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A Re-Examination of the Wealth Expropriation Hypothesis: The Case of Captive Finance Subsidiaries

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ABSTRACT

This paper re-examines Kim, McConnell, and Greenwood's (1977) study of captive finance subsidiaries. We suggest that, as long as firms are concerned with reputation, shareholders will find it costly to engage in deliberate wealth expropriation and thus have no incentives to do so. Using a sample of fourteen firms with publicly traded debt, we compute and test the statistical significance of abnormal returns to shareholders, bondholders, and the firm when captives are incorporated. We find that shareholders gain 14.9 percent, bondholders lose 2.3 percent, and firm value increases a significant 10.4 percent. Our results are inconsistent with wealth expropriation and lend support to the importance of reputation to firms.

IN CLASSIC SINGLE-PERIOD models of agency relationships, shareholders have incentives to alter their investment and/or financing policies in ways which expropriate bondholders' wealth. Specifically, they may change investment policy, and ultimately firm value, by foregoing positively valued projects which decrease risk. Alternatively, they may choose to alter financing policy, with no effect on firm value, by restructuring financial claims. All three actions have been shown theoretically to affect the relative wealth of shareholder and bondholders.

Recently, Diamond (1989) and John and Nachman (1985) showed that, in a multiperiod world where firms must return to the debt market for future financing, a reputation for nonexpropriation has value. If owners engaged in deliberate wealth-expropriating actions, they might receive a windfall gain, but the firm's use of the debt market in the future would become more costly. Therefore, owners will gain from and engage in deliberate expropriation only if the value of the wealth transfer exceeds the present value of the firm's loss in reputation as reflected in the cost of future debt financing.

Empirically, if the present value of future costs exceeds the immediate gain from expropriation when firms restructure financial claims, we should find increases in shareholder wealth and firm value and little or no change in bondholder wealth. Alternatively, if the costs are less than the gains from wealth expropriation, we should observe a loss to bondholders, a gain to shareholders, and little change in firm value.

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Previous empirical studies have provided inconclusive evidence concerning wealth expropriation. Kim, McConnell, and Greenwood's (KMG) (1977) study of captive finance subsidiaries is the only research which finds changes in securityholders' wealth imputed solely to the wealth expropriation hypothesis. KMG suggest that the formation of a captive finance company weakens the claims of the parent company's bondholders in two ways. First, existing and future receivables may be sold to the subsidiary at an artificially low price. Second, because subsidiary debt is usually guaranteed by the parent company but not vice versa, the position of the creditors of the parent, in the event of default, may not be clear and their claim may be diluted.[1] KMG attribute the shareholders' gains, as well as the bondholders' losses, to wealth expropriation arising from "a rearrangement of the asset and liability structure of the firm that creates a new class of security holders with income claims that are superior to those of the company's original bondholders" (page 789).

Our purpose is to provide direct empirical evidence concerning whether shareholders expropriate bondholders' wealth by addressing changes in firm value resulting from the formation of a captive finance subsidiary. We update KMG's bond return methodology and extend their study to include the effect of the formation of a captive finance subsidiary on total firm value. We find large increases in shareholder wealth and firm value along with a considerably smaller decrease in bondholder wealth. Our results are consistent with the hypothesis that concern for reputation governs owners' behavior and provides a partial solution to agency problems.[2]

I. Methodology

The methodology used to compute the excess risk-adjusted stock returns is similar to that of KMG. Our sample consists of fourteen firms which have publicly traded debt outstanding.[3] One new firm, Sperry Corp., is added, while one bond used by KMG, Gamble-Skogmo, is not used in this study.[4] The month in which the captive is incorporated is designated as $t = 0$. Monthly data are used to maintain consistency with KMG and to account for infrequent bond trading. Because most firms do not announce their plans to form a financial subsidiary, the first official public recognition of a captive is usually the an-

[1]Recently, Wickes Corporation entered Chapter 11 bankruptcy, which included both Wickes and Gamble-Skogmo Financial Corporations. At the time, neither financial subsidiary was facing default, but both were carried along with their parent into bankruptcy proceedings. Thus, in at least one case, creditors of the subsidiary corporation were injured.

[2]We recognize the possibility that factors other than reputation may restrict managerial choices in such a way as to limit bondholder losses. However, reputation provides a theoretically plausible explanation for our results.

[3]We also examined the excess returns for an expanded sample of thirty-one firms as well as the original twenty-four firms used by Kim, McConnell, and Greenwood. Our results in both instances are virtually identical.

[4]The Gamble-Skogmo bond actually was issued by Alden's, Inc., which was acquired by Gamble-Skogmo on December 31, 1964, which was also the date of incorporation. Since, in the pre-test period, the bonds were not those of Gamble-Skogmo, there is no valid way to determine the effect of incorporation on bondholders' wealth.

nouncement of incorporation. However, unofficial leaks of a firm's intentions are quite probable. Hence, we use both a twenty-three-month and a six-month pre-event period. We improve upon KMG by computing the statistical significance of the abnormal and cumulative abnormal returns using the Patell (1976) method.

Our bond return methodology also is similar to that of KMG.[5] Each publicly traded bond of a firm forming a captive finance company is paired with a similar control firm bond. Control bonds are selected to provide the closest match to sample bonds based on the three characteristics which most closely approximate the duration of the two bonds: Moody's bond rating, term to maturity, and coupon rate. In addition, we require that each control bond be in the same broad industry class as the corresponding sample bond (industrial, utility, or rail).

In selecting the control group, KMG also used our first three criteria. However, they emphasized that "the bonds were matched according to interest payment dates to circumvent the need to adjust returns for accrued interest."[6] Their emphasis on the importance of matching payment dates resulted in a large number of bond pairs which differed in all duration-related characteristics and thus would have very different price changes as interest rates changed. By ignoring coupon payment dates, we were able to obtain matches which are in the same broad industry group and thus improve the quality of the paired sample procedure. A list of the characteristics of each sample and control bond used in this paper is provided in the Appendix.

We obtain price data for nineteen bonds issued by the fourteen firms from the *Bank and Quotation Record.* Wherever possible, the end-of-month sale price was used. When no sale occurred during the month, we used either the bid price, the ask price, or the average of the bid and ask.[7] Returns in each month t are computed using the accrued interest in that month. The average return in each month for each of the four firms with multiple bond issues is determined by weighting each bond's return by its market value as a percentage of the market

[5]Handjinicolaou and Kalay (1984) developed a bond methodology which allows for the infrequent trading of corporate debt. However, the key to their methodology is the pairing of corporate debt with government debt trading on the same day. While this procedure presents no problems when daily data are used, when using monthly data over a period of more than two years there is an inherent bias. Government debt has a consistently lower yield than corporate debt of the same maturity. In order for the effect of interest rate changes to be the same for two bonds, the bonds must have the same duration. Because of their lower yield, as well as their lack of sinking funds, government bonds will always have a higher duration than corporates, all other things equal. Finally, if, in addition, rates are generally rising over the period studied (as they are here), most governments of the same maturity will have a lower coupon rate and a higher duration. Therefore, using the difference between corporates and governments over a long time period systematically underestimates excess returns when rates are falling and overestimates them when rates are rising.

[6]KMG computed bond returns "by dividing the month end price plus coupon interest payment (if paid that month) by the beginning of the month bond price." This method of computation is incorrect, even when coupon payment dates are matched, since it ignores accrued interest in months when interest is not paid.

[7]If, in month t, there are both a bid price and an ask price, followed by only a bid (ask) in month $t + 1$, we use the bid (ask) in month t. If there are both a bid price and an ask price, preceded by only a bid (ask) and followed by only an ask (bid), we use the average bid-ask to reduce the bias in changing from a bid to an ask or vice versa. Over the twenty-four months, we find approximately the same proportion of bid, ask, and sales prices for both the sample and control firms.

value of all the company's traded bonds. The difference between the sample and control returns for each month, $t = -23$ to $t = 0$, is then averaged across the fourteen firms and summed over time to determine the cumulative average differences. Statistical significance of the average and cumulative average differences is tested using the nonparametric Wilcoxon signed-rank test.

II. Empirical Results

Table I presents the average and cumulative average residuals from $t = -6$ through $t = 0$ for stock returns with their corresponding t-statistics and the average and cumulative average differences for bond returns together with the appropriate Wilcoxon probabilities of occurrence for both our sample of fourteen firms with debt and that of KMG.[8]

Over the full seven-month test period, shareholders earn a 14.9 percent excess return. In months $t = -4$, $t = -3$, and $t = -1$, the average residuals are statistically significant, as are all CARs from $t = -3$ through $t = 0$. Our stock results are quite similar to those of KMG.[9] While the sign of the average differences in bond value is negative in all but one period, none of the seven is statistically significant at the 0.10 level. However, over the seven-month test period, we find that bondholders lose 2.3 percent of their wealth, which has a Wilcoxon probability of occurrence of 0.05 and a t-statistic of -2.3. In contrast, the KMG sample of bond differences showed a 5.6 percent loss over the same seven-month period.[10]

We next determine both the dollar and the percentage changes in debt, equity, and firm value and the magnitude of any wealth transfer for two test periods. Values are computed as of the end of the month prior to the period being studied ($t = -24$ and $t = -7$, respectively). The total value of each parent firm is computed by adding the market values of common and preferred stock and all traded debt, including convertible, plus the book values of all untraded debt.

The percentage changes in the value of each firm's common equity and straight debt are given by its cumulative residual and cumulative difference, respectively. The dollar change in the value of each firm's debt is then computed as its cumulative difference times the value of its straight debt. Because interest rates were consistently rising during the period of the study, market values were most often below book values, so that the use of book values overestimates the loss in debt value. Convertible debt is excluded since it is unclear how it might be

[8]Our test period differs somewhat from that of KMG. For stock returns KMG used $t = -5$ to $t = 0$, while for bond returns they used $t = -7$ through $t = 0$. We performed all tests using periods commencing at $t = -23$, $t = -12$, $t = -7$, $t = -6$. All of our results are virtually identical to each other, and our excess stock returns are almost identical to KMG's. Thus, our stock results appear quite robust with respect to the choice of period.

[9]Our CAR from $t = -6$ through $t = 0$ is slightly higher than that of KMG. However, recall that KMG's equity results are for a sample of twenty-four firms, while ours are for the fourteen firms with publicly traded debt.

[10]We notice that, at time $t = +1$, there is a reversal in bond returns. When we end our period at $t = +1$, we find that the bondholder loss, while still slightly negative, is not statistically significant (Wilcoxon probability is 0.52). There are also larger increases in shareholder wealth and firm value. We choose to focus on the results through $t = 0$ when there is evidence of a slight wealth transfer.

Table I

Average and Cumulative Average Residuals for Stocks and Average and Cumulative Average Differences for Bonds during the Six Months Preceding and the Month of Incorporation of Captive Finance Subsidiaries for Fourteen Firms with Publicly Traded Debt as Well as the Twenty-four Firms in the Kim, McConnell, and Greenwood (KMG) Equity Sample and the Fourteen Firms in the KMG Debt Sample

	Equity					Debt				
	Average Residual[a]		Cumulative Average Residual[a]		Cumulative Percent	Average Difference[b]		Cumulative Average Difference[b]		Cumulative Percent
Month	Current[c]	KMG	Current	KMG	Positive	Current	KMG	Current	KMG	Positive
−6	0.013	−0.012			57	−0.004	−0.015			36
	(0.76)					(0.11)				
−5	−0.004	0.036	0.009	0.024	57	−0.018	−0.019	−0.022	−0.034	21
	(−0.10)		(0.47)			(0.16)		(0.11)		
−4	0.033	0.013	0.042	0.037	71	0.009	−0.008	−0.013	−0.042	36
	(2.03)		(1.55)			(0.68)		(0.15)		
−3	0.029	0.015	0.071	0.052	64	0.005	0.000	−0.008	−0.042	29
	(2.12)		(2.41)			(0.30)		(0.76)		
−2	0.013	0.021	0.084	0.073	57	−0.009	−0.004	−0.017	−0.046	36
	(0.83)		(2.52)			(0.20)		(0.19)		
−1	0.050	0.021	0.134	0.094	86	0.006	−0.009	−0.011	−0.055	36
	(3.09)		(3.69)			(0.22)		(0.15)		
0	0.015	0.038	0.149	0.132	79	−0.012	−0.001	−0.023	−0.056	36
	(1.03)		(3.69)			(0.47)		(0.05)		

[a] A *t*-test, using the Patell method, is employed to test the statistical significance of the average and cumulative average residuals of the stock returns for the fourteen firms in our sample. *t*-Statistics with 13 degrees of freedom, in parentheses, are significant at the 0.10 level with a value of 1.77, at the 0.05 level with a value of 2.16, and at the 0.01 level with a value of 3.01.

[b] The Wilcoxon paired sample nonparametric test is used to determine the statistical significance of the average and cumulative average differences between sample and matched bond returns. The Wilcoxon probabilities of observing the bond differences are given in parentheses.

[c] The columns designated "Current" refer to the findings in our fourteen-firm study. Kim, McConnell, and Greenwood presented debt results for fourteen firms with publicly traded debt but did not split out the equity results for these firms. Therefore, the columns designated "KMG" refer to the findings of their equity sample of twenty-four firms and their debt sample of fourteen firms.

affected by the formation of a captive. Similarly, the dollar change in equity value is computed as its cumulative residual times the value of its common equity. The dollar change in firm value is the sum of the dollar changes in common equity and straight debt, while the percentage change is the dollar change divided by total firm value. Finally, the magnitude of the wealth transfer, which is the maximum percentage increase in equity value due to the bondholders' loss, is computed as the negative of the dollar change in debt value per dollar of common equity value.

Table II reports the mean and median percentage change in debt, equity, and firm value and the maximum wealth transfer. Over the two-year period, bondholders suffered a small and statistically insignificant wealth loss, while, during the seven-month test period, they lost a statistically significant 2.3 percent of their wealth. However, at the same time, firm value increased by 15.4 percent over the two years, and 10.4 percent during the six months, prior to incorporation

Table II

Percent Changes in Debt, Equity, and Firm Values, Maximum Wealth Transfer, and Median Dollar Changes in Debt, Equity, and Firm Value for Fourteen Firms with Publicly Traded Debt during the Twenty-three Months and the Six Months Preceding and the Month of Incorporation of Captive Finance Subsidiaries

	Test Period from $t = -23$ through $t = 0$	Test Period from $t = -6$ through $t = 0$
Percentage Change in Debt Value		
Mean	−1.50	−2.30
Median	+0.20	−1.20
t-Statistic[a]	−0.83	−2.30
Percentage Change in Equity Value		
Mean	23.00	14.90
Median	16.10	14.40
t-Statistic	2.04	3.31
Percentage Change in Firm Value		
Mean	15.40	10.40
Median	12.30	10.10
t-Statistic	2.01	2.97
Maximum Percentage Wealth Transfer		
Mean	0.80	0.70
Median	0.00	0.30
t-Statistic	1.00	2.33
Median Dollar Change in Debt Value (in millions)	$00.065	−$00.629
Median Dollar Change in Equity Value (in millions)	$32.371	$38.886
Median Dollar Change in Firm Value (in millions)	$31.899	$35.513

[a] For consistency, the t-statistics for the percent change in bond values are reported rather than the Wilcoxon probabilities. The Wilcoxon probability is 0.68 for the period $t = -23$ through $t = 0$ and 0.05 for the period $t = -6$ through $t = 0$. t-Statistics with 13 degrees of freedom, in parentheses, are significant at the 0.10 level with a value of 1.77, at the 0.05 level with a value of 2.16, and at the 0.01 level with a value of 3.01.

of the subsidiary. For twelve of the fourteen firms, the increase in firm value was positive. The shareholders' gain and the increase in firm value were significantly positive during both periods. The maximum percentage increase in equity value which is attributable to a wealth transfer from bondholders is approximately 0.7 percent. In neither case is the wealth transfer large enough to justify the administrative and legal expense of the subsidiary's incorporation. Thus, while there is a transfer of wealth, it is not the sole reason for the formation of a captive finance company.

Because of the small sample size, we also present the median values. Over the seven-month test period, we find that the median cumulative average residual is 14.4 percent, the median cumulative average difference is −1.2 percent, the median change in firm value is 10.1 percent, and the maximum wealth transfer is 0.3 percent. We also see that during the test period median bondholder losses were less than $630,000, median shareholder gains were almost $40 million, and median firm value increased by over $35 million. It is evident that, while bondholders do suffer some loss in wealth, for most firms value increases significantly when forming captive finance companies. Clearly, there is more occurring than a mere restructuring of financial claims in order to expropriate bondholder wealth.

III. Conclusions

In this paper, we re-examined the Kim, McConnell, and Greenwood study of captive finance subsidiaries in which they found strong evidence of deliberate wealth expropriation by shareholders. On the contrary, as long as firms are concerned with reputation, shareholders may find it costly to engage in deliberate wealth expropriation. Rather, financial claims may be restructured to take advantage of positively valued investment opportunities.

Our empirical evidence is inconsistent with the wealth expropriation hypothesis alone and indirectly provides support for the role of reputation in providing at least a partial solution to agency conflicts. When examining the formation of captive finance companies, we found that stockholders gain far more than bondholders lose and firm value increases significantly. Thus, wealth transfers cannot explain the entire gain to shareholders and cannot account for the formation of captive finance subsidiaries. Our evidence is consistent with the belief that concerns for reputation override any immediate gains from wealth expropriation.

Appendix

Coupon Interest Rate, Maturity and Bond Rating of Nineteen Publicly Traded Bonds Issued by Fourteen Firms Forming Captive Finance Subsidiaries and the Nineteen Bonds with Which They Are Matched

The nineteen bonds were issued by fourteen firms. Each firm is treated as one event by averaging multiple bond returns over firms, using market value weighting. The fourteen firms differ from the Kim, McConnell, and Greenwood bond sample of fourteen firms by including one new firm, Sperry Corp., and eliminating one firm, Gamble-Skogmo. A complete list of possible matches used by Kim, McConnell, and Greenwood is available from the author.

Sample Bonds				Matched Bonds			
Bond	Coupon Interest Rate (%)	Maturity	Rating	Bond	Coupon Interest Rate (%)	Maturity	Rating
Allied Stores	4.750	76	A	Acme Steel	4.875	77	A
Associated Dry Goods	4.750	80	A	Melville Shoe	4.875	80	A
Boeing Company[a]	5.000	78	Baa	National Tea Company	5.000	77	Baa
J. I. Case[a]	3.500	78	Baa	Sylvania	4.000	78	Baa
Caterpillar Tractor	2.000	56	Aa	Allis-Chalmers	2.000	56	A
Deere & Company	2.750	65	Aa	B. F. Goodrich	2.750	65	Aa
Deere & Company	3.125	77	Aa	Crane Company	3.125	77	Aa
W. T. Grant	4.750	87	A	National Biscuit Co.	4.750	87	A
Gulf Oil	5.350	91	Aaa	Shell Oil Company	5.300	92	Aaa
Gulf Oil	6.625	93	Aaa	Philadelphia Electric Co.	6.500	93	Aaa
Honeywell	4.250	88	A	Ashland Oil & Refining	4.350	88	A
Honeywell	4.500	86	A	Armco Steel Corp.	4.500	86	A
R. H. Macy	2.875	72	A	Firestone Tire & Rubber[b]	2.625	72	A
May Dept. Stores	3.250	78	A	Diamond Alkali	3.375	78	A
May Dept. Stores	3.250	80	A	Container Corp. of America	3.300	80	A
May Dept. Stores	2.625	72	A	Swift & Company	2.625	72	A
McDonnell Douglas	5.000	78	Baa	Maust Coal & Steel	4.250	77	Baa
Sperry Corp.	3.125	69	Baa	Imperial Oil, Ltd.	3.000	69	Baa
Westinghouse Electric	2.625	71	A	Firestone Tire & Rubber[b]	2.625	72	A

[a] Denotes the same match as KMG.

[b] The two test periods for Firestone Tire and Rubber do not overlap.

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