold in equilibrium:

(3) $Y_T = Y_{TE}[1 - \tau]^{-1}$,

where:

Y_T = market yield on taxable securities (Treasury bonds in this context);
Y_{TE} = market yield on tax exempt securities (municipal bonds in this context); and

[1]Ingram, Brooks, and Copeland (1983) found a logarithmic transformation to be useful in controlling the nonlinear effect of maturity.

τ = corporate tax rate, 46 percent. The 46 percent marginal tax rate is used because it represents the marginal tax rate for corporations with taxable earnings more than $100,000.

Miller's (1977) theoretical analysis has empirical support. Trzcinka (1982), employing a random intercept model to control the risk on municipal bonds and corporate bonds, found that equation (3) holds for bonds in the same risk class. He also found intertemporal stability in the relationship.

Using equation (3), the before tax equivalent yield on municipal bonds can be computed by dividing published tax exempt yields by $(1 - \tau)$. Thus, equation (1) can be rewritten as

$$(4)\quad YP_{jt} = Y_{jt}\,[1 - \tau]^{-1} - \hat{Y}_{ut}\,(M_{jt}, C_{jt})$$

where:

Y_{jt} = published yield to maturity on municipal bond j at time t.

The effect of split Moody's and S&P ratings is assessed by comparing the average yield premium for bonds with split ratings with the average yield premium for bonds with equal Moody's and S&P ratings for each Moody's rating class, m. (The methodology was repeated for each S&P rating class.) Let b(m) denote a bond rated m by Moody's and having an equal S&P rating, $b^S(m)$ a bond with an S&P rating superior to Moody's rating m, and $b^i(m)$ a bond with an S&P rating inferior to Moody's rating m.

The yield premia at time t (as defined in equation 4) for bonds with ratings $b^S(m)$, b(m), and $b^i(m)$ and with coupon rate C_{jt} and maturity date M_{jt} are denoted $YP_{jt}[b^S(m)]$, $YP_{jt}[b(m)]$, and $YP_{jt}[b^i(m)]$, respectively. Thus, the benchmark yield premium (i.e., the average yield premium for each Moody's rating m having an equal S&P rating) can be expressed as

$$(5)\quad \overline{YP}_t(m) = \sum_{j=1}^{N(m)} YP_{jt}[b(m)]/N(m)$$

where:

N(m) = the number of bonds rated m by Moody's and having an equal S&P rating.

The effect of split ratings on yields is assessed by testing the difference between the yield premia of bonds with split ratings and the average yield premia for bonds with the same rating (as defined in equation (5)) for each Moody's rating m. Thus, the differential yield premia for bonds with superior S&P ratings, DYP^S_{jt}, is calculated as

$$(6) \quad DYP^S_{jt} = YP_{jt}\,[b^S(m)] - \overline{YP}_t(m).$$

Likewise, the differential yield premia for bonds with an inferior S&P rating, DYP^i_{jt}, is calculated as

$$(7) \quad DYP^i_{jt} = YP_{jt}[b^i(m)] - YP_t(m).$$

With the methodology thus far introduced, the three interest yield hypotheses may be restated.

Hypothesis 2

The second hypothesis examines whether, in aggregate, split ratings are associated with differences in yield premia by pooling the bonds with S&P ratings superior and inferior to Moody's. Because the impact of superior ratings on interest yields is expected to be the opposite of inferior ratings, the pooled effect on yield premia would offset. To circumvent this, the differential yield premia of the inferior rated bonds are multiplied by (-1) first, then the average differential yield premium for all split bonds, $\overline{DYP}_t$, is calculated as follows:[2]

$$(8) \quad \overline{DYP}_t = [\sum_{J^S} DYP^S_{jt} + \sum_{J^i} DYP^i_{jt}\,(-1)] \,/\, [N(J^S) + N(J^i)]$$

where:

J^S	= collection of all bonds with S&P ratings superior to Moody's;
$N(J^S)$	= total number of such bonds in the sample;
J^i	= collection of bonds with an S&P rating inferior to Moody's; and
$N(J^i)$	= number of such bonds.

[2]This technique was used by Jaffe (1974), followed by Weinstein (1977) and Stickel (1986). Jaffe (1974) investigated the effect of insider buying and selling on stock prices. Because the effect of buying is expected to be the opposite of selling on stock prices, he multiplied the abnormal returns of stocks sold by -1 and then added them to the abnormal returns of stocks bought. Similarly, Weinstein (1977) and Stickel (1986) used this technique to study the impact of upgrading and downgrading credit ratings on security prices.

$\overline{DYP}_t$ in equation (8) estimates the true mean differential yield premium for bonds with split ratings. If the true mean differential yield premium is denoted as μ_t, then hypothesis 2 may be stated:

(9) H_{02}: $\mu_t = 0$

H_{12}: $\mu_t \neq 0$.

$\overline{DYP}_t$ is tested for significant difference from zero. An insignificant $\overline{DYP}_t$ would indicate that a split rating does not cause any difference in interest yield. If a significant result is found, the next step would be to determine whether it is caused by S&P superior ratings alone, by S&P inferior ratings alone, or by both.

Hypothesis 3

The average differential yield premium for bonds with S&P ratings superior to their Moody ratings (denoted $\overline{DYP}^S_t$) is used to test whether a superior S&P rating has an impact on yield premia, where

$$(10) \qquad \overline{DYP}^S_t = \sum_{J^S} DYP^S_{jt} / N(J^S).$$

$\overline{DYP}^S_t$ in equation (10) estimates the true mean differential yield premium for bonds with S&P ratings superior to their Moody's ratings. If the true mean differential yield premium is denoted as μ^S_t, then hypothesis 3 may be stated:

(11) H_{03}: $\mu^S_t = 0$

H_{13}: $\mu^S_t < 0$.

If there is an impact from bonds receiving superior S&P ratings, the $\overline{DYP}^S_t$ should be significantly less than zero.

Hypothesis 4

Similarly, the average differential yield premium for bonds with S&P ratings inferior to their Moody's ratings (denoted $\overline{DYP}^i_t$) is used to test whether an inferior S&P rating has an impact on yield premia, where

$$(12) \qquad \overline{DYP}^i_t = \sum_{J^i} DYP^i_{jt} / N(J^i).$$

$\overline{DYP}^i_t$ in equation (12) estimates the true mean differential yield premium for bonds whose S&P ratings are inferior to their Moody's ratings. The true mean differential yield premium is denoted as μ^i_t. If there is an impact stemming from an inferior S&P rating, the $\overline{DYP}^i_t$ should be significantly greater than zero. Hypothesis 4 may be stated:

$$(13) \qquad H_{04}: \ \mu^i_t = 0$$

$$H_{14}: \ \mu^i_t > 0.$$

Data Collection and Data Description

Ratings for the latest general obligation bond for 250 municipalities were obtained from *Moody's Bond Record* (December 1983) and Standard & Poor's *Bond Guide* (December 1983). The interest yields on municipal bonds were obtained from Standard & Poor's *Blue List of Current Municipal Offerings* (December 1983). The yields on the Treasury bonds were taken from the *Wall Street Journal.*

December 1983 was selected as the data period because it permitted comparison of modified ratings by both rating agencies. Moody's changed its rating system from generic to modified in April 1982. S&P previously had changed its rating system in 1974. Data were collected at the end of 1983 to ensure that the refined rating systems of the two agencies would coexist for the remainder of 1982 and all of 1983 in order that the agencies would have an opportunity to fix any potential problem that may have occurred during the transition period.

Some studies in the area have used primary issue data. Examples are Hsueh and Kidwell (1988) on municipal bonds and Billingsley, Lamy, Marr, and Thompson (1985) on corporate bonds. Studies such as Liu and Moore (1987) and Perry, Liu, and Evans (1988), however, have used secondary market data. This research uses secondary rather than primary offerings, as Weinstein (1978) demonstrated that the offering prices of newly issued bonds are below the market equilibrium prices, but that the aftermarket is efficient. Studies in the stock market also show the same results (Ibbotson, 1975; Rock, 1986). The possibility cannot be excluded, however, that ratings in the secondary market

may not reflect all the information in the market because rating agencies may lag in the adjustment of credit ratings.

Split ratings are a frequent occurrence in the municipal bond sample used in this study. Using generic and modified ratings respectively, split ratings occurred 22 percent and 38.8 percent on the bonds. Tables 2 and 3 present the distribution of the bonds in the sample by their ratings. Table 4 summarizes the number of issues with superior S&P and Moody's ratings, respectively. The tables also present the total number of issues with split ratings in the sample and the gamma values testing whether one rating agency consistently rates debt issues lower than the other.

When using generic rating classes, the Goodman-Kruskal gamma value of 0.968 suggests that the ratings given by Moody's and S&P are not significantly different.[3] Of the 55 bonds that have split ratings, 34 bonds have superior S&P ratings, and 21 bonds have superior Moody's ratings. The sign test is not significant at the 0.10 level.

When modifiers are included, the Goodman-Kruskal gamma value of 0.927 again suggests that the ratings assigned by the two agencies are not systematically different from each other. Of the 97 bonds that have split ratings, 52 bonds have superior S&P ratings; 45 have superior Moody's ratings. The sign test also shows this difference is not significant at the 0.10 level. Thus, neither Moody's nor S&P consistently assigns ratings inferior to the other, and hypothesis H_{01} cannot be rejected.

Empirical Results

Tables 5 and 6 present summaries of the results from the tests of the interest yield hypotheses for generic and modified ratings, respectively. With generic ratings, split rated bonds in the aggregate do not have yields significantly different from bonds with identical Moody's and S&P ratings, no matter whether the Moody's or the S&P ratings are fixed. Therefore, H_{02} for generic ratings is

[3]Goodman-Kruskal gamma statistic is a value measuring the degree of association between two ordinal variables--Moody's and S & P ratings in this study. Gamma is the probability that a random pair of observations is concordant minus the probability that the pair is discordant, assuming the absence of ties. If all observations fall on the upper-left to lower-right diagonal, gamma is 1. In the case of independence, gamma is 0. In symbols

$r = P(C|\text{no ties}) - P(D|\text{no ties})$

where P (C|no ties) and P(D|no ties) are the probabilities of finding concordance and discordance, respectively, given that the pair is not tied.

not rejected ($\alpha = 0.05$). In addition, H_{03} and H_{04} cannot be rejected at $\alpha = 0.05$. This suggests that split generic ratings have no effect on bond yields.

The results are the same with modified ratings fixed by Moody's, as shown in Table 6. There is no significant difference in yields. When S&P ratings are fixed, however, the aggregate differential yield premia are significantly different. Further analysis indicates that the results are solely due to instances where Moody's has superior ratings (DYP was -4.6 basis points).

It would be tempting to find a simple explanation for the results. For example, if Moody's excludes important information from its rating analyses that would tend to make Moody's rating more conservative than S&P's, then a superior Moody's rating would indicate a larger margin of superiority. Moody's does exclude some information--whether the bond is insured by private companies and automatic withholding and the use of state aid to pay local government municipal bonds.[4] In order for this explanation to hold, however, the results of the Goodman-Kruskal and the sign tests would have had to reveal systematic differences in ratings. They did not.

It is more likely that the significant results are due to the rating classifications themselves. As can be seen in Table 1, several of S&P's modified ratings could be related to a single Moody's rating. In these rating classes (3, 5, and 7), a fixed Moody's rating results in significantly more extreme splits than a fixed S&P rating ($\alpha = 0.05$). Therefore, variations in S&P ratings around a fixed Moody rating are greater. If investors expect less variation in Moody's ratings, then Moody's may be seen as having more information content. The results only hold when Moody's rating is superior, indicating that good news carries more weight than bad news.

The purpose of the modified rating system used by the agencies is to increase the information conveyed to the investors. But the noncorrespondence of the modifiers in the municipal bond market (the noncorrespondence does not exist in the corporate bond market) may add more confusion. Is an Aa in Moody's equal to an AA or to an AA- in S&P, or is it an average of the two ratings?

Conclusions

This paper examines municipal bond rating discrepancies and their impact on interest yield premia. The results indicate that there is no systematic difference between Moody's and S&P's assigned ratings, regardless of whether generic or modified rating systems are employed. The results also indicate that

[4]Fabozzi, Feldstein, Pollack, and Zarb (1983) have a detailed discussion of the state aid to local government municipal debt services.

when generic rating systems are used, there is no significant difference in yield premia between bonds with split ratings and bonds with equivalent ratings. Results are different, however, when modified ratings are considered. Superior ratings assigned by Moody's (holding S&P's ratings fixed) result in significantly lower interest yield premia. Superior or inferior S&P ratings (holding Moody's ratings fixed) do not affect the yield premia.

The study by Perry, Liu, and Evans (1988) that examined the effect of split modified ratings on corporate yield premia found that split ratings did not affect yield premia. Yet this study conducted on municipal bonds finds a significant difference in one case. Because information is less available and reliable in the municipal bond market than in the corporate bond market, investors must rely more heavily on agency ratings of municipal bonds. It is not surprising that split ratings would have a greater impact upon municipal bond yield premia.

But compounding this effect is the difference in the rating systems between Moody's and S&P in the municipal market. Unlike the corporate bond rating systems, there is a lack of correspondence in the modified ratings used by Moody's and S&P. S&P's modified ratings contain more variation than Moody's and seem to convey less reliable information. The results in this study indicate that municipal bond issuers who pay for the ratings and investors in municipal bonds who need the information to make rational decisions should push the agencies for corresponding rating systems.

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Table 1
Bond Rating Systems and Numerical Codings for Municipal Issues Used by Moody's Investor Service and Standard & Poor's Corporation

Modified Ratings			Generic Ratings		
Code	Moody's	S&P	Code	Moody's	S&P
1	Aaa	AAA	1	Aaa	AAA
2	Aa1	AA+	2	Aa	AA
3	Aa	AA AA-	3	A	A
4	A1	A+	4	Baa	BBB
5	A	A A-			
6	Baa1	BBB+			
7	Baa	BBB BBB-			

Table 2
Cross-Tabulation with Generic Ratings

		Moody's Ratings				
		1	2	3	4	Total
	1	18	2	0	0	20
S&P	2	6	77	23	0	106
Ratings	3	0	8	84	9	101
	4	0	0	7	16	23
Total		24	87	114	25	250

Table 3
Cross-Tabulation with Modified Ratings

		Moody's Ratings							
		1	2	3	4	5	6	7	Total
	1	18	0	2	0	0	0	0	20
	2	4	4	5	0	0	0	0	13
	3	2	12	56	19	4	0	0	93
S&P Ratings	4	0	0	7	35	10	0	0	52
	5	0	0	1	9	30	6	3	49
	6	0	0	0	0	5	2	3	10
	7	0	0	0	1	1	3	8	13
Total		24	16	71	64	50	11	14	250

Table 4
The Summary of Number of Split Ratings in the Sample and Goodman-Kruskal Gamma Values Under General and Refined Rating Systems

	Issues with Superior S&P Ratings	Issues with Superior Moody's Ratings	Total Issues with Split Ratings	Gamma Value
Generic Ratings	34	21	55	0.968
Refined Ratings	52	45	97	0.927

Table 5
Differential Yield Premia with Generic Ratings

Panel A

Fixed Moody's Rating	Aggregate	S&P Superior	S&P Inferior
Sample Size	55	34	21
Mean DYP (Basis Points)	3.42	-4.37	1.90
Standard Error (Basis Points)	2.20	3.01	3.16
Significant at 5 Percent Level	NO	NO	NO

Panel B

Fixed S&P Rating	Aggregate	Moody Superior	Moody Inferior
Sample Size	55	21	34
Mean DYP (Basis Points)	3.02	-5.08	1.76
Standard Error (Basis Points)	2.16	3.15	2.92
Significant at 5 Percent Level	NO	NO	NO

Table 6
Differential Yield Premia with Modified Ratings

Panel A

Fixed Moody's Rating	Aggregate	S&P Superior	S&P Inferior
Sample Size	97	52	45
Mean DYP (Basis Points)	0.48	-1.21	-0.17
Standard Error (Basis Points)	1.66	2.41	2.30
Significant at 5 Percent Level	NO	NO	NO

Panel B

Fixed S&P Rating	Aggregate	Moody Superior	Moody Inferior
Sample Size	97	45	52
Mean DYP (Basis Points)	3.13	-4.60	1.85
Standard Error (Basis Points)	1.59	2.31	2.19
Significant at 5 Percent Level	YES	YES	NO