

# Pre-Bid Run-Ups Ahead of Canadian Takeovers: How Big Is the Problem?

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**T**his study addresses an important dimension of capital market efficiency; namely, the degree of information asymmetry among market participants (Bauer 2004). Insider trading is defined as trading by managers and board members in the stock of their own firms. Regulators in many countries have adopted securities laws restricting when and how these corporate insiders may trade in these shares. These laws make it illegal for insiders to trade while in possession of material, non-public information, or to share this information selectively with other investors. Instead, companies are required to disclose material information through a press release so that all investors have an equal opportunity to trade on this information. Despite arguments that suggest illegal insider trading is a victimless crime that promotes market efficiency and provides an efficient means of compensating managers, regulators have taken the view that it is harmful to public welfare (Bainbridge 2000). Models of information asymmetry suggest that if investors believe that insiders systematically trade on material, non-public information, this will increase the rate of return demanded by less-informed investors, widen the bid-ask spreads set by market makers, and reduce liquidity in secondary markets. These effects would raise the cost of capital for firms and ultimately hurt public welfare by reducing economic growth.

## Scope

This paper investigates whether there is evidence of illegal insider trading in Canada ahead of a specific type of corporate event; namely, a takeover bid. We examine 420 takeover bids of

publicly listed Canadian firms from 1985 to 2002. We determine whether there are any systematic price and volume increases in the target firm's shares ahead of the first public announcement (a pre-bid run-up). We document the pattern of these pre-bid run-ups and compare them with the results from similar studies of U.S. takeovers. We propose a test to differentiate between competing explanations of run-ups based on the coincidence of abnormal price movements and abnormal volume, and the timing of the pre-bid run-up in relation to the first public announcement.

## Methodology

Pre-bid run-ups ahead of a takeover announcement may be caused by information leakage as a result of insider trading, market anticipation by investors who correctly identify a potential takeover target prior to the announcement, or some combination of both. We begin with the assumption that capital markets exhibit informational efficiency; namely, that stock prices incorporate all public and private information about a firm. As our null hypothesis, we propose that pre-bid price run-ups reflect the market's anticipation of a takeover announcement. Investors anticipate that a given firm will be subject to a takeover based on rumours in the press, an analysis of industry trends, or factors specific to a company, such as financial distress. This market anticipation—whether accurate or not—becomes incorporated into prices through trades, leading to a run-up ahead of the first public announcement.

The alternative hypothesis is that pre-bid run-ups are caused by information leakage associated with insider trading. In this scenario, the increase in the stock price ahead of the announcement of a takeover bid is caused by insiders who are trading illegally to profit from the price jump

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when the takeover is announced. Studies of actual cases of illegal insider trading support this view. These studies document that illegal insider trades are accompanied by both abnormal price movements and abnormal trading volume in a stock (Cornell and Sirri 1992; Meulbroek 1992). Illegal insider trading typically takes place far ahead of the announcement, since insiders seek to avoid the period shortly before the announcement when regulatory scrutiny is highest. We use these stylized facts to identify illegal insider trading, consistent with the detection algorithms used by regulators when reviewing trading patterns after major corporate events. This approach cannot be used to prove illegal insider trading, but it can be used to detect its presence or to suggest its absence. The key point to note is that abnormal price movements that are not accompanied by abnormal volume changes (or vice versa) would constitute a rejection of this alternative hypothesis. Likewise, abnormal price movements or volumes that occur shortly before the announcement are more likely to be caused by market anticipation.

We conduct a standard event study to examine abnormal price movements and trading volumes (MacKinlay 1997). This approach involves choosing an event—such as a takeover announcement—and looking at the behaviour of the stock before and after the event. The aim is to determine how the event affected the stock by comparing actual movements in stock prices with changes that might have been expected if the event had not taken place. For each takeover in our sample, we set the date of the announcement as day 0, and we calculate daily abnormal price movements over the prior three months. We then calculate the average abnormal price movements across the 420 transactions for each day in our event window, and we accumulate these daily abnormal price movements over some time horizon. Given that we expect no abnormal price movements in the absence of a takeover announcement, we test to see whether these average and cumulative abnormal price movements are statistically different from zero using both a standard parametric z-test and a non-parametric, signed-rank test. We conduct a similar analysis of trading volume using average abnormal volume and cumulative average abnormal volume for each of the 420 takeover announcements.

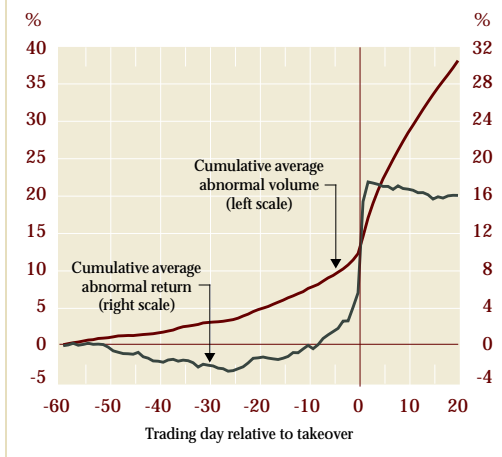
## Summary of Findings

We find that both average and cumulative abnormal price movements become positive and statistically significant only shortly before the first public announcement (Chart 1). Across our sample, the average abnormal price movement on day 0 is 9.8 per cent, which captures the increase in the stock price on the day when the takeover is announced. The magnitude and timing of pre-bid run-ups for the Canadian sample are very similar in magnitude to run-ups documented for U.S. takeovers, suggesting that stock prices react in the same manner in both countries.

We divide our sample into various sub-samples to investigate the impact on the run-ups of industry membership and the time period when the takeover bid occurred. Previous studies suggest that a clustering of takeovers in one sector or during one time period increases the ability of the market to anticipate future potential takeovers. Our sample exhibits a high number of takeovers in the natural resource sector, and a clustering of bids over a few key years. We hypothesize that the cumulative abnormal price movements for takeovers of natural resource firms should be higher than for non-resource firms that are more heterogeneous. Contrary to our expectations, the run-up for natural resource firms is almost half the comparable run-up for non-resource firms. Additional analysis is needed to explain this result.

We also consider the impact of institutional changes on pre-bid run-ups. If illegal insider trading is the source of pre-bid run-ups, increased supervision and enforcement, as well as advances in technology should discourage this behaviour by making it easier to detect ex post. The resources devoted to monitoring and enforcement increased significantly in 1998, after the Ontario Securities Commission became self-funded. At the same time, the TSX closed its trading floor and moved all stocks to an electronic trading system. Both changes lead us to expect that pre-bid run-ups may be smaller post-1997 than during the earlier period. Instead, we find that both the pre-bid run-ups and the price jump over the event window were larger for takeovers announced after 1997. This finding, together with the finding that more media rumours are observed over this period, suggests that market anticipation has increased,

**Chart 1 Cumulative Abnormal Return and Volume for 420 Takeovers, 1985 to 2002**



possibly because of improvements in market transparency. This hypothesis will be tested in future research.

To test whether pre-bid price run-ups are explained by information leakage or market anticipation, we examine whether abnormal price movements during the pre-event window are accompanied by abnormal trading volumes. A naïve comparison of the abnormal price movements during the pre-event window with the abnormal volumes on the same day suggests that there are almost no cases, on average, when both were observed on the same day (Chart 1). A more formal test of the relationship is provided by running panel regressions of abnormal volumes on abnormal price movements. Abnormal price movements are statistically associated with abnormal volumes at the 99 per cent level, although the small size of the coefficient suggests that the relationship is not economically important. From these panel regressions, we conclude that abnormal price movements during our pre-event window are not importantly associated with abnormal volumes. We fail to reject the null hypothesis, and conclude that pre-bid run-ups are caused by market anticipation, not by information leakage as a result of illegal insider trading.

## Conclusion

We find evidence of pre-bid run-ups in a sample of 420 Canadian takeovers, consistent with similar studies of U.S. takeovers. In our study, pre-bid run-ups occurred shortly before the first public announcement and were of comparable magnitude to the run-ups ahead of U.S. takeovers. The size of price run-ups increased in our sample for deals announced after 1997, during a period when regulators devoted greater resources to the monitoring of markets and the enforcement of insider-trading regulations. Contrary to our expectations, run-ups were lower for firms in the natural resource sector, despite the clustering of deals in this sector.

Based on the pattern of run-ups, the absence of abnormal trading volumes on days with abnormal price movements, and the timing of the run-up shortly before the announcement date, we conclude that pre-bid run-ups are consistent with market anticipation and reject an explanation based on information leakage from illegal insider trading. This study suggests that Canadian

equity markets are efficient, and does not support the view that Canada has a greater problem with insider trading than the United States.

While this conclusion applies to the average takeover announcement in our sample of 420, we cannot dismiss the possibility of illegal insider trading in any of the individual takeovers in our sample. Likewise, this article has not examined insider trading ahead of other important corporate events, such as earnings announcements, dividend changes, and bankruptcy announcements. We leave these topics to future research.

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