Valuation Consequences of Master Limited Partnership Formation

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The valuation consequences associated with the creation of master limited partnerships (MLPs) are examined using event study methodology. Analysis of a sample of 39 MLPs indicates that positive abnormal returns accrue to corporate sponsors of MLPs, both for the complete sample and for subsets categorized by type of industry. Positive effects for the sponsoring corporations are consistent with special tax incentives, a reduction in free cash flow, increased liquidity, and market revaluation of assets transferred to the MLP. A test for mean differences across industries indicates that the market reaction to the formation of a MLP does not differ across industries.

INTRODUCTION

Moore, Christensen, and Roenfeldt (1989) find positive effects for the sponsoring corporation associated with total conversions to master limited partnerships (MLPs) and with rollouts of assets by either spinoff or public sale. The Moore, Christensen, and Roenfeldt sample consists of 17 MLP formations that transferred corporate assets to MLPs. Ten of the 17 MLPs sampled are categorized as oil and gas MLPs. Five of the MLPs were formed by spinoff, seven are total conversions, and five were formed by a rollout of assets. Moore, Christensen, and Roenfeldt consider all of the spinoffs, rollouts, and total conversions that were announced in the *Wall Street Journal* before their respective SEC filing dates and for which common stock returns were available for the parent firms from 1982 to 1987. During Moore, Christensen, and Roenfeldt's study period other corporations sponsored MLPs as an alternative form of ownership and as a means of financing. This paper expands Moore, Christensen, and Roenfeldt's work on MLP formation by increasing the sample size and by testing for industry differences associated with MLP formations.

MASTER LIMITED PARTNERSHIPS AND PARENT CORPORATION VALUE

The master limited partnership is a limited partnership whose units are listed for trading on a recognized exchange. The first MLP was formed in 1978 when Tishman Realty and Construction spun off its real estate assets to form Teeco Properties L.P. The use of a MLP was publicized widely when Apache Petroleum Company rolled up its oil and gas partnerships in 1981. Recently, because of tax law changes, the use of MLPs has declined.[1]

[1] Collins and Bey (1986) note that the MLP offers most of the advantages of the corporation, but has a lower tax rate. In December 1987 tax law changes removed the majority of the tax advantages for active income-generating MLPs. Since 1987 existing active MLPs have been taxed as corporations. A majority

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MLPs are formed by several methods. The rollup is a common method of creating an MLP. Nonpublicly traded partnership units are exchanged for MLP units in a roll-up. MLPs also are created through spinoffs and equity carveouts, both of which involve the separation of a subset of corporate assets. Finally, some firms initially go public as an MLP or are organized as an operating unit. MLPs also are formed to provide financing; that is MLP units are issued to raise capital for a specific purpose.

The formation of the MLP creates value for the organizing firm's shareholders if the units of the MLP trade at a higher value as a result of revaluation of any assets involved. As noted by Moore, Christensen, and Roenfeldt (1989) the benefits of MLP formation include:

- Avoidance of double taxation. MLPs pay no taxes on cash flows distributed to investors, thus reducing the tax burden associated with holding the assets in a corporation;
- Reduction of free cash flow. The MLP is required to distribute the cash flow to the investors, thus avoiding the possible misuse of available cash;
- Information signaling or improved information flow. Information pertinent to the MLP assets are made public during the securitization process. After the MLP is formed, the firm must provide information consistent with the reporting requirements of publicly traded entities.

Negative effects include conflicts of interest and increased administrative costs. Conflicts of interest may occur due to the parent firm acting as general partner and the general partner not holding an ownership interest that is substantial enough to prevent the general partner from neglecting or competing directly with the MLP. Increased costs associated with the administration of an MLP, primarily due to the necessity of keeping detailed tax records, versus a corporation may offset any gains from the reorganization.

DATA AND METHODOLOGY

SAMPLE SELECTION

The sources of information on MLP formation are the *Wall Street Journal* (WSJ), the *Wall Street Journal Index* (WSJI), *Moody's Manuals, Standard & Poors' Corporation Record*, and *The Stanger Register*. *The Stanger Register* (1988) lists 122 MLPs. Beginning with this list, the sample is reduced to a final sample of 39 MLPs formed from 1980 to 1987 by corporations whose stock is traded on the New York Stock Exchange or on the American Stock Exchange and for which return data are available on the Center for Research in Security Prices (CRSP) files. The 39 MLPs in the sample are classified in *The Stanger Register* as real estate MLPs (n=17), as oil and gas MLPs (n=15), and as miscellaneous (n=7) which are referred to in this paper as other. The firms forming these other MLPs are ITT Corp., International Paper Co., Masonite Corp., Penn Central Corp., PEPSICO, Pope & Talbot Resources, Inc., and Valero Energy Company. The MLPs formed are Rayonier Timberland, IP Timberlands, Timber Realization, Buckeye

of MLPs formed prior to 1987 and generating passive income are exempt from the new tax laws. (For a thorough discussion, see "The Tax Man Slaps MLPs," *The Stanger Register* (February 1988), pp. 24-26.) A few MLPs have been formed since the 1987 tax law change, and several existing MLPs have since reorganized to corporations. MLPs formed after 1987 are not included in this study.

Partners, American Restaurant Partners, Pope Resources, and Valero Natural Gas, respectively. These MLPs did not fall into real estate or oil and gas, the two other classifications used by *The Stanger Register*.

The Moore, Christensen, and Roenfeldt sample (n=17) includes only MLPs formed from corporations by spinoff, public issue rollouts, or total conversion. Ten of the 17 MLPs studied are classified as oil and gas MLPs by *The Stanger Register*. No other industrial classification includes more than one MLP. Oil and gas MLPs comprise 59 percent of their sample. With the current larger sample size, it is possible to test for industry differences.

METHODOLOGY

Event study methodology is employed to test for valuation impacts of MLP formation (Brown and Warner, 1985; Furtado and Rozeff, 1987). Day zero is the date of announcement of the formation of a master limited partnership.[2] The market model parameters are estimated for each firm in the sample by regressing the security returns of company j on the returns for the market as proxied by the CRSP equally weighted index.[3] This regression uses stock returns from t = -91 to t = -31, a period of 160 trading days. The parameter estimates obtained from the regression are applied to the actual market return for days t = -30 to t = 30, and the expected or normal returns for security j are predicted. These expected returns are compared to the actual returns during the event window. The difference between actual daily returns for security j and the expected daily returns for security j are identified as abnormal returns.

Abnormal returns are computed for the sample for a period of 61 trading days (30 before and 30 after) about each announcement date. The notational format is as follows:

$$(1)\ AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt}),\ t = -30, \ldots, +30$$

where:

AR_{jt} = The abnormal return on security j on day t;

R_{jt} = The actual return on security j on day t; and

$(\alpha_j + \beta_j R_{mt})$ = The expected return on security j on day t.

The average abnormal return (AAR) is calculated by summing the AR_{jt} across all firms at each event date and dividing by the number of firms.

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[2] The announcement date is the date on which the first statement of the formation of a MLP appeared in the written media, typically the *Wall Street Journal*. It is likely that the information was available either through the news wire on the prior day or through the SEC, thus, special attention is given to the intervals -1,0 and -5,0.

[3] Moore, Christensen, and Roenfeldt (1989) use this index. They further note that results are similar when using either the value-weighted CRSP index or the mean-adjusted returns model.

The cumulative average abnormal return (CAAR) over the interval t_1 to t_2 inclusive is defined as:

$$(2)\ CAAR_{t1,t2} = \sum_{t=t_1}^{t_2} AAR_t$$

TEST FOR AAR AND CAAR SIGNIFICANCE

The following t-statistics, found in Brown and Warner (1985), are employed to determine if AAR_t or $CAAR_{t1,t2}$ are significantly different from zero. The t-statistics for AAR and CAAR are calculated as:

$$(3)\ t_{AAR} = \frac{AAR_t}{s_{AAR}}$$

$$t_{CAAR} = \frac{CAAR_t}{d^{1/2} s_{AAR}}$$

where:

d = Number of days during the interval; and

s_{AAR} = Pre-event period AAR standard deviation:

$$(4)\ s_{AAR} = \left\{ \frac{\left[\sum_{t=-191}^{t=-31} (AAR_t - \overline{AAR})^2 \right]}{160} \right\}^{1/2}$$

If the average abnormal return is significantly different from zero, the implication is that the market has reacted to the event. Otherwise, the AAR_t has a mean of zero, implying that the event had no effect on the firm's value.

Cumulative average abnormal returns (CAARs) are computed over intervals to see if the event is anticipated by the market. Prior to the announcement of a material event, there is often some disclosure; preannouncement price reactions may be due to the anticipation of the event. If this occurs, $CAAR_t$ should show a positive reaction for favorable news and a negative reaction for unfavorable news. If the event is unanticipated and no prior information leakage relating to the event occurs, then the $CAAR_t$ should exhibit a mean of zero.

In this study, two intervals are of primary interest. The sample of announcement dates are taken from the *Wall Street Journal*. It is expected that information appearing in the WSJ on day 0 was released to the public over the news wire on the prior day, i.e, day

-1, except in the case where the information is released after the market closes and prior to press time. The registration date with the SEC is often two to three days prior to the WSJ date. Thus, the intervals -5,0 and -1,0 are of primary interest in assessing the announcement impact of the formation of a MLP.[4]

EMPIRICAL RESULTS

COMPLETE SAMPLE OF MLPS

The results, as shown in Table 1, generally reveal a large and statistically significant reaction to master limited partnership formation over the pre-event period and on days -1 and 0. These results are consistent with the view that the formation of an MLP creates value for the shareholders of the corporation forming the MLP. The CARs over the postevent period are not significant, indicating that the reaction by the market generally is complete by the time of the announcement of the formation of a MLP.

Over the interval -30 to 30 the CAR for the 39 corporate sponsors is 8.48 percent and significant at the .05 level. The majority of the gain occurs over the pre-event period (-30 to 0), specifically the last five days prior to the announcement which evidence a significant CAR of 5.05 percent. Fifty-four percent of the firms forming MLPs, over any interval measured from five days prior to the announcement until the announcement and on days -1 and 0, show positive gains.[5]

Although the effects of MLP formation are measured differently, these results can be compared to those of Moore, Christensen, and Roenfeldt (1989). As Moore, Christensen, and Roenfeldt note, however, care must be exercised when comparing average prediction errors across studies. While the current results do not correspond directly to those of Moore, Christensen, and Roenfeldt, the common interval of -1 to 0 yields similar results, with both studies supporting positive impacts accruing immediately prior to the announcement. Moore, Christensen, and Roenfeldt also find positive and significant average prediction errors (APEs) for the interval (-3 to -2) and a negative and significant APE for the first postevent interval (0 to +1). A very high percentage, 71 percent and 88 percent, of their firms exhibited significant and positive abnormal returns for intervals -3,-2, and -1,0 respectively. All other two day intervals tested by Moore, Christensen, and Roenfeldt were not significant at the 1 percent level.

SUBSETS OF THE DATA CATEGORIZED BY INDUSTRY TYPE

The returns for the 15 corporate sponsors forming oil and gas MLPs are not significant over the interval -1,0, but the CAAR over the interval day -5 to 0 is a significant 4.93 percent at 5 percent. The CAAR over the 61 day window is 19.36 percent and significant at the 5 percent level. Significant gains of 10.37 percent occur over the 30 day pre-event window, with an insignificant positive CAAR of 8.99 percent over the 30 day

[4] The authors appreciate the helpful discussion by one of the reviewers concerning the appropriate event window for MLP formation announcements relative to the WSJ announcement date.

[5] The expected population probability of positive versus negative CAARs is .5, and, thus, the probability of drawing a sample with 54 percent of the CAARs positive, i.e., 21 of 39, is only 26.11 percent. (Thanks to an anonymous reviewer for helping to make this explicit.)

Table 1—Average Abnormal Returns (AARs) to Corporations Forming Master Limited Partnerships (Cumulative Average Abnormal Returns (CAARs), T-Values, and Percent of Companies Exhibiting Positive CAARs)[1]

Interval[2] (days)		All	Real Estate	Oil & Gas	Other
(-30,0)	CAAR	7.07%*	3.19%	10.37%*	9.45%
	T-Value	4.318	1.796	3.569	2.170
	% Positive	51%	46%	54%	53%
(-10,0)	CAAR	4.97%*	3.75%*	4.63%*	8.67%*
	T-Value	4.810	2.768	2.517	3.356
	% Positive	51%	45%	54%	56%
(-5,0)	CAAR	5.05%*	3.83%*	4.93%*	8.28%*
	T-Value	6.109	3.535	3.583	3.664
	% Positive	54%	47%	60%	60%
(-1,0)	CAAR	2.28%*	2.00%*	1.68%	4.24%*
	T-Value	4.541	3.748	1.477	2.718
	% Positive	54%	47%	60%	57%
-1	AAR	1.00%*	1.17%	0.77%	1.10%
	T-Value	2.736	2.075	1.207	1.339
	% Positive	54%	47%	60%	57%
0	AAR	1.28%*	0.83%	0.91%	3.14%*
	T-Value	3.480	1.484	1.420	3.817
	% Positive	54%	47%	60%	57%
(+1,5)	CAAR	0.22%	-1.71%	1.56%	2.02%
	T-Value	0.364	-0.992	0.717	1.358
	% Positive	49%	42%	57%	49%
(+1,10)	CAAR	0.21%	-2.68%	2.79%	1.68%
	T-Value	0.230	-0.885	0.952	0.530
	% Positive	48%	42%	56%	46%
(+1,30)	CAAR	1.41%	-4.94%	8.99%	0.57%
	T-Value	0.409	-1.242	2.056	-0.109
	% Positive	47%	41%	54%	43%
(-30,30)	CAAR	8.48%*	-1.74%	19.36%*	10.02%
	T-Value	3.365	0.409	3.986	1.470
	% Positive	49%	54%	54%	49%

[1] * indicates significance at the 5 percent level. The sample size, N, is 39 with 17 in real estate, 15 in oil and gas, and seven categorized as other. The percentage of companies exhibiting positive CAARs over the interval is useful in detecting outliers

[2] The interval is the measurement period with the first number indicating the first day and the second indicating the last. Day 0 is the announcement date in the *Wall Street Journal*

postevent window. The Moore, Christensen, and Roenfeldt study showed significant APEs around the event for a sample heavily influenced by oil and gas MLPs. The current results show that CAARs for oil and gas MLPs are insignificant around the announcement date, but, with the exception of the -1 to 0 window, shared results common with Moore, Christensen, and Roenfeldt.

The returns to the 17 corporations forming real estate MLPs are positive and significant over the pre-event window for any interval tested from within 10 days of the

announcement. From day -1 to day 0 the CAAR is 2.00 percent and significant at the 5 percent level. No postevent windows, nor windows covering both pre- and postevent time, exhibit significant CAARs.

The returns for the seven corporate sponsors of MLPs classified as other are significant over the interval -1,0, resulting in a gain of 4.24 percent. For the intervals -10 and -5 to 0, the CAARs exceed 8.0 percent and are significant at the 5 percent level. The postevent intervals have no significant CAARs.

In order to test for significant differences in the mean abnormal returns for the intervals -5,0 and -1,0 across industries, the Kruskal-Wallis test as described in Neter, Wasserman, and Kutner (1990) is used. The Kruskal-Wallis test is a powerful nonparametric test used to test differences among the group means. For the sample period -5,0, the Kruskal-Wallis multiple comparison Z-values are all below 1.1928 with values of 2.0 considered large and significantly different. For the sample period -1,0, the Kruskal-Wallis Multiple comparison Z-values are all below 0.6686. These results indicate that the market reaction to the formation of a MLP does not differ across industries.

SUMMARY AND CONCLUSIONS

Positive cumulative abnormal returns accrue to corporate sponsors of the complete sample of MLPs, real estate MLPs, oil and gas MLPs, and MLPs of other industrial types. Although not entirely comparable with the results of Moore, Christensen, and Roenfeldt (1989), the results are generally supportive of theirs, and the positive effects for the sponsoring corporation are generally consistent with special tax incentives, reduction in free cash flows, increased liquidity, and market revaluation of assets transferred to the MLP.

Scant research attention has addressed the issue of the stock reaction associated with the creation of MLPs prior to this analysis. Moore, Christensen, and Roenfeldt (1989) find significant positive abnormal returns for MLPs formed by spinoffs, public issue rollouts, and total conversions. The results of this study confirm and broaden the results of Moore, Christensen, and Roenfeldt (1989) by testing for industry differences associated with MLP formation. The findings do indicate that the formation of a MLP results in an increase in shareholder wealth for the parent firm's stockholders.[6] The organizational form, in this case the MLP, is perceived to be preferable to the initial form in which the assets are held. But the results provide no evidence of an industry effect. The valuation effects are, on average, the same across industry groups.

REFERENCES

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[6] The long-term impact of conversion to MLP ownership is not assessed in this paper. A suggestion for further research is to evaluate the long-run wealth effects of MLP conversions. The focus of this study is limited to the market reaction to the announcements of these ownership changes and differences across industries. A preliminary analysis of aftermarket returns for 36 MLPs indicates a significant cumulative average abnormal return of -12.84 percent (t= -3.31) over a 100 day period following listing on a major exchange. The cumulative average abnormal returns are calculated using the market-adjusted model (Brown and Warner, 1985). This result is consistent with results from the IPO literature (Muscarella, 1988).

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