Asset Sales by Manufacturing Firms in India

Vikash Gautam*

Abstract

Asset sales as a response to productivity shock or inefficient diversification is seen as management's response to improve focus and efficiency. Asset sales are also used by managers as a strategy to generate cash in case of a financial shock. In this paper we study 325 large scale asset sale transactions by Indian manufacturing firms in the period 1996 to 2008. We find that the likelihood of asset sales increases with the firm's low capacity of debt utilization and decreases with size, profitability, operating performance and solvency. We notice that the only difference the episodes of asset sales make is some reduction in leverage. These results suggest asset sales by Indian manufacturing firms are mainly guided by disciplinary forces. We contrast with the existing episodes of asset sales in developed countries as the performance of firms there, after they sell assets, improves in profitability, operating performance and solvency, besides a reduction in leverage.

Keywords: *Asset sales, Low capacity of debt utilization, Size, Profitability, Operating performance, Solvency, Leverage*

*The author is a research scholar at Indira Gandhi Institute of Development Research, Mumbai, India (Email: vikash@igidr.ac.in). The author gratefully acknowledges helpful comments from Rajendra Vaidya and S. Chandrasekhar.

1. INTRODUCTION

Firms can respond to an unfavourable shock by undertaking some form of financial and/or operational restructuring. This paper focuses on asset sales as one such strategy that can help firms to overcome both, financial and operational problems. Asset sales, potentially, are an important source of finance for firms, especially for those which find difficulty in getting external funds as a consequence of asymmetric information in the capital market. Theories of asymmetric information postulate that firms face high cost of external finance because investors are unsure about firm's quality and therefore seek a 'lemons premium'[1]. The proceeds from asset sales could be used to retire debt, to repurchase equity, to pay a special dividend or to retain within the firm as another asset. However, it has an adverse effect on the potential capacity of the business. As a consequence, why firms choose to sell assets needs to be explained.

In this paper, we extend earlier research on asset sales by examining a sample of 325 asset sales in the period 1996 to 2008. Our study revolves around two primary issues: first, what factors are likely to motivate managers to undertake asset sales? And second, what is the performance of firms that sell assets both, before and after they sell assets? The first question is important as it can give insights about the anatomy of firms and the industry, in general, it belong to. For example, the role of factors such as – operating performance, profitability characteristics, leverage characteristics, solvency characteristics and shocks to industry can be analyzed for firms selling assets. The second question is important to find out whether asset sales influence operating characteristics and profitability of firms, in general, or not. Besides, studying occurrence of asset sales in a developing country such as India is even more important owing to the less developed nature of capital markets compared to developed capital markets of the US and Europe[2].

Our study of factors that are likely to motivate managers to undertake asset sales, suggest that the firms which are distressed, have low solvency, high leverage and firms which are affiliated to a group are more likely to sell assets. Likelihood of asset sales, however, decreases with size, operating performance and profitability of the firms. We also find that firms in an industry with negative operating income shock are more likely to sell assets. Our study of pre and post-asset sale performance of firms suggests the firms selling assets do not improve in profitability, operations and solvency. However, we find that there is some reduction in the leverage of firms once they sell assets.

The plan of the paper is as following- section two gives a survey of literature on asset sales; section three gives data description and provides the characteristics of firms selling assets against those not doing so; section four discusses the factors that are likely to influence asset sales decision by firms' managements; section five talks about the performance of firms selling assets pre and post asset sale vis-à-vis firms not selling assets; and lastly, section six concludes the paper.

---

1. Shareholders implicitly demand a premium to purchase the shares of relatively good firms to offset the losses that will arise from funding lemons. See Akerlof (1970), Fazzari, Hubbard, and Petersen (1988)
2. To the best knowledge of the author, there has been no other study on asset sales for a developing country

2. LITERATURE REVIEW ON ASSET SALES

The literature provides six different, though not mutually exclusive, perspectives on asset sales. These differing viewpoints have been invoked under different frameworks to explain asset sales by distressed firms as well as by healthy firms. The non-synergy theories are the first set of theories on asset sales. These theories argue that managers sell assets to make their firm less attractive to outside bidders in case of takeover threats [Bradley, Desai and Kim (1983) and Mulherin and Boone (2000)]. In such cases the target assets are likely to be undervalued in the capital market because investors may not be fully informed about future cash flows of the firm [Shleifer and Vishny (1992) and Jensen (1986)]. Second, the synergy theories of asset transaction, suggest that over time if there is an unfavourable change in the market pricing of assets, potential productivity gains can be realized by selling assets [Mulherin and Boone (2000)][3]. Third, the efficient deployment viewpoint propagates the idea that asset sale promotes efficiency by allocating assets to better uses [Hite, Owers and Rogers (1987) and Maksimovic and Phillips (2001)]. Fourth, a firm selling assets may also be motivated to do so due to its financial trouble [Lang, Poulsen and Stulz (1995)]. Asset sale, thus, can be an effective way for firms to generate cash. Fifth, increasing focus towards the core operations may also be a motivation for firms to sell assets [John and Ofek (1995)]. Sixth, the timings of asset sales are also used as a tool to manipulate earnings by managers. Earnings can be manipulated to reduce variance of observed earnings over time (earnings smoothing hypothesis); to manipulate firm's debt-equity ratio over time (debt-equity hypothesis) and also to maximize managers' own compensation over time (bonus-plan hypothesis) [Bartov (1993), Poitras, Wilkins and Kwan (2002), Herrmann, Inoue and Thomas (2003)].

Shleifer and Vishny (1992) provide a list of problems and costs associated with the use of sale proceeds by a selling firm. First, liquidity cost[4] could be an important aspect of it because some assets like used plants and machinery, might fetch very low prices relative to value in best use if they are sold rapidly. Second, some assets may be non-fungible in nature, limiting their prospective number of buyers. Third, if buyers are limited in number, then they would have more bargaining power in the asset transaction. Fourth, in some cases banks may be unwilling to lend to buy used assets. Fifth, some buyers may be precluded from bidding by regulation such as antitrust. And sixth, Creditors pressure may also cause some sellers to sell their assets[5].

Agency problem is another important issue in asset sales due to the separation of ownership and control of a firm. The problem stems from the fact that the sale generates liquid assets that can be retained or used to reduce debt burden of the firm or used to pay dividend to the shareholders [Jensen and Meckling (1976), Jensen (1986)]. For a healthy firm it is less likely that sale proceeds would be used to repay debt because cash flows for such firm is likely to be good enough to meet its fixed payment obligations, including interest payments. Sale proceeds, when used to repay debt, benefits creditors to the detriment of shareholders because it eliminates equity's option on any future increases in asset values for selling firm [Brown, James and Mooradian (1994)]. However, if managers prefer to retain and redirect proceeds toward projects

3. An example can be a technological change that alters the efficient size of the firm and, by implication, affects the firm's decision to engage in asset sales.
4. It is defined as the difference between the net present value of an asset's cash flows in best use and the price it fetches in a quick sale.
5. Also see Brown, James and Mooradian (1994)

that benefit themselves rather than shareholders, shareholder wealth can be negatively correlated with retention [Stulz (1990)]. This implies that the likelihood that asset sale proceeds are used to repay debt is positively related to the proportion of total debt outstanding. But, if proceeds improve financial flexibility for firms facing uncertain or constrained access to internal capital, then the decision to retain cash may also be efficient for shareholders [Bates (2005)].

Asset sales can be preferred over other means of raising capital since it is privately negotiated transaction and represents a less costly means of raising capital than public issues of debt and equity for the firms facing information problems [Hite, Owers and Rogers (1987)]. Hovakimian and Titman (2006) argue that cash obtained from voluntary asset sales are appropriate to examine the importance of financial constraints for firms' investment expenditures. This is because cash obtained from voluntary divestitures may increase the amount of funds under the managers' discretion and are not likely to be related to the firm's investment opportunities[6]. On the margin, cash flow from asset sale is less likely to be invested if a firm is in financial distress, but for non-distressed firms it is very likely to be invested.

In empirical studies on asset sales, Lang, Poulsen and Stulz (1995) study 93 voluntary asset sales by 77 U.S. firms taking place from 1984 to 1989. They show that firms selling assets tend to be poor performers and have high leverage. Kruse (2002) investigates 350 poorly performing U.S. firms from 1985 to 1992. He finds that the industry growth rate is not significantly related to the probability of asset sale by distressed firms suggesting that these firms are forced to sell assets regardless of the price received. However, he finds a positive relation between industry performance and probability of asset sale by healthier firms suggesting that these firms are at least getting their reservation price. He also finds that poorly performing firms that suffer from low debt capacity[7] are significantly more likely to sell assets. Maksimovic and Phillips (2001) in their study on U.S. manufacturing industries, using plant-level data from 1974 through 1992, show that for a firm, assets are significantly more likely to be sold by peripheral divisions than by main divisions because only divisions in which the firm has a core competency become main divisions. Denis and Shome (2005) in their study on the factors associated with large-scale asset downsizings by the U.S. firms from 1985 to 1994 find that the likelihood of downsizing decreases with operating performance and increases with financial distress, industry negative sales shock and the number of industrial segments. Hillier, McColgan and Samwel (2005) in a similar study on U.K. firms from 1993 to 2000 find that the likelihood of asset sales decreases with operating performance and increases with liquidity problems and the need to refocus on core activities.

3. DATA DESCRIPTION

3.1 The Sample

We use PROWESS, corporate data directory of Center for Monitoring of Indian Economy (CMIE), for carrying out our empirical exercise. It contains detailed information on over 20,000 Indian firms. It includes a normalized database of the financials covering around 1,500 data items

6. For a comprehensive discussion on finance constraint and corporate investment, see Hubbard (1998)
7. He defines a firm with low debt capacity if the firm has an industry-adjusted long-term debt ratio above zero and indushy-adjusted current ratio current ratio below zero.

and ratios per company. Our study of asset sale in India is based on major industries in the manufacturing sector. Our period of study is 1996 through 2008.

To construct the sample we first identify all those firms for which data is available for at least half of the sample period, i.e., 7 years. Then we select only those firms, which are predominantly engaged in manufacturing activity[8]. To ensure this we require firms to have at least 85% of their operating income coming from manufacturing sale. These filters give us 30913 firm-year observations from 2800 firms. Among these we look at those firms that have reduced the scope of assets in their balance sheet by at least 15% in a single accounting year. Our choice of a minimum 15% decrease in asset size as a definition stems from our desire to isolate the group of firms that make a discrete decision to accomplish a sizeable reduction in size, from those firms which do not do so. We further require these firms to have a 15% reduction in tangible operating fixed assets in the same year in which we observe a reduction in scope of assets[9]. Moreover, we exclude those firms for which either assets or plant and machinery or land and buildings fall by more than 90% because these cases are likely to be bankruptcy or exit cases[10]. Meeting all the requirements, we have 325 asset sale transactions by 282 firms. To give a comparative picture of the phenomenon we compare the asset sale numbers in this study with some of the studies in literature.

Asset Sale Numbers in Some of the Studies				
Sl. No.	**Studies**	**Sample Firm-years / Firms**	**Total Firm-years**	**Study Period**
1	Hite, Owers and Rogers (1987)	212 / -	-	1963-78
2	Brown, James and Mooradian (1994)	62 / 49	-	1979-88
3	Lang, Poulsen and Stulz (1995)	93 / 77	-	1984-89
4	Denis and Shome (2005)	130 / -	12855	1985-94
5	Hillier, McColgan and Samwel (2005)	413 / 253	-	1993-2000
6	This study	325 / 282	30913	1996-2008

1. Hite, Owers and Rogers (1987) consider transactions worth at least $ 10m. They avoid firms, which do not have daily stock returns data.
2. Brown, James and Mooradian (1994) consider only distressed firms.
3. Lang, Poulsen and Stulz (1995) consider transactions worth at least $ 1m.
4. Denis and Shome (2005) take only those firms, which have asset size more than $ 100m. They require firms to shed asset and employment both by at least 25%.
5. Hillier, McColgan and Samwel (2005) consider transactions worth at least £ 5m. This is only study in this list based on UK firms; remaining are based on US firms. This study is on India.

8. Though the firms are taken from manufacturing sector but we found that some of the firms have diversified away from manufacturing at some point of time.
9. It is important to note that a reduction of at least 15% in a firm's total asset position can also come, for example, by a reduction in its financial assets or intangible assets. This is why we require there to be at least a 15% fall in its tangible operating fixed assets.
10. We are not analyzing bankrupt firms. There is also a legal dimension to it which is beyond the scope of this work.

Few important observations that can be noted from the above table are:

1. Asset sale on a significant scale is highly uncommon; it is around 1% of total firm-years recorded.

2. Among the firms selling asset, asset sales more than once is very uncommon.

3. Number of times asset is sold each year, on average, is quite low. It is maximum for the study by Hillier, McColgan and Samwel (2005) at around 52 per year and minimum for the study by Brown, James and Mooradian (1994) at around 6 per year.

3.2 Characteristics of Indian Firms Selling Assets

We find that the average number of transaction per year is 25. Year 1996 records a minimum of 3 years 2005 and 2006 record a maximum of 36 transactions[11]. We notice a decreasing trend in the number of transactions as the firm's asset size increases. There is one asset sale transactions out of every 29.65 firms on average in first five percentile; the ratio worsens to one out of 96.3 on average in 45 to 50 percentile and it worsens even more to one out of 220.7 on average in the last five percentile. The reason for this pattern could be that firms having small asset size might be resource starved to meet their financing needs for operational requirements or/and debt payments etc. and such firms most likely would use proceeds from asset sale to meet such requirements.

Among all the firms selling asset 86.2% of them sell asset only once, 12.7% sell twice and only about 1% of them sell it more than twice. Based on ownership, private firms account for nearly 93% of asset sale transactions, foreign firms account for 5.5% of it and the remaining is by public firms. However, looking at it differently, we find that asset sale transactions take place for one out of every 92.2 private firm-years, one out of every 119.1 foreign firm-years and one out of every 162.6 public firm-years. So we can notice that by whatever way we look at the correspondence between asset sale transactions and ownership structure, the private firms are more frequent compared to other ownership structures.

Looking at the Frequency of Asset Sales by Group and Stand-alone firms, we find that nearly 45.2% asset sale transaction are carried out by group firms whereas remaining 54.8% transactions are carried out by stand-alone firms. However, after accounting for the proportion of each kind of firms in total firms, we find that asset sale transactions take place for one out of every 83.1 group firms-years and one out of every 105.1 stand-alone firm-years So we can notice that though the share of stand-alone firms exceeds that group firms in absolute terms; but once we account for their respective representation in the potential number of firms that could have undertaken asset sale, asset sale transactions by group firms are more common than stand-alone firms.

Looking at the Frequency of Asset Sales by health of firms selling assets, we find that nearly 20% asset sale transactions are carried out by distressed firms whereas remaining 80% transactions are carried out by non-distressed firms[12]. However, looking at it differently, we find

11. Tables for this sub-section can be presented on request.

12. We define a firm to be distressed in a year if its net worth in that year and the previous year is negative.

that asset sale transactions take place for one out of every 39.95 distressed firms-years and one out of every 108.90 non-distressed firm-years. So we can notice that though the share of non-distressed firms exceeds the distressed firm in absolute terms; but once we account for their respective representation in the potential number of firms that could have undertaken asset sale, asset sale transactions by distressed firms are more common than non-distressed firms.

4. DETERMINANTS OF ASSET SALES BY INDIAN FIRMS

4.1 The Model

We use logistic regression approach to determine the likely factors which could have motivated managers to undertake asset sales. The model is:

$$P(assetsale) = f(Xb) = \exp(Xb) / \exp(1 + Xb) \quad (1)$$

here, $P(assetsale)$ is the probability of asset sale, X is a vector of explanatory variables and b is a parameter vector. We use the method of maximum likelihood to estimate the following specification of the model given in equation (1):

$$ln\left(\frac{P(assetsale)}{1 - P(assetsale)}\right) = \beta_0 + \sum_{i=1}^{n} \beta_i (X_{-0}) + \epsilon \quad (2)$$

The left hand side is the log of odds in the favor of asset sale against non-asset sale. β_i's are coefficients in the regression. X is the vector of explanatory variables. The time subscript (*-0*) means the explanatory variables are taken just before firms' sell asset. ϵ represents the error term.

In the set of explanatory variables[13] we consider book value of assets to represent the size of the firms; sales-asset ratio to represent firms' operating performance; return on assets to represent profitability of the firms; debt-capital ratio to measure leverage of the firms; current ratio for representing solvency of the firms; industry sales shock to measures of industry performance to which a firm belongs to. We also consider three dummies- a distress dummy, a group firm dummy and a low debt capacity dummy.

4.2. Regression Results

We employ two specifications for the model in equation (2) with a binary dependent variable that takes the value one for firms selling assets in any year and zero for non-selling firm-years. In specification 1, we use all explanatory variables as discussed in the previous paragraph. Specification 2 is same as specification 1 except current ratio, return on assets, debt capital ratio and sales-asset ratio are all adjusted for industry median values.

Regression results are put in table 1. In specification 1, we find that log of assets is significant with negative coefficient. This implies that firms with smaller size are more likely to sell assets than firms with larger size. This is because small firms are more likely to be resource starved

13. For construction of variables see Appendix A1

to meet their financing needs for operational requirements and debt payments etc. Current ratio is significant with negative coefficient. This implies that firms with lower solvency are more likely to sell assets than firms that are more solvent because creditors' pressure may influence them to undertake asset sales. Return on assets is significant with negative coefficient. This implies that firms with lower profitability are more likely to sell assets than firms with higher profitability so as to supplement their financing needs. Sales-asset ratio is significant with negative coefficient. This implies that firms with lower operating performance are more likely to sell assets than firms with better operating performance. This can be for the same reason as above. Industry sales growth is significant with negative coefficient. This implies that firms are more likely to sell assets if they have operating problems in the product market. Low debt capacity dummy is significant with positive coefficient. This implies that firms, with lower solvency than their industry average and

Table 1: Logistic Regression Results

Variables	Specification 1 Coefficients	Specification 2 Coefficients
Constant	-3.456***	-4.194***
Log Assets	-0.134***	-0.147***
Current Ratio	-0.117***	
Current Ratio Adjusted		-0.124***
Return on Assets	-1.069**	
Return on Assets Adjusted		-0.989**
Debt Capital Ratio	-0.263	
Debt Capital Ratio Adjusted		-0.156
Sales Asset Ratio	-0.424***	
Sales Asset Ratio Adjusted		-0.442***
Industry Sales Growth	-1.163**	-1.227**
Low Debt Capacity Dummy	0.441***	0.414***
Group Firm Dummy	0.327***	0.334***
Distress Dummy	0.159	0.156
Log Likelihood	-1677.990	-1679.216
Number of Observations	27370	27370

The results of the logistic regressions use a binary dependent variable that takes the value one for firms selling assets in any year and zero for non-selling firm-years. In model 1, log assets is book value of assets; current ratio is current assets divided by current liabilities; return on assets is profit before depreciation, interest, tax and amortization (PBDITA) divided by book value of assets; debt capital ratio is total borrowings divided by total borrowings plus equity; sales-asset ratio is total sales divided by book value of assets; low debt capacity dummy takes the value one if the firm has an industry-adjusted debt-capital ratio positive and industry-adjusted current ratio negative and zero otherwise; group firm dummy takes the value one if the firm belongs to a group and zero if it is stand-alone. Distress dummy takes the value one if in a given year the firm's net worth is negative for that year and the previous year. Model 2 is same as model 1 except current ratio, return on assets, debt capital ratio and sales-asset ratio are all adjusted for industry median values. Statistical significance is denoted with ***, **, and * for rejection at the 1%, 5%, and 10% significance levels respectively.

higher leverage than their industry average, are more likely to sell assets. The possible reasons could be creditors' pressure and/or need for finance. Group firm dummy is significant with positive coefficient. This implies that group firms, compared to stand-alone firms, more likely to sell assets. This is contrary to the notion that a group's internal capital market enables the affiliated firms to fund their requirements that the external capital market may This, however, supports the view that the complicated ownership structures of business groups lead to more severe agency conflicts, which negatively affects a firm's performance and its value, making it more likely to sell assets[14].

In specification 2, the results are similar, but the interpretation needs to account for industry median values. For example, industry adjusted current ratio is significant with negative coefficient. This implies that firms with lower solvency than the industry average are more likely to sell assets than the firms that are more solvent than the industry average. The reason could be that creditors' pressure may influence them to undertake asset sales.

5. PRE AND POST-ASSET SALE CHARACTERISTICS OF INDIAN FIRM

There is some evidence in the literature that firms selling assets, on average, are characterized by poor performance before they sell assets and their performance improves, on average, after they sell assets[15]. Based on this, in this section we attempt to answer two specific questions. First, are the firms selling assets different from the firms not selling assets, on average, over two years period before an asset sale takes place? This exercise can help us to find evidence on whether firms selling assets, on average, are characterized by poor performance before they sell assets. And second, are firms selling assets different from firms not selling assets, on average, over two years period after an asset sale takes place? This exercise can help us to find evidence on whether firms selling assets improve their performance, on average, after they sell assets.

While answering these questions we look at the firms selling assets and the firms not selling assets in two ways. First, we compare all the firms selling assets against all the firms not selling assets on various firm characteristics. This would contrast the two groups of firms on an aggregate basis. And second, we compare the firms selling assets against the firms not selling assets in each decile of asset size. We do this to control for size while making a contrast between the two groups[16]. We use Wilcoxon signed-rank-test for comparing average firm characteristics of firms selling assets to firms not selling assets. This test is a nonparametric alternative to the two-sample t-test. We use Wilcoxon signed-rank-test because the condition that the two distributions being compared should be normal is not met[17].

---

14. Khanna and Palepu (2000) and Molen and Lensink (2005) in their study on Indian group firms' performance, also arrive at a similar conclusion though they do not talk about asset sales per se.
15. For example, see John and Ofek (1995), Denis and Shome (2005) and Hillier, McColgan and Samwel (2005).
16. We suspect that size may bias the comparison between the two groups at an aggregate level because the pattern of asset size in the two groups is very different on aggregate.
17. We used graphical plots and tests such as Skewness-Kurtosis test and Shapiro-Wilk test to note that the distributions of the two groups are non-normal. Skewness-Kurtosis test presents a test for normality based on skewness and kurtosis of the distribution and then combines the two tests into an overall test statistic. Shapiro-Wilk test maintains the null hypothesis that the sample being studied comes from a normal distribution. See Shapiro and Wilk (1965).

5.1 Contrasting Sellers with Non-sellers over Two Years Period before Asset Sale

To answer whether firms selling assets are different from firms not selling assets, on average, over two years period before they sell assets, we compare sample group with the control group by means and medians of various firm characteristics, over two years before they sell assets. These results are presented in table 2. We notice almost similar kind of pattern in both the years for all the firm characteristics. Mean and median asset size by total sample firms are statistically smaller than the total control firms. A similar pattern is shown by solvency, profitability and operating performance characteristic of firms. Mean and median leverage, however, is statistically higher for total sample firms than the total control firms. Looking at the deciles, we find that sample firms in almost all the deciles show a similar characteristic vis-à-vis control firms, as we noted on aggregate basis. The pattern, however, is not statistically significant in some of the cases. Thus, we find some indication here that for most of the firms selling assets, the factors leading them to sell assets, may be sustained by their bad performance over a period before they sell assets.

5.2 Contrasting Sellers with Non-sellers over Two Years Period after Asset Sale

To answer whether firms selling assets are different from firms not selling assets, on average, over two years period after they sell assets, we do a similar exercise as done above. The results are presented in table 2. We notice almost similar kind of pattern in both the years for all the firm characteristics, except leverage characteristic. Sample firms are less leveraged just after they sell assets than two years later. This may mean that firms sell assets, in general, to reduce their debt burden. Mean and median asset size by total sample firms are statistically smaller than the total control firms. A similar pattern is shown by solvency, profitability and operating performance characteristic of firms. Moreover, looking at the deciles, we find that sample firms in almost all the deciles show a similar characteristic vis-à-vis control firms. However, the pattern, again, is not statistically significant in some of the cases. Thus, for firms selling assets, on average, the only advantage asset sales seem to make, is reduced leverage. We may infer from here that for most of the firms selling assets, apart from a short-term reduction in debt, their bad performance remains intact.

Table 2: Pre and Post-Asset Sale Characteristics of Indian Firms[18]								
Complete Sample and Control								
	Mean		**Median**		**Mean**		**Median**	
Variables / Year	**-2**	**-1**	**-2**	**-1**	**+1**	**+2**	**+1**	**+2**
Assets	-	-	-	-	-*	-	- ***	- ***
Current Ratio	-***	- ***	- ***	- ***	-*	+	- ***	- ***
Debt capital ratio	+*	+	+ **	+	- ***	- ***	- **	- **
Return on assets	-***	- ***	- ***	- ***	- ***	- ***	- ***	- ***
Sales asset ratio	-***	- ***	- ***	- ***	- ***	- ***	- ***	- ***
First Decile								
	Mean		**Median**		**Mean**		**Median**	
Variables / Year	**-2**	**-1**	**-2**	**-1**	**+1**	**+2**	**+1**	**+2**
Assets	-	-	-	-	- ***	+*	- ***	-
Current Ratio	-**	-**	-	- *	-	-	-	+
Debt capital ratio	+ ***	+	+ **	+	-*	-*	-	-
Return on assets	-	- **	- ***	- ***	-	- **	- **	- *
Sales asset ratio	-	- ***	-	- **	-**	-	-	-
Fifth Decile								
	Mean		**Median**		**Mean**		**Median**	
Variables / Year	**-2**	**-1**	**-2**	**-1**	**+1**	**+2**	**+1**	**+2**
Assets	-	-	-	-	+ *	+	+ **	+
Current Ratio	-	-	- ***	- *	-**	-	-	+
Debt capital ratio	+	+	+ *	-	-	-	-	- *
Return on assets	- ***	- ***	- ***	- ***	-	-	- **	-
Sales asset ratio	- ***	- ***	- **	- ***	- **	-	- **	- *
Tenth Decile								
	Mean		**Median**		**Mean**		**Median**	
Variables / Year	**-2**	**-1**	**-2**	**-1**	**+1**	**+2**	**+1**	**+2**
Assets	+	-	-	-	-***	-***	-*	-*
Current Ratio	-	-***	-	- *	-**	-***	-	- *
Debt capital ratio	+**	+	+	+	+	+	- ***	- ***
Return on assets	- ***	- ***	- ***	- ***	- *	-	-	-
Sales asset ratio	- ***	-**	-	-	-	-	-	-

We compare sample group with the control group by means and medians of various firm characteristics, over two years before they sell assets and over two years after they sell assets. Control group firms are firms that

18. We present the results for only complete sample and first, fifth and tenth deciles. Tables on other deciles can be presented on request.

could potentially sell assets, but they did not sell assets in the sample period. We use Wilcoxon signed-rank-test for this purpose. First, we do this for entire dataset; and then, for firms in each decile based on firms' book value of assets. Year j denotes the year from an asset sale transaction year. + (–) denotes that the average for sample firms is greater (smaller) than control firms. ***, **, and * denote significance at 1%, 5% and 10% level, respectively.

6. CONCLUSION

Asset sales as a response to productivity shock or inefficient diversification is seen as management's response to improve focus and efficiency. Asset sales are also used by managers as a strategy to generate cash in case of a financial shock. To understand asset sales in the Indian perspective, we study asset sale transactions made by manufacturing firms in the period 1996 to 2008. Some of the important observations which came up in the course of the analysis are as follows: first, an asset sale on a significant scale is highly uncommon phenomenon; firms selling assets more than once is very uncommon. Second, there is a decreasing trend in the number of transactions as the firm's asset size increases. This suggests that firms having small asset size might be resource starved to meet their financing needs for operational requirements and debt payments etc. Third, private firms are more frequent in selling assets compared to the other ownership structures, i.e., public and foreign firms. Fourth, asset sales by the distressed firms are more frequent than the non-distressed firms. Fifth, asset sales by group firms are more frequent than stand-alone firms. This supports the view that the complicated ownership structures of business groups lead to more severe agency conflicts, which negatively affects a firm's performance and its value, making it more likely to sell assets.

In this paper, we mainly focus on two important questions. These are – first, what are the potential factors causing asset sale decision by a firm's management? And second, how does its performance changes after it sells assets? In answering the first question, we find that the likelihood of asset sale increases with the firm's leverage, distress nature and low capacity of debt utilization and decreases with size, profitability and improving operating performance. In analyzing the second question we find that for most of the firms selling assets, in general, the factors leading them to sell assets, may be traced back into the past and sustained over a period till they sell assets. Moreover, the firms selling assets do not improve in profitability, operations and solvency apart from some reduction in leverage. This reduction in leverage may be a consequence of managements' discipline or creditors' pressure. But since all the firms, in general, continue to deteriorate in their performance post-asset sale, it may be concluded that firms selling assets, in general, are already in some kind of vicious circle of bad performance with asset sale being the measure of last resort.

Episodes of asset sales in the developed countries, similar to our finding on the factors which are likely to influence managers to undertake an asset sale, find that the likelihood of downsizing increases with poor operating performance, high leverage, and financial distress. However, contrary to our results post asset sale performance by firms selling assets, these episodes suggest that the operations of the firms selling assets improve after they sell assets. The only similarity in this regard is that they also note a significant reduction in the leverage of firms after they sell assets.

Appendix A1: Variables Definition

- Sales-asset ratio- It is defined as the ratio of total sales to total assets of a firm in the same period.
- Return on assets- It is defined as ratio of profits before taxes, interest payments, dividends and amortization (PBTIDA) to total asset position of a firm in the same period.
- Debt capital ratio- It is defined as the ratio of a firm's outstanding debt to its total capital at the same point in time. Total capital includes the firm's debt and shareholders' equity, which includes common stock and preferred stock.
- Current ratio- It is defined as the ratio of a firm's current assets to its current liabilities at the same point in time.
- Current asset includes cash and bank balance, inventories, receivables except loans receivables and marketable securities. It excludes all application money.
- Current liabilities include all liabilities that are due within 12 months period. It includes sundry creditors, acceptance, unclaimed dividends, interest accrued and due, deposits from dealers, leased deposits, advances against orders, advances against work in progress, immature financial charges and other current liabilities.
- Industry sales shock- It is defined as the difference between the sales growth in that industry and the average sales growth across all industries in the same year.
- Distress dummy- A firm is classified as financially distressed in a given year if the firm's net worth is negative for that year and the previous year.
- Group firm dummy- A firm is classified as a group firm if it belongs to a group.
- Low debt capacity dummy- A firm is classified as low debt capacity firm if the firm has an industry-adjusted debt-capital ratio positive and industry-adjusted current ratio negative.
- Industry-adjusted debt-capital ratio is the debt-capital ratio of a firm minus the median debt-capital ratio of all the firms in that industry.
- Industry-adjusted current ratio is the current ratio of a firm minus the median current ratio of all the firms in that industry.

REFERENCES

Akerlof, George A. (1970) "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism" The Quarterly Journal of Economics, Vol. 84, Issue 3, pp. 488-500

Bartov, Eli (1993), "The Timing of Asset Sales and Earnings Manipulation", The Accounting Review, Vol. 68, No. 4, Pg. 840-855

Bates, Thomas W. (2005), "Asset Sales, Investment Opportunities, and the Use of Proceeds", The Journal of Finance, Vol. 60, Issue 1, 2005, Pg. 105–135

Bradley, Michael, Desai, Anand, and Kim, E. Han (1983), "The Rationale Behind Interfirm Tender Offers: Information or Synergy?" Journal of Financial Economics, Vol. 11, Pg. 183-206

Brown, David T., James, Christopher M. and Mooradian, Robert M. (1994), "Asset Sales by Financially Distressed Firms", Journal of Corporate Finance, Vol. 1, Issue 2, Pg. 233-257

Brown, Morton B. and Forsythe, Alan B. (1974), "Robust Tests for the Equality of Variances" Journal of the American Statistical Association, Vol. 69, No. 346, Pg. 364- 367

Denis, Diane K. and Shome, Dilip K. (2005), "An Empirical Investigation of Corporate Asset Downsizing", Journal of Corporate Finance, Vol. 11, Issue 3, Pg. 427-448

Fazzari, Steven M., Hubbard, R. Glenn and Petersen, Bruce C. (1988) "Financing Constraints and Corporate Investment" Brookings Papers on Economic Activity, Vol. 1988, No. 1, pp. 141-206

Herrmann, Don, Inoue, Tatsuo and Thomas, Wayne B. (2003), "The Sale of Assets to Manage Earnings in Japan" Journal of Accounting Research, Vol. 41 Issue 1 Pg. 89-108

Hillier, David, McColgan, Patrick and Werema, Samwel (2005), "Asset Sales, Operating Performance and Firm Strategy: An Empirical Exercise", Social Science Research Network (SSRN), Working Paper No. 650166

Hite, G. L., Owers, J. E. and Rogers, R. C. (1987), "The market for Interfirm Asset Sales: Partial Sell-offs and Total Liquidations, Journal of Financial Economics, Vol. 18, Issue 2, Pg 229-252

Hovakimian, Gayane and Titman, Sheridan (2006),"Corporate Investment with Financial Constraint: Sensitivity of Investment to funds from Voluntary Asset Sales", Journal of Money, Credit and Banking, Vol. 38, No. 2, Pg- 357-374

Jensen, Michael C. (1986), "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers" The American Economic Review, Vol. 76, No. 2, Pg. 323-329

Jensen, Michael C. and Meckling, William H. (1976), "Theory of the firm: Managerial behavior, agency costs, and ownership structure", Journal of financial economics, Vol. 3, No. 4, Pg. 305 - 360

John, Kose and Ofek, Eli (1995), "Asset Sales and Increase in focus", Journal of Financial Economics, Vol. 37, Issue 1, Pg. 105-126

Khanna, Tarun and Palepu, Krishna (2000), "Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups" The Journal of Finance, Vol. 55, No. 2, pp. 867-891

Kruse, Timothy A. (2002), "Asset Liquidity and the Determinants of Asset Sales by poorly Performing Firms", Financial management, Vol. 31, No. 4, Pg. 107-129

Lang, Larry, Poulsen, Annette and Stulz, Rene M. (1995), "Asset sales, firm performance, and the agency cost of managerial discretion" Journal of Financial Economics, vol. 37, No. 1, Pg. 3-37

Maksimovic, Vojislav and Phillips, Gordon (2001), "The Market for Corporate Assets: Who Engages in Mergers and Asset Sales and Are there Efficiency Gains?" The Journal of Finance, Vol. 56, No. 6, Pg. 2019-2065

Molen, Remco van der and Lensink, Robert (2005), "Group affiliation and firm risk: Evidence from stock returns on Indian companies", Social Science Research Network, Working Paper No. 671481

Mulherin, Harold and Boone, Audra (2000), "Comparing Acquisitions and Divestitures", Journal of Corporate Finance. Vol. 6, Issue 2, Pg. 117-139

Poitras, Geoffrey, Wilkins, Trevor and Kwan, Yoke Shang (2002) "The Timing of Asset Sales: Evidence of Earnings Management?" Journal of Business Finance & Accounting, vol. 29, issue 7&8, Pg. 903-934

Rajan, Raghuram G. and Zingales, Luigi (1995), "What Do We Know about Capital Structure? Some Evidence from International Data" The Journal of Finance, Vol. 50, No. 5, Pg. 1421-1460

Shapiro, S. S. and Wilk, M. B. (1965) "An analysis of variance test for normality (complete samples)", Biometrika, Vol. 52, No. 3, Pg 591-611

Shleifer, Andrei and Vishny Robert W. (1992), "Liquidation Values and Debt Capacity: A Market Equilibrium Approach" The Journal of Finance, Vol. 47, No. 4, Pg. 1343-1366

Stulz, R. M. (1990) "Managerial discretion and optimal financing policies" Journal of Financial Economics, Vol. 26, Issue 1, Pg 3-28