Management Buyouts: Boon or Bane?

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Abstract

In the present research a theoretical model of corporate divestitures is developed in which the wealth effects for divesting firm's shareholders is examined for the case in which the acquirer is an incumbent management team and for the case when the acquirer is an outside buyer. Using an asymmetric information framework in which management enjoys specific utility from continued control of the operations, the model demonstrates that shareholders of the divesting firm should earn higher expected returns when the unit is sold to an incumbent management team rather than to an outside buyer. The subsequent empirical analysis reveals that this is in fact the case. While the announcement day AR's are statistically significant and positive for divestitures to both incumbent management teams and outside buyers, they are significantly larger when the buyer of the unit is the former. A similar and stronger results are observed for the 6 day period (t=-5 through 0) CAR's. The policy implications of the theoretical model and empirical results reported above is that the divesting firm's shareholders are not harmed, but receive higher returns when the units are purchased by an incumbent management team. Moreover, legislation to prevent or deter MBO's is not in the best interest of shareholders.

I. Introduction

Management buyouts (MBO's) have recently attracted considerable attention and criticism. Corporate restructuring frequently requires divestiture of operations perceived to be unrelated to the future direction of the firm. These assets can be sold to bidders from the outside market or to a group consisting of an incumbent management. The management groups engaging in such transactions are often accused of robbing stockholders of their legitimate interest in order to make large personal gains. A common argument presented against management buyouts is that the incumbent managers enjoy an unfair advantage over the public stockholders by virtue of their superior insider information about the value of the assets being transferred [DeAngelo, DeAngelo and Rice (1984)]. Recent research results indicate, however, that selling stock holder returns are similar for sales to managers and other outsiders [Trifts, Sicherman, Roenfeldt, and de Cossio (1990) and Hite and Vetsuypens(1989)]. Legislative initiative restricting such transactions is frequently threatened by some influential groups. Nevertheless, a significant number of these transactions gain stockholder approval.

The primary objective of the proposed research is to develop a theoretical asset pricing model to compare the sale of corporate units to insiders with those to outside investors. The model incorporates asymmetric information and differential expectations between insider management and outsider investing groups. The excess returns for sales to both types of buyers are then examined and empirically tested for the implications of this model. If markets are informationaly efficient and assets are priced completely, the returns to divesting stockholders from selloffs to incumbent managers are not expected to differ from those to an outside group of investors. If the criticism regarding the inequity of management buyouts to the stockholders holds, divesting stockholders' realized returns in sales to incumbent managers should be lower than for sales to outside investors. The results of this analysis have both theoretical and policy implications.

II. Background

Finance theory indicates that in efficient markets all pertinent information is reflected in market prices. If such is the case, a mere transfer of ownership should not result in any change in the market value of the firm. A number of researchers, however, have documented the existence of excess returns realized by the divesting stockholders in the case of divestiture announcements[1]. To explain the existence of such gains two major groups of hypotheses have been advanced, namely, the wealth transfer and the wealth

creation groups. Each group is reviewed below.

The basic contention of the wealth transfer hypotheses that control transfer transactions merely create opportunities for one group of investors to profit at the expense of others. Thus, no desirable economic purpose is served by these transactions and restrictions should be placed on them. The wealth transfer rationale has been proposed in the following situations.

1. Wealth transfers between bondholders and stockholders: By divesting unrelated assets, stockholders increase the variance of the firm's cash flows. Since the distribution of the stockholders' returns is truncated in the positive half, increased riskiness of the cashflows contributes to an increase in value for the stockholders and a reduction for the bondholders. [Galai and Masulis (1976)].

2. Wealth transfers between the acquiring party and the divesting firm's stockholders: In competitive markets selling firms own unique resources that earn positive economic rents when they are combined with the assets of the acquiring firm. Through the bidding process, the selling firm's stockholders realize the full value of these assets and fully exhaust all possible gains for the acquiring entity [Asquith (1983)].

3. Wealth transfers from tax payers to selling firm stockholders: Control transfers from states of low utilization of tax benefits in the possession of the selling shareholders to high utilization in the hands of the buying firm with greater unsheltered taxable income can result in tax induced wealth effects. The opportunities afforded for writing up depreciable assets to generate larger tax benefits allow for the additional tax benefits to be realized by the acquiring firm. Thus, the present value of the incremental tax savings is received by the selling firm stockholders [Schleifer and Vishny (1986)].

4. Wealth transfers from uninformed stockholders to management utilizing their superior information to price the assets unfairly: It has also been suggested that management may disseminate incorrect information to depress the price of the stock so that they can purchase it at a low price [Brudney(1983), Lowenstein(1985)]. Comparisons of tender offers and friendly mergers made in the past show that the returns to stockholders as a result of hostile takeovers are significantly higher than those earned in friendly mergers [Jensen and Ruback (1983)]. One of the hypotheses advanced to explain this differential is that the incumbent management secures additional benefits at the expense of the selling firm stockholders in the personal negotiation process of mergers. This seems to suggest that substantial agency costs may be involved when managers negotiate on behalf of the stockholders. The management retention implicit in charter amendments designed to deter hostile takeovers has been cited to suggest that these amendments result in a reduction of stockholder value [DeAngelo et.al. (1984)].

On the other hand the wealth creation hypotheses support the existence of gains from corporate control transfers. The proponents of the wealth creation hypotheses suggest that real economic gain are made in the course of such transactions and therefore such transactions need not be restricted. The Wealth Creation Hypotheses suggest that an increase in value may occur under the conditions given below.

1. Concentration in ownership: DeAngelo, et. al. suggest that concentration of ownership eliminates or reduces stockholder servicing costs (e.g. costs of listing, registration, mailing information and holding public stockholder meetings), thus leading to an increase in the valuation of the firm.

2. Elimination of agency costs: Jensen and Meckling demonstrate that transferring ownership to managers reduces perquisite consumption and shirking, thus leading to increased productivity and closer identification with the firm. These improvements are reflected in increased profits for the firm; and,the expected increase in profits is reflected in higher stock prices for the selling stockholders.

3. Transfer of control to operating management: By transferring control of the firm to management, the costs of negotiating, monitoring, and/or enforcing contracts designed to ensure that the managers perform in the best interests of the stock holders are reduced or eliminated [Schleifer and Vishny (1986), Stiglitz (1985), Jensen (1986)].

III. Theoretical development of the asymmetric information, differential expectations model.

A. Theoretical Background

To examine the wealth effects of MBO's in corporate divestitures, a single time period equilibrium model of asset prices incorporating asymmetric information and differential expectations is developed in this section. Analysis of corporate control transactions, which quite plausibly involve the existence of asymmetric information between the transacting parties, in a framework of homogeneous expectations and universal availability of information leaves a number of unresolved issues. Mean-variance models (CAPM) and Arrow-Debreu contingent claims framework are primary examples of such valuation techniques. Several researchers have sought to accommo-

date heterogeneous probability beliefs in adaptations of the basic mean-variance (CAPM) model while others have developed similar equilibrium asset valuation models in the Arrow-Debreu context and expected utility framework [Lintner (1969), Williams (1977), Miller (1977), and Jarrow (1980), Rubenstein (1976) and Breeden and Litzenberger (1978)]. Varian [1985] introduces the notion of different probability beliefs in Arrow-Debreu context and generalizes the prior findings of Rubenstein [1976] and Breeden and Litzenberger [1978]. Furthermore, Meyer [1987] recently bridged the Expected Utility and standard deviation models by demonstrating that under very simple and non-restrictive conditions the two models are equivalent to each other and yield consistent rankings for investment alternatives.

The notion of positive utility enjoyed by the managers by virtue of their association with the firm has been introduced in the finance literature and used to explain the managers' investment decision making process. The sub-optimal investment decisions taken by management to reduce the variance of a firm's cash flows are seen as an attempt to insure the continued viability of the firm as a means of safeguarding management's utility [Myers and Majluf(1982)]. If such utility can be identified and evaluated, it should be possible to test if this firm specific asset acquires any value in the case of a control transfer to outsiders or merely expires worthless. If such expiration is likely to occur, it is in the enlightened self interest of management to share a part of the value of this utility with the selling stockholders over and above the cash flow valuation placed on the unit being divested. Thus, through the purchase, managers are able to retain at least a part of this utility for themselves through continued control of the firm.

The following theoretical analysis proposes that all suboptimal bids are topped by bids received from competing buyers. A Pareto-optimal equilibrium is reached through the negotiation process between selling stock holders, incumbent management, and outsider bidders which cannot be improved by any of the participants. Asquith [1983] has shown that in acquisitions the successful bid completely exhausts the possible gains for the second best buyer. It is important to realize that it is not necessary that multiple bids must be made for the sellers to realize maximum value. The floor price of the successful outsider bid is set by the managers' valuation of the future cash flows of the operation plus the utility receivable from continued control of the operation. Conversely the floor price for the successful management bid is set by the sum of potential synergy for the highest outsider bidder and their valuation of the future cash flows from the operation. The presence of a management buyout alternative may,thus provide an opportunity for the stockholders to realize higher returns from the divestiture than may be otherwise possible.

B. Model Development

The contribution of the proposed analysis lies in explicitly disaggregating information and synergy aspects of the valuation process. Specifically, it is proposed that

1. the difference in information availability or the costs of generating equivalent information between the insider managers and the outsider intending buyers may result in differences in perceived valuation by the two groups.

2. The outsider bidders evaluate potential synergy of the acquisition with their existing portfolio while the incumbent mangers evaluate the synergy between their existing endowment portfolio and the utility derived from continued control of the operation.

Thus, there is a three party valuation equilibrium. The divesting firm's stockholders maximize their wealth from the divestiture by accepting the highest bid whether it be from management or outsiders. Management tries to maximize the value of their utility by either negotiating with the outside bidders or making a competing bid for the firm. Moreover, outside investors either negotiate with the incumbent management or directly with the selling firm's shareholders to make the best deal they can.

Given universal availability of full information, uniform probability beliefs regarding future returns, and absence of any synergies, the problem reduces to a triviality. The valuation for the unit is the same universally and the stockholders should be indifferent between selling to the incumbent management or outsiders.

In the presence of a difference in information between the insider management and the outside bidders, it is possible that the costs of generating required information and subjective probabilities for the returns distributions held by the highest bidding outsider and the insider management are different leading to a difference in valuation placed on the unit. Additionally, Synergies may be present between the operations of the outsider acquirers and the unit being acquired. Similarly synergy may be present between the endowment portfolio of the incumbent management and a positive utility derived from control of the operation.

The present model assumes that there is a set of a Arrow-Debreu (A-D) securities that pays off one unit of consumption if and only if state s occurs. Fur-

ther, the following assumptions are also made:

1. There are S states of nature indexed by s = 1.....S.
2. P_s denotes the price of the A-D security that pays off in state s.
3. There is a given endowment of consumption units in state s by consumer i, denoted C_{is}.
4. There are n outsider investors in the market indexed by i = 1.....n, and one management group indexed by i = m.
5. Each investor has a Von Neumann-Morganstern utility function for consumption in state s denoted by U_i (C_{is}).
6. Investor i's subjective probability for state s to occur be denoted by π_{is}
7. There is an implied short sale constraint on the operation being divested as there is no independent trading in this operation aside from that of the parent firm.

Given these assumptions, each consumer then chooses a portfolio of A-D securities maximizing expected utility subject to the consumption constraint which limits actual total consumption to the given total consumption endowment. This constrained maximization is represented as follows:

$$E_i(U) = \sum_{s=1}^{S} \pi_{is}\, U_i\,(C_{is}) \tag{1}$$

subject to

$$\sum_{s=1}^{S} P_s C_{is} = \sum_{s=1}^{S} P_s \overline{C}_{is} \tag{1a}$$

where E_i is the expectation with respect to investor i's subjective probability distribution. The left hand side of equation (1a) represents actual consumption while the right hand side represents the value of the endowed portfolio.

The resulting first order condition is given as follows:

$$\pi_{is} U_i'(C_{is}) = \lambda_i P_s \tag{2}$$

which can be modified to the following expression:

$$P_s/\pi_{is} = U_i'(C_{is})/\lambda_i \tag{3}$$

The valuation placed by consumer i on an asset with payoff X_s in state s is

$$V_{ix} = E_i\Big(\sum_{s=1}^{S} P_s X_s\Big) \tag{4}$$

differences in valuation may be generated by differences in expected probabilities, payoffs, or both.

Multiplying the right hand side of equation (4) by π_{is}/π_{is} the value of the asset to consumer i can be stated as follows:

$$V_{ix} = E_i\Big[\sum_{s=1}^{S} (P_s/\pi_{is})\, X_s \pi_{is}\Big] = E_i[(P/\pi_i)X] \tag{5}$$

Using the covariance identity equation (5) is restated in equation (6) below:

$$V_{ix} = Cov_i(P/\pi_{is}, X) + E_i(X)\,E_i(P/\pi_i) \tag{6}$$

Summing the expectations operator across all states of nature

$$E_i\,(P/\pi_i) = \sum_{s=1}^{S} (P_s/\pi_{is})\,\pi_{is} = \sum_{s=1}^{S} P_s = 1/R_f \tag{7}$$

where R_f equals the risk-free rate of interest. Using equation (2) and equation (7), the value of the asset to the i^{th} consumer in equation (6) can be written as follows:

$$V_{ix} = Cov_i(U_i'(C_{is}), X_s)/\lambda_i + E_i(X)/R_f \tag{8}$$

If i = n denotes the outside investor submitting the highest bid, then:

$$V_{nx} = COV_n(U_n'(C_{ns}, X_s)/\lambda_n + E_n(X)/R_f \tag{9}$$

The valuation placed by management is given by:

$$V_{mx} = Cov_m(U_m'(C_{ms}), X_s)/\lambda_m + E_m(X)/R_f \tag{10}$$

$U_m(C_{ms})$ includes the utility derived from the continued control of the operation by the management in the firm. If γix are defined as follows:

$$\gamma_{nx} = Cov_n(U_n'(C_{ns}), X_s)/\gamma_n$$

and,

$$\gamma_{mx} = Cov_m(U_m'(C_{ms}), X_s)/\gamma_m$$

then the value of the unit to management and the outside investors is given in equations (11) and (12), respectively, as follows:

$$V_{mx} = \gamma_m + E_m(X)/R_F \tag{11}$$

$$V_{nx} = \gamma_n + E_n(X)/R_F \tag{12}$$

γ_m represents the synergy (incremental utility) between the managers' existing endowment portfolio and

the benefits from continued control of the operation. γ_n represents the synergy between outsider acquirer's existing portfolio and the new acquisition. $E_m(X)/R_f$ represents the managers' valuation of the future cash flows of the operation and $E_n(X)/R_f$ denotes the outsider buyers' valuation of the future cash flows of the operation. The valuations and the offers made by the managers and by the outsiders are determined by the total valuation for the operation's cash flows and synergy effects.

In the absence of information asymmetry but presence of synergies

$$E_m(X)/R_f = E_n(X)/R_f$$

$$V_m >/< V_n \text{ as } \gamma_m >/< \gamma_n$$

The valuation of future cash flows is uniform across bidders and the comparative valuation is determined by the synergy between the outsider acquirer's operations and the incremental utility derived by the managers from continued control of the operation. As information asymmetry decreases, the uncertainty regarding future cash flows of the operation decreases along with the costs of generating and interpreting information, resulting in a higher valuation for the operation. This suggests that selling firm stockholders should realize higher excess returns when buyers are more informed about the operation, such as buyers in the same industry.

Under the conditions of no synergy, perfect information, and uniform expectations;

$$\gamma_m = \gamma_n = 0 \text{ and } E_m(X)/R_f = E_n(X)/R_f$$

$V_m = V_n$, the valuation is uniform across bidders and the sellers are indifferent between selling to managers or outsiders.

IV. Empirical Analysis and Methodology:

The preceding theoretical model suggests that gains in shareholder wealth resulting from a corporate selloff should be ranked from highest to lowest according as the purchasers are incumbent managers, purchasers in the same industry and outside buyers in other industries. Standard excess return methodology is applied to samples of selloffs to test this hypothesis. The empirical analysis suggested by the results of this theoretical model is expected to yield scientific evidence refuting or confirming the accusations being levelled against the managements of the firms involved in such buyouts. Additionally, the results should also establish the adequacy of the existing legislation or indicate the need for further legislative action.

A. Event Date Identification

The announcement/effective date of the transaction is taken from *Mergers and Acquisitions(M&A)* database provided by the Automatic Data Processing company[2]. Announcement dates from these two sources are confirmed initially using the *Wall Street Journal Index (WJI)* and the *National Newspaper Index* which currently includes the *N Y Times*, the *L A Times*, and the *Washington Post*. All news items related to individual firms appearing during the year prior to the announcement date are studied to ascertain whether any prior mention of the selloff has been made. In the event of such prior mention, the date of its occurrence becomes the event date. In case the announcement date falls on a non-trading day (e.g. during the weekend when the stock market is closed), the first trading day following this date is taken to be the event date. Where no public announcement is made, the relevant information becomes public knowledge as soon as the SEC documents are filed and thus become public information. There are statutory requirements that these documents be filed promptly on completion of the transaction. In cases where a public announcement is made subsequent to the date the transaction is effective, the event date is defined as the date the transaction becomes effective.

To ensure that only the effect of the selloff announcement is being measured, any announcement which contains potentially contaminating information (e.g. earnings/dividends announcements, changes in investment policy) is excluded from the sample. If any such extraneous announcement occurs during the 40 day period (-20 to +20), the sell off event is dropped from the sample.

B. Sample Description

The sample being analyzed contains a subset of all sell offs completed during the period January 1, 1981 and December 31, 1985. To be included in the final sample, the transactions must also meet the following criteria.

1. The selloff must be voluntary and not made to comply with regulatory directives. This condition eliminates 19 sell offs from the sample.

2. The selling firm must be a preexisting publicly traded entity listed on the CRSP tapes for a period of at least one year before the selloff announcement date. This condition is necessary to allow use of the excess returns data for the firm. This qualification eliminates 73 selloffs from the sample.

3. The selloff must pertain to a single identifiable unit or business segment of the selling firm. Grouped

divestiture announcements involving combinations of businesses or units are excluded from the sample. Such announcements involve multiple price shocks and are likely to affect significance of the results. This condition eliminates 46 selloffs, the two major firms involved in these cases are Beatrice Corporation with 6 announcements involving 17 businesses and Gulf Corporation with 4 announcements involving 15 units. Both of these firms were undergoing major restructuring during this period.

4. The selloff announcement should not contain any other information with potential valuation impact, e.g. dividends, annual results, changes in investment policy etc. to avoid any contamination. This condition eliminates 19 selloffs from the sample.

5. The selling firm should not be involved in another corporate control transfer (Merger, acquisition or divestiture) within 40 days (-20 to +20) of the selloff event being analyzed so that the effect of the selloff announcement can be isolated and studied. This condition eliminates 11 selloffs from the sample.

6. The selloff should not be a part of liquidation or bankruptcy proceedings. This condition eliminates 6 sell offs from the sample.This condition eliminates 36 selloffs.

The above conditions reduce the sample to 368 selloffs. In 18 of these transactions, however, the buyer is not revealed in press releases. Thus, the final sample contains 350 selloffs which is divided into subsamples of 37 divested units which are sold to incumbent management, referred to as MBO's, and 313 units which are purchased by outside buyers. Further, 37 of the outside buyers are in the same industry as the parent firm as evidenced by the same three digit SIC code.

C. Excess Return Estimation

Excess returns are estimated for each security from the following model:

$$ar_{it} = r_{it} - ER_{it} \quad (13)$$

where,

ar_{it} = the excess return for security i in period t
r_{it} = the observed return for security i in period t
ER_{it} = the expected return for security i in period t

The expected return generating process is assumed to be the following:

$$ER_{it} = a_i + b_i(rm_t) \quad (14)$$

where a_i and b_i are estimated regression coefficients obtained by regressing security returns on security i against the return on a market portfolio. Excess returns are obtained directly from the CRSP Excess Return File which uses the Scholes and Williams method [1977] of adjusting for nonsynchronous trading[3].

For each portfolio of securities, the average excess return, denoted AR_t is estimated for each day over the period of interest surrounding the event date (t=0). A standard t-test is used to test the statistical significance of the AR_t's:

$$T_{t\text{-}AR}t/\text{standard deviation of } AR_t$$

The effect on shareholder wealth over a given time period beginning at K and extending through L is examined using cumulative average residual (CAR). The CAR over the period K to L is defined as follows:

$$CAR_{K,L} = \sum_{t=K}^{L} AR_t \quad (15)$$

To test for the significance of the CAR, the following t-test is used[4]

$$t(CAR) = CAR_t/[T(Var(AR_t))]^{1/2} \quad (16)$$

IV. EMPIRICAL RESULTS

Excess return estimates for the aggregate sample and the segregated sub samples for MBOs, same SIC outsider buyers , and other Outside Buyer samples and t-tests for these excess returns are presented in table 1. The aggregate sample event day excess returns received by selling stockholders are 1.1145% ($p>|t| = 0.0001$), with the sub groups showing expected ranking for MBOs at 2.0836% ($p>|t| = 0.0008$), Same SIC code outsider buyers at 1.1104% ($p>|t| = 0.0566$) and other outsider buyers at 0.9851% ($p>|t| = 0.0001$). It is interesting to observe that while the leading period (-5,-1) CARs, as expected, are small and insignificant 0.26% ($p>|t|=0.2696$) for the aggregate selloff sample, they are large, positive and significant at 2.5058% ($p>|t| = 0.0032$) for the MBO subsample. This suggests that the extensive regulations regarding independent outside supervision and arm's length transactions governing management bids may be resulting in dispersal of information regarding such transactions before these transactions are consummated.

Although positive AR's and CAR's are identified for divesting shareholders in the sample for MBO's as well as that for outside buyers, the primary focus of the present research is the relative magnitudes of the

excess returns for the three subsamples. Pairwise comparisons are made using Wilcoxon 2-sample test to test for significant differences in excess returns for the three subsamples. The results are presented for comparison between MBO, same SIC outsiders, and other outsiders are presented in panel A of Table 2. We observe that event day excess returns from MBOs are significantly greater than selloffs to outsider buyers in same SIC ($p>|z| = 0.0614$), and other outsider buyers ($p>|z| = 0.0233$). In view of the previously observed significant excess returns for MBOs, when we consider the entire five day leading period and the event date combined, these differences become even more pronounced. Similar comparisons between two outsider subsamples are presented in panel B of Table 2. There does not appear to be a significant difference between the excess returns for selloffs to outsider buyers in same SIC and other outsider buyers. This result seems to support informational efficiency of the market as between all outsider buyers and is not surprising[5].

Thus, the results of the above analysis support the theoretical hypothesis that the wealth of the divesting firm's shareholders in enhanced when management is the highest bidder for divested units.

TABLE 1
Excess Returns (% / p>|t|)

	N	ARO	CAR(-5, -1)	CAR(-5, 0)
All	350	1.11453	0.26487	1.37940
		(0.0001)	(0.2696)	(0.0001)
MBO	37	2.08357	2.50586	4.58943
		(0.0008)	(0.0032)	(0.0003)
Same SIC	37	1.11049	0.55268	1.66316
		(0.0566)	(0.4635)	(0.0508)
Other	276	0.98517	-0.07413	0.91103
		(0.0001)	(0.7774)	(0.0025)

TABLE 2
Pairwise Comparison Using
Wilcoxon 2-Sample Test (z/p>|z|)

Panel A

	MBO	
	ARO	CAR (-5,0)
Same SIC	1.87035	2.10817
	(0.0614)	(0.0384)
Other	2.26924	2.62440
	(0.0233)	(0.0003)

Panel B

	Same SIC	
	ARO	CAR (-5,0)
Other	0.35790	1.02051
	(0.7204)	(0.3083)

Summary

In the present research a theoretical model of corporate divestitures is developed in which the wealth effects for divesting firm's shareholders is examined for the case in which the acquirer is an incumbent management team and for the case when the acquirer is an outside buyer. Using an asymmetric information framework in which management enjoys specific utility from continued control of the operations, the model demonstrates that shareholders of the divesting firm should earn higher expected returns when the unit is sold to an incumbent management team rather than to an outside buyer. The subsequent empirical analysis reveals that this is in fact the case. While the announcement day AR's are statistically significant and positive for divestitures to both incumbent management teams and outside buyers, they are significantly larger when the buyer of the unit is the former. A similar and stronger results are observed for the 6 day period (t=-5 through 0) CAR's.

The policy implications of the theoretical model and empirical results reported above is that the divesting firm's shareholders are not harmed, but receive higher returns when the units are purchased by an incumbent management team. Moreover, legislation to prevent or deter MBO's is not in the best interest of shareholders.

Footnotes

1. The gains to shareholders of the divesting firm at the announcement date range from 0.17% to 2.33%. For a thorough discussion of these results, see Bourdeaux [1975], Alexander, Benson, and Kampmeyer [1984], Rosenfeld [1984], Jain [1985], Linn and Rozeff [1985], Klein [1986], and Hite, Oers, and Rogers [1987].
2. The *Merger Acquisition* database contains a listing of all corporate control transactions (i.e. mergers, acquisitions, divestitures and liquidations) valued at $ 1 million or above.
3. Specifically, arit is estimated by grouping annually all securities listed on the NYSE and the AMEX into ten equal control portfolios ranked according to their Scholes and Williams [1977] beta estimates. Each security is therefore assigned to one of ten portfolios. The observed return to the control portfolio to which security i is assigned is then used as the estimate of ERit. The excess return, arit,is then calculated according to (14).
4. This t-test assumes that the excess returns are uncorrelated over time. the use of the Scholes-Williams method [1977] of adjusting for nonsynchronous trading should result in excess returns which approximately satisfy this assumption.
5. Sicherman and Pettway [1987], in contrast find

that selloffs to firms in same SIC code result in higher returns to selling firms.

*****References*****

1. Alexander, Benson, and Kampmeyer, "Investigating the Valuation Effects of Announcements of Voluntary Corporate Sell-offs," *Journal of Finance* (June 1984) pp. 503-518.
2. Asquith, P., "Merger Bids, Uncertainty and Stockholder Returns," *Journal of Financial Economics*, (April 1983) pp. 51-83.
3. Bourdeaux, K., "Divestiture and Share Price," *Journal of Financial and Quantitative Analysis* (September 1975) pp. 619-626.
4. Bradley, M., A. Desai and H. Kim, "The Rationale Behind Interfirm Tender Offers: Information on Synergy," *Journal of Financial Economics* (April 1983) pp. 183-206.
5. Breeden, D. and R. Litzenberger, "Prices of State-Contingent Claims Implicit in Option Prices," *Journal of Business* (October 1978) pp. 621-51.
6. Brudney, V., "Equal Treatment of Shareholders in Corporate Distributions and Reorganizations," *California Law Review* (July 1983) pp. 1072-92.
7. DeAngelo, DeAngelo, and Rice, "Going Private; Minority Freezeouts and Stockholder Wealth," *Journal of Law and Economics*, (October 1984) pp. 367-401.
8. Galai, D. and R. Masulis, "The Option Pricing Model and the Risk Factor of Stock," *Journal of Financial Economics* 3 (1976) pp. 53-81.
9. Hite, G., J. Owers, and R. Rogers, "The Market for Interfirm Asset Sales," *Journal of Financial Economics*, 18 (1987) pp. 229-252.
10. Hite, G., Vetsuypens, M.R., "Management Buyouts of divisions and Shareholder Wealth", *Journal of Finance*, (September 1989) pp. 953-970.
11. Jain, P., "The Effect of Voluntary Sell off Announcements on Shareholder Wealth, " *Journal of Finance* (March 1985) pp. 209-224.
12. Jarrow, R., "Heterogeneous Expectations, Restrictions on Short Sales and Equilibrium Asset Prices," *Journal of Finance* (December 1980) pp. 1105-113.
13. Jensen, M., "Agency Costs of Free Cash Flow, Corporate Finance and Takeovers," *American Economic Review* (May 1986) pp. 326-29.
14. _____ and W. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics* (October 1976) pp. 305-360.
15. Jensen, M. and R. Ruback, "The Market for Corporate Control: The Scientific Evidence," *Journal of Financial Economics* (April 1983) pp. 5-50.
16. Klein, A., "The Timing and Substance of Divestiture Announcements: Individual, Simultaneous, and Cumulative Effects," *Journal of Finance* (July 1986) pp. 685-696.
17. Linn, S. and M. Rozeff, "The Effects of Voluntary Divestitures on Stock Prices: Sale of Subsidiaries," Working Paper, University of Iowa, 1985.
18. Lintner, "Aggregation of Investors Diverse Judgements and Preferences in Purely Competitive Markets," *Journal of Financial and Quantitative Analysis*, (December 1969) pp. 347-400.
19. Lowenstein, L., "Management Buyouts," *Columbia Law Review* (May 1985) pp. 730-784.
20. Meyer, "Two Moment Decision Models and Expected Utility Maximization," *American Economic Review* (June 1987) pp. 421-430.
21. Miller, E.,"Risk, Uncertainty and Divergence of Opinion," *Journal of Finance* (September 1977) pp. 1151-1168.
22. Myers, S., and N. Majluf, "Stock Issues and Investment Policy Where Firms Have Information That Investors Do Not Have," *Journal of Financial Economics*, (June 1984) pp. 187-222.
23. Rosenfeld, J., "Additional Evidence on the Relation Between Divestiture Announcement and Shareholder Wealth," *Journal of Finance* (December 1984) pp. 1437-1448.
24. Rubenstein, M., "The Valuation of Uncertain Income Streams and the Pricing of Options," *Bell Journal of Economics* (Autumn 1976) pp.407-25.
25. Shleifer, A. and R. Vishny, "Large Shareholders and Corporate Control," *Journal of Political Economy* (June 1986) pp.461-488.
26. _____, "Management Buyouts as a Response to Market Pressure," CRSP Working Paper 199 (October 1986).
27. Scholes, M. and J. Williams,"Estimating Betas From Nonsynchronous Data," *Journal of Financial Economics* (December 1977) pp. 309-27.
28. Stiglitz, J., "Credit Markets and the Control of Capital," *Journal of Money, Credit and Banking* (May 1985) pp.133-152.
29. Trifts, J.W., Sicherman, N.W., Roenfeldt, R.L., de Cossio, Fransisco "Divestiture to Unit Managers and Shareholder Wealth" *Journal of Financial Research* (Summer 1990) pp. 167-172.
30. Varian, H., "Divergence of Opinion in Complete Markets: A Note," *Journal of Finance* (March 1985) pp. 309-318.
31. Williams, "Capital Asset Prices with Heterogeneous Beliefs," *Journal of Financial Economics* (November 1977) pp. 219-239.