
Layoff announcements, share price reaction and long-term financial performance on the JSE Securities Exchange

1. INTRODUCTION

Announcements of layoffs and corporate downsizing are generally viewed as bad news by the labour force. Fears of retrenchments and loss of employment create strong emotional resistance to the layoff announcement. Often the Trade Unions take a strong oppositional stance, insisting upon a reversal of the decision or a massive dilution of the planned layoff. This response is understandable from a human point of view. But is it the correct response from a business and economic point of view? This study focuses on the latter issue, that is, how investors in these companies interpret the news of layoffs in their assessment of the firms' future profitability.

With globalisation more and more companies have to contend with decisions on layoffs as part of strategic decisions to rationalise their operations and reduce costs to remain competitive. In the United States, 43 million jobs were eliminated between 1979 and 1995, according to an analysis by the US Labour Department (Uchitelle and Kleinfeld, 1996). This phenomenon of worker layoffs has produced fundamental structural changes in all major economies and has had a painful impact on the labour force. It has also resulted in a major challenge to managers who have engaged in large scale layoffs to improve long-term profitability to ensure survival of their companies.

Uncompetitive firms often see rationalisation of their labour force as a major strategy to reduce operational costs. The lower labour costs in turn, are directed at increasing earnings and profitability or attaining the goal of controlling product prices and thus improving competitiveness. Ultimately, if the strategy is successful, the market value of the firm's shares should improve. Indeed, there is some evidence that American business has increased its global competitiveness over the last two decades (Kirkland, 1997). It is suggested that much of this improvement may be due to firms becoming "lean and mean" by eliminating redundant employees, reducing operational costs and increasing productivity.

The closed economy, imposed by apartheid in South Africa resulted in an inefficient production regime which relied on a large number of unskilled and semi-skilled workers. The restructuring of the manufacturing sector, which started in the late 1980s and intensified when the economy was opened in the 1990s, has brought huge job losses by means of layoff of redundant workers (Von Holdt, 2000).

Parastatal restructuring has had a similar impact. The current layoffs, involving the shedding of a large number of unskilled workers is a new phenomenon in South Africa.

The reality, however, is that the protection that South African manufacturing industry enjoyed through high import duties and tariffs has largely disappeared since South Africa joined the World Trade Organisation. Sectors such as leather, textile, clothing, and household appliances have found that limited domestic markets and increasing pressure from imports has resulted in sectoral decline leading to widespread layoffs (Von Holdt and Webster, 2001).

The process of privatisation of many state-owned enterprises is underway in South Africa. Privatisation inevitably leads to restructuring and layoffs as private sector managers search for improved efficiencies. Less profitable operations are closed down and workers are laid off in order to make the companies attractive and list their shares on the stock exchange (Makgetla, 2001 : 18). The Trade Union movement has opposed privatisation because of the big job losses accompanying the process. Nevertheless, the government is fully committed to proceed with its privatisation programme. This will result in large scale worker layoffs that have been observed in those countries that have privatised state assets.

Prior research has largely ignored the financial consequences and strategic implications of layoffs and have focused on either their antecedents or their consequences for workers (Kinicki, 1985). It is not clear whether firms that have engaged in major worker layoffs have been able to improve profitability to ensure survival. Several studies on this subject have provided evidence of the short-term future benefits arising from layoffs. There is little evidence regarding the share market behaviour that provides clues to the long-term benefits of layoffs such as improvement in future profitability and employment opportunities.

The purpose of this paper is to observe the share market response to layoff announcements by companies restructuring their manufacturing activities.

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Furthermore, this investigation will also record the South African experience of the long-term financial benefits to companies that have engaged in layoffs. The findings will have significant public policy implications in that it will critically review the conventional wisdom widely supported by the Trade Union movement that layoffs have unfavourable implications for the economy and society at large i.e., that they are "bad news".

2. THE LAYOFF ISSUES

Lin and Rozeff (1993) discuss two motivations for layoffs and associated changes in firm value. The two competing hypotheses that predict the effects of layoff actions on shareholder wealth are the pure efficiency hypothesis and the decreased demand hypothesis. The pure efficiency hypothesis predicts that layoff announcements are associated with positive abnormal returns, while the decreased demand hypothesis predicts negative abnormal returns. Therefore, a layoff decision can be associated with either an increase or a decrease in firm value. Layoff decisions induced by adverse market conditions, such as a demand decline or input price increases, should be associated with declines in sales and profitability measures. Further, if layoff announcements convey new information on adverse market conditions, they could be associated with declines in firm values. In contrast, layoff decisions that result from unexpected efficiency gains (or plans for efficiency improvements) should be associated with increased sales, improved profitability measures, and higher firm values.

A layoff decision is one of several corporate actions that can be associated with either an increase or a decline in expected future profits and firm values. When investors observe such an action, they might look for a signal that helps interpret its impact on firm value. A well-known example of this action is a dividend change: a dividend increase can be associated with either an increase in profitability or a decline in investment opportunities. As John and Lang (1991) demonstrate, investors observe insider trading and ownership structure information to ascertain whether they should expect an increase or a decrease in firm value.

This investigation will document an association between the cited reasons in layoff announcements and abnormal share returns around layoff announcement dates. This association indicates that investors view the reasons for layoff decisions as signals which help them interpret the effects of layoff decisions on firm values. It will be demonstrated that the cited reasons are useful signals, because they are associated with the expected changes in profitability measures in the years following the announcement year.

This choice of a signal is interesting because, unlike insider trading and ownership structure, where mimicking might impose a financial cost, the main cost of

a misleading announcement is management's reputation. The findings of this investigation might lend support to several theoretical studies that have suggested that developing and maintaining reputation could help solve problems arising from asymmetric information and might explain management behaviour (Hirshleifer, 1993). The findings also imply that investors consider layoffs as an effective cost reduction tool that enhances firm value, but that layoff decisions induced by adverse market conditions have an unfavourable informational content.

3. PREVIOUS RESEARCH

Although layoffs have been a popular restructuring and cost-cutting tool, only recently has the literature focused attention on layoffs. Chandy, Davidson, and Worrell (1990) document that layoff announcements are associated with significantly lower earnings. The reaction was consistent with the observation that layoffs generally diminish effectiveness and the notion that layoff announcements may be viewed as a confirmation or signal that the firm's financial troubles are real. They also observed that the market's reaction to the layoff announcements was immediate. It occurred on the day of and immediately before the announcement, with the earliest reactions occurring during 10 days immediately preceding the day of the announcement. They conclude that the stock market reacted efficiently, and the results are consistent with the efficient market hypothesis.

Worrell, Davidson, and Sharma (1991) examined the stock market response to layoff announcements and find that investors react negatively to announcements attributable to financial reasons. In addition, pre-announcement negative market reaction appear likely to occur when leakages precede an announcement, and announcements of large or permanent layoffs elicit stronger negative shareholder responses than announcements of small, temporary layoffs. Davidson, Worrell, and Fox (1996) report that during recessionary periods companies increasingly use layoffs in response to competitive conditions. While companies attain financial benefits from layoffs, there are dysfunctional consequences for "outplaced" and surviving employees.

Lin and Rozeff (1993) discuss two hypotheses to explain the effect of layoff decisions on shareholder wealth: the decreased - demand hypothesis and the pure efficiency hypothesis. They interpret the negative abnormal returns as support for the decreased - demand hypothesis. Their findings also suggest that the market learns when decreased demand occurs, causing the share price to fall and this in turn leads the market to anticipate layoffs and downsizing of operations. Elayan, Swales, Maris, and Scott (1998) also present two hypotheses to explain the impact of layoff announcements on shareholder wealth. The declining investment hypothesis predicts a negative market response indicating that the firm has fewer investment or growth opportunities. The efficiency

hypothesis predicts a positive market response attributed to cost savings which will lead to improvement in the firm's performance and the efficiency of the labour force.

Layoffs have also been examined by researchers in other contexts. For example, layoffs are likely to be associated with corporate restructuring such as plant closing and plant relocation. Blackwell, Marr, and Spivey (1990) and Gombola and Tsetsekos (1992) find that plant closing announcements are usually associated with negative share returns. Chan, Gau, and Wang (1995) find that plant relocation announcements are usually associated with negative share returns.

Within these other contexts, studies document that the sign of the abnormal returns associated with corporate decisions might depend on the motivation for the decision. For example, Brickley and Van Druenen (1990) document positive share price reactions when managers indicate that they are undertaking the restructuring events, which are not necessarily associated with layoffs, to improve efficiency. Blackwell *et al.* (1990) show that abnormal returns, when the stated reason for a plant closing is "operations not profitable" or "consolidation of facilities," are more negative than are the abnormal returns when the cited reason is "labour – management dispute". These negative abnormal returns might indicate that plant closing announcements provide investors with new information on the reasons for these decisions. Chan *et al.* (1995) find that the market reacts positively to business relocation decisions motivated by improving efficiency, but negatively to relocation decisions motivated by capacity reduction due to a worsening business environment.

This study will further explore the themes developed by Lin and Rozeff (1993), and Elayan *et al.* (1998) which points to a duality in the signals received by shareholders when layoff announcements are made. This study will contribute to the subject by analyzing layoff announcements that are likely to indicate either very good or very bad news, and in examining whether investors use the contents of the announcements to infer the event type. The polarity of layoff announcements (i.e., their potential for indicating either good or bad news) is likely to be more extreme than the polarities of business relocation announcements studied by Chan, Gau, and Wang (1995) and of corporate restructuring studied by Brickley and Van Druenen (1990). Thus, further information which can be obtained from corporate announcements, is more useful in the case of layoffs than in the events examined in previous studies.

The proposed methodology provides fresh insights into the new information that investors infer from layoff announcements. First is the layoff itself. Second is all

the other information, which includes the revision in investors' assessment of the firm's future profitability. Other elements of the methodology which improve upon their counterparts in previous studies are also discussed.

4. METHODOLOGY AND SAMPLE DATA

4.1 Sample selection and data

The sample for this investigation consists of 88 JSE listed companies that made announcements of layoff decisions during the 1980-1997 period. This study obtained data related to layoff announcements from *Reuters News* which provides selected news service stories from *Business Day* and other financial publications. The archive product, *Reuters Business Briefing* allows access to a database of all news items released through Reuters. This publication was used to identify news related to layoff announcements during the period of investigation.

The Reuters data will have a tendency to focus on those layoff announcements that are "newsworthy". To avoid size and survivorship biases additional data relating to all companies listed on the JSE making layoff announcements during the investigation period were obtained from the database of the Bureau of Financial Analysis at the University of Pretoria. This approach has the advantage of having a comprehensive sample size and also provides a mechanism for checking the accuracy of the Reuters data. The sample had to meet the following criteria:

- (1) The size and reason for the layoff are reported in *Reuters News* or the database of the Bureau of Financial Analysis.
- (2) No other contaminating events (e.g., decisions regarding dividend changes, earnings forecasts, security offerings, share repurchases, and share splits) are reported in the *Reuters News* or the database of the Bureau of Financial Analysis during the 12 - day period beginning at Day $t = - 1$ (and ending on Day $t = + 10$). Day $t = 0$ is the layoff announcement day.
- (3) The shares of the layoff announcing firms are traded on the JSE 170 days prior to and 504 days following the announcement. In addition, financial statement information is available on the database of the Bureau of Financial Analysis three years prior to and three years following the announcement.
- (4) For each firm, only the first layoff announcement made during the 1980 to 1997 sample period is used in the investigation. The tests examine profitability and sales measures for a seven - year period, starting three years before and ending three years after the year in which the layoff is

announced. The use of more than one announcement per firm (in subsequent announcement years) would cause measures for some calendar years to be included more than once, as measures for different announcement years.

A total of 88 layoff announcements met the criteria and were chosen for the final sample for this investigation. For each company included in the sample, daily data on share prices and the JSE market index were obtained from the database of the JSE and "McGregor's Online Information Services". In addition, data on the pre - and - post - announcement period

financial performance (a 7 -year period) of companies involved in layoffs were obtained from the database of the Bureau of Financial Analysis.

Using the reason for the layoff decision cited in each announcement, layoffs were classified into two subsamples. Announcements of layoff decisions that state declining sales or low product prices as a reason for the layoff are included in the declining - demand subsample. Announcements indicating an intention to improve profitability or efficiency are assigned to the efficiency - enhancing subsample.

Table 1: Industry affiliations of firms that announce layoffs

Industry	Declining - demand subsample			Efficiency - enhancing subsample		
	Number of Layoffs	Number of Employees *	Layoff ratio	Number of Layoffs	Number of Employees *	Layoff ratio
Automotive parts	1	9,34	0,052	2	10,05	0,0632
Banks / financial services	0	-	-	2	9,14	0,0437
Beverages	1	6,21	0,0163	1	7,76	0,0194
Building and construction	2	5,16	0,0346	1	6,36	0,0537
Chemicals, oil and plastics	1	11,43	0,0514	2	9,93	0,0631
Clothing and textiles	4	9,92	0,053	1	14,49	0,0412
Electronics and electrical	3	8,54	0,0257	5	7,15	0,0546
Engineering	3	9,27	0,0189	2	12,03	0,0236
Food	0	-	-	3	10,97	0,0136
Furniture	2	7,43	0,0234	3	9,05	0,0364
Healthcare	1	7,56	0,0106	3	9,71	0,0257
Hotels and leisure	0	-	-	2	4,87	0,0332
Household appliances	2	6,57	0,0213	1	9,28	0,0193
Information technology	2	6,33	0,0425	3	7,12	0,0497
Media	1	12,15	0,0126	3	14,26	0,0291
Mining and minerals	5	8,47	0,0745	2	9,34	0,0932
Packaging and printing	1	18,41	0,0107	3	19,39	0,0152
Paper	0	-	-	1	13,61	0,0235
Pharmaceuticals	1	5,67	0,0416	2	6,31	0,0541
Retail	0	-	-	3	14,22	0,0425
Steel	1	9,31	0,0537	1	10,87	0,0468
Telecommunications	1	5,32	0,0312	2	6,19	0,0379
Transport	3	6,76	0,0217	5	7,23	0,0479
TOTAL	35			53		

*The average number of employees is in thousands of employees

Table 1 shows the distribution of the announcing firms in the two subsamples by industry. The announcing firms are affiliated with 23 industries. In addition to the number of firms, Table 1 shows the average number of employees per firm and the average fraction of employees that were laid off. The industry distributions of firms in the two subsamples seem to indicate that any difference between the two subsamples should not be attributed to differences in industry affiliation.

Table 2 provides descriptive statistics for the firms in the two subsamples. We measure firm size by the firm's market value of the ordinary share capital at the

end of the year preceding the layoff announcement. The difference in the average firm size between the two subsamples is significant at the 0,05 level (the t - statistic equals - 2,15). The average number of employees per firm in the two subsamples is not significantly different at the 0,05 level, although they are significantly different at the 0,10 level (the t - statistic equals - 1,80).

We measure the layoff ratio by the fraction of employees that were laid off. The average layoff ratios for firms in the declining - demand subsample and the efficiency - enhancing subsample are 0,039 and 0,043,

respectively. The difference is not significantly different from zero (the t - statistic is - 0,17). The averages of the layoff ratios in this investigation are very similar to the 5,06 % employment reduction found by John, Lang, and Netter (1992) in firms' response to negative

earnings, but it is larger than the 1,1 % employment cut found by Gombola and Tsetsekos (1992), who investigated plant - closing decisions.

Table 2: Descriptive statistics for firms that announce layoffs

Descriptive measure	Mean	Median	Standard deviation
Panel A. Declining – demand subsample			
Firm size (Total equity in millions)	1225,2	588,09	441,07
Total employees per firm (In thousands)	8,83	5,51	3,01
Layoff ratio	0,0392	0,0212	0,0098
Panel B. Efficiency – enhancing subsample			
Firm size (Total equity in millions)	2190,5	1007,63	810,48
Total employees per firm (In thousands)	10,36	6,13	3,63
Layoff ratio	0,0439	0,0237	0,0114
Panel C. Difference in Mean Value Between Panel A and Panel B			
Firm size	(-2,15) significant at the 0,05 level		
Total employees per firm	(-1,80) significant at the 0,10 level		
Layoff ratio	(-0,17) not significantly different from zero		

The t-statistics (in parentheses) test the null hypothesis that the respective subsample means equal each other.

4.2 Research methodology

The event study methodology described by Brown and Warner (1985) is used to analyse the effects of layout announcement on the share price of the announcing companies. For each company making a layoff announcement, daily abnormal returns for the period $t = - 1$ to $t = + 10$ in event time were computed as:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad \dots (1)$$

where AR_{it} is the abnormal return for company i on the day t relative to the layoff announcement date. R_{it} is return for company i on the day t , and the term in parenthesis is the normal return. R_{mt} is the return on the market portfolio represented by the JSE All Share Index on day t , α_i and β_i are the market model coefficients for company i .

Two methods were used to calculate the beta values for companies identified as events. The first method was the standard ordinary least square (OLS) method that is normally used to derive the values of beta. The second method employed the technique developed by Dimson (1979) and refined by Cohen, Hawawini, Maier, Schwartz and Whitcomb (1983) to overcome the problem of beta underestimation caused by serial correlation. Bradfield and Barr (1980) conducted a sensitivity study on the JSE and they showed that

there is a statistical significance for two lagged terms, the contemporaneous term and one leading term. The Bradfield and Barr procedure was therefore used to calculate the beta values.

As suggested by Lin and Rozeff (1993), the market model is estimated for each announcement using 140 daily returns covering the period from Day - 61 to Day - 200. Portfolio average abnormal returns for days $t = (-1, +10)$ relative to the announcement date were obtained as:

$$AAR_t = \sum_{it=1}^N AR_{it} / N \quad \dots (2)$$

where N is the number of shares in the sample portfolio. The average cumulative abnormal return for each day were computed as follows:

$$ACAR_t = ACAR_{t-1} + AAR_t \text{ for } t = (-1, + 10) \quad \dots (3)$$

In the absence of abnormal performance, the AAR on any day should not be significantly different from zero. Following the procedure developed by Mikkelson and Partch (1988), we calculate the z - statistic to evaluate the statistical significance of the averages of the cumulative abnormal returns (ACAR).

We examine whether the reasons cited in layoff announcements help investors analyze the implications of layoff announcements as they affect the values of announcing firms. We compute cumulative abnormal returns (CARs) for three alternative announcement periods around the publication date of each layoff announcement (which we denote as Day 0). The alternative announcement periods are two - day periods that include days -1 and 0, a three - day period from Day -1 through Day 1, and a 12-day period from Day -1 through Day 10. We calculate the 12 - day period from Day -1 through Day 10. We calculate the 12 - day CARs to uncover any persistence of the abnormal returns.

4.3 Discussion of the hypotheses

A layoff decision can be associated with either an increase or decrease in firm value. Layoff decisions induced by adverse market conditions, such as demand declines or input price increases, should be associated with declines in sales and profitability measures. Furthermore, if layoff announcements convey new information regarding adverse market conditions they can be associated with declines in firm values. In contrast, unexpected layoff decisions that result from unexpected efficiency gains (or plans for efficiency improvements) should be associated with increased sales, improved profitability measures, and higher firm values.

If changes in firms' values are associated with observed corporate action that appears ambiguous, investors may look for additional signals that would help them interpret the action. Thus, we examine whether investors use the contents of layoff announcements to help them assess the associated changes in firms' values. The first hypothesis to be tested is:

H₁: The returns on equities are abnormally negative (positive) for those firms that cite adverse market condition (improving efficiency) as a reason for a layoff.

We also examine whether the reasons cited for layoffs help explain the impact of the layoffs' magnitudes on firm value. The second hypothesis to be tested is:

H₂: The magnitude of the abnormal negative (positive) returns on equity is directly related to the magnitude of the layoffs for those firms that cite an adverse market condition (improving efficiency) as a reason for layoffs.

We also examine whether the reasons firms cite for layoffs are associated with their subsequent performance. As discussed, the motivation for layoff

decisions could be associated with expected sales and profitability measures. Thus, the third hypothesis to be tested is:

H₃: For those firms that cite adverse market condition as a reason for layoffs, the future profitability and sales measures are worse than for firms that cite improving efficiency as a reason for layoffs.

Such an association would indicate that the cited reasons could, indeed, reflect the true motivations for layoffs, and could also give investors a rationale for using the reasons as signals for the induced changes in the values of the announcing firms.

5. EMPIRICAL RESULTS

5.1 Market model share returns

In Panel A, Table 3, we report statistics on the CARs for the alternative announcement periods for each of the two subsamples. The two - and three - day CARs that we compute for the declining - demand subsample are negative and significantly different from zero at the 0,01 level. $ACAR_{-1,0}$ and $ACAR_{-1,+1}$ are -1,93 % (z - statistic = -4,22) and -2,38 (z - statistic = -4,19), respectively. In contrast, the corresponding CARs for the firms in the efficiency - enhancing subsample are significantly positive at the 0,01 level. $ACAR_{-1,0}$ and $ACAR_{-1,+1}$ are 0,74 % (z - statistic = 2,81) and 0,96 % (z - statistic = 2,95), respectively. The 12 - day CAR for the firms in the declining - demand subsample is -2,27 % (z - statistic is -1,84, which is significantly different from zero at the 0,10 level). The corresponding average cumulative return for the firms in the efficiency - enhancing subsample is 0,33 % (z - statistic is 1,21 which is not significantly different from zero). The corresponding CARs of the two subsamples are significantly different from one another at the 0,01 level. Thus, the results reported in Panel A, Table 3, indicate that the return on equity of firms that cite an adverse market condition (improving efficiency) as a reason for a layoff are abnormally negative (positive). These results support the first hypotheses (H₁).

Several other tests were conducted to verify the robustness of the results. First, we conducted nonparametric tests to assess whether any of the results are induced by a skewed distribution of returns. In Table 3, we report the median, Wilcoxon p - value, and the percent of negative returns. The nonparametric tests support the conclusion that returns to equity of the firms in the declining - demand (efficiency - enhancing) subsample are abnormally negative (positive), i.e., they do not suggest that skewed returns affect the conclusions.

Table 3: Market model cumulative abnormal returns surrounding layoff announcements

Panel A. Market Model Average Cumulative Abnormal Return (ACAR)						
	Declining – demand Subsample		Efficiency - enhancing Subsample			
ACAR_{-1,0}						
Mean	-1,93%		0,74%			
Z – Statistic	-4,22 ***		2,81 ***			
Median	-0,81%		0,32%			
Wilcoxon P - Value	0,09%		7,45%			
Percent Negative	61,74 % **		42,37% ***			
ACAR_{-1,+1}						
Mean	-2,38 %		0,96%			
Z – Statistic	-4,19 ***		2,95 ***			
Median	-1,45%		0,38%			
Wilcoxon P - Value	0,08%		1,21%			
Percent Negative	65,39 % ***		40,63 % ***			
ACAR_{-1,+10}						
Mean	-2,27%		0,33%			
Z – Statistic	-1,84 *		1,21			
Median	-1,93%		0,19%			
Wilcoxon P - Value	2,91%		5,31%			
Percent Negative	61,65 % *		38,12 % ***			
Panel B. Ordinary - Least - Squares Regression						
Independent Variables	Constant	LATER	Fsize	R ²	F – Statistic	P – Value
Declining - demand subsample						
	-0,0152 (2,27) **	-0,179 (-3,10) ***	0,017 (2,11) **	0,231	8,12	0,003
Efficiency - enhancing subsample						
	-0,053 (-0,72)	0,236 (3,37) ***	0,003 (0,71)	0,127	5,34	0,009

*** Significant at the 0,01 level
 ** Significant at the 0,05 level
 * Significant at the 0,10 level

We further demonstrated the impact of layoff announcements on share returns by investigating the relationship between the layoff ratio (denoted as *LATER*, Layoff - to - Employee Ratio) and CARs. A negative impact of the layoff ratio on the CARs for the declining - demand subsample firms and a corresponding positive impact for the efficiency - enhancing subsample firms should support the second hypothesis. We add the logarithm of firm size as an explanatory variable because firm size can affect abnormal returns, and the average firm - size in the efficiency enhancing subsample is larger than its counterparts in the declining - demand subsample.

Including a variable to represent firm size has an additional benefit. The impact of a layoff announcement on the market value of the announcement company decomposes into a direct and an informational effect. The direct effect is the difference in the value of the firm that is induced by the layoff *per se* and should be related to the magnitude of the *LATER* variable. Because the *LATER* variable

represents the magnitude of the layoff relative to the size of the company's labour force, adding a variable that represents firm size should not further explain the direct effect.

The information effect is the change in the value of the announcing firm that is induced by the layoff announcement, because it provides investors with more new information than does the layoff *per se*. The magnitude of the information effect depends on the nature of the information and on the extent to which the information is not already known to investors. Because large firms are followed more closely by investors than small firms, the absolute magnitude of the information effect can be negatively correlated with the variable that represents firm size. Thus, including a measure of firm size might help identify the sign of the information effect.

One possible explanation for the difference in the information effects is that layoff announcements by firms in the declining - demand subsample convey management's belief that the firm faces a long - term

decline in demand. No such new information is inferred from the layoff announcements by firms in the efficiency - enhancing subsample. Thus, the information effect should be negative for firms in the declining - demand subsample, but not for firms in the efficiency - enhancing subsample. Abnormal returns should be positively correlated with firm size for firms in the declining - demand sample (i.e., the larger the firm, the closer the abnormal return should be to zero), but not in the efficiency - enhancing subsample.

We use an OLS estimation procedure to test the relationship between two - day cumulative abnormal return (CAR), layoff size (LATER), and firm size (denoted by FSIZE) in each subsample. CAR is the dependent variable. LATER and FSIZE (defined as the natural log of the market value of ordinary shares) are the independent variables. The regression model is specified as:

$$CAR_{(-1,0)i} = \alpha + \beta_1 LATER_i + \beta_2 FSIZE_i \quad \dots (4)$$

The estimates of the regressions appear in Panel B, Table 3. The estimated β_1 coefficient for the declining - demand subsample is - 0,179 and is different from zero at the 0,01 significance level (the t - statistic is - 3,10). In contrast, the estimated β_1 coefficient for the efficiency - enhancing subsample is 0,236, which is also different from zero at the 0,01 significance level (the t - statistic is 3,37). The estimated β_2 coefficient for the declining - demand subsample is 0,017, which is different from zero at the 0,05 significance level (the t - statistic is 2,11), while its counterpart in the efficiency - enhancing subsample equals 0,003 and is not significantly different from zero (the t - statistic is 0,71). The F - statistic and p - value are 8,12 and 0,3 % respectively, for the declining - demand subsample, and 5,34 and 0,9 % respectively, for the efficiency - enhancing subsample.

Thus, the results presented in Panel B support the second hypothesis (H_2), that the reason cited for the magnitudes of layoffs help investors infer changes in firms' values. These results are consistent with a negative information effect in the declining - demand subsample, but not in the efficiency - enhancing subsample. If the information effect is not significant for the firms in the efficiency - enhancing subsample, the positive abnormal returns might indicate that the direct effect is positive. A positive direct effect is consistent with the view that layoff decisions undertaken by management are considered value - increasing.

5.2 Size - based, decile - adjusted share returns

As indicated in Table 2, the average size of the firms in the declining - demand subsample is smaller than its efficiency - enhancing subsample counterpart. Thus, we use the size - based, decile - adjusted CARs methodology to examine whether these size differences affect our results. This methodology also facilitates the examination of long - run price responses to layoff announcements.

Following the empirical design in Michaely, Thaler, and Womack (1995), we define the CAR for each share as the geometrically compounded return on the share minus the geometrically compounded return on the appropriate JSE All Share Market capitalization decile :

$$CAR_{(a \text{ to } b)} = \prod_{t=a}^b (1 + R_{it}) - \prod_{t=a}^b (1 + DMR_t^i) \quad \dots (5)$$

where $CAR_{i(a \text{ to } b)}$ is the CAR for firm i from Date a to Date b ; R_{it} is raw return for firm i on Day t ; and DMR_t^i is the return on the market - capitalization decile corresponding to firm i on Day t . Then, we average all the CAR_i to obtain the ACAR for each time period. To test the significance of size - based, decile - adjusted CARs, we use the t - statistics based on the cross - sectional variance of the cumulative abnormal returns in the relevant period.

The results reported in Table 4 are similar to their counterparts in Table 3 (obtained by using the value - weighted market model). The average two - day, three - day, and 12 - day CARs for the declining - demand subsample firms are all negative and significantly different from zero. The averages of the CARs for the efficiency - enhancing subsample firms are all positive and similar in magnitude to their Table 3 counterparts. However, the standard errors of the coefficients obtained from the size - based, decile - adjusted methodology are larger than their value - weighted market model counterparts. In summary, the evidence supporting our first and second hypotheses is not a product of size differences between the firms in the two subsamples.

In Table 4, we also report two -year (assumed to be 504 business days) CARs. The average returns are - 4,82 % for the declining - demand subsample and 5,13 % for the efficiency - enhancing subsample. Neither is significantly different from the other (the t - statistic is 1,25). The insignificance is probably caused by the larger cross-sectional variance of the long - term returns.

Table 4: Size - based, decile – adjusted average cumulative abnormal returns surrounding layoff announcements

	Declining - Demand Subsample	Efficiency - enhancing Subsample		Declining - Demand Subsample	Efficiency - Enhancing Subsample
ACAR_{-1,0}			ACAR_{-1, +60}		
Mean	-2,07%	0,84%	Mean	-5,28	0,65%
t – Statistic	-4,83 ***	1,81 *	t – Statistic	-2,27 **	0,41
Median	-1,38 %	0,39%	Median	-3,98	0,47%
P – Value	0,12%	28,22%	P – Value	2,96	35,83%
Percent Negative	67,89 ***	43,53 **	Percent Negative	62,81 **	44,24 % **
ACAR_{-1, +1}			ACAR_{-1, +504}		
Mean	-2,16%	0,98%	Mean	-4,82%	5,13%
t – Statistic	-4,23 ***	1,92 *	t – Statistic	-0,75	1,14
Median	-1,35%	0,34%	Median	-2,61%	2,75%
P – Value	0,1	8,67%	P – Value	22,85%	57,32%
Percent Negative	64,32 % ***	45,63 *	Percent Negative	60,54%**	46,07 % *
ACAR_{-1, +10}					
Mean	-2,39 %	0,43%			
t – Statistic	-2,01 **	0,56			
Median	-1,82%	-0,15%			
P – Value	3,73%	74,25%			
Percent Negative	63,87 % **	51,72%			

*** Significant at the 0,01 level

** Significant at the 0,05 level

* Significant at the 0,10 level

5.3 Accounting performance measures

We examine whether the reasons cited in layoff announcements are associated with firms' future profitability and sales measures. Such an association would indicate that the cited reasons could indeed reflect the true motivation for the layoffs. It would also provide a rationale for investors to use the cited reasons as signals of the values of the announcing firms. The analysis will examine three profitability measures and a sales measure. The profitability measures are profit margin, return on assets (ROA), and return on equity (ROE). Real sales are the reported sales deflated by the Consumer Price Index (CPI).

We compute the profit margin by dividing the income (before extraordinary items) by total sales. We calculate a firm's ROA as a ratio of its income (before extraordinary items) to its average total assets. We calculate the ROE by dividing the income (before extraordinary items) by the book value of ordinary share capital.

We examine the profitability and sales measures of firms that announce layoffs during a period starting three years prior to, and ending three years after, the announcement year. We denote the layoff announcement year as Year 0. In Table 5, we report, for each year, the averages of the three profitability ratios and the sales ratio for the firms in each

subsample. The t - statistic for each ratio and year tests the null hypothesis that the means of the two subsamples equal each other.

The information presented in Table 5 indicates that, prior to year zero, the average profitability measures of the declining - demand subsample firms exceed their efficiency - enhancing subsample counterparts. The difference between the declining - demand subsample measure and its efficiency - enhancing subsample counterpart is positive for eight out of the nine ratios studied (three ratios formed from data in each of the three years preceding the announcement year), and it is significantly different from zero at the 0,01 level in four of the eight cases. In contrast, following the announcement year, all the average profitability measures of the efficiency - enhancing subsample firms exceed their declining - demand subsample counterparts. Furthermore, the differences between the averages of the profit margin and ROE measures for years 2 and 3 in the two subsamples are significantly different from zero. Because the firms in the efficiency - enhancing subsample are, on average, larger than those in the declining - demand subsample, the averages of real sales for the efficiency - enhancing subsample firms are larger than their declining - demand counterparts in all seven years. However, the differences between the counterparts are significantly different from zero at the 0,05 level only in years 0 through 3.

Table 5: Averages of profitability and sales measures for seven years surrounding layoff announcements

Measure / Year	-3	-2	-1	0	+1	+2	+3
Profit Margin							
Declining - demand subsample	0,1215	0,0982	0,0512	0,0461	0,0371	0,0094	0,0185
Efficiency - enhancing subsample	0,1015	0,0743	0,0792	0,0531	0,0594	0,0671	0,0549
	(1,42)	(1,36)	(-0,76)	(1,12)	(-1,24)	(-2,31)**	(-2,39)**
ROA							
Declining - demand subsample	0,0871	0,0736	0,0641	0,0352	0,0305	0,0276	0,0156
Efficiency - enhancing subsample	0,0525	0,0493	0,0352	0,0241	0,0437	0,0353	0,0312
	(3,91)***	(3,26)***	(1,97)*	(1,32)	(-0,71)	(-0,79)	(-1,35)
ROE							
Declining - demand subsample	0,1549	0,1825	0,1361	0,0826	0,0614	0,0595	0,0317
Efficiency - enhancing subsample	0,1197	0,1274	0,1129	0,0239	0,1077	0,1362	0,1135
	(2,74)***	(2,67)***	(0,95)	(2,09)**	(-1,31)	(-2,24)**	(-1,96)*
Real Sales (in millions)							
Declining - demand subsample	1984,8	1903,5	1668,1	1313,2	1392,5	1301,4	1489,9
Efficiency - enhancing subsample	2893,7	3055,4	3169,3	3288,5	3546,1	3824,8	3539,5
	(-1,28)	(-1,37)	(-1,72)*	(-2,10)**	(-2,15)**	(-2,27)**	(-2,09)**

The t - statistic (in parentheses) test the null hypothesis that the two subsample averages equal each other

*** Significant at the 0,01 level

** Significant at the 0,05 level

* Significant at the 0,10 level

The difference between the firms in the two subsamples can also be demonstrated by calculating the differences between pre - and post - announcement measures for the firms in each subsample. The difference between pre - and post - announcement measures is especially important for the sales measure, where the difference between the average sizes of the firms in the two subsamples limits our ability to draw conclusions from the average annual real sales. Averages of several of these differences are presented in Table 6. The averages of these differences between pre - and post - announcement real sales (calculated as post - minus pre - announcement measures) are generally negative for the firms in the declining - demand subsample and positive for those in the efficiency enhancing subsample. The average differences between the pre - and post - announcement profitability measures are negative and significantly different from zero for the firms in the declining - demand subsample and are mixed for the firms in the efficiency - enhancing subsample. Null hypothesis - that the averages of the differences between the pre - and post - announcement measures in the two subsamples equal each other - are rejected for most measure - year combinations (the t - values appear in brackets).

To test whether our results are generated by skewed distributions of changes in profitability and sales

measures, we construct a sign test for these differences. The conclusions based on the signs test are similar to those based on the reported t - statistics. We also construct abnormal accounting measures in order to eliminate any industry impact. We calculate these measures by subtracting the industry - mean measure from the measure for each individual firm. For a given year, the industry -mean measure is the average of that measure for all the firms that are included in the industry group (JSE listing sector) that the individual firm is associated with. The differences between the abnormal accounting measures of the two subsamples resembles the reported differences. Thus, the differences between the averages of the changes of the profitability and sales measures between the two subsamples are not likely to be induced by skewed distributions or by industry affiliation.

The differences between the means of the profitability measures of the firms in the two subsamples can be demonstrated more strikingly by regressing the post - announcement profit measures and an indicator of the reason cited for the layoffs. The estimated equations can be represented as:

$$M_t = \beta_0 + \sum_{t=1}^3 \beta_{1,t} M_t + \beta_2 D \quad \dots (6)$$

Table 6: Averages of changes in profitability and sales measures between years before and after layoff announcements

Measure / Year	0 vs -1	+1 vs 0	+1 vs -1	+2 vs -1	+3 vs -1	+2 vs -2	+3 vs -2
Profit Margin							
Declining – demand subsample	-0,0401 (-1,61)	-0,0046 (-0,34)	-0,0392 (-1,86)*	-0,0697 (-2,65)**	-0,0633 (-2,61)***	-0,0893 (-3,92)***	-0,0878 (-6,14)***
Efficiency – enhancing subsample	-0,0732 (-4,49)***	0,0496 (2,10)**	-0,0234 (-1,59)	-0,0246 (-1,59)	-0,0326 (-3,81)***	-0,0196 (-1,27)	-0,0357 (-2,89)***
	[1,69]*	[-1,91]*	[-0,48]	[-1,53]	[-0,74]	[-2,78]***	[-2,91]***
ROA							
Declining – demand subsample	-0,0302 (-3,94)***	-0,0027 (-0,31)	-0,0314 (-3,36)***	-0,0295 (-3,04)***	-0,0386 (-2,99)***	-0,0461 (-5,37)***	-0,0573 (-4,03)***
Efficiency – enhancing subsample	-0,0234 (-3,67)***	0,0183 (2,93)***	-0,0052 (-0,81)	-0,0026 (-0,37)	-0,0021 (-0,23)	-0,0134 (-2,64)**	-0,0179 (-2,17)***
	[-0,81]	[-2,17]**	[-2,31]**	[-2,54]**	[-2,73]***	[-3,38]***	[-2,74]***
ROE							
Declining - demand subsample	-0,0574 (-2,27)**	-0,0031 (-0,19)	-0,0569 (-2,31)**	-0,0714 (-2,23)**	-0,1125 (-2,56)**	-0,1232 (-4,37)***	-0,0163 (-4,31)***
Efficiency – enhancing subsample	-0,0915 (-3,81)***	0,0981 (3,21)***	0,0087 (0,30)	0,0274 (1,76)*	-0,0034 (-0,69)	-0,0022 (-0,24)	-0,0184 (-1,57)
	[1,12]	[-2,86]***	[-1,73]*	[-2,83]***	[-2,63]***	[-3,91]***	[-3,76]***
Real Sales (in millions)							
Declining – demand subsample	-35,9 (-1,50)	79,3 (1,03)	-275,6 (-1,46)	-366,7 (-1,80)*	-178,2 (-0,91)	-602,1 (-1,91)*	-413,6 (-1,45)
Efficiency – enhancing subsample	119,2 (0,51)	257,6 (1,39)	376,8 (1,28)	655,5 (1,87)*	370,2 (1,12)	769,4 (1,73)*	484,1 (1,14)
	[-1,47]	[-0,93]	[-1,95]*	[-2,48]**	[-1,46]	[-2,39]**	[-1,72]*

The t-Statistics (in parentheses) test the null hypothesis that the two subsample averages equal each other.

The t-statistics [in brackets] test the null hypothesis that the differences in the averages changes between the two subsamples equal to zero.

*** Significant at the 0,01 level

** Significant at the 0,05 level

* Significant at the 0,10 level

where M is any of the three measures, τ is either 1, 2, or 3, and D equals one if the cited reason is enhancing efficiency and zero otherwise.

The pre - announcement measures help control for industry - and firm - specific effects. The estimated coefficients of the dummy variable should represent the difference in the future profitability measures that is associated with efficiency enhancement (rather than declining demand) being cited as a reason. The measure for year 0 is not used as an independent variable because it is not known on the announcement date, and because the layoff could have a nonrecurring impact on it.

We present the estimates obtained from this set of regressions for the profitability measures in Table 7. All the estimated coefficients of the dummy variable are

positive, and five of the 9 coefficients (for the three measures in each of the three post - announcement years) are different from zero at the 0,05 significance level. Two other coefficients are different from zero at the 0,10 significance level. This indicates that when we take into account industry - and firm - specific conditions, post - announcement profit performance measures of firms citing efficiency enhancement as a reason for a layoff decision dominate the corresponding measures for firms citing declining demand as a reason for the layoff decision. Thus, the averages presented in Tables 5 and 6 and the estimates presented in Table 7 support our third hypothesis, that the reasons cited in layoff announcements are associated with firms' future performance measures.

Table 7: Estimates of the stated reasons of layoff announcements as predictors for profitability and sales measures

Dependant Variables	Independent Variables					R ²	F - Statistic
	Constant	Year -1	Year -2	Year -3	TYPE		
Panel A. Year + 1 Dependent Variable							
Profit	-0,031	0,489	0,795	-0,467	0,031	0,29	10,82***
Margin	(-0,95)	(3,94)***	(4,29)***	(-2,38)**	(-1,09)		
ROA	-0,018	0,175	0,627	-0,115	0,024	0,27	10,63***
	(-1,39)	(1,98)**	(3,67)***	(-0,82)	(2,56)**		
ROE	0,016	0,063	0,516	-0,132	0,072	0,14	3,72***
	(0,42)	(0,67)	(2,82)***	(-1,13)	(2,43)**		
Panel B. Year + 2 Dependent Variable							
Profit	0,003	2,35	-0,032	0,034	0,053	0,06	1,83
Margin	(0,04)	(1,47)	(-0,08)	(0,15)	(1,95)*		
ROA	-0,007	0,118	0,094	0,372	0,019	0,15	5,03***
	(-0,64)	(1,31)	(0,57)	(2,13)**	(1,92)*		
ROE	0,008	0,072	0,407	-0,004	0,089	0,09	2,42*
	(0,28)	(0,65)	(1,74)*	(-0,05)	(2,61)**		
Panel C. Year + 3 Dependent Variable							
Profit	0,018	0,043	0,214	-0,193	0,046	0,08	1,93
Margin	(0,74)	(0,46)	(1,03)	(-0,97)	(2,56)**		
ROA	0,027	0,301	-0,215	0,036	0,027	0,07	1,65
	(1,33)	(2,27)**	(-0,98)	(0,21)	(1,46)		
ROE	-0,034	-0,041	0,315	0,047	0,109	0,05	1,42
	(-0,58)	(-0,32)	(1,05)	(0,24)	(2,37)**		

The t - statistics are in parentheses

*** Significant at the 0,01 level

** Significant at the 0,05 level

* Significant at the 0,10 level

6. SUMMARY AND CONCLUSION

A layoff decision can be associated with either an increase or decrease in firms' value. Layoff decisions induced by adverse market conditions, such as demand declines or input price increases, should be associated with declines in sales and profitability measures. Furthermore, if layoff announcements convey new information regarding adverse market conditions, they might be associated with declines in firm values. In contrast, layoff decisions resulting from unexpected efficiency gains (or plans for efficiency improvements) should be associated with increased sales, improved profitability measures, and higher firm values.

We find negative abnormal returns for firms that announce layoffs that are motivated by declining demand, and we find positive abnormal return for firms that announce layoffs that are motivated by efficiency improvements. We conclude that the reason cited in layoff announcements are used as signals that help interpret the impact of layoff decisions on firms' values. In some instances investors interpret the announcement as bad news and in some instances, as good news.

Because of the short - term nature of their investigation, previous studies of layoff announcements have not been able to explain the reasons for such positive and significant abnormal return associated with layoff announcements. Furthermore, previous studies of layoff and related corporate decisions have not differentiated between market perceptions of two subsets of events that differ only in the content of their accompanying announcements.

We further demonstrate that the cited reasons are useful signals, because they are associated with the profitability measures in the years following the announcement year. This study has contributed by investigating the association between the cited reasons for layoffs, abnormal returns during the announcement period, and future performance measures.

This investigation also provides fresh insights concerning the two pieces of new information that can be inferred by investors from layoff announcements. First is the layoff itself. Second is all the other information including the revision in the assessment of the firm's future profitability. Our findings imply that layoffs intended to improve efficiency are considered as an effective cost - reduction tool and thus enhance

firm value, but layoff decisions induced by adverse market conditions have an adverse information content.

It is not clear why firms announce a declining market condition as a reason for a layoff when investors perceive such an announcement as an ominous sign. One explanation is that an incomplete or a misleading disclosure could hurt management's reputation, and such a deterioration is as effective as a financial loss imposed by mimicking other signals (e.g., dividends, insider trading, and capital structure). Another possible reason is the improvement in management's position in future labour negotiations as suggested by Bhana (1997) in a study on management strategies related to industrial strikes in South Africa. Future research might conduct a more careful examination of these alternative explanations.

The results of this investigation suggest that the share market is efficient in processing layoff announcements. The evidence suggests that the market learns when adverse market conditions (plans for efficiency improvements) occur, causing share prices to fall (increase). This leads the market to anticipate layoffs and temporary closure of operations. In effect, layoff announcements provide the market with appropriate signals about the future profitability and firm values. Layoffs are able to achieve fundamental structural changes in the economy which improve the future profitability and also ensure the long - term survival of companies in distress.

Because of the strategic nature of the process, layoffs have a vital role to play in the allocation of resources in the economy. The conventional wisdom, widely supported by the Trade Union movement, asserting that layoffs *per se* have a harmful impact on the economy, that they are bad news, is not supported by the evidence of this investigation. The erroneous assumption is perpetuated by taking an extremely short - term view of the economic impact of layoffs. Layoffs can be seen to be part of the process of "creative destruction" that characterizes the continuous structural changes in a free market economy (Schumpeter, 1950). The findings also lend support to the adage popular among employers in the United States which states that "the more we fire, the more we hire".

What are the implications of this study? Company managers are under considerable pressure from shareholders to improve financial performance. Often they try to do this by cutting costs and restructuring assets. Layoffs have been accepted by company managers as a strategy for cutting costs and improving profitability that is tangible and predictable. The implication for investors is clearly beneficial when layoffs are motivated by efficiency improvements. However, because of the strong emotions aroused by widespread job redundancies, there is a tendency to

regard all layoffs as unfavourable for the economy. Management could assist in providing a clear signal to the community at large by explaining the strategic and long - term financial benefits arising from layoffs.

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