

## Impact of Layoff Announcements on the Market Value of the Firm

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Résumé de l'article

On a attribué la vague des licenciements en Amérique du Nord durant les années 80 non seulement aux cycles de récession, mais également aux restructurations de grande échelle consécutives à des chocs externes tels l'accroissement du commerce et la concurrence internationale. Les réductions de main-d'œuvre constituent une forme populaire d'ajustement aux États-Unis et au Canada, alors qu'en Europe de l'Ouest et au Japon, bon nombre de contraintes institutionnelles et légales réduisent leur usage. Malgré cela, l'effet des décisions de réduction de main-d'œuvre sur la valeur marchande de l'entreprise n'est pas bien compris.

Nous analysons ici l'effet d'annonces de licenciements sur la valeur au marché de l'entreprise. Nous présentons d'abord la méthodologie utilisée à partir de la littérature dans le domaine de la finance pour ensuite l'appliquer à un échantillon de 214 annonces de licenciements faites par de grandes entreprises canadiennes inscrites à la Bourse de Toronto entre 1982 et 1989. De façon plus particulière, nous cherchons à savoir si le marché peut distinguer entre les aspects « bonne nouvelle » d'une telle annonce (v.g. les efforts proactifs de l'entreprise visant à abaisser sa structure future de coûts) et les aspects « mauvaise nouvelle » (v.g. réaction de l'entreprise à une perte de sa part de marché qui révèle une nouvelle information négative sur le degré de compétitivité de l'entreprise).

Les résultats empiriques de notre étude sont : (1) le marché réagit de façon négative à de telles annonces, en baissant la valeur de la firme. Cela suggère que l'aspect « mauvaise nouvelle » de telles annonces l'emporte sur l'aspect « bonne nouvelle ». (2) Presque toute cette réaction négative se produit la journée même et le lendemain de l'annonce. Cela suggère que le marché est incapable d'anticiper pleinement cette nouvelle information et que sa réponse est très rapide. (3) Le marché semble être capable de distinguer entre la bonne et la mauvaise nouvelle que contient cette annonce en ce qu'il répond positivement aux licenciements proactifs et négativement aux licenciements réactifs qui traduisent des problèmes fondamentaux tels demande ou profits insuffisants. (4) La réponse négative du marché a été plus forte pour les licenciements globaux que pour des licenciements partiels. Cette réponse négative fut effectivement plus forte lorsque ces licenciements étaient effectués dans un contexte où la masse salariale était déjà basse, suggérant ici que l'entreprise coupait dans le « muscle » et non dans le « gras ». (5) La réponse du marché est la même pour des licenciements à durée définie et à durée indéfinie. Telle réaction semble plus forte dans le secteur manufacturier que dans le non manufacturier, cependant, dans ce dernier secteur, la mesure est trop imprécise pour être concluante.

Plus de recherches sont nécessaires pour constituer une base de données plus large sur les annonces de licenciements. Cela permettrait des analyses plus précises au niveau désagrégé et faciliterait aussi les analyses multivariées des différents déterminants du changement dans la valeur de la firme en réaction à des telles annonces. Une base de données plus large permettrait aussi l'analyse plus en profondeur de la nature de l'information fournie avec de telles annonces. Par exemple, cela permettrait d'évaluer si des annonces de licenciements caractérisées par des réductions cibles de personnel à être atteintes par l'attrition ou la retraite volontaire sont perçues par les investisseurs comme découlant de décisions proactives et si des réductions annoncées comme devant être faites par des licenciements purs et simples sont perçues comme réactives. De telles analyses indiqueraient des moyens par lesquels cette importante activité qu'est la planification des ressources humaines peut être liée à la valeur globale de l'entreprise.

# *Impact of Layoff Announcements on the Market Value of the Firm*

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*In this study, we analyze the effect of layoff announcements on the market's valuation of firms. The event study methodology is applied to a sample of 214 announcements of layoffs made by major Canadian firms that traded on the Toronto Stock Exchange over the period 1982–1989. The main results are: (1) The market responds to the news of layoffs in a negative fashion, lowering the value of firms that announce layoffs, and (2) almost all of the negative response occurs on the day of the announcement, suggesting that the market is not able to fully anticipate the new information, but that it responds to it very quickly.*

Widespread layoffs in North America in the 1980s have been attributed not only to recessionary cycles but also to large-scale restructuring in response to external shocks such as increasing trade and international competition. Workforce reductions are a frequent form of adjustment among U.S. and Canadian firms in contrast to Western Europe and Japan where a number of institutional and legal constraints reduce its usage. Despite the prevalence of downsizing as an adjustment tool, the effects of workforce reduction decisions on the market value of the firm are not well understood.

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Market reactions as well as firm-level responses in this context, suggest that there is a need to better understand these effects.<sup>1</sup>

Although loss of employment is of central concern to any industrial relations system, its overall impact on the firm has not received much attention from industrial relations researchers. A number of researchers have called for increased emphasis on relating strategic industrial relations practices to organizational outcomes and performance (Block et al. 1987). Only a few recent studies, however, have considered some form of workforce reductions and their impact on firm value.<sup>2</sup> In one study of a variety of human resource decisions by firms listed on the New York Stock Exchange, Abowd, Milkovich and Hanon (1990) examine the impact of announcements of shutdowns, plant relocations, and staffing increases and decreases on the value of the firm. Their results suggest that announcements of shutdowns and staffing reductions (temporary and permanent) lower the market value of a firm.

Blackwell, Marr and Spivey (1990) examine plant closures as a special case of workforce reduction. They find an overall negative and significant stock market reaction to plant closure announcements. They further analyze the market reaction separately for each of a number of different reasons given for plant closures. For plant closures due to declining profitability, they find statistically significant downward stock price revision. For other reasons, such as consolidation of facilities or because of labour-management disputes, they observe negative stock market reaction as well. This reaction is not significant, however.

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1. For example, the market reaction to a recent announcement by International Business Machines (IBM), in which a layoff of 20,000 employees was the highlight of a restructuring plan, caused IBM shares to go up in price at first but then the gains were quickly lost (Abelson 1991). Shares of Philip Morris Cos. Inc., in contrast, experienced an immediate decline. At the corporate level, similar uncertainty prevails over the ex-ante effects of layoffs. A recent survey of American firms shows that a surprisingly large number of firms (82% of 1204 firms of whom 909 had downsized over the last five years) remained unclear about how workforce reductions fit in with their future plans (Right Associates 1992).
  2. In the industrial relations and human resource management literature, the event study methodology has been applied to analyze the effect of such factors as strikes (Becker and Olson 1986; Greer, Martin and Reusser 1980; Neuman 1980), unionization (Ruback and Zimmerman 1984), wage settlements (Abowd 1989), concession bargaining (Becker 1987), equal employment opportunity laws (Hersch 1991), plant closings (Blackwell, Marr and Spivey 1990), and a wide range of human resource management decisions (Abowd, Milkovich and Hannan 1990). To our knowledge, only the latter two studies dealt with layoff announcements — Blackwell, Marr and Spivey with the layoffs that are implied by plant closings, and Abowd, Milkovich and Hannan with layoff announcements as one of many human resource policies.

Together, the above results would seem to suggest that layoffs announcements have a negative or, at best, no effect on the market's valuation of a firm. These results do not offer a satisfactory explanation for the widespread use of layoffs by firms as restructuring tools and, therefore, need to be investigated further. In this paper, we argue that in order to fully understand the market's reaction to layoff decisions, it is important to distinguish carefully among different types of layoffs. We posit that the market reacts negatively or positively, depending upon the information content of the layoff announcements and its implications for the firm's future prospects. If the announced layoff is seen to be part of an overall, long-term firm strategy, then its effect on firm value is likely to be non-negative or even positive. On the other hand, the market is likely to react negatively if the layoffs are seen simply as a response to developments that a firm could have anticipated and planned for in advance.

We test the above propositions using data on firms which traded on the Toronto Stock Exchange during 1982-89, and made layoff announcements during this period. The results support the propositions, albeit weakly. In the first section, we describe the approach taken to analyze the information accompanying the layoff announcements by a firm. In the next section, the standard methodology employed in event studies to measure the announcement effect on firm value is briefly described. The third section contains the sample description. Results are discussed in the following section, with a summary and conclusions in the last section.

### **CONCEPTUAL FRAMEWORK**

Announcements of workforce reductions typically contain both "good news" and "bad news," at least from the perspective of the stock market. The "bad news" is that new information is being revealed about events that might adversely affect the firm or that are manifestations of underlying problems. This can be the case with respect to announcements of a strike, or the need for mass layoffs or a plant closing. The "good news" can be that the firm is doing something about the underlying problem, or that its actions may save on subsequent, possibly higher costs.

To the extent that the market fully anticipates the information content of the announcement, the stock market would adjust prior to the announcement with no additional adjustment immediately before, during or after the announcement. In general, however, there may be some small market response just prior to the announcement, an additional response to the new information (or the confirmation of the earlier information) at the time of the announcement, and a slight post-announcement response. The latter may reflect new information concerning the implications of the announcement,

or the strategic response of other stakeholders. As discussed later, the event study methodology can capture the market response before and after the announcement as well as the announcement effect itself.

In our analyses, we attempt to distinguish the “good news” and the “bad news” components of the announcements in a variety of ways, based on information available in the announcements that, by definition, would be available to investors. This information includes: (1) reasons for the layoffs; (2) whether the job loss applies to all or part of the workforce at the plant; (3) whether the layoffs are permanent or temporary; and (4) whether there have been unfavourable announcements by or about the firm during the period preceding the layoff announcement. As well, information on the wage costs of the organization and the industrial sector of the firm may help investors determine the implications of the layoff announcement for the subsequent performance of the firm.

With respect to the reasons for the layoffs, the announcements make it possible to identify “bad news” events as “reactive” managerial decisions in response to the following negative conditions: (1) insufficient demand; (2) non-profitability of the operation; (3) supply shortages; (4) labour disputes and (5) industrial accidents. These are typically those market conditions and trends which any forward-looking firm ought to have observed well in advance of the time it has to make a layoff announcement.

In contrast, announcements are categorized as “good news” ones (from the perspective of the stock market) where the job loss announcement conveys a “proactive” managerial decision, namely, the consolidation of facilities so that the organization is better equipped to meet future conditions. Also categorized as “proactive” are those layoff announcements in which any mention of a deterioration of market conditions, supply shortages, labour disputes and industrial accidents (i.e., reasons which make the announcement a “reactive” one) is missing. In particular, we categorize announcements where no reason was given, as proactive ones on the grounds that there is no negative news coverage of the firm (or announcement by the firm) for up to 45 days prior to the layoff announcement.<sup>3</sup> Thus, in the absence of any specific information relating to the layoff announcement, we assume that investors give management the benefit of doubt, and perceive that the layoff was carried out for proactive reasons.

In addition to categorizing the announcements in terms of reactive or proactive reasons, we also categorize them on the basis of whether the layoff affected just part of the workforce (partial) or all of the workforce

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3. This length of period is chosen to ensure that the valuation effect, measured around the announcement date, is due mainly to the layoff announcement.

(full). Partial workforce reductions are expected to have a smaller impact on the valuation of the firm than would full layoffs.

The layoffs are also categorized according to their duration (definite or indefinite). The indefinite duration announcements may be a signal of greater uncertainty of the severity of the situation and of management's response, and hence convey more negative information to investors.

Investors may also interpret layoff announcements more negatively if the ratio of labour cost to total cost is small in the firm. The savings from layoffs in such circumstances is likely to be small and hence the announcement is more likely to be interpreted as a signal of other problems. As well, it may raise the spectre of a firm cutting "muscle" and not "fat" when labour costs are already low.

Investors may also interpret layoff announcements differently in different sectors. For example, layoffs in manufacturing may be interpreted as part of the normal response to deindustrialization so that there is little new or "surprise" information in the announcement itself. In contrast, layoffs in the service sector may be more surprising given the expanding nature of that sector.

While the "good news - bad news" content of the layoff announcement may differ according to these various factors (partial or full layoff, definite or indefinite duration, magnitude of the wage bill, and the nature of the industry) the relationships are not obviously unidirectional nor strong. The one exception is whether the reason given for the layoff involves a proactive response (e.g., consolidation of facilities) or a reactive response (e.g., insufficient demand, unprofitable operation). Our expectation is that a reactive response is likely to give rise to a more negative stock market response, and that a proactive response may in fact be interpreted positively, leading to an upward revision in the market value of the firm.

### ***METHODOLOGY FOR MEASURING ANNOUNCEMENT EFFECTS ON FIRM VALUE***

The event study methodology involves estimating the hypothetical expected stock market returns that the company would have earned had there been no event. The hypothetical expected returns are subtracted from the actual realized returns in the presence of the event. The difference may then be attributed to the event — in this case, the layoff announcement. The hypothetical expected returns had there been no event are, in turn, estimated by establishing the "normal" relationships between an overall index of stock market returns and the returns in those companies experiencing the event. The normal relationship is estimated over a period of time not

affected by the event. This relationship is then used to predict what the returns in the company would have been had it not experienced the event. The difference between the actual realized return and this normal return is a measure of the abnormal return resulting from the event.

Formally, let  $r_t$  be the realized return on the stock of a firm for day  $t$ . This is simply the change in the stock price over the day, plus the value of any dividend paid per share over the day. Thus, expressed as a percent of the previous day's price, the return

$$r_t = (P_t - P_{t-1} + D_t) / P_{t-1}$$

where  $P_t$  is the price of firm's stock at the close of day  $t$  and  $D$  is the dividend paid per share over day  $t$ . (For simplicity, the subscripts denoting the sample firms experiencing the event are omitted.) The prices per share are adjusted to incorporate stock splits and stock dividends.

Calculation of abnormal returns in the period surrounding the event involves the following three steps. First, the normal relationship between the returns in a sample of firms experiencing the event, and average returns for the market as a whole is estimated. This is done over a period that would be considered "normal" prior to the layoff announcement. For each sample firm, the relationship is estimated through an ordinary least squares regression as:

$$r_t = \alpha + \beta r_{mt} + \mu_t \quad t = -145 \text{ to } -45$$

where  $r_t$  = return of the sample firm experiencing the event,  $r_{mt}$  = return on the Toronto Stock Exchange (TSE) value-weighted Index, and  $\mu_t$  = normally, identically distributed, serially uncorrelated mean-zero disturbance term for the firm on day  $t$  during a period not likely to be influenced by the event (i.e., day 145 to day 45 prior to the announcement date).

Second, the hypothetical expected normal return  $E(r_t)$ , had there been no announcement, is estimated for each firm and for each day surrounding the announcement date under the assumption that the usual relationship between the returns of the sample firm and the returns to the TSE Index continues to prevail. This involves using the parameters  $\alpha$  and  $\beta$  estimated from the non-announcement period as follows:

$$E(r_t) = \alpha + \beta r_{mt} \quad t = -20 \text{ to } +20.$$

Third, the daily abnormal returns  $AR_t$  are calculated for each day around the announcement date as the difference between the actual returns and the expected returns. Thus, for each firm

$$AR_t = r_t - E(r_t), \quad t = -20 \text{ to } +20.$$

These abnormal returns for each day can be averaged across the sample firms experiencing the event to get the average abnormal returns  $AAR_t$  for each day  $t$  around the event date as

$$AAR_t = (1/N_t) \sum_{j=1}^{N_t} AR_{j,t}.$$

The cumulative average abnormal return ( $CAAR_L$ ) from day  $l$  to day  $L$  days for the sample firms is

$$CAAR_L = \sum_{t=l}^{L+l-1} AAR_t$$

where  $l$  is the first day in the cumulation (day -20 here).

For the purpose of hypothesis testing, both  $AAR_t$  and  $CAAR$  are standardized so that the standard hypothesis tests<sup>4</sup> can be employed to determine whether any abnormal stock price revisions around the event date are significantly different from zero. The standardized estimates are presented in the subsequent empirical results.

For the purpose of this study, one modification to the above procedure is employed in view of the multiple layoff announcements by firms. For each firm that makes more than one layoff announcement, an average abnormal return over all announcements made by the firm is calculated before it is used to calculate the value of  $AAR_t$  and  $CAAR_t$  on a given day. Thus, each firm appears only once when the average valuation effect of a layoff announcement is assessed for the sample.

### DATA SOURCES AND SAMPLE DESCRIPTION

Three types of data were collected for this study: (1) announcements of layoffs by firms on the Toronto Stock Exchange (TSE), (2) daily stock trading data for the sample firms, and (3) financial and other operating data for the sample firms.

4. Let  $ASAR_t$  denote the average standardized abnormal return for a sample firm on day  $t$ . Assuming announcements by sample firms are independent events, this average standardized abnormal return  $ASAR_t$  is approximately normally distributed with variance  $1/N_t$  (under null hypothesis  $AAR_t = 0$ ), so that the standard normal variate

$$Z(CAAR_L) = \frac{1}{L^{1/2}} \sum_{t=l}^{L+l-1} Z(AAR_t)$$

is obtained. If  $Z(AAR_t)$  are serially independent, then we get

$$Z(AAR_t) = ASAR_t N_t^{1/2}$$

which is also a standard normal variate. The quantities  $AAR_t$ ,  $Z(AAR_t)$ ,  $CAAR_t$  and  $Z(CAAR_t)$  can now be employed in the standard  $t$ -test manner, to ascertain whether abnormal price revisions have occurred in a given period. In the null hypothesis in these tests, the abnormal returns around the announcement date are set equal to zero.



The layoff announcements were located through a search of the Canadian Business and Current Affairs (CBCA) data base that covers the daily news media. A total of 350 layoff announcements were made by 141 firms during the 1982–89 period. Of these 141 firms, 105 were listed on the TSE during the sample period. These 105 TSE-listed firms accounted for 251 of the original 350 layoff announcements. A list of the 105 companies is provided in the Appendix,<sup>5</sup> together with the breakdown of the 251 announcements by company and year of announcement. The empirical results reported here refer to this sample of 105 TSE-listed firms and the 251 layoff announcements made by them.

Each layoff announcement is initially treated as a separate event. For each of the layoff announcements in the sample, the details of the layoff were obtained from the *Globe and Mail*, supplemented by the coverage in the *Financial Post* — the two major newspapers that typically cover these announcements. From the press coverage, information was obtained on the following items: (1) the date of the announcement; (2) the geographical location of the plant/division affected by the announcement; (3) the type of layoff (all or part of the workforce laid-off); (4) the duration of the layoff (definite and temporary, indefinite or permanent — announcements which did not explicitly specify the duration of the layoff were treated as indefinite); (5) the date when the layoff would take effect; (6) the number and proportion of employees affected; and (7) the stated reason or reasons for the layoff announcement.

The overall picture that emerges from the above information reflects, as expected, the substantial restructuring that has been occurring. Almost 40% of the layoffs occurred in Ontario, Canada's most industrial province. The average number of employees laid off was about 500, although the range was quite substantial — going from 12 to 21,500, the latter occurring in the Ford Motor Company of Canada in 1989.

As indicated in Table 1, the number of announcements varied dramatically across the years, with the numbers being notably higher in the recession years 1982 and 1989. The number of full closures exceeded the number of partial closures, but not by a wide margin. In almost half of the announcements, the duration of layoffs was either indefinite or simply not specified (as noted earlier, the latter cases have been treated as layoffs of indefinite duration in our analysis). A little over one quarter of the announcements involved layoffs of definite duration. The rest were permanent layoffs.

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5. The list of 105 firms which made layoff announcements during the 1982–89 period is available from the authors on request.

TABLE 1  
 Number of Layoff Announcements by Type and Duration, 1982-89<sup>1</sup>

| Year  | No. of<br>Announcements | Type of Layoff <sup>2</sup> |              | Duration of Layoff |                         |           |
|-------|-------------------------|-----------------------------|--------------|--------------------|-------------------------|-----------|
|       |                         | Partial<br>Layoff           | Full Closure | Definite           | Indefinite <sup>3</sup> | Permanent |
| 1982  | 84                      | 32                          | 52           | 37                 | 38                      | 9         |
| 1983  | 25                      | 10                          | 15           | 5                  | 13                      | 7         |
| 1984  | 17                      | 6                           | 11           | 1                  | 8                       | 8         |
| 1985  | 10                      | 4                           | 6            | 1                  | 6                       | 3         |
| 1986  | 13                      | 8                           | 5            | 1                  | 6                       | 6         |
| 1987  | 11                      | 6                           | 5            | 2                  | 3                       | 6         |
| 1988  | 16                      | 6                           | 10           | 0                  | 9                       | 7         |
| 1989  | 75                      | 31                          | 44           | 7                  | 37                      | 31        |
| Total | 251                     | 103                         | 148          | 54                 | 120                     | 77        |

1. The 251 announcements were made by 105 firms, listed on the Toronto Stock Exchange, which announced layoffs or elimination of jobs in the *Globe and Mail* during the 1982-89 period.
2. The layoff announcement affected part of the workforce in the partial layoff. In full closure, all of the employees at a plant were covered by the layoff announcement.
3. These cases include those announcements in which the duration of layoff was not specified explicitly.

Table 2 categorizes the layoffs by the major reason for the layoff, with the reasons being categorized as proactive or reactive. Proactive reasons were given in about 30% of the cases. The reactive reasons are listed in descending order of importance (as indicated by the frequency of being cited): insufficient demand (by far the most important); the operation not being profitable; labour disputes and industrial accidents; and supply shortages. While we do not attach much importance to the distinctions within the major categories of proactive and reactive reasons, we feel that the distinction between proactive and reactive reasons themselves is important, especially for assessing the impact of layoffs on the value of the firm.

Of the 105 sample firms that announced layoffs during the 1982-89 period, daily trading data on 84 were available from the TSE-Western data base (compiled by the Toronto Stock Exchange and the University of Western Ontario). These 84 firms account for 214 of the 251 sample announcements.

The data include daily closing prices, dividend distributions and dates of stock dividends and splits. These are used for calculating the abnormal daily returns on the stocks of the sample firms on a market-adjusted basis, as already explained.

TABLE 2  
Reason Given for Layoff Announcements<sup>1</sup>

|       | <i>Reason for Layoff</i> |                        |                         |                        |                       |                        | <i>Total</i> |
|-------|--------------------------|------------------------|-------------------------|------------------------|-----------------------|------------------------|--------------|
|       | <i>"Proactive"</i>       |                        |                         | <i>"Reactive"</i>      |                       |                        |              |
|       | <i>I</i> <sup>2</sup>    | <i>II</i> <sup>3</sup> | <i>III</i> <sup>4</sup> | <i>IV</i> <sup>5</sup> | <i>V</i> <sup>6</sup> | <i>VI</i> <sup>7</sup> |              |
| 1982  | 6                        | 4                      | 51                      | 18                     | 4                     | 1                      | 84           |
| 1983  | 3                        | 5                      | 9                       | 7                      | 1                     | 0                      | 25           |
| 1984  | 4                        | 3                      | 8                       | 0                      | 2                     | 0                      | 17           |
| 1985  | 0                        | 2                      | 4                       | 3                      | 1                     | 0                      | 10           |
| 1986  | 1                        | 5                      | 5                       | 2                      | 0                     | 0                      | 13           |
| 1987  | 0                        | 3                      | 6                       | 2                      | 0                     | 0                      | 11           |
| 1988  | 3                        | 3                      | 7                       | 1                      | 2                     | 0                      | 16           |
| 1989  | 12                       | 18                     | 31                      | 4                      | 1                     | 9                      | 75           |
| Total | 29                       | 43                     | 121                     | 37                     | 11                    | 10                     | 251          |

1. The 251 announcements were made by 105 firms, listed on the Toronto Stock Exchange, which announced layoffs or elimination of jobs in the *Globe and Mail* during the 1982-89 period.
2. Consolidation of facilities.
3. No mention of insufficient demand, insufficient profits, labour dispute or industrial accidents, or no specific reason given.
4. Insufficient demand.
5. Insufficient profits.
6. Labour dispute or industrial accidents.
7. Supply shortage.

Data on three additional variables for the sample firms are obtained from the *Financial Post* database: Wages and Salaries, Sales Revenues, and Operating Income. These are used to calculate the wage bill as a percent of the total costs of goods sold for each firm (Wage bill as a percent of total costs = Wages and Salaries/(Sales Revenues - Operating Income)).

### ***EMPIRICAL RESULTS***

Table 3 contains the main empirical results. It shows the effect of a layoff announcement on the stock market returns of the firms making the announcements, disaggregated by factors such as the reason for the layoff, type of layoff, its duration, the wage bill, and the sectoral location of the firm. As noted earlier, each firm appears only once<sup>6</sup> in the calculation of

6. This is violated, however, when we look at the announcement effects for different subsamples of firms. For example, if a firm announced two layoffs - one of definite duration and another of an indefinite duration - then it would appear once in each subsample.

TABLE 3  
**Average Abnormal Returns (%) from Layoff Announcements, 1982– 89<sup>1</sup>**  
 (Numbers in parentheses are the Z-statistics)

| Event   | Number of Firms <sup>2</sup> | Cumulative Abnormal Returns<br>CAAR<br>-1 to +1 | Average Daily Abnormal Returns (%)<br>OR<br>Day Relative to Announcement |                      |                      | Cumulative Abnormal Returns (%)<br>CAAR<br>-20 to -2 | Cumulative Abnormal Returns (%)<br>CAAR<br>+2 to +20 |
|---|------------------------------|---|--|----------------------|----------------------|--|--|
|   |                              |   | AAR<br>-1  | AAR<br>0             | AAR<br>+1            |  |  |
|   |                              |   |  |                      |                      |  |  |
| <b>TOTAL</b>  | 84<br>(214)                  | -0.4671<br>(-3.1718)                            | 0.0855<br>(0.9768)   | -0.2777<br>(2.4663)  | -0.2783<br>(3.2354)  | 0.4311<br>(1.0830)                                   | -0.1819<br>(-0.5896)                                 |
| <b>Reason given:</b>                                  |                              |   |  |                      |                      |  |  |
| - Reactive  | 66<br>(147-152)              | -0.7889<br>(-4.3673)                            | 0.1048<br>(0.9321)   | -0.4355<br>(-3.0935) | -0.4620<br>(-4.2956) | -0.5419<br>(-1.0614)                                 | -0.5705<br>(-1.4600)                                 |
| - Proactive   | 38<br>57-72                  | 0.3165<br>(1.4402)                              | 0.0383<br>(0.3063)   | 0.1090<br>(0.6393)   | 0.1691<br>(1.4071)   | -0.1632<br>(-0.2831)                                 | 0.7571<br>(1.6813)                                   |
| <b>Type of layoff</b>                                 |                              |   |  |                      |                      |  |  |
| - Partial   | 53<br>(116-122)              | -0.3894<br>(-1.9603)                            | 0.2397<br>(1.8172)   | -0.4064<br>(-2.3138) | -0.2227<br>(-2.0459) | -0.2079<br>(-0.3419)                                 | -0.8201<br>(-1.8039)                                 |
| - Full  | 52<br>(90-92)                | -0.5712<br>(-2.6139)                            | -0.1188<br>(1.1702)  | -0.1070<br>(-0.9024) | -0.3529<br>(-2.5378) | -0.7279<br>(-1.5952)                                 | 0.6836<br>(1.8561)                                   |
| <b>Duration of layoff</b>                             |                              |   |  |                      |                      |  |  |
| - Definite  | 29<br>(46-48)                | -0.4044<br>(-1.8576)                            | -0.0054<br>(-0.0443)   | -0.2831<br>(-1.7174) | -0.1159<br>(-0.9585) | -0.5918<br>(-0.8944)                                 | -0.2277<br>(-0.4183)                                 |
| - Indefinite  | 79<br>(161-165)              | -0.4853<br>(-2.7095)                            | 0.1119<br>(1.0420)   | -0.2761<br>(-2.0108) | -0.3255<br>(3.0945)  | -0.3841<br>(-0.8040)                                 | -0.1698<br>(-0.4671)                                 |
| <b>Wage bill as percent of total cost<sup>3</sup></b> |                              |   |  |                      |                      |  |  |
| - Below median  | 10<br>(48)                   | -0.4610<br>(-2.9613)                            | 0.1154<br>(1.1941)   | -0.2978<br>(-2.4578) | -0.2786<br>(-2.9509) | 1.0722<br>(1.6793)                                   | -0.1730<br>(-0.3096)                                 |
| - Above median  | 9<br>(28-29)                 | -0.5069<br>(-1.1375)                            | -0.1051<br>(-0.5440)   | -0.2761<br>(-1.3719) | -0.2761<br>(-1.3719) | -1.2022<br>(-1.4035)                                 | 0.1318<br>(0.1413)                                   |
| <b>Sic:</b>   |                              |   |  |                      |                      |  |  |
| - Manufacturing                                       | 60<br>(176-181)              | -0.5075<br>(-3.3777)                            | 0.0871<br>(0.9599)   | -0.3012<br>(-2.6098) | -0.2968<br>(-3.3577) | -0.2528<br>(-0.7427)                                 | -0.0777<br>(-0.2642)                                 |
| - Non-Manufacturing                                   | 6<br>(8)                     | 0.5693<br>(0.9038)                              | 0.0466<br>(0.2352)   | 0.3269<br>(0.6936)   | 0.1958<br>(0.6262)   | 0.2125<br>(0.1589)                                   | 0.9855<br>(0.9902)                                   |

- Of the 105 firms which made the 251 job loss announcements during the 1982-89 period, time series of daily returns for 84 firms making 214 announcements can be constructed from the TSE-Western daily prices database. Numbers in parentheses are the standard normal variates Z(AAR) AND Z(CAAR).
- Each firm appears only once in the AAR<sub>t</sub> and CAAR<sub>t</sub> calculation for the total sample and for any subsample. A firm may appear in both subsamples within a category, however, if it made both types of announcements during the sample period. Number of announcements available for calculating the average daily abnormal returns and can vary from one day to the next, depending on the availability of price data. These are shown in parentheses below the number of firms in a subsample.
- Wage bill as a percent of total costs is calculated as the ratio of Wages and Salaries to Cost of Goods Sold (= Sales Revenues minus Operating Income). Data on Wages and Salaries, Sales Revenues and Operating Income are taken from the Financial Post Database.

the average abnormal returns calculations even though it may have made multiple announcements. This is accomplished by averaging the abnormal returns over all announcements made by a firm before its abnormal returns are used in calculating the values of  $AAR_t$  and  $CAAR_t$ . This step allows us to perform conservative hypothesis tests while utilizing the information on all the announcements made by a firm.

Under the "Average daily abnormal returns (AAR)" column in Table 3, the announcement effects are given for the announcement date (day 0) as well as for each of the other two days in the three-day window surrounding the announcement date (day -1 and day +1). Under "Cumulative abnormal returns (CAAR)" in column 1, the average cumulative effect of the layoff announcement for the whole three-day window (day -1 to day +1) is given. The cumulative effect allows for the possibility of a news leak before the official layoff announcement is made, as well as for its total impact to be accounted for on the day after the announcement date. The last two columns in Table 3 give the "Cumulative average abnormal returns" for longer periods both before (day -20 to 2) and after (day +2 to +20) the three-day event window (day -1 to day +1).

As given in the first row of Table 3, the CAAR numbers for the three-day event window (day -1 to day +1) indicate that the layoff announcements did lower the value of the firms by a statistically significant amount. The "bad news" content of the announcements appears to have dominated the "good news" content. The separate daily Average Abnormal Returns (AAR) indicate that almost all of the negative effect occurred on the announcement date itself and on the day immediately after the announcement, with the magnitude of the effect being about the same for each of those two days. Apparently, layoff announcements contain some new surprise information that has not been fully anticipated by the market; however, the market adjusts almost immediately to that information.

The magnitude of the Cumulative Average Abnormal Returns indicates that over the three-day event window, the stock market value of firms drops by about one-half of one percentage point (i.e., 0.47%) in response to layoff announcements. Since the long-run average annual return for the TSE-listed firms is about 12%, this reduction of approximately 0.5% in a firm's return is the equivalent of a loss of about 4% ( $= \frac{0.5}{12}$ ) of one year of growth.

12

Further, as shown in Table 3, Cumulative abnormal average returns during the periods day -20 to day -2 and day +2 to day +20, indicate no statistically significant market response outside of the three-day window surrounding the layoff announcement. While the direction of the response is negative in the longer windows both before and after the three day window,

the effects are statistically insignificant. The decline in firm value during the three-day window can, therefore, be attributed to the layoff announcement.

The disaggregate figures (separate rows) indicate some interesting patterns, although the smaller sample sizes often make inferences difficult. When the announcements are categorized according to the reasons for the layoffs, the expected pattern emerges whereby "bad news" layoffs made for reactive reasons lead to a substantial decline in the value of the firm. The "good news" announcements made for proactive reasons lead to an increase in the value of the firm, although the latter effect is (marginally) insignificant.

The type of layoff also affects the stock market response, with a larger negative response resulting from full layoffs than from partial layoffs. The duration of the layoff does not have an effect, with both definite and indefinite layoffs leading to a similar negative response. For firms whose wage bill was below the median, the response was negative and significant. However, for firms whose wage bill was above the median, the response, while also negative, was statistically insignificant. This suggests that when labour costs are already low, investors may interpret employment cuts in a negative fashion, as cutting "muscle" and not "fat". The responses do differ by sector, with firms in the non-manufacturing sector exhibiting a positive response, but the effect is insignificant and imprecisely measured because of the small number of observations in the non-manufacturing sector.

Further evidence of the differential impact of proactive and reactive reasons for layoff announcements on the firm's market value can be seen in Table 4. Descriptive statistics of the daily and cumulative abnormal returns during the five-day period around the layoff announcements are shown in the Table 4, disaggregated by proactive versus reactive reasons for the layoffs. In the case of reactive layoffs, less than half of the cumulative abnormal returns are positive during this five-day period. On the other hand, one hundred percent of the proactive layoffs are accompanied by positive cumulative abnormal returns. Clearly, the market responds positively to proactive layoff announcements, especially relative to reactive layoff announcements, where the market response tends to be negative.

## CONCLUSIONS

Our application of the event study methodology to the announcements of layoffs by firms yields the following empirical results: (1) the market does respond to such announcements in a negative fashion, lowering the value of firms that announce such layoffs, suggesting that the "bad news" content of the new information outweighs the "good news" content; (2) almost all of the negative response occurs on the day of the announcement and the

TABLE 4  
**Daily and Cumulative Abnormal Returns (%) during the Five-day Period  
 (day -2 to day +2) around the Layoff Announcement, 1982-89<sup>1</sup>**

|   |                   | <i>Abnormal Returns (%) on Day</i> |        |        |        |        |
|---|-------------------|------------------------------------|--------|--------|--------|--------|
|   |                   | -2                                 | -1     | 0      | +1     | +2     |
| <b>All firms (n=84)</b>                   |                   |                                    |        |        |        |        |
| <b>Daily:</b>                             |                   |                                    |        |        |        |        |
|   | Mean <sup>3</sup> | -.0335                             | .0856  | -.2777 | -.2783 | .0781  |
|   | Median            | .0374                              | .0361  | -.1560 | -.1335 | -.0008 |
|   | Std. Dev.         | 1.4778                             | 1.2871 | 1.6473 | 1.2555 | 1.6720 |
|   | % Non-negative    | 49.40                              | 53.40  | 44.58  | 43.37  | 54.22  |
| <b>Cumulative:</b>                        |                   |                                    |        |        |        |        |
|   | Mean <sup>3</sup> | -.0335                             | .0524  | -.2253 | -.5019 | -.4124 |
|   | Median            | .0374                              | .0807  | -.1518 | -.2451 | -.1011 |
|   | Std. Dev.         | 1.4778                             | 1.7559 | 2.2727 | 2.6965 | 3.3878 |
|   | % Non-negative    | 49.40                              | 44.58  | 45.78  | 37.35  | 42.12  |
| <b>Reactive firms (N=66<sup>2</sup>)</b>  |                   |                                    |        |        |        |        |
| <b>Daily:</b>                             |                   |                                    |        |        |        |        |
|   | Mean <sup>3</sup> | -.0579                             | .1048  | -.4355 | -.4621 | .0513  |
|   | Median            | .0324                              | .0362  | -.1686 | -.3839 | -.0009 |
|   | Std. Dev.         | 1.6302                             | 1.3868 | 1.7357 | 1.3217 | 1.8877 |
|   | % Non-negative    | 50.75                              | 53.75  | 35.82  | 31.34  | 53.73  |
| <b>Cumulative:</b>                        |                   |                                    |        |        |        |        |
|   | Mean <sup>3</sup> | -.0579                             | .0476  | -.3878 | -.8485 | -.7857 |
|   | Median            | .0324                              | .0943  | -.2599 | -.4104 | -.4038 |
|   | Std. Dev.         | 1.6302                             | 1.8516 | 2.3474 | 2.8525 | 3.6941 |
|   | % Non-negative    | 50.75                              | 44.78  | 41.79  | 32.84  | 34.33  |
| <b>Proactive firms (N=38<sup>2</sup>)</b> |                   |                                    |        |        |        |        |
| <b>Daily:</b>                             |                   |                                    |        |        |        |        |
|   | Mean <sup>3</sup> | .0256                              | .0384  | .1091  | .1691  | .1427  |
|   | Median            | .1263                              | .0197  | .1273  | -.0331 | .0054  |
|   | Std. Dev.         | 1.0283                             | .0958  | 1.3429 | .9463  | .9860  |
|   | % Non-negative    | 45.71                              | 57.14  | 54.29  | 57.14  | 54.29  |
| <b>Cumulative:</b>                        |                   |                                    |        |        |        |        |
|   | Mean <sup>3</sup> | .0256                              | .0639  | .1731  | .3421  | .4849  |
|   | Median            | .1263                              | -.0898 | .2926  | .2312  | .1719  |
|   | Std. Dev.         | 1.0283                             | 1.5091 | 1.1701 | 2.0593 | 2.2895 |
|   | % Non-negative    | 100.00                             | 100.00 | 100.00 | 100.00 | 100.00 |

1. Of the 105 firms which made the 251 job loss announcements during the 1982-89 period, time series of daily returns for 84 firms making 214 announcements can be constructed from the TSE-Western daily prices database.
2. Each firm appears only once in the daily and cumulative abnormal returns calculation for the total sample and for any subsample. A firm may appear in both subsamples within a category, however, if it made both types of announcements during the sample period.
3. Between 96% to 100% of the abnormal returns are within plus or minus three times the standard deviation.

day immediately after the announcement, suggesting that the market is not able to fully anticipate the new information, but that it responds to it very quickly; (3) the market appears to be able to distinguish the "good news" from the "bad news" content of the information, as exhibited by the fact that it responds positively to proactive layoffs (e.g., to consolidate facilities), but negatively to reactive layoffs that reflect fundamental problems such as insufficient demand or profits; (4) the negative market response was stronger for full layoffs as opposed to partial layoffs, and for layoffs where the wage bill was already small, the latter effect suggesting that the market may interpret such layoffs more negatively, as cutting "muscle" and not "fat,;" and (5) the market response is the same for layoffs of definite and of indefinite duration. It appears to be larger for the manufacturing sector than for non-manufacturing, although the latter effect is measured too imprecisely to be conclusive.

It may be tempting to use these results to argue that employers should always couch their layoff announcements in proactive terms so as to enhance the market value of their firm. This is not the appropriate message, however. Rather, the message is that the market likely "sees through" the real reason for the layoffs and accordingly rewards proactive adjustments and punishes reactive ones. It is also the case that the market reacts negatively to layoffs when the wage bill is already small. This suggests that unions may do well to remind employers that markets can react negatively if they interpret employers as engaging in excess layoffs that cut muscle rather than fat. At the very least, the finding of non-negative returns over the three-day event period for all firms perceived to be engaged in layoffs for proactive reasons should convince labour as well as management of the value of engaging in this dimension of the formal human resource planning process. Active involvement of union leadership in this exercise may be one way of preventing it from, say, publicly denouncing a firm's handling of downsizing and triggering a negative market response.

By way of further research, the analysis could also be applied to the public sector where restructuring and layoffs are now becoming more prominent. Bond ratings could be used in place of stock market valuations, albeit at this stage there may be insufficient observations (i.e., public sector jurisdictions or organizations) in the sense that a public sector unit may be disaggregated enough from its parent organization so as to be subject to the market test of bond value revisions. The application to the public sector would be informative to see if such layoff announcements are ever regarded as "bad news" because they may be associated with such factors as reductions in service delivery or increases in user fees.

Further research is also needed to assemble a larger data base of layoff announcements. This would enable a more accurate portrayal of the



disaggregated analyses. It would facilitate multivariate analyses of the different determinants of changes in firm value that occur in response to layoff announcements. One such important determinant would be whether or not a firm announcing the layoff is unionized, the extent to which the work rules within a unionized firm may be deemed to be flexible, and whether flexible work rules offer alternatives to layoffs as a human resource planning tool.

A larger data base would also help analyze the nature of the information accompanying layoff announcements in greater depth. For instance, it would help assess whether layoff announcements with staffing reduction targets to be achieved through attrition and/or voluntary retirements, are perceived by investors as arising from proactive decisions, and whether those achieving them through outright workforce reductions are perceived as reactive ones. Analyses such as these will indicate ways in which the all-important activity of human resource planning may be tied to the overall firm value.

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## RÉSUMÉ

### Annonces de licenciements et valeur marchande de l'entreprise

On a attribué la vague des licenciements en Amérique du Nord durant les années 80 non seulement aux cycles de récession, mais également aux restructurations de grande échelle consécutives à des chocs externes tels l'accroissement du commerce et la concurrence internationale. Les réductions de main-d'œuvre constituent une forme populaire d'ajustement aux États-Unis et au Canada, alors qu'en Europe de l'Ouest et au Japon, bon nombre de contraintes institutionnelles et légales réduisent leur usage. Malgré cela, l'effet des décisions de réduction de main-d'œuvre sur la valeur marchande de l'entreprise n'est pas bien compris.

Nous analysons ici l'effet d'annonces de licenciements sur la valeur au marché de l'entreprise. Nous présentons d'abord la méthodologie utilisée à partir de la littérature dans le domaine de la finance pour ensuite l'appliquer à un échantillon de 214 annonces de licenciements faites par de grandes entreprises canadiennes inscrites à la Bourse de Toronto entre 1982 et 1989. De façon plus particulière, nous cherchons à savoir si le marché peut distinguer entre les aspects « bonne nouvelle » d'une telle annonce (v.g. les efforts proactifs de l'entreprise visant à abaisser sa structure future de coûts) et les aspects « mauvaise nouvelle » (v.g. réaction de l'entreprise à une perte de sa part de marché qui révèle une nouvelle information négative sur le degré de compétitivité de l'entreprise).

Les résultats empiriques de notre étude sont : (1) le marché réagit de façon négative à de telles annonces, en baissant la valeur de la firme. Cela

suggère que l'aspect « mauvaise nouvelle » de telles annonces l'emporte sur l'aspect « bonne nouvelle ». (2) Presque toute cette réaction négative se produit la journée même et le lendemain de l'annonce. Cela suggère que le marché est incapable d'anticiper pleinement cette nouvelle information et que sa réponse est très rapide. (3) Le marché semble être capable de distinguer entre la bonne et la mauvaise nouvelle que contient cette annonce en ce qu'il répond positivement aux licenciements proactifs et négativement aux licenciements réactifs qui traduisent des problèmes fondamentaux tels demande ou profits insuffisants. (4) La réponse négative du marché a été plus forte pour les licenciements globaux que pour des licenciements partiels. Cette réponse négative fut effectivement plus forte lorsque ces licenciements étaient effectués dans un contexte où la masse salariale était déjà basse, suggérant ici que l'entreprise coupait dans le « muscle » et non dans le « gras ». (5) La réponse du marché est la même pour des licenciements à durée définie et à durée indéfinie. Telle réaction semble plus forte dans le secteur manufacturier que dans le non manufacturier, cependant, dans ce dernier secteur, la mesure est trop imprécise pour être concluante.

Plus de recherches sont nécessaires pour constituer une base de données plus large sur les annonces de licenciements. Cela permettrait des analyses plus précises au niveau désagrégé et faciliterait aussi les analyses multivariées des différents déterminants du changement dans la valeur de la firme en réaction à des telles annonces. Une base de données plus large permettrait aussi l'analyse plus en profondeur de la nature de l'information fournie avec de telles annonces. Par exemple, cela permettrait d'évaluer si des annonces de licenciements caractérisées par des réductions cibles de personnel à être atteintes par l'attrition ou la retraite volontaire sont perçues par les investisseurs comme découlant de décisions proactives et si des réductions annoncées comme devant être faites par des licenciements purs et simples sont perçues comme réactives. De telles analyses indiqueraient des moyens par lesquels cette importante activité qu'est la planification des ressources humaines peut être liée à la valeur globale de l'entreprise.