The Impact of New Issue of Equity Warrants on the Toronto Stock Exchange Listed

Stocks

Mohamed Ali Jeddi

A Thesis in the John Molson School of Business

In

The Department of Finance

September 2004

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

Bien que ces formulaires aient inclus dans la pagination, il n'y aura aucun contenu manquant.

Canada

ABSTRACT

The impact of new issue of equity warrants on the Toronto Stock Exchange listed stocks

Mohamed Ali Jeddi

This study empirically examines the impact of equity warrant introduction on the underlying stock on the Toronto Stock exchange. We investigate both the announcement and issuance price effect using an event study methodology with a 21 day event window. Taking into account outliers, it is shown that the introduction of equity warrants leads to a negative and permanent effect around both the announcement and issuance date. To test for the effect of warrant introduction on the volatility, we calculate the before and after, unadjusted and adjusted volatility to obtain the respective unadjusted and adjusted volatility ratios of the underlying stock. We find that no significant impact occurs on the volatility of the underlying stock neither at the announcement nor at the issuance event date.

Acknowledgements

I would like to take a moment to thank many people without whose contribution this thesis would not have been possible.

First, my gratitude goes to my supervisor Dr. Lorne Switzer for his guidance, expert advice and valuable contribution throughout the thesis preparation.

I would also thank my adorable parents for their precious support and motivation.

Thanks also to my sister Latifa, my brother Mourad, his wife Khedija and my uncle Abdelkader; I appreciate your unconditional help and support.

Further I would like to thank my friends Anas, Mme Hoffman, Khemais, Derrick, Olfa, Qianzhen and Skander for their help.

I would like to thank the thesis' committee members: Dr Alain Hochstein and Dr Sandra Betton for their valuable suggestions.

Thanks also to my Boss and friend Marcel Roiati for his comprehension, support and patience.

Finally, I want to thank all my friends in Tunisia and those in Tunisia for their emotional support.

Table of contents

Summary of Tables, Figures and Appendices

The impact of new issue of equity warrants on the Toronto Stock Exchange listed stocks

1. Introduction:

Several studies[1] have been conducted by academics and practitioners on Initial Public Offering (IPO's) and Seasoned Public Offering (SEO's) of equities. However, this is not the case of the IPO market of options and Warrants.

One explanation proffered for this lack of attention to option IPO's which could be extended to equity warrant IPO's, is that they are One-shot events meaning that after the initiation, which is typically unexpected, the following listing days are routine and pre-determined so that there is no surprise to investors and thus no investment bank profits from the event (Y.Chan, K.J.Wei, 2000).

Warrants are very similar to call options[2]. All Warrants have an exercise price, an expiry date and also an exercise ratio which is the number of units of the underlying security or asset that the warrant holder is entitled to obtain from the issuer for each warrant exercised.

There exist different type of warrants; the most common are:

---

[1] Korwar (1983), Hess and Bahgat (1985), Asquith and Mullins (1986), Masulis and Partch (1986) Schipper and Smith (1986) Kalay and Shimart (1987).

[2] A warrant, as defined by the Canadian securities Institute, is a certificate giving the holder the right to purchase a specified number of securities at a stipulated price within a specified time limit. Warrants can also be either European or American.
A European Warrant can be exercised only on its expiry date whereas an American Warrant can be exercised at any time during its life or at any time after a date specified by the issuing company.

Equity warrants: they have common shares as the underlying securities.

Piggy-back Warrants: they entitle the holder to acquire shares plus additional warrants.

Derivative Warrants: they are issued a third party mostly a commercial or investment bank and are exercisable into the shares of another company.

Callable warrants: they include a provision permitting the firm to accelerate the warrant's expiration date and force its exercise when the stock price exceeds a specified level.

Bond-warrants: they are described as sweeteners because they allow firms to issue debt with relatively lower coupon rates.

Given their widespread use in Canada, our focus here is on equity warrants.

As stated earlier warrants' and call option are very similar financial instruments but there are some differences between them.

With the exception of LEAPS[3], a warrant time to expiration is much longer than that of most call options. Moreover, there are no restrictions on the possible number of options outstanding at a particular strike price and expiry date, whereas warrants have a finite number in existence for each issue. In addition, options on stock offer a range of exercise price and maturity date which is not usually the case with warrants. Finally, the exercise of warrants forces the company to issue new shares of stock, causing a certain amount of dilution. On the other hand, call options are issued on outstanding stocks; therefore have no dilution effect on the underlying firm's shares when exercised.

---

[3] Leaps Equity LEAPS - Long-term Equity AnticiPation Securities (LEAPS) -are long-dated options on common stock or ADRs of companies that are listed on securities exchanges or trade over-the-counter. Equity LEAPS listed on the CBOE expire in approximately two to three years from the date of initial listing; equity LEAPS roll into the standard option after the May, June or July expiration depending upon whether the standard option associated with the LEAPS is on the January, February or March expiration cycle

Very few studies have been conducted to date on warrant issuance as opposed to option issuance. This is unfortunate since warrant represent an important source of financing for firms in Canada[4] .

With the exception of Linn and Pinegar (1991) who looked at U.S equity warrants and Alkebäck and Hagelin (1998) who studied the Swedish equity warrants, very little is known about the import of equity warrants. In this study we provide some of the first Canadian evidence on the effects of warrant issuance. We examine the price effect on the underlying stock around the announcement and issuance date of equity warrants on the Toronto Stock Exchange for the 20 year period, from 1981 to 2001.

This paper will provide new evidence on the market import of new equity warrant issuer in Canada. In addition to looking at announcement day and issue day market reactions, we will also test for the volatility shocks on the underlying equities associated with the warrant issuance.

Our results show a permanent significant price effect around both the announcement and the issuance date supporting the Imperfect Substitute Hypothesis documented by Harris

---

[4] For the period 1992-2002, 10.09% of new issues are represented by equity warrants. The distribution by year of new issues (that include equity warrants) is as follows:

Year	Number of New Issue	Number of Equity Warrants
2002	165	7
2001	103	4
2000	124	11
1999	154	12
1998	127	11
1997	201	11
1996	173	22
1995	95	22
1994	149	16
1993	158	21
1992	66	16

and Gurel (1986). However, neither the warrant issuance nor the warrant announcement has any effect on the volatility of the underlying stock. Therefore, volatility estimates for valuation purposes, before the actual introduction, can be approximated by historical data.

The paper is organized as follows. In the next section, we give a brief review of the relevant literature. In the following section, we provide description of our sample. A description of the methodology is then provided. In the empirical section the results are presented. Concluding comments are presented in the final section.

2. Literature Review

Warrants are a form of option so to a certain extent the literature on option introduction effects has played a role on the evolution of the warrant introduction literature. Since the options introduction literature antedates and overlaps the warrant literature, some attention to the former is worthwhile. The benchmark for the option literature is the seminal Black & Scholes (1973) article.

Black & Scholes (1973) priced options by treating them as a redundant asset that can be valued via a no arbitrage relationship. They implicitly assumed that the market is complete. Therefore, they suggested that there is no price effect associated with option introduction.

However, Ross (1976) argued that in a certain world options written on existing assets can improve efficiency by permitting an expansion of the contingencies that are covered by the market.

These assumptions have been widely tested and documented in the theory[5], but no real consensus has emerged. Our study will help to shed new light on the Black and Schloes' (1973) redundancy assumption.

The first study investigating the relationship between option listing and its underlying stock price and volume behaviour was conducted by Nathan (1974), commissioned by the CBOE. The Nathan report found that there was a tendency for the volatility of the stock to decrease on the listing of option. However, this study was done on a relatively small sample; only 16 optioned stocks were considered for the research over the first nine months of the existence of the CBOE.

Hayes and Tennenbaum (1979) find that listed options increase the volume of trading in the underlying shares and enhance price continuity by lowering volatility. They argued that these effects may result from the many variations possible in option strategy and in investment objectives, together with the feedback on the stock market arising from the linkages between the two marketplaces. Investors should benefit from the reduction in price volatility. Corporations should benefit from the increased liquidity in the marketplace which is thus provided to their common shares. The equity market makers should find that their proprietary interests are not likely to be impaired when options are listed, because of the prospect of increased equity trading volume.

---

[5] Hayes and Tennenbaum (1979), Tenenepohl and Dukes (1979), Bansal et al (1980) Kelemkosky and Maness (1980), Conrad (1980) Whiteside, Dukes and Dunne (1983) and Sorescu (2000)

Bansal et al (1980) examine the impact of Chicago Board Options Exchange (CBOE) option initiation on the price volatility and trading volume of the underlying equities. They tested options listed on the CBOE from April 1973 to June 1986. They find that option listing leads to decreases in the total risk of optioned firms. Although total trading volume appears to increase after option listing, securities listed after 1980 showed smaller increases in volume than those listed in the earlier years of option trading. They argued that option trading actually leads to statistically significant improvements in the market for the underlying stocks.

Klemkosky and Maness (1980) conduct a study to determine the long-term risk versus return relationship of options on the underlying security. They show via their linear market model using different groups of optioned securities over 3 different time periods that options have only a negligible impact on the risk of the underlying securities, with a slight tendency for reduced risk. Analysis of performance characteristics shows that options had an impact on price by eliminating the excess returns that were observed. They conclude that options trading results in more efficient pricing of the underlying security.

Conrad (1989) reported a price effect associated with the option introduction using a sample of options introduced between 1974 and 1980. She finds an abnormal stock return of 2% associated with the introduction of options, beginning approximately 3 days before actual trading. The price effect is accompanied by a decline in volatility; the systematic risk, however, is not affected by option introduction. She also finds the price effect to be

permanent; abnormally high cumulative abnormal return are observed for at least 30 trading days after the introduction, supporting the Imperfect Substitute Hypothesis documented by Harris and Gurel (1986).

However, she did not find any price effect on the announcement date. She explained this puzzling[6] result arguing that the price increase is sufficiently small (around 2%) that transaction costs make it unprofitable for any but those dealers who anticipate acting as dealers in the new option and to use the security for hedging purpose. She concludes that options are not completely redundant securities (Sorescu, 200; p 488).

Branch and Finnerty (1990) also investigated the relation between the option introduction and the trading on the underlying stock. They found a relative price increase of 5.2 % around the period of option listing. They attribute this relative price increase to an option listing induced increase in marketability, which is also accompanied by a significant and persistent increase in relative volume. Moreover, they noticed that the initial call options listing had been preceded by an average excess return of 12.5 % over 47 weeks with about 3.8 % of this sum taking place in the last 4 weeks. Branch and Finnerty (1990) argued that this announcement effect is probably the result of a selection process that tends to over-represent the better performing stocks. However, they find that the performance before and near put and dual listing are essentially random.

---

[6] "Price effects should occur on announcement rather than on issuance date in efficient markets" (Detemple and Jorion, 1986; p 488).

Detemple and Jorion (1989) use a larger sample than their predecessor studies[7] and focus on the period between April 1973 and December 1986. They find a significant increase in the price of an optioned stock taking place around the listing date. In addition, a significant decrease in the volatility of optioned stock is apparent after the listing date indicating that the introduction of options has a stabilizing influence on the underlying stocks.

The results of tests done on the whole sample (1973-1986) are consistent with those of Conrad (1989). They showed no evidence of an announcement effect.

However, they observed a significant price increase of 2% for the 201 options listed between the years 1973-1982 during the 3-day period surrounding the announcement date and no significant effect between the years 1982-1986.

They conclude that their findings are consistent with the market completion[8] hypothesis: that a strong announcement effect take place after an initial learning period, which disappears when markets become complete.

Using data for varying periods around the listing date, Skinner (1989) finds that volatility as measured by the variance of returns fell after option listings in the early years of organized option markets. Skinner ascribed the change in variance to a possible increase in the liquidity of the market for the stock.

---

[7] Hayes and Tennenbaum (1979), Tenenepohl and Dukes (1979), Bansal et al (1980) Kelkomsky and Maness (1980), Conrad (1980) Whiteside, Dukes and Dunne (1983) and Sorescu (2000)

[8] The CME option on the S&P 500 was introduced in April 21, 1982. Detemple and Jorion (1986) suggested that the introduction of stock index options effectively completed the markets and allowed investors to span the relevant state space. Under this hypothesis, the price effect is positive prior to the index introduction but should subsequently vanish.

Damodaran and Lim (1991) Examine a sample of 200 firms that had options listed on them on the CBOE and the AMEX between 1973 and 1983 to analyze the effects of option listing on the returns processes of the underlying securities. They found that the listing of options leads to significantly lower variance in the daily returns of the underlying stocks; prices adjust much more quickly to new information, and finally the noise component declines after the listing of options. The decrease in the noise component is attributed to the reduction in the bid-ask spread after the listing due to the increased interest in the stocks after the option introduction

More recently, Sorescu (2000) has done a more extensive study of the price effect of option introduction with more than two decades of trading history and almost 2000 listing events. Consistent with Conrad (1989) and Detemple and Jorion (1990) Sorescu finds a positive price effect with annual mean abnormal returns range from 1,06 % to 3.37 % for the period of 1973 to 1980.

However, for the more recent period 1981 through 1995, Sorescu finds that the impact of option introduction on the underlying stock is significantly negative. The cumulative 11 day effect of option introduction is approximately -1.5%, and is always significantly negative. Although, he can not offer a definitive explanation of this effect, he suggested that one possible cause was the introduction of Index Option of 1982 which facilitates market completion, the implementation of regulatory changes in 1981, and the possibility that options expedite the dissemination of negative information.

Chamberlain et al (1993) examine both gradual changes in stock volatility and trading volume following the listing of options on the Canadian market. Using a sample of thirty-

seven companies whose options were listed on one of the three Canadian exchanges between November 1979 and January 1987; they find that listing of options on Canadian market appears to have little impact on the price behaviour, trading volume and liquidity of the underlying stock.

Previous studies involving other aspects of the Canadian options market such as of Halpern and Turnbull (1985) and Chamberlain et al (1989) suggest that the Canadian experience does not always mirror that of the United States[9]. Chamberlain et al (1993) explain this difference by the fact that the Canadian markets are thinner than their US counterpart and also because the participation rate in the option market, relative to the stock market, is much lower among Canadian investors.

Although options and warrants[10] have a multitude of similarities, they still also very different in the way they are used by investors. Warrants are used typically in conjunction

---

[9] Halpern and Turnbull (1985) examined call option prices for violation of boundary condition and found that unlike US studies, the Canadian market was inefficient even after taking account of the transaction costs. Chamberlain et al (1989) studied the behaviour of index options and futures expiration date of the TSE 300 stocks, and were unable to reject the hypothesis that trading volume was unaffected by expirations. Chamberlain et al (1993) find different result from the U.S when testing the effect of options introduction on the underlying stock on Canadian market.

[10] Another type of security which has important similarities with the equity warrant is the right. We can expect rights and warrants to have similar effects on the underlying stocks. Similar to the warrants, rights are issued by the firms issuing the underlying stocks. They offer the opportunity to buy new shares to be issued, usually at a lower price than current market price (however they are offered to only existing shareholders). Hence, it is interesting to investigate the studies done on the price effect of rights offerings on the underlying stock.
Studies on rights issues find that the stock prices react negatively to announcements of right offerings. The more recent study done by Eckbo and Masulis (1992), finds a significant negative abnormal return around day -1 and 0.
White and Lusztig (1980) study a sample of 90 rights issues between 1962 and 1972. Using a pooled cross-section time series model to measure the effect of announcements of rights issues on the stock price of the firm, they find a significant negative reaction.

with bonds and/or stocks, as a vehicle to finance the activity of the firm. Therefore, they are likely to change the capital structure in contrast to the options.

Thus, the introduction of such warrants influences not only the underlying stock by expanding the opportunity set of the investors, but also introduce potential changes in the capital structure of the firm. It is shown that there is some effects of equity dilution when warrant are exercised.

In addition, investors in warrant and investors in option are not necessarily driven by the same motives.

It is reasonable to expect different impacts on the underlying stocks from warrants and option introduction since warrants can be used as substitutes for stocks, while stock options are used as complements.

Alkebäck and Hagelin (1998) state that "the results from previous studies of stock option introductions can not be used as proxies for warrant introductions. However, if warrant introductions are found to have effects similar to stock option introductions, evidence from stock option introduction's studies can be used potentially as proxies for effects surrounding warrant introductions."

This raises another important point of this thesis. A study of potential effects of warrant introductions is more interesting for firms and the owners than a study of the potential stock option introduction effects, as warrants are issued by the firm in contrast to stock options; i.e., the impact of the introduction can be avoided by the firm in contrast to the impact of a stock option introduction.

Scholes (1972) studied 696 rights issues on the NYSE between 1926 and 1966 using the market model. He finds that average predictions errors are positive prior the dates of issues and drop by 0.3% during the month of issues.

The category of warrants that have been the most studied is the bond-warrants. Warrants issued in conjunction with straight bonds. Bond-warrants are described as sweeteners because they allow firms to issue debt with relatively lower coupon rates and fewer direct covenants (Long and Seflick, 1991). The objective of the most of these studies is to compare the market reactions to two financial instruments: convertible debt versus warrant-bond loans.

Billingsley et al. (1990) find negative but not significant abnormal returns around the announcement and issuance of units of debt with warrants in the United States within the period of 1971 to 1986. However, they find significantly negative abnormal returns around both the announcement and issuance of convertible debt. They concluded that the use of debt with warrant suggests that the presence of these securities is not interpreted as a financial distress.

Long and Seflick (1991) find a negative and significant abnormal return on the underlying stock around the announcement of U.S straight bond with warrants (-1.59% on day-1, 0).

Phelps et al. (1991) find significant negative abnormal return (-1.12 %) on the announcement day of warrant debt offering on the underlying stock using a sample of 39 firms from 1970 to 1986. However, no significant abnormal return is discovered on the

issuance date. They argued that the preannouncement behaviour may represent anticipation of the financing decision by market participants.

In contrast, using a sample of Japanese equity linked offshore issues from 1977 to 1989, Kang and al. (1995) find the announcement of warrant bond issues accompanied by significant positive abnormal return. They explained this contradicting result with the U.S by the greater influence on the manager's issue decision of long term investors and banks in Japan than in U.S.

De Room and Veld (1998) presented empirical evidence on announcement effects[11] of warrant-bonds from the Dutch capital market. They find that cumulative abnormal return for an issue of warrant-Bonds (WB) is significant and positive 1.35%. These abnormal returns are caused by the fact that the announcements are packaged with other firm specific news. This positive announcement effect is in line with the results with the earlier mentioned results for Japan, but it is contrary to the results for the United States.

More recently, two studies have been done on another type of warrants. Chen and Wu (2001) studied the impacts of introduction and expiration of derivative equity warrants on the underlying securities in Hong Kong. On a sample of 165 derivative equity warrants traded on the Stock Exchange of Hong Kong (SEHK), they find positive and permanent price effects; mean excess return for day -2 to day +1 are 0,4316% 0,511%, 0,2465% and 0,1455%, respectively, all statistically significant. This result is similar to earlier studies'

---

[11] Announcement effects were investigated for 47 convertible bond loans and 19 Warrant Bond loans issued from 1976 to 1996 on the Dutch capital market Amsterdam Stock Exchange.

13

result on option introduction. They find also a significant increase of the trading volume around the introduction day. Their findings suggest that there may be substantial block purchases of the underlying stock by the issuers at the warrant introduction for meeting the hedging demand.

Another similar study investigating the price and volume effects associated with derivative warrant issuance on the (SEHK) was done by Chan and Wei (2001).

They find a significant increase in the underlying stock prices both before and during the announcement days. Therefore, the issuance of new warrants provides the market with a good signal about the underlying stock. Chan and Wei attribute this significant increase to the hedging effect brought about by the warrant issuer (the issuers collect the shares for hedging purpose). Nevertheless, the prices of warranted stock were flat after the announcement suggesting that the information effect of the warrant is weak to the public. Moreover, they do not discover any systematic pattern around the trading date[12]. These two latter studies have been done on derivative warrants.

Derivative warrants are different from equity warrants. In contrast to equity warrants, that cause a dilution effect when exercised (warrants are likely to change the capital structure of the issuing firm), derivative warrants do not have such a dilution effect since a third party (mostly financial institutions) rather than the issuer of the underlying securities issues them.

---

[12] There is normally 3-4 week period between the issuance day and the first trading day of derivative warrant.

14

Moreover, the issuer of derivative equity warrants may choose to settle their obligation through cash payment instead of physical delivery of the underlying assets upon the exercise of subscription right by the warrant holders. Thus, it is also reasonable to expect the derivative equity warrant and the equity warrants to have different impacts on the underlying stocks. The derivative could be compared to the option more than to the equity warrant.

Overall, an examination of the results of the studies that have been done on the effect of option introduction on the underlying stocks yields no clear consensus concerning the effects on the price of the underlying stock. Theory suggests that options could raise underlying stock prices, lower them or leave them unaffected. This theoretical ambiguity justifies the need for extensive empirical research.

Sorescu (2000) finds a negative stock price reaction to option introduction for stocks optioned after 1981. Chamberlain et al (1993) do not find any price effects around the option listing. However, price increases in the underlying stocks was found by Conrad (1989), Detemple and Jorion (1990) on the issuance date implying a reduction on risk when options are introduced.

Similar conflicting findings exist concerning the changes in price following derivative warrants and bond-warrants introduction. Both studies of Chen and Wu (2001) and Chan and Wei (2001) find positive price effect around the issuance of derivative warrants. Billingsley et al (1990), Phelps et al (1991) and Long and Seflick (1991) find a positive effect with American bond-warrants introduction. However, Kang et al (1995) and De Room and Veld (1995) find a positive price effect around bond-warrants introduction in both the Japanese and Dutch stock markets.

Given the conflicting views as the effect of options and warrants introduction, it is an interesting empirical question whether the introduction of warrants in fact has a price effect on the Canadian underlying stock market and, if so, what this price effect may be.

In the finance literature a few studies have been done on the announcement and issuance effects of equity warrants on the underlying stocks, but none of them studied the Canadian warrant market. The only studies that have looked at equity warrants as such to date are the one of Linn and Pinegar (1991) and Alkebäck and Hagelin (1998). Our study will provide new evidence on the characteristics of the Canadian equity warrant market.

Linn and Pinegar (1991) examine the effects of secondary offerings of senior securities and warrants in the US market. The mean abnormal announcement period return on the senior security and warrant are not significantly different from zero. They find no evidence of price pressure effects in the returns to holders of senior securities and warrants. However, they find evidence in the common stock price adjustments that information effects exist, particularly when insiders initiate the offer.

Alkebäck and Hagelin (1998) investigate the impact of options and warrants introduction on the underlying stock[13]. Using a sample of 35 warrants, listed and traded in the Stockholm Stock Exchange (StSE) (Sweden), they find insignificant abnormal returns around the introduction date, with about as many positive as negative values.

---

[13] Alkebäck and Hagelin (1998) have done the same study using 32 stock options listed on the StSE. In contrast to warrants, they find a positive effect on the underlying stocks. Volatility and bid-ask spreads are found to decrease, while changes in trading volume are more uncertain. The results are in line with the theory.

However, they find a positive and significant cumulative average of abnormal returns (CAARS) on days 3-6 but the effect seems not to be permanent since the values for day 7 and beyond were insignificant. The results suggest that warrants introduction have no real effect on the underlying stock. The lack of a persistent price effects is attributed by Alkebäck and Hagelin (1998) to two factors: a) that warrants do not expand the opportunity set of the investors as much as reported in previous studies for stock options; b) the more complex nature of warrants entails off setting factors on prices, leading market changes.

Alkebäck and Hagelin (1998) also find that no significant change occurs on the bid-ask spread, volatility and trading volume of the underlying stocks on the (StSE) in the year following the warrant introduction.

They conclude that there is no decreased liquidity caused by a diversion of trade from the stock to the warrant and the volatility estimates for valuation purposes, before the actual trading, can be approximated by its historical estimates.

Explanation of the price effect around the issuance and the announcement of an offering:

This offering price effect have been widely documented and tested and several explanations have been advanced to explain this result.

A significant stock price change is identified around the announcement of new equity issues. Recent studies[14] uncover an average drop approximately 3% in the market value of the equity of industrial firms at the announcement of seasoned issues of new equities,

---

[14] Korwar (1983), Hess and Bahgat (1985), Asquith and Mullins (1986), Masulis and Partch (1986) Schipper and Smith (1986) Kalay and Shimart (1987).

17

and a price drop of 1% around the announcement of new equities for utility firms (Kalay and Shimart, 1986).

Although three main explanations are advanced in the literature for the significant negative abnormal returns surrounding a security issue, the empirical evidence is inconclusive as to which hypothesis is supported (this is due to correlations between the variables used to measure each effect, and because the hypothesis are not mutually exclusive).

Stock offerings typically alter management's fractional ownership of firm's stock. The Leland and Pyle (1997) signalling model predicts that changes in management stock holdings cause like changes in firm value.

Ross (1977) stated that a firm's choice of capital structure may convey management's expectations about the firm prospect. Since managers have the incentive to hold a large stock position only if they expect the future cash flow to be high relative to the firm current value, thus an offering to outside investors is a negative signal to of negative value because it decreases the management's fractional shareholdings.

In the Myers and Majluf (1984) adverse selection model, rational investors presume that, on average, managers approve stock offerings when, based on their superior information, they believe the stock is overvalued. Assuming that managers decision are made on behalf of existing shareholders, who gain if additional stock is sold when it is undervalued relative to manager's superior information. Consequently, rational investors

will lower their assessment of the stock's current value whenever a stock offering is announced (Masulis and Korwar, 1986).

Moreover, Miller and Rock (1985) argued that outside financing are signals to investors of opposite changes in firm current earnings and that the announcement of such offerings causes a negative price reaction.

Heinkel and Schwartz (1986) show that since the method of financing used by the firm disseminates information about the quality of the firm, the stock price reacts to this information.

As stated earlier, the new equity issues convey negative information to the market about the market value of the firm and support the information release hypothesis.

It is difficult to test the information release hypothesis because it depends on what information is conveyed by the announcement of an equity issue, and whether any revealed information is correlated with any other effect, such as issue size or change in capital structure.

However, these findings contradict the Efficient Market Hypothesis (EMH). (EMH) predicts that security prices reflect all publicly available information, assuming that securities are near perfect substitutes for each others; if so, the excess demand for a single security will be very elastic, and the sale or purchase of a large number of share will have no impact on price.

In contrast to the (EMH) Hess and Forst (1982), Asquith and Mullins (1986), Harris and Gurel (1986) and others propose two hypotheses which predict that a large stock sale will cause the price to decrease (even if no new information is associated with the transaction):

(1)The Price Pressure Hypothesis[15] (PPH): states that the firm is faced with a downward sloping demand curve for its stock. Announcing an increase in the quantity supplied, Harris and Gurel (1986) showed that the (PPH) predicts a perfectly elastic long run demand curve where the increase (decrease) in price is followed by a price decrease (increase).

(2)The imperfect substitute Hypothesis (ISH): also known as the distribution effect hypothesis, assumes that securities are not close substitutes for each other and thus demand curve is less than perfectly elastic contradicting the (PPH). Therefore, equilibrium prices change when the demand curve shifts after an event such as the sale of a large number of shares (Harris and Gurel, 1986). Price reversals are not expected because the new price reflects a new equilibrium distribution of security holders.

In conclusion, a price reversal would support the (PPH) and a permanent price reduction would support the (ISH).

In our study we present tests for the presence of the (PPH) which we believe are not confounded by informational problems. Evidence on the effects of new issues of warrants

---

[15] The financial literature had examined two version of the price-pressure hypothesis. The first version documented by Scholes (1972) and Mikkelson and Partch (1985) concerns the temporary price effects of unusually large trade motivated by sellers. Therefore temporary price pressure could not affect the behaviour of stock prices around the announcements of new issues. The second version investigates the existence of a negative relationship between the quantity of stocks demanded and the price. We will focus on this latter hypothesis under which announcement of an increase in the quantity supplied would a permanent reduction in the stock price.

on the underlying stocks can be viewed as a direct test of an hypothesis that has attracted extensive attention from financial analysts for many years: that demand curves for equity are negatively sloped. Moreover previous work examining the shape of demand curve has been, in large, focused in U.S market. Our study tests this hypothesis on the Canadian market.

3. Data Description:

Information on warrants and firms issuing them is first gathered from "Preferred Shares and Warrants[16]" a Financial Post annual Publication. From this publication we obtained the following information:

1. The name of the company issuing the warrant.

2. Subscription basis.

3. The trading symbol.

4. The warrant exercise price.

5. The warrant expiry date.

6. The stock exchange listing.

Even though the "Preferred Shares and Warrants" Financial Post's annual publication contains data about all the warrants traded on the different Canadian exchanges, the data set for this study was limited to warrants traded on the Toronto stock exchange to ensure that necessary information would be publicly available and attainable. Moreover, the Toronto Stock Exchange is deemed to be a good proxy for the Canadian market since the

---

[16] The current name of this issue is Preferred Shares and Derivatives.

TSE accounts for almost 87% in 2001 and 81.8% in 2000 of all trading activity for publicly listed companies in Canada[17].

However, the latter publication does not include data concerning the issuance date of warrants. We obtain the issuance date of all the companies from the Toronto Stock Exchange Official Trading Statistics.

Warrants may be attached to new debt and preferred share issues to increase marketability. We exclude those warrants from our sample. Our interest is only in pure equity warrants. We are interested in a) the effects of new warrant issues per se; and b) the effects of leverage decreasing new equity financing effects on markets. We disregard bond-warrants, i.e. warrants that are issued in conjunction with new bonds. The equity increases, which are associated with such issues, do not unequivocally decrease the leverage of the companies concerned. Hence, the investigated price effects of bond warrant issues may be confounded by ambiguous effects of debt increases that would offset the impact of the equity increases associated with the exercise of the warrants. In other words, the warrant issues represent capital structure changes that are pure equity increasing. Hence our results will relate more directly to the capital structure literature that is associated with increased equity financing.

Moreover we exclude compound equity warrants, warrants that are exclusively written on preferred shares and warrants that give the holder a number of common shares and warrants written exclusively on preferred shares. We get then a sample of 463 warrants for the sub period of 1981-2001.

---

[17] Statistics obtained form the TSE monthly review December 2001 and 2002.

The data were limited to equity warrants that entitle the holder to purchase only the common shares of the company issuing the warrants.

From this sample we eliminate 51 other warrants because of lack of data. We had then 422 issuance dates of 422 equity warrants for the 20 years period from 1981 to 2001.

To test for the announcement effect, we had also to find the announcement information of the warrant during the sample period.

The announcement date is the first on which the announcement appears in the several data sources of the Lexis-Nexus database, Bloomberg and finally the Globe and Mail Canada's Heritage databases.

We exclude also warrants issued on IPO's. We need stocks having at least 120 days of trade before the warrant's introduction, which represents the estimation window period.

The underlying stock daily returns and closing prices are obtained from the Toronto Stock Exchange CFMRC and DataStream databases.

The prices obtained from DataStream are transformed to returns using the methodology[18] of the CFMRC database.

After eliminations, the final issuance sample consists of 144 companies and the announcement sample consists of 65 companies.

---

[18] The fully adjusted daily return calculated as id the security was purchased at the close yesterday and sold at the close today. Let P_t be today's closing price. D_t be the cash or the cash equivalent dividend (in $) paid today and S_t the stock split factor for a split dividend or split today. The return is

$$R(T) = \{[P_t + D_t]S_t - P_{t-1}\}/P_{t-1}$$

III) Methodology

According to the above theoretical explanations, the listing of warrants could affect the price on the underlying stock on the day of listings and/or the announcements.

We use an event study methodology to investigate the effects of warrants on the underlying stock's return behavior around either the announcement of the issue and the issue date itself.

If the announcement and the issue of warrants events do not affect the firm returns, both Average Abnormal returns (AARs) and cumulative abnormal returns (CAARs) should equal to zero around the event dates.

The stock market reaction to announcements of warrants is measured using dummy variables approach. According to Karafiath (1998) "the advantages of the dummy variables technique are that predictions errors and correctly statistics are currently obtained from any standard package in one step".

We formulate a 21 day event window that consists of 10 trading days before and 10 trading days after the event day itself. We collect 120 day returns before the event and 60 day returns after the event.

In the first event study we denote the announcement date as day 0 and in the second event study we denote the warrants' issuance day as day 0.

Therefore, a forecast interval of 21 observations requires 21 dummy variables:

The model:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{j=-10}^{10} \gamma_j D_j + \varepsilon_{it} \qquad (1)$$

24

<u>Where:</u>

R_{it} = return on stock i on day t.

α_i = OLD estimate of the intercept

β_i = OLS estimate of the slope or the measure of the systematic risk.

R_{mt} = return on value-weighted market index (the TSX 300).

γ_j = Excess Return to security i on day t.

D_j = Dummy variable that is equal to one for stock i on day j and 0 otherwise.

ε_{it} = Estimated error term for stock i on day t.

This approach assumes that standardized abnormal returns are normally distributed and independently distributed across securities and time, and has proven robust to deviations from this assumptions (Prabhala, 1997).

The Abnormal returns and Cumulative abnormal returns as well as the test statistics are calculated using the methodology outlined by Brown and Warner (1985).

The average abnormal return for day j is determined as:

$$AAR_j = \left[\frac{1}{n}\right]\sum_{i=1}^{n} AR_{ij}$$

Where n is the number of firms; the cumulative abnormal return (CAARj) is:

$$CAAR_t = \sum_{t_1}^{t_2} AAR_j$$

The null hypothesis is that the abnormal return is zero. If the events of the announcement and the issuance of warrants do not affect firm returns both AAR's and CAAR's should

25

equal zero. If the null hypothesis holds and if the AAR are independently and identically distributed with finite variance, the test statistic is asymptotically distributed.

In order to detect whether they are significantly different form zero, the average standardized abnormal return (ASAR$_j$) and the average standardized cumulative abnormal return (ASCAR$_j$) are calculated as:

$$ASAR_j = \frac{1}{n} \sum_{i=1}^{n} \frac{AR_{ij}}{S_{ij}} \tag{2}$$

$$ASCAR_t = \sum_{t_1}^{t_2} ASAR_j \tag{3}$$

Where for firm i on event day j, S_{ij} is the standard deviation of γ estimate.

Finally test for significance are based on the computed Z-statistics:

$$Z(AAR) = ASAR_k * N^{1/2} \tag{4}$$

$$Z(CAAR_t) = ASCAR_t * N^{1/2} / (t_2 - t_1 + 1) \tag{5}$$

The Z-statistics are based on the assumptions that the standardized abnormal returns are normally and independently distributed across securities and time.

Besides calculating excess returns for each day in the event window we calculate cumulative abnormal returns[19].

---

[19] Since none of the firms listed on the same day, none made announcements on the same day and the covariances between parameter estimates between firms is negligible; these assumptions for the z tests are not egregious.

26

IV) Empirical Results:

1. Issuance Sample:

The behavior of stock prices around the issuance of warrant is detailed in Table 4 and plotted in figures (1) to (4) for the event window [-10, +10] for the complete sample of 144 companies.

The first column of Panel (A1) details the event-related day, the second contains the Average Abnormal Returns (AAR's) for days -10 to +10 around the issuance day; and the third column lists the Z-statistics. Cumulative Average Abnormal Returns (CAAR's) are given in the seventh column and the final column specifies the number of negative (AAR's).

There is observed significant (AAR's) of +0.0431 (Z-statistic= 2.5288) on the issuance date rejecting the null hypothesis that the estimated (AAR's) are null at 5% level.

However, except the positive and significant (AAR's) of day +10 (0.058; Z-statistic= 1.8033) significant at 5% level, none of the other event day is significantly different from zero in the event window [-10, +10].

Panel (A2) presents the results and tests of (CAAR's). Only the (CAAR's) for the interval [0,1] is statistically different from zero with a positive value of 0.0432. However, we notice that 64.53% of the sample has a negative AAR's. This suggests that the positive effect could be caused by some outliers. Moreover, the figures plotting the (AAR's) show some extreme value.

We conduct the analysis after removing the extreme outliers defined as AAR> 10% and AAR<-10% for the event window [-10, +10].

27

When the analysis was redone, 35 companies having at least an extreme outlier were removed. The results, presented in Panel A1 and A2 of Table 5, changed dramatically.

Table 5 presents the results of the event study without extreme outliers and on a sample of 109 firms. We notice a significant negative (AAR's) around the issuance day. Only the (AAR) on day 0 equal to -0.006 with Z-statistic of 2.3876 is significant at 5% level. Therefore, the null hypothesis of null estimated (AAR's) is rejected.

This confirms that the positive AAR found in the complete sample of 144 firms is caused by positive firm-specific news of the 35 excluded ones. Both Mikkelson and Partch (1985) and Asquith and Mullins (1986) suggested that some of the hypothesized demand effect they observed may be due to information effects that they cannot abstract from. Therefore such information effects have to be taken into account when studying the temporary effects of large offering motivated by sellers.

Except for the issuance day all the AAR's are not significant at the 5% level. The null hypothesis can not be rejected for those days.

We find significant negative CAAR's for the windows [0, 1], [0, 2] and [0, 3] of respectively: -0.011 (Z= 2.946); 0.0145 (Z= 3.048) and 0.155 (Z= 2.959).

Therefore, the null hypothesis that the estimated (AAR's) and (CAAR's) are null can be rejected at the 5% level of significance.

Our results are contrary to the redundancy assumption of Scholes (1972). The introduction of warrants may provide payoff patterns not previously available and in doing so enhance market efficiency and affect price behaviour and trading patterns.

28

Warrants may increase the size of the opportunity set and lead to a larger total market in warrants and stocks.

As expected, we also find that the warrant introduction effects are different from those of the option introduction after adjusting for company specific information effect. This finding is in line with the Alkebäck and Hagelin (1998, p308) supposition that the "the results from previous studies from stock options cannot be used as a proxy for warrants introduction". In fact, studies on option introductions find-if there is any- a positive price effect of option introduction on underlying stocks. This contrary effect may be explained by the different way investors use the option and warrants and their different motives.

In addition, this significant negative effect is in line with the studies on the effect of Seasoned Equity Offerings (Bhagat and Hess, 1985; Pettway and Radcliffe, 1985; Asquith and Mullins, 1986; Masulis and Kornwar, 1986; Mikkelson and Partch1988; Shipper and Smith, 1986; Loderer et al, 1991) and the effects of Rights introduction on the underlying stocks (White and Luztig, 1980; Eckbo and Masulis, 1992). This result confirms the way the warrants are used by investors as substitutes for stocks.

We find that the CAAR's show negative trend that is not reversed on the event window. This puzzling and permanent effect supports the ISH hypothesis documented by Gurel and Harris (1986). It is a puzzling result since the negative effect should occur in the announcement date rather than in the issuance date (Conrad, 1983; p488). We should then investigate if such effect occurs in the announcement day.

2. Announcement sample:

The average AAR's, CAAR's and tests of their significance around the announcement day for the total announcement sample of 65 firms are presented in Panel A1 and A2 of Table 6.

The AAR's for the announcement day is -0.0058 with a significant Z-statistic at the 5% level of 2.9873. We note also a negative and significant (AAR) for the days 2 and 9 of -0.0106 (Z-statistic= 2.8427) and -0.0064 (Z-statistic= 2.0795). The AAR's are insignificant in the remaining days of the event window.

The estimated CAAR's have a negative trend that is clearly permanent on the whole event window. Indeed, they are negative and significant at the 5% level in the following intervals: [0, 1], [0, 2], [0, 3], [2, 10] and [2, 5].

The results are in line with Harris and Gurel (1986) ISH hypothesis in fact the new price reflects a new equilibrium distribution of the security holder, and hence there's no price reversal expected.

Furthermore, preceding the announcement date, the CAAR in [-10, -1] is essentially zero at the 5% level of significance. This result suggests that news of warrants introduction did not leak into the market.

We also redo the test using the same methodology of the issuance sample to eliminate outliers. We find 12 extreme values and we conduct a new event study using the 53 remaining companies. The results are presented in Panel A1 and A2 of Table 7.

The results of the latter event study confirm those found with the whole announcement sample.

AAR's on the announcement day 0 and on day +2 are both significantly negative. Announcement effect appears to be associated with a decrease in the security returns and the null hypothesis of null AAR's is rejected. The price effect beginning on announcement date before the actual listing may be evidence of market inefficiency.

In addition, CAAR's are somewhat larger and more significant when outliers are excluded. CAAR's for the windows [0, 1], [0, 2] and [0, 3] are significantly negative with respective values of -0.0165 (Z= 3.7825), -0.0250 (Z= 4.2983), and -0.0274 (Z= 3.8277). The price effect with the clean sample appears also to be permanent, cumulative abnormal returns remain abnormally high at least 10 days after the announcement. The results shown are consistent with the downward sloping curve hypothesis and support the ISH hypothesis documented by Harris and Gurel (1986).

Moreover the insignificance of the CAAR in [-10, -1] window confirms that news of warrants introduction did not leak into the market.

3. Cross-Sectional Regression

The two day announcement period[20] [0, +1] cumulative return is regressed on various variables to identify the factors that determine the negative price reaction to announcement of warrants offerings.

$$CAAR_i = \beta_0 + \beta_1 LNA_i + \beta_2 BM_i + \beta_3 Size + \beta_4 D_{1i} + \beta_5 D_{2i} + \varepsilon_i$$

---

[20] The two day abnormal return [0, +1] is needed to capture the effect of the announcement because the reaction of the market depends on the time at which the announcement is made. If the warrant offering is announced before the closing of the day, the market will react on the same day. If the offering is announced after the closing of the market, the stock price will react on the following day.

The estimated cumulative returns over the announcement period [0, +1] are used as the dependent variable.

The independent variables are presented in Table 8 and are:

- The Log of total Assets (LNA) as proxy for the Size of the firm: The different accounting data were collected form mainly three databases: the FP informat, the Mergent online and the Sedar Databases.

- The Size variable which is the amount raised by the issuance of the warrants or the units including equity warrants and common stocks by the market value of the firm at the end of the fiscal year prior to the warrant introduction. The Amount Issued reported in the TSE daily review few days before the issue of the warrant and the units. We expect that the size of the offering/market capitalization to have a negative and a significant coefficient.

- The Book to market value (BM) computed as the Book divided by the market value of the firm. The Book Value is the net value of the company assets as carried on the balance sheet. In other words, the cost of total assets minus accumulated depreciation and intangible assets and liabilities. The market price is obtained by multiplying the closing price at the announcement date by the number of shares outstanding. The (BM) is an easy-to-use tool for identifying clearly under or overvalued companies.

- D_1 Dummy variable that is equal to one if only warrants are issued and zero if equity warrants are issued in units that include common shares.

- D_2 Dummy variable that is equal to 1 if the company issuing the warrant is a resource company and zero otherwise.

Out of the 65 announcement companies, we obtained a sample of 29 companies having all the required data. The total sample has a mean of total assets of $1290.077 and a median of $735.59 (both in millions). The mean Book to market is 0.730 and the median is 0.656. Finally, the mean Amount issued or the size is $78.878 millions and the median Size is $42.127 millions. The mean ration of the size of the offering/market capitalization is 3.79%.

Table 9 presents the estimated coefficients from the CAARs' regressions on the above mentioned independent variables.

The coefficient for the log of total assets (LNA) is negative and insignificant, meaning that the firm size has no effect on the stock reaction. The coefficient for the book to market (BM) is positive and significant, which means that the higher is the Book to market and thus the more the company is undervalued, the lower is the reduction in stock price.

Consistent with theory, The Size of the issue/market capitalization has a negative and a significant coefficient implying that increasing the size of the offering results in a greater reduction in stock price.

Both Dummy variables are not significant, with dummy1 having a positive coefficient and dummy 2 having a negative coefficient.

We also conducted the same regression using CAAR's for an event window of both [-1, 0] and [-1, 1] and none of the coefficients of the independent variables was significant.

4. Volatility Effects:

Brown et al (1988) argue that an increase in variance accompanying an event is due to change in the firm's systematic risk. Thus it is necessary to control for variance changes to obtain appropriate tests of the null hypothesis that the (AAR) is zero.

The effects of option introduction on the volatility of the underlying stock were widely tested in theory but no real consensus has been found.

Decreases in the volatility were found by Conrad (1989), Detemple and Jorion (1990) Damodaran and Lim (1991) and Skinner (1998). In contrast, Trennepohl and Dukes (1979), Klemkosky and Maness (1980), Chamberlain et al (1993), Gjerde and Saetten (1995) and finally Alkebäck and Hagelin (1998) were not able to detect any significant effects from the option introductions on the volatility.

Stock volatility is defined in accordance with Chamberlain et al (1993). To test whether there is a change in return volatility at the time of warrant listing, the before and after, event day unadjusted volatilities (σ_i^U) and adjusted volatilities (σ_i^A) are calculated.

The unadjusted volatility is estimated by the standard deviation of daily returns for each stock and period, and the adjusted volatility is estimated by the adjusted standard deviation for each stock and period.

The adjusted standard deviation is calculated by dividing each stock's standard deviation by the contemporaneous standard deviation of the market. The adjusted volatility is used to take account of possible changes in the market volatility.

Wilcoxon signed-rank test are conducted to examine whether the unadjusted volatility and adjusted volatility differ significantly from the period before and after the event day

(we investigate both the difference around the issuance and announcement date). In order to perform this test we calculate the unadjusted and adjusted volatility ratios where:

$$\text{Unadjusted Volatility ratio: } \sigma_{Ratio}^{U} = \frac{\sigma_i^{U} \text{ after event}}{\sigma_i^{U} \text{ before event}}$$

$$\text{Adjusted Volatility ratio: } \sigma_{Ratio}^{A} = \frac{\sigma_i^{A} \text{ after event}}{\sigma_i^{A} \text{ before event}}$$

Thereafter, for each window all ratios are added and then divided by the number of stocks to get the mean ratio for all stocks:

$$\text{Mean Unadjusted ratio: } MR^{U} = \frac{\sum_{i=1}^{i=n} \sigma_{Ratio}^{U}}{n}$$

$$\text{Mean Adjusted ratio: } MR^{A} = \frac{\sum_{i=1}^{i=n} \sigma_{Ratio}^{A}}{n}$$

Where n is the relative number of companies depending on the sample used.

Under the null hypothesis, unadjusted volatility and adjusted volatility should not be systematically different before and after the event, hence the mean ratio for all stocks should equal 1.

- Issuance effects on the volatility

Summary statistics of the before and after issuance periods are presented in table 10.

While casual inspection suggests a slight decline in volatility after the listing of the option, in no instance does a Wilcoxon test signed rank test, using the prelisting as the benchmark allow the rejection of the null hypothesis that the distributions are the same.

This result is consistent with the Chamberlain et al (1993) findings. In the Canadian market, warrant like option introduction has no effect on the volatility of the underlying stock.

We conducted the same tests with the issuance clean sample (without the outliers-109 firms-). The results of those tests are presented in table 11.

At the individual level, the majority of the companies experienced a decline in volatility (the number of ratio > 1 is always superior to 55 in the different window), which is consistent with previous studies suggesting that the option and warrants reduce the risk and stabilize the underlying stock, but none of the ratios are significant at the 5% level. Thus the null hypothesis should not be rejected.

The results with the clean sample of 109 firms confirm those obtained with the whole sample and prove robustness.

In conclusion, the warrant introduction does not have any effect on the underlying stock's volatility since the unadjusted and adjusted returns are not different after and before the issuance. Therefore, volatility estimates for valuation purposes, before the actual introduction, can be approximated by historical data.

- <u>Announcement effects on the volatility</u>

Table 12 presents the result of tests on the unadjusted and adjusted volatilities using the issuance sample.

The before and after announcement unadjusted volatility ratios are significantly different for the window of 60, 45, 30 and 10 days with respectively 41, 45, 45 and 44 ratios under one.

However, when we adjust the volatility, no evidence of any significant changes at a 5% level, is present according to the Wilcoxon-test.

Taking into account the outliers, we redo the analysis using the sample of 53 firms to investigate if the significance of the three unadjusted ratios is caused by extreme values. We find insignificant p-values relative to the unadjusted volatility relative to the 4 windows.

When we adjusted the volatilities, we find also no evidence indicating that warrant announcement have any effect on the volatility underlying stocks. Therefore the null hypothesis that adjusted and unadjusted volatilities are the same can not be rejected.

We can conclude that like the warrant issuance, the announcement of warrant issuance does not have any effect on the underlying stock's volatilities.

6. Conclusion and suggestions for future research:

This thesis examined the reaction of the underlying stock to the warrant offerings of a sample of companies listed on the Toronto Stock Exchange over the period of 1981-2001. Amongst other issuer, we provide a test of the hypothesis that the demand curves of equities slope negatively.

Using an event study methodology around both the date of issuance and announcement of warrant introduction, it appears that the both event days cause a negative and permanent price effect.

Using a clean sample of 109 firms issuing warrants, we observe a significant negative AAR's around the issuance day. In fact we observed a significant AAR of -0.006 with Z-statistic of 2.3876 on the day 1 rejecting the null hypothesis of null estimated AAR's.

We also find that CAAR's have a negative trend that is not reversed on the event window surrounding the issuance date.

Furthermore, AAR's on the announcement day 0 of -0.010 (Z= -3.79) and day 2 of -0.0084 (Z= -2.16) are both significantly negative. Announcement effects are also significantly negative and permanent, rejecting the null hypothesis of null AAR's.

Moreover, significant negative CAAR's are observed for the windows [0, 1], [0, 2] and [0, 3] of respectively: -0.011 (Z=2.946); 0.0145 (Z=3.048) and 0.155 (Z=2.959).

These permanent observed decreases are consistent with the ISH hypothesis documented by Harris and Gurel (1986). In fact, the results confirm that the new price reflects a new equilibrium distribution of the security returns, and hence there is no price reversal expected. The results support the hypothesis that the demand curve for equity in Canada is negatively sloped.

We noticed also that the CAAR's preceding the announcement date are essentially zero at the 5% level of significance suggesting that news of warrants introduction did not leak into the market.

The cross-sectional regression of the CAAR's showed that the Book to market variable has a significant and positive effects on the cumulative returns for the 2 day period [0, 1] meaning the more the company is undervalued, the lower is the reduction in stock price. The sign of the Size Coefficient is negative and significant as reported by the theory showing that increasing the size of the offering results in a greater reduction in stock price.

Moreover, the empirical results of this study show that warrant introduction has only a negligible impact on the risk of the underlying stock. In fact, most of the securities experienced a decline in the adjusted and unadjusted volatility on both the announcement and issuance date, however, the adjusted volatility ratio are insignificant showing no change in the volatility before and after the event date.

The findings of this study suggest several implications for financial managers. Managers have to be aware of the negative price effect when considering warrant offerings and should not be concerned about the effect of the warrant introduction on the underlying stock volatility. Finally, volatility estimates for valuation purposes, before the actual introduction, can be approximated by historical data.

This study suggests several directions for future research. One suggestion is to investigate the effects of warrant introduction on the volume of the underlying stock. Indeed, Campbell et al (1993) suggest that abnormal return patterns are associated with abnormal trading volume. However, Shwert (1989) reports that growth in trading volume is positively related to an increase in stock return volatility. Investigation of the volume

effect is a direct test of those 2 studies since we find a negative effect on price and no effect on volatility.

The other suggestion is to test for the change in bid-ask spread of the underlying stock. In fact, bid-ask spreads tend to vary with the price of the stock and the expectation of increasing bid-ask spreads as a result of warrant introduction is an incentive to not issue warrants. Extending the analysis of this study to investigate bid-ask spreads changes is fruitful for the financial managers.

References

Alkebäck, P., and Hagelin, N., 1998, "The Impact of Warrant Introductions on the Underlying Stocks, with a Comparison to Stock Options", Journal of Futures Markets, Vol. 18, Iss. 3 (May), 307-328.

Asquith, P., and Mullins, D., 1986, "Equity Issues and Offering Dilution", Journal of Financial Economics, Vol.15 (January/February), 61-90.

Bansal, V.K., Pruit, S.W., and Wei, K.C.J., 1989, "An Empirical Reexamination of the Impact of CBOE Option Initiation on the Volatility and Trading Volume of the Underlying Equities: 1973-1986", Financial Review, Vol. 24, 19-29.

Bhagat, S., 1983, "The Effect of Pre-Emptive Right Amendment on Shareholders Wealth", Journal of Financial Economics, Vol.12 (November), 289-310.

Branch, B., and Finnerty, J., 1981, "The Impact of Option Listing on the Price and Volume of the Underlying Stock", Financial Review, Vol. 16, 1-15.

Billingsley, R.S., Lamy, R.E., and Smith, D.M., 1990, "Units of Debt with Warrants: Evidence of the Penalty Free Issuance of an Equity-Like Security", Journal of Financial Research, Vol. 13, Iss. 3 (Fall), 87-199.

Brown, S.J., and Warner, J.B., 1980, "Measuring Security Price Performance", Journal of Financial Economics, Vol. 8, Iss.3, 205-258.

Brown, S.J., and Warner, J.B., 1985, "Using Daily Stock Returns: The Case of Event Studies", Journal of Financial Economics, Vol. 14, 3-31.

Brown, K., Howard, W.H., and Timmic, S.M (1988), "Risk Aversion, Uncertain Information and Market Efficiency", Journal of Financial Economics, Vol. 22, 355-385.

Campbell, J., Grossman, S., and Wang, J., 1993, "Trading Volume and Serial Correlation in Stock Returns", Quarterly Journal of Economics, Vol.108, 905-939.

Chamberlain, T.w., Cheung, C.S and Kwan, C.Y, 1993, "Option Listing, Market Liquidity and Stock Behaviour: Some Canadian Evidence", Journal of Business Finance and Accounting, Vol.20, Iss.5, 687-698.

Chamberlain, T.W., Cheung, C.S and Kwan, C.Y, 1989, "Expiration Day Effects of Index Futures and Options: Some Canadian Evidence", Financial Analysts Journal, vol45, 66-71.

Chan, Y.C., and Wei, K.C.J., 2001, "Price and Volume Effects Associated with Derivative Warrant Issuance on the Stock Exchange of Hong Kong", Journal of Banking and Finance, Vol. 25, 1401-1426.

Chen, K.C., and Wu, L, 2001, "Introduction and Expiration Effects of Derivative Equity Warrants in Hong Kong", International Review of Financial Analysis, Vol. 10, 37-52.

Conrad, J., 1989, " The Price Effect of Option Introduction", Journal of Finance, Vol. 44, Iss. 2 (June), 487-498.

Dann, Larry Y., Mikkelson, Wayne H.,1984, "Convertible Debt Issuance, Capital Structure change and financing related information", Journal of Financial Economics, Vol.13, Iss. 2, 157-186.

Damodaran, A., and Lim, J., 1990, "The Effects of Option Listing on the Underlying Stock's Return Processes", Journal of Banking and Finance, Vol.15, 647-664.

De Roon, F., and Veld, C., 1998, "Announcement Effects of Convertible Bond Loans and Warrant-Bond Loans: An Empirical Analysis for the Dutch Market", Journal of Banking and Finance, Vol. 22, 1481-1506.

Detemple, J., and Selden, L., 1991 "A General Equilibrium Analysis of Option and Stock Market Interactions", International Economic Review, Vol32, Iss.2, 279-303.

Detemple, J., and Jorion, P., 1990, "Option Listing and Stock Returns: An Empirical Analysis", Journal of Banking and Finance, Vol. 14, 781-801.

Draper, P., White, W., and Yadav, P., 1992, "The Impact of Option Listing on Underlying Stock Returns: The UK Evidence", Journal of Business Finance and Accounting, Vol.19, Iss.4, 483-502.

Eckbo, E., and Masulis, R., 1992, "Adverse Selection and the Rights Offer Paradox", Journal of Financial Economics, Vol. 32, 293-332.

Gjerde, O. and Saettem, F., 1995, "Option Initiation and Underlying market Behaviour: Evidence from Norway", The Journal of Future Markets, Vol.15, 881-889

Handley, J.C., 2002, "On the Valuation of Warrants", Journal of Future Markets, Vol. 22, Iss. 8 (August), 765-782.

Harris, L., and Gurel, E., 1986, "Price and Volume Effects Associated with Changes in the S&P 500 list: New Evidence for the Existence of Price Pressure", Journal of Finance, Vol. 41, 815-829.

Halpern, P.J., and Turnbull, S.M., 1985, "Empirical Tests for Boundary Conditions for the Toronto Stock Exchange Options", Journal of Finance, Vol.40, 481-500.

Hayes, S., and Tennenbaum, M., 1979, "The Impact of Listed Options on the Underlying Shares", Financial Mangement, Vol. 8, 72-76.

Hess A.C., and Frost P., 1982, "Tests for Price Effects of New Issues of Seasoned Securities", Journal of Finance, Vol.36, (1982), 11–25.

Kalay, A., and Shimrat, A., 1987, "Firm Value and Seasoned Equity Issues: Price Pressure, Wealth Redistribution, or Negative Information", Journal of Financial Economics, Vol.19 (March), 109-126.

Kang, J-K., Kim, Y-C., Park, K-J., and Stulz, R.M., 1995, "An Analysis of the Wealth Effects of Japanese Offshore Dollar-Denominated Convertible and Warrant Bond Issues", Journal of Financial and Quantitative Analysis, Vol. 30, Iss. 2 (June), 257-270.

Karafiath, I., 1988, "Using Dummy Variables in the Event Methodology", Financial Review, Vol. 23 (August), 351-357.

Klemkosky, R., and Maness, T., 1980, "The Impact of Options on the Underlying Securities", Journal of Portfolio Management, Vol. 9, 2-18.

Linn, S.C., and Pinegar, J.M., 1991,"The Price Effects of Secondary Offerings of Senior Securities and Warrants", Journal of Banking and Finance, Vol. 15, 683-698.

Loderer, C., Cooney, J., and Van Drunen, L., 1991, "The Price Elasticity of Demand of Common Stock", Journal of Finance, Vol. 46, 621-651.

Long, M.S., and Sefcik, S.E., 1990, "Participation Financing: A Comparison of the characteristics of Convertible Debt and Straight Bonds Issued in Conjunction with Warrants", Financial Management, Vol. 19, Iss. 3, 23-34.

MacKinlay, A.C., 1997, "Event Studies in Economics and Finance", Journal of Economic Literature, Vol. 35, Iss. 1 (March), 13-39.

Masulis, R., and Korwar, A., 1986, "Seasoned Equity Offerings: An Empirical Investigating", Journal of Financial Economics, Vol. 15 (January/ February), 90-118.

Mikkelson, W., and Partch, M., 1986 "Valuation Effects of the Security Offerings and the Issuance Process", Journal of Financial Economics, Vol.15,31-60.

Mikkelson, W., and Partch, M., 1988, "Withdrawn Security Offerings", Journal of Financial and Quantitative Analysis, Vol. 23 (June), 119-133.

Miller, M., and Rock, K., 1985, "Dividend Policy under Asymmetric Information: Part I", Journal of Finance, Vol. 40 (September), 1031-1051.

Myers, S., and Majluf, N., 1984, "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have", Journal of Financial Economics, Vol. 13 (June), 187-221.

Nathan, R., Associates, "Review of initial trading Experience at the Chicago Board Oprions Exhange", December 1974

Phelps, K.L., Moore, W.T., and Roenfeldt, R.L., 1991, "Equity Valuation Effects of Warrant- Debt Financing", Journal of Financial Research, Vol. 14, Iss. 2 (Summer), 93-102.

Prabhala, N.R., 1997, "Conditional Methods in Event Studies and an Equilibrium Justification for Standard Event-Study Procedures", Review of Financial Studies, Vol. 10, 1-38.

Pinegar, J Michael and Linn, Scott C, 1991, "the price effects of secondary offerings of senior securities and warrants" Journal of Banking and Finance, Vol.15, Iss.3. (June),

Ross, S., 1977, "The Determination of Financial Structure: The Incentive-Signalling Approach", Bell Journal of Economics, Vol. 8 (Spring), 23-40.

Schipper, K., and Smith, A., 1986, "A Comparison of Equity Carve Outs and Equity Offerings: Share Price Effects and Corporate Restructuring", Journal of Financial Economics, Vol. 15 (January/ February), 153-186.

Scholes, M., 1972, " The Market for Securities: Substitution versus Price Pressure and the Effect of Information of Share Prices", Journal of Business, Vol. 45 (April), 179-211.

Shwert, W., 1987, "Why Does Stock Market Volatility Change over Time? ", Journal of Finance, Vol.44, 1115-1145.

Skinner, D.J, 1989, "Option Markets and Stock Return Volatility", journal of Financial Economics, Vol.3, 61-78.

Sidenius, J., 1996, "Warrant Pricing: Is Dilution a Delusion?", Financial Analysts Journal, Vol. 52, Iss. 5 (September/October), 77-80.

Smith, C., 1977, "Alternative Methods for Raising Capital: Rights Versus Underwritten Offering", Journal of Financial Economics, Vol. 5 (December), 273-307.

Sorescu, S., 2000, "The Effect of Options on Stock Prices: 1973 to 1995", Journal of Finance, Vol. 55, Iss. 1 (February), 487-514.

Switzer, L.N., and Zoghaib, R., 1999, "Index Participation Units, Market Tracking Risk, and Equity Market Demand", Canadian Journal of Administrative Sciences, Vol. 16, Iss. 3, 243-255.

Trennepohl, G., and Dukes, W., 1979, "CBOE Options and Stock Volatility", Review of Business and Economic Research, Vol. 14, 49-60.

White, R., and Lusztig, P., 1980, "The Price Effects of Rights Offerings", Journal of Financial and Quantitative Analysis, Vol. 15 (March), 25-39.

Whiteside, M., Dukes, W., and Dunne, P., 1983, "Short Term Impact of Option Trading on Underlying Securities", Journal of Financial Research, Vol. 6, 313-322.

Other References

Aldred, P., 1987,"Convertibles and Warrants", Euromoney Publications, Great Britain.

Hull, J.C., 2000, "Future and Options Markets", 3rd Edition, Toronto: Prentice-Hall, Canada.

Hull, J.C., 2000, "Option, Futures and other Derivatives", 4th Edition, Toronto: Prentice-Hall, Canada.

John P.Calamos, "Convertible securities: the latest instruments, portfolio strategies, and valuation analysis", revised edition, McGraw-Hill.

Kdaiem, N., 1996, " Market Reaction to Announcements of Rights Offerings Using Daily and Intraday Data", Thesis, John Molson School of Business, School of Graduate Studies.

Lekkas, G., 2002, "Option Pricing in the Presence of Warrants", Thesis, John Molson School of Business, School of Graduate Studies.

Price, Q., 1991, "Warrants, Options and Convertibles", 1st Edition, IFR Publishing Ltd.

Webber, D.L., 1992, "Warrants and the Stock Purchase Warrant Market in Canada, A Review and Empirical Analysis", John Molson School of Business, School of Graduate Studies.

"Toronto Stock Exchange; Daily Record", Toronto Stock Exchange, years: 1982-2002.

"The Toronto Stock Exchange; Monthly Review", Toronto Stock Exchange, 1982-2002.

"The Toronto Stock Exchange; Official Trading Statistics", Toronto Stock Exchange.

Web references and databases:

TSE Western Database

Globe & Mail Canada's Heritage from 1844 database

DataStream

Bloomberg Database

FP Informat Database: www.fpinfomart.ca

Mergent Online Database: www.mergentonline.com

Toronto Stock Exchange web site: www.tsx.com

CBOE web site: www.cboe.com

www.sedar.com

Tables and Charts

Table1: Distribution of Equity Warrant by year:

The frequency distribution of the equity warrant offerings for firms listed on the TSE during the period 1981-2001 is listed below:

Year of Issue	Number of Offer
1981	2
1982	1
1983	23
1984	35
1985	40
1986	45
1987	50
1988	28
1989	15
1990	10
1991	29
1992	16
1993	21
1994	16
1995	22
1996	22
1997	9
1998	11
1999	12
2000	11
2001	4

Table2: Issuance Sample

This Table lists the company of the issuance sample used in the event study

	COMPANY	Issuance Date
1	STELCO	5/24/1983
2	ROYAL BANK OF CANADA	7/6/1983
3	NORTHGATE EXPLORATION LIMITED	7/13/1983
4	TOTAL PETROLEUM NORTH AMERICA LTD.	7/27/1983
5	PACIFIC CASSIAR LTD	7/28/1983
6	IVACO INC	8/9/1983
7	HUDSON BAY MINING & SMELTING CO. LTD	9/26/1983
8	ATCO LTD	11/25/1983
9	OAKWOOD PETROLEUMS LTD	12/21/1983
10	VERSATILE CORP	1/17/1984
11	CANADIAN UTILITIES LTD	2/7/1984
12	CORRIDA OILS LTD.	6/25/1984
13	MERIDIAN TECHNOLOGIES INC.	8/3/1984
14	PENN WEST PETROLEUM LTD.	11/15/1984
15	TRILON FINANCIAL CORP.	2/15/1985
16	COMTERM INC.	2/20/1985
17	DENISON MINES LIMITED	3/7/1985
18	JAMIE FRONTIER RESOURCES INC.	3/11/1985
19	CANADIAN IMPERIAL BANK OF COMMERCE	4/1/1985
20	DOME PETROLEUM LTD.	5/10/1985
21	DOME MINES LTD.	6/14/1985
22	BOW VALLEY ENERGY INC.	8/6/1985
23	PEOPLES JEWELLERS LTD.	8/21/1985
24	CAMPBELL RESOURCES INC.	9/20/1985
25	PEGASUS GOLD INC.	11/8/1985
26	CANADA NORTHWEST ENERGY LTD	12/5/1985
27	ROYEX GOLD MINING CORP.	12/5/1985
28	GLAMIS GOLD LTD.	12/31/1985
29	B C E Development Corp.	6/20/1986
30	BOMBARDIER INC.	6/26/1986
31	TRANSCANADA PIPELINES LTD.	7/15/1986
32	CANADIAN MANOIR INDUSTRIES LTD.	8/5/1986
33	LAIDLAW INC.	8/27/1986
34	GULF CANADA CORP.	10/27/1986
35	TECK COMINCO LIMITED	1/12/1987
36	AUGMITTO EXPLORATIONS LTD.	1/14/1987
37	ABERMIN CORP.	3/26/1987
38	ULSTER PETROLEUMS LTD.	3/30/1987
39	WHARF RESOURCES LTD.	4/9/1987
40	ROYEX GOLD MINING CORP.	5/5/1987
41	LAIDLAW INC.	5/28/1987
42	EXCEL ENERGY INC.	6/11/1987
43	DUMAGAMI MINES LTD.	7/8/1987
44	EXALL RESOURCES LTD.	7/27/1987
45	PLACER DOME INC.	8/13/1987

Table 2 Continued

	Company	Issuance date
46	RIO ALTO EXPLORATION LTD.	8/18/1987
47	GOLDEN KNIGHT RESOURCES INC.	8/26/1987
48	BELMORAL MINES LTD.	9/21/1987
49	GOLDEX MINES LTD.	1/26/1988
50	FALCONBRIDGE LTD.	1/27/1988
51	LAURASIA RESOURCES LTD.	3/1/1988
52	INTERNATIONAL CORONA CORPORATION	7/4/1988
53	Nexus Resource Corp.	7/5/1988
54	GULF CANADA RESOURCES LTD.	8/5/1988
55	ETAC SALES LTD.	9/8/1988
56	TOTAL ENERGOLD CORP.	9/28/1988
57	HOLLINGER INCORPORATED	10/4/1988
58	NORTHGATE EXPLORATION LIMITED	11/7/1988
59	PIONEER METALS CORP.	3/14/1989
60	Denison Mines	3/15/1989
61	GOLDCORP INC.	4/3/1989
62	SCEPTRE RESOURCES LTD.	5/25/1989
63	LAC MINERALS LTD.	6/13/1989
64	AUDREY RESOURCES INC.	9/18/1989
65	GULFSTREAM RESOURCES CANADA LTD.	10/24/1989
66	GEDDES RESOURCES LTD.	11/1/1989
67	INTL.VERIFACT	11/9/1989
68	AGNICO-EAGLE MINES LTD.	12/22/1989
69	UNICORP INC. CL 'A' NV	1/8/1990
70	LAC MINERALS LTD.	1/26/1990
71	VOYAGER ENERGY INC.	3/6/1990
72	INTERNATIONAL CORONA CORP.	3/15/1990
73	INTERNATIONAL PETROLEUM CORP.	7/26/1990
74	ENCOR INC.	8/8/1990
75	JOUTEL RESOURCES LTD.	8/22/1990
76	AGNICO-EAGLE MINES	9/18/1990
77	ENCOR INC.	1/22/1991
78	Trizec Corp.	3/26/1991
79	BRAMALEA INC.	6/10/1991
80	Cascades Inc	6/11/1991
81	INTERNATIONAL CORONA CORP.	6/12/1991
82	TRILON FINANCIAL CORP.	6/14/1991
83	BRASCAN CORPORATION	6/27/1991
84	TECK COMINCO LTD	7/30/1991
85	PEGASUS GOLD INC.	9/10/1991
86	STELCO INC	9/11/1991
87	DOFASCO INC.	10/7/1991
88	POTASH CORPORATION OF SASKATCHEWAN INC.	10/29/1991
89	ROYAL OAK MINES INC.	12/24/1991
90	CAMBRIDGE SHOPPING CENTRES LTD.	1/23/1992
91	ROGERS COMMUNICATIONS INC.	2/11/1992

Table 2 Continued

	Company	Issuance date
92	QUEBECOR INC.	2/17/1992
93	COMINCO RESOURCES INTERNATIONAL LIMITED	6/12/1992
94	HYAL PHARMACEUTICAL CORPORATION	6/26/1992
95	CASCADES INC.	8/4/1992
96	Quadra Logic Tech.	8/10/1992
97	CZAR RESOURCES LTD.	12/31/1992
98	QUORUM GROWTH INC.	3/16/1993
99	ROYAL OAK MINES INC.	7/8/1993
100	CS RESOURCES LIMITED	8/9/1993
101	NUMAC ENERGY INC.	10/26/1993
102	CAMBIOR INC.	12/8/1993
103	AIR CANADA	12/14/1993
104	IVACO INC.	12/16/1993
105	KINROSS GOLD CORPORATION	1/10/1994
106	RIO ALGOM LIMITED	2/23/1994
107	SHAW COMMUNICATIONS INC.	4/11/1994
108	TRIZEC CORPORATION LTD.	7/26/1994
109	PURE GOLD MINERALS INC.	1/20/1995
110	WHEATON RIVER MINERALS LTD.	4/27/1995
111	HYAL PHARMACEUTICAL CORPORATION	10/13/1995
112	WHEATON RIVER MINERALS LTD.	10/18/1995
113	NEUTRINO RESOURCES INC.	10/19/1995
114	GOLDEN KNIGHT RESOURCES INC.	10/23/1995
115	TEE-COMM ELECTRONICS INC.	11/22/1995
116	SOUTHERNERA RESOURCES LIMITED	12/5/1995
117	CAMPBELL RESOURCES INC.	2/26/1996
118	GOLDEN STAR RESOURCES	3/6/1996
119	PROVIGO INC.	3/13/1996
120	WESTMIN RESOURCES LTD.	5/2/1996
121	QUORUM GROWTH INC.	8/13/1996
122	MAGELLAN AEROSPACE CORPORATION	10/22/1996
123	ISTAR INTERNET INC.	11/12/1996
124	ELDORADO GOLD	11/26/1996
125	PURSUIT RESOURCES CORP.	2/25/1997
126	GREENSTONE RESOURCES LTD.	2/27/1997
127	REVENUE PROPERTIES COMPANY LTD.	3/2/1998
128	MCWATTERS MNG.	3/10/1998
129	INMET MINING CORPORATION	9/8/1998
130	NUINSCO RESOURCES LTD.	1/25/1999
131	PAN AMERICAN SILVER CORP.	2/19/1999
132	THUNDERMIN RESOURCES INC.	3/18/1999
133	TRILON FINANCIAL CORP.	5/5/1999
134	Teck Corp.	5/26/1999
135	ARCIS	11/25/1999
136	WESTMINSTER RESOURCES LTD.	12/7/1999
137	HAEMACURE CORPORATION	7/20/2000

Table2 (Continued)

	Company	Issuance date
138	PRECISION DRILLING CORPORATION	8/4/2000
139	INMET MINING	9/5/2000
140	ELECTROMED	9/25/2000
141	WESTMINSTER RESOURCES LTD.	12/7/2000
142	MGI SOFTWARE CORP.	2/9/2001
143	INFOWAVE SOFTWARE INC.	3/21/2001
144	SPECTRAL DIAGNOSTICS INC.	8/22/2001

Table 3: Announcement Sample

This table presents the companies belonging to the announcement sample used for the event study in order to detect the AAR's and get the CAAR's around the announcement date. Column 2 presents the issuance sample, column 3 the announcement date, column 4 the expiration date and finally column 5 presents the amount issued by each of the companies of the announcement sample.

	Company	Iss date	Ann date	Exp date	Amount issued
1	Royal Bank of Canada	7/6/1983	5/27/1983	6/9/1988	300.00
2	Northgate Exploration	7/13/1983	5/3/1983	4/30/1985	21.12
3	Total Petroleum North America	7/27/1983	6/7/1983	4/30/1986	4,400,000 units
4	Hudson Bay Mining & Smelting	9/26/1983	7/21/1983	8/9/1986	921.25
5	Versatile Corporation	1/17/1984	11/3/1983	12/31/1986	19.50
6	Denison Mines	3/7/1985	2/28/1985	9/15/1989	175.00
7	Dome Petroleum	5/10/1985	4/12/1985	12/15/1986	100.00
8	Glamis Gold	12/31/1985	10/28/1958	12/15/1988	N.A
9	Abitibi-Consolidated	4/2/1986	3/13/1986	6/15/1990	137.50
10	Canadian Imperial Bank of Commerce	4/3/1986	3/12/1986	9/30/1988	173.25
11	B C E Development Corp.	6/20/1986	5/20/1986	6/18/1991	200.00
12	Bombardier	6/26/1986	5/9/1986	6/30/1989	20.00
13	Trasncanda Pipelines	7/15/1986	6/5/1986	7/13/1989	200.00
14	Canadian Manoir Industries	8/5/1986	7/22/1986	12/31/1987	10.00
15	Laidlaw Transportation	8/27/1986	8/11/1986	8/18/1987	141.00
16	Augmitto Exploration	1/14/1987	9/23/1986	9/15/1987	3.00
17	Laidlaw Transportation	5/28/1987	5/6/1987	8/26/1988	228.25
18	Golden Knight Resources	8/26/1987	5/29/1987	7/17/1989	N.A
19	Belmoral	9/21/1987	7/31/1987	1/15/1990	27.95
20	Ulster Petroleums	11/3/1987	1/6/1987	11/30/1991	N.A
21	Falconbridge	1/27/1988	1/5/1988	7/27/1989	106.80
22	Denison Mines	3/15/1989	2/21/1989	3/15/1992	50.00
23	LAC Minerals	1/26/1990	11/30/1999	12/15/1991	122.00
24	International Petroleum.	7/26/1990	6/12/1990	6/20/1992	200.00
25	Encor	1/22/1991	6/28/1990	1/21/1992	103.60

53

Table 3 continued:

	Company	Iss date	Ann date	Exp date	Amount issued
26	Trizec Coporation	3/26/1991	3/7/1991	4/1/1993	126.00
27	Brascan	6/27/1991	6/3/1991	12/31/1993	127.69
28	Teck Cominco	7/30/1991	6/11/1991	12/15/1993	93.00
29	Stelco	9/11/1991	8/23/1991	3/15/1994	230.00
30	Dofasco	10/7/1991	6/11/1991	4/1/1994	200.00
31	Potash Corp. of Saskatchewan	10/29/1991	9/12/1991	9/30/1994	136.90
32	Cambridge Shopping Centers	1/23/1992	11/22/1991	3/4/1994	150.00
33	Rogers Communications Inc	2/11/1992	1/13/1992	8/4/1994	200.80
34	Quebecor Inc.	2/17/1992	1/16/1992	8/31/1993	52.00
35	Cominco Resources International	6/12/1992	5/28/1992	9/29/1994	20.00
36	Cascades	8/4/1992	7/9/1992	8/31/1997	50.00
37	Quadra Logic Tech.	8/10/1992	2/26/1992	12/31/1993	17.90
38	CZAR REsources	12/31/1992	11/11/1992	12/30/1994	11.40
39	Royal Oak Mines	7/8/1993	6/16/1993	5/30/1996	42.00
40	Numac Energy	10/26/1993	10/7/1993	4/15/1995	71.75
41	Air Canada	12/14/1993	11/12/1993	12/6/1995	200.00
42	Rio Algom	2/23/1994	2/2/1994	2/29/1996	158
43	Atlantis Communication.	10/3/1994	7/22/1994	8/9/1996	16.00
44	Hyal Pharmaceutical	10/13/1995	8/15/1995	2/14/1997	20.00
45	TEE-COMM Electronics	11/22/1995	11/16/1995	11/22/1996	40.00
46	Campbell Resources.	2/26/1996	2/16/1996	2/26/1999	22.50
47	Golden Star Resources	3/6/1996	2/7/1996	3/3/1997	18.38
48	Provigo	3/13/1996	2/23/1996	3/27/1997	62.40
49	Westburne Inc	3/20/1996	2/15/1996	3/31/1998	155.40
50	Westmin Resources	5/26/1996	4/12/1996	1/21/1998	5.8

Table 3 continued:

	Company	Iss date	Ann date	Exp date	Amount issued
51	Greenstone Resources	2/27/1997	2/7/1997	2/28/2002	75.00
52	Inmet Mining	7/3/1997	3/27/1997	9/3/1998	200.00
53	Revenue Properties Company.	3/2/1998	2/26/1998	9/1/2000	38.50
54	McWatters Mining Inc	3/10/1998	9/10/1998	9/12/1999	42.12711
55	Inmet Mining	9/8/1998	8/9/1998	9/5/2000	1.625
56	PAN AMERICAN SILVER CORP.	2/19/1999	1/27/1999	2/13/2001	32.76
57	Goldcorp	5/13/1999	5/6/1999	2/13/2009	50
58	Teck Cominco	5/26/1999	5/6/1999	5/25/2004	150.00
59	Elk Point Resource	10/14/1999	9/27/1999	10/13/2000	19.8
60	Haemacure	7/20/2000	4/27/2000	12/31/2001	17.65
61	Transglobe	7/27/2000	7/4/2004	7/4/2004	4.08
62	Total Energy Services	9/12/2000	3/12/2002	3/12/2002	6.05
63	Helix biopharma	10/6/2000	7/31/2000	3/1/2001	3.00
64	M G I Software Corp	2/9/2001	1/17/2001	7/31/2002	20.00
65	Infowave Software INC.	3/21/2001	2/13/2001	8/22/2002	12.50

55

Table4: Market Reaction to Warrant Issuance Using the Complete Sample:

This table reports AAR and CAAR as measure of the market reaction to warrant issuance. AAR and CAAR of the complete sample of 144 companies for a 20 year period are generated by an event study. We used the dummy variable approach to estimate the AAR's and CAAR's of the relative event window ranging form 10 days before and after the issuance date.
Z statistics are testing the null hypothesis that the AAR (Panel A-1) or CAR (Panel A-2) is zero.

Panel A-1: Average Abnormal Returns of the complete issuance Sample (144 companies)

Event Day	AAR	Z	Mdn	Min	Max	CAAR	%Negative
-10	-0.0020	-0.5170	-0.0021	-0.2470	0.2709	-0.0020	52.7780
-9	-0.0002	0.3941	-0.0001	-0.2135	0.1827	-0.0022	50.0000
-8	0.0010	0.9871	-0.0012	-0.0935	0.1079	-0.0012	52.7780
-7	0.0001	-0.9069	0.0003	-0.1107	0.2259	-0.0012	47.9170
-6	-0.0081	-1.6029	-0.0018	-0.1448	0.1034	-0.0092	56.9440
-5	0.0025	0.8103	-0.0022	-0.1149	0.2227	-0.0067	59.0280
-4	-0.0011	-0.0227	-0.0012	-0.1167	0.2778	-0.0078	55.5560
-3	0.0049	0.3488	-0.0021	-0.1596	0.4748	-0.0028	55.5560
-2	0.0115	1.2795	-0.0011	-0.1443	1.8192	0.0087	53.4720
-1	-0.0051	-1.2628	-0.0022	-0.1317	0.1672	0.0035	55.5560
0	0.0431*	2.528	-0.0033	-0.1484	6.8637	0.0466	63.8890
1	0.0002	1.1546	-0.0029	-0.1568	0.9690	0.0468	61.8060
2	-0.0047	-1.3119	-0.0034	-0.1955	0.1306	0.0420	58.3330
3	0.0037	0.6209	-0.0003	-0.1215	0.3988	0.0457	50.6940
4	-0.0010	0.0792	-0.0012	-0.1476	0.1626	0.0447	54.1670
5	0.0037	0.4322	0.0003	-0.0973	0.1816	0.0484	48.6110
6	-0.0051	-0.8263	-0.0030	-0.2115	0.1120	0.0433	59.0280
7	0.0007	0.3704	0.0002	-0.1228	0.1242	0.0440	47.9170
8	0.0022	1.0547	-0.0005	-0.1358	0.2688	0.0463	53.4720
9	-0.0039	-1.0315	-0.0028	-0.1588	0.0776	0.0423	56.2500
10	0.0058	2.381*	0.0015	-0.1161	0.1893	0.0481	44.4440

Panel A-2: Cumulative Average Abnormal Returns of the Complete Sample

Event Day		CAAR	Z	Mdn	%Negative
[-10	-1]	0.0035	-0.1558	-0.0120	61.1110
[0	3]	0.0422	1.4962	-0.0100	57.6390
[0	2]	0.0385	1.3692	-0.0120	62.5000
[0	1]	0.0432*	2.604	-0.0085	64.5830
[4	10]	0.0024	0.9299	0.0005	49.3060
[-5	-1]	0.0128	0.5157	-0.0093	56.9440
[2	5]	0.0016	-0.0898	-0.0021	54.1670
[2	10]	0.0014	0.5898	-0.0105	55.5560

* Significant at the 0.05 level

Table 5: Market Reaction to Warrant Issuance After the elimination of outliers:

This table reports AAR and CAAR as measure of the market reaction to warrant issuance. AAR and CAAR of a sample of 109 companies for a 20 year period are generated by an event study. We used the dummy variable approach to estimate the AAR's and CAAR's of the relative event window ranging form 10 days before and after the issuance date. We conduct this analysis after removing the extreme outliers defined as AAR> 10% and AAR<-10% for the event window [-10, +10].
Z statistics are testing the null hypothesis that the AAR (Panel A-1) or CAR (Panel A-2) is zero.

Table 2: Panel A-1: Average Abnormal Returns without outliers (109 firms)

Event Day	AAR	Z	Mdn	Min	Max	CAAR	%Negative
-10	-0.0027	-0.7786	-0.0027	-0.0827	0.0656	-0.0027	55.0460
-9	-0.0002	0.4081	0.0015	-0.0704	0.0994	-0.0029	47.7060
-8	0.0025	0.9973	-0.0012	-0.0516	0.0835	-0.0004	52.2940
-7	-0.0003	-0.7054	0.0006	-0.0711	0.0741	-0.0007	44.9540
-6	-0.0024	-0.2676	-0.0002	-0.0852	0.0758	-0.0031	52.2940
-5	0.0022	0.7578	-0.0017	-0.0581	0.0971	-0.0009	58.7160
-4	-0.0020	-0.2112	-0.0007	-0.0968	0.0788	-0.0029	53.2110
-3	-0.0040	-1.7217	-0.0030	-0.0642	0.0973	-0.0068	60.5500
-2	-0.0024	-0.8512	-0.0013	-0.0855	0.0755	-0.0092	54.1280
-1	-0.0041	-1.1868	-0.0021	-0.0652	0.0612	-0.0133	55.9630
0	-0.006*	-2.3876	-0.0044	-0.0891	0.0896	-0.0193	69.7250
1	-0.0050	-1.7789	-0.0026	-0.0822	0.0693	-0.0243	63.3030
2	-0.0035	-1.1128	-0.0029	-0.0955	0.0570	-0.0278	59.6330
3	-0.0010	-0.6394	-0.0013	-0.0624	0.0560	-0.0288	53.2110
4	-0.0008	-0.3516	-0.0009	-0.0781	0.0475	-0.0296	54.1280
5	-0.0003	-0.1471	0.0001	-0.0973	0.0719	-0.0299	48.6240
6	-0.0030	-0.8005	-0.0025	-0.0671	0.0713	-0.0329	58.7160
7	-0.0013	0.1396	0.0001	-0.0951	0.0894	-0.0342	47.7060
8	0.0013	1.1122	-0.0001	-0.0817	0.0486	-0.0330	51.3760
9	-0.0034	-1.0522	-0.0035	-0.0795	0.0746	-0.0363	56.8810
10	0.0028	1.8033	0.0006	-0.0818	0.0755	-0.0336	46.7890

Panel A-2: Cumulative Average Abnormal Returns without outliers

Event Day		CAAR	Z	Mdn	%Negative
[-10	-1]	-0.0133	-1.1256	-0.0117	61.4680
[0	3]	-0.0155*	-2.9593	-0.0106	58.7160
[0	2]	-0.0145*	-3.0480	-0.0117	64.2200
[0	1]	-0.0110*	-2.9461	-0.0087	68.8070
[4	10]	-0.0048	0.2660	-0.0059	53.2110
[-5	-1]	-0.0102	-1.4370	-0.0083	56.8810
[2	5]	-0.0056	-1.1254	-0.0025	55.9630
[2	10]	-0.0093	-0.3495	-0.0129	59.6330

* Significant at the 0.05 level

Table 6: Market Reaction to Warrant announcement using the Complete Announcement Sample:

This table reports AAR and CAAR as measure of the market reaction to warrant announcement. AAR and CAAR of the complete announcement sample of 65 companies for a 20 year period are generated by an event study. We used the dummy variable approach to estimate the AAR's and CAAR's of the relative event window ranging form 10 days before and after the announcement date.
Z statistics are testing the null hypothesis that the AAR (Panel A-1) or CAR (Panel A-2) is zero.

Table 4: Panel A-1: Average Abnormal Returns of the complete announcement sample (65 Companies)

Event Day	AAR	Z	Mdn	Min	Max	CAAR	%Negative
-10	0.0001	0.2279	-0.0043	-0.1302	0.1508	0.0001	55.3850
-9	-0.0014	-0.4827	-0.0012	-0.0708	0.1411	-0.0013	52.3080
-8	0.0001	0.3037	0.0003	-0.0932	0.0656	-0.0012	49.2310
-7	-0.0024	-0.5223	-0.0017	-0.1008	0.1319	-0.0036	53.8460
-6	-0.0018	0.5695	0.0012	-0.0945	0.1037	-0.0054	49.2310
-5	-0.0025	-0.8144	-0.0018	-0.0561	0.0886	-0.0079	56.9230
-4	-0.0043	-1.3536	-0.0022	-0.0793	0.0749	-0.0121	58.4620
-3	-0.0011	-0.1580	-0.0044	-0.0838	0.0843	-0.0133	60.0000
-2	0.0013	0.8646	0.0011	-0.1286	0.1081	-0.0120	44.6150
-1	-0.0056	-1.6375	-0.0013	-0.1202	0.0801	-0.0176	52.3080
0	-0.0058*	-2.9873	-0.0025	-0.0756	0.0866	-0.0234	58.4620
1	-0.0048	-0.8667	-0.0026	-0.0867	0.1053	-0.0282	58.4620
2	-0.0106*	-2.8427	-0.0072	-0.0680	0.0606	-0.0388	70.7690
3	-0.0020	0.3882	0.0003	-0.0791	0.1624	-0.0408	49.2310
4	-0.0040	-1.6866	-0.0011	-0.1497	0.0993	-0.0448	53.8460
5	-0.0011	-0.2698	-0.0011	-0.0982	0.0569	-0.0459	53.8460
6	-0.0001	-0.3592	-0.0005	-0.0492	0.0769	-0.0461	52.3080
7	-0.0027	-0.3871	-0.0001	-0.1493	0.0963	-0.0487	50.7690
8	-0.0006	-0.2166	-0.0013	-0.0717	0.0668	-0.0494	53.8460
9	-0.0064*	-2.0795	-0.0069	-0.0922	0.0744	-0.0557	64.6150
10	0.0006	-0.0144	0.0010	-0.0749	0.0590	-0.0552	47.6920

Panel A-2: Cumulative Average Abnormal Returns of the complete sample

Event Day		CAAR(%)	Z	Mdn(%)	%Negative
[-10	-1]	-0.0176	-0.9496	-0.0120	60.0000
[0	3]	-0.0232*	-3.1542	-0.0228	69.2310
[0	2]	-0.0212*	-3.8663	-0.0153	63.0770
[0	1]	-0.0106*	-2.7252	-0.0050	56.9230
[4	10]	-0.0144	-1.8948	-0.0211	61.5380
[-5	-1]	-0.0123	-1.3858	-0.0090	64.6150
[2	5]	-0.0177*	-2.2055	-0.0153	66.1540
[2	10]	-0.0270*	-2.4892	-0.0245	64.6150
[-1	1]	-0.0162*	-3.1705	-0.0131	61.5380
[-1	0]	-0.0114*	-3.2702	-0.0124	61.5380

* Significant at the 0.05 level

Table 7: Market Reaction to Warrant announcement after the elimination of outliers:

This table reports AAR and CAAR as measure of the market reaction to warrant announcement. AAR and CAAR of the complete announcement sample of 53 companies for a 20 year period are generated by an event study. We used the dummy variable approach to estimate the AAR's and CAAR's of the relative event window ranging form 10 days before and after the announcement date. We conduct this analysis after removing the extreme outliers defined as AAR> 10% and AAR<-10% for the event window [-10, +10].

Z statistics are testing the null hypothesis that the AAR (Panel A-1) or CAR (Panel A-2) is zero.

Table 5: Panel A-2: Average Abnormal Returns (AAR) without outliers (53 firms)

Event Day	AAR	Z	Mdn	Min	Max	CAAR	%Negative
-10	-0.0012	-0.6777	-0.0025	-0.0400	0.0710	-0.0012	54.7170
-9	-0.0046	-1.1577	-0.0042	-0.0704	0.0786	-0.0058	54.7170
-8	0.0024	0.4378	0.0010	-0.0660	0.0656	-0.0034	45.2830
-7	-0.0025	-0.1902	0.0004	-0.0720	0.0609	-0.0059	49.0570
-6	0.0024	1.2552	0.0017	-0.0827	0.0859	-0.0035	43.3960
-5	-0.0034	-0.8355	-0.0018	-0.0561	0.0431	-0.0069	58.4910
-4	-0.0019	-1.0240	-0.0011	-0.0740	0.0749	-0.0088	54.7170
-3	-0.0027	-0.3363	-0.0021	-0.0838	0.0843	-0.0115	60.3770
-2	0.0021	1.1005	0.0011	-0.0482	0.0727	-0.0094	45.2830
-1	0.0004	-0.3676	0.0001	-0.0518	0.0801	-0.0091	49.0570
0	-0.0099*	-3.9543	-0.0035	-0.0756	0.0611	-0.0190	62.2640
1	-0.0065	-1.3950	-0.0027	-0.0760	0.0673	-0.0255	62.2640
2	-0.0086*	-2.0956	-0.0071	-0.0671	0.0491	-0.0341	67.9250
3	-0.0023	-0.2104	0.0005	-0.0629	0.0289	-0.0364	47.1700
4	0.0002	-0.2946	0.0000	-0.0849	0.0993	-0.0362	49.0570
5	0.0008	-0.2086	-0.0001	-0.0606	0.0569	-0.0354	52.8300
6	0.0018	-0.1407	-0.0002	-0.0492	0.0769	-0.0336	50.9430
7	-0.0005	-0.2124	-0.0005	-0.0472	0.0963	-0.0341	50.9430
8	-0.0011	-0.2727	-0.0013	-0.0534	0.0416	-0.0351	54.7170
9	-0.0049	-1.7314	-0.0069	-0.0554	0.0687	-0.0400	64.1510
10	-0.0011	-0.4049	-0.0003	-0.0345	0.0343	-0.0411	50.9430

Panel B-2: Cumulative Average Abnormal Returns without outliers

Event Day	CAAR(%)	Z	Mdn(%)	%Negative
[-10 -1]	-0.0091	-0.5677	-0.0088	60.3770
[0 3]	-0.0274*	-3.8277	-0.0228	69.8110
[0 2]	-0.0250*	-4.2983	-0.0233	64.1510
[0 1]	-0.0165*	-3.7825	-0.0077	60.3770
[4 10]	-0.0047	-1.2341	-0.0095	58.4910
[-5 -1]	-0.0055	-0.6542	-0.0056	62.2640
[2 5]	-0.0099	-1.4046	-0.0129	60.3770
[2 10]	-0.0156	-1.8571	-0.0217	60.3770
[-1 1]	-0.0161*	-3.3006	-0.0131	64.1510
[-1 0]	-0.0096*	-3.0560	-0.0105	60.3770

* Significant at the 0.05 level

Figuer 1: AAR around issuance date using the complete Sample of 144 firms:
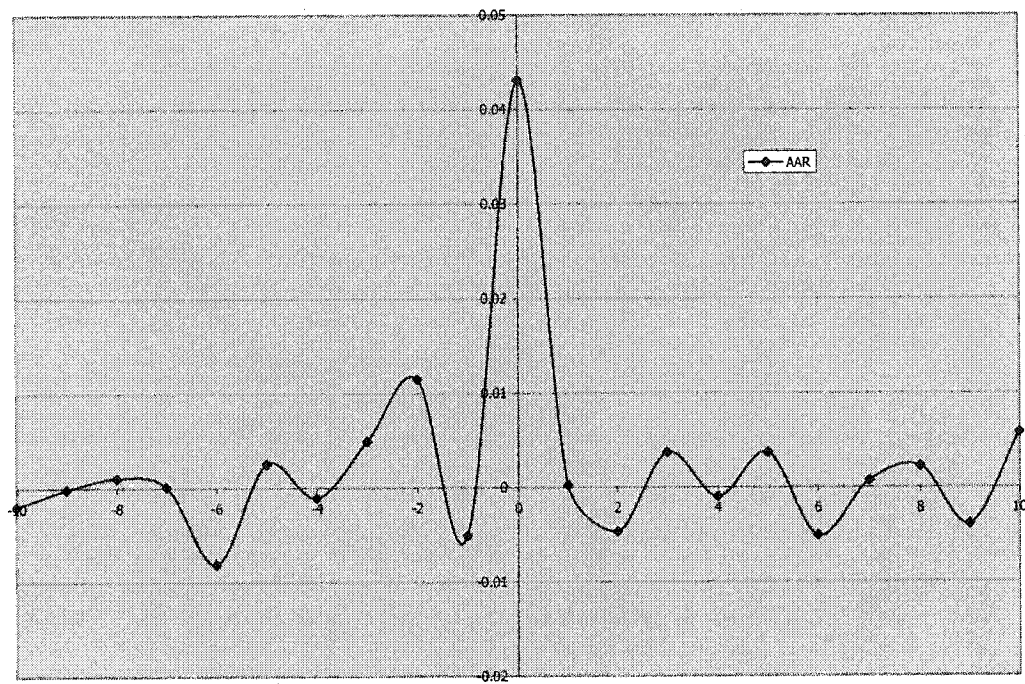
Figure 2: CAARs around the issuance date using the complete Sample of 144 firms:
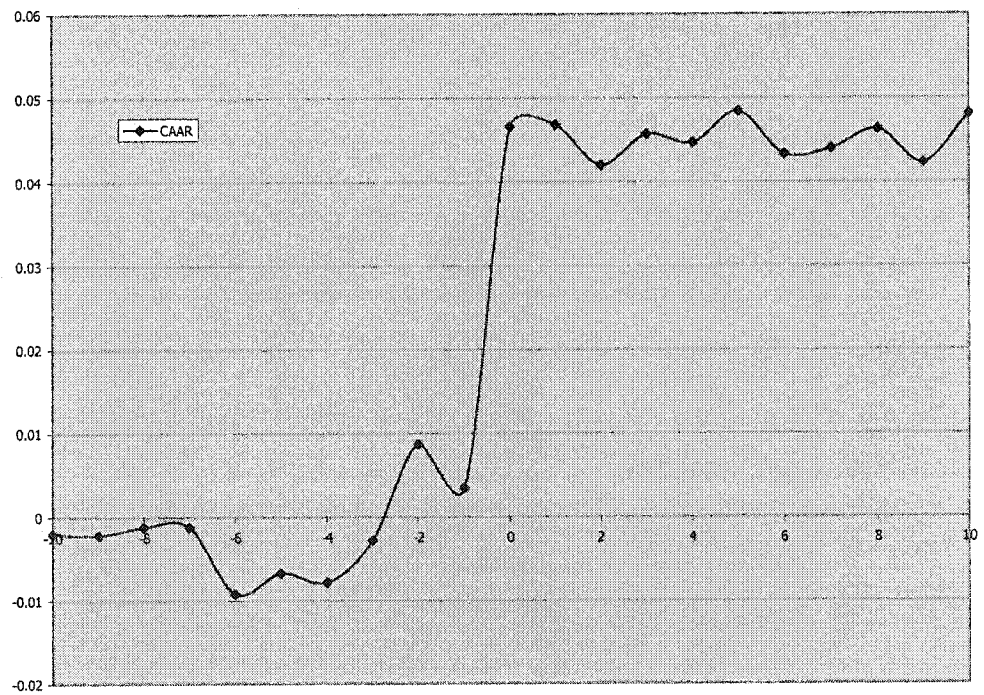
Figure 3: AARs around the issuance date using the sampel of 109 firms after the elimination of outliers

Figure4: CAARs around the issuance date using the sample of 109 firms after the elimination of outliers
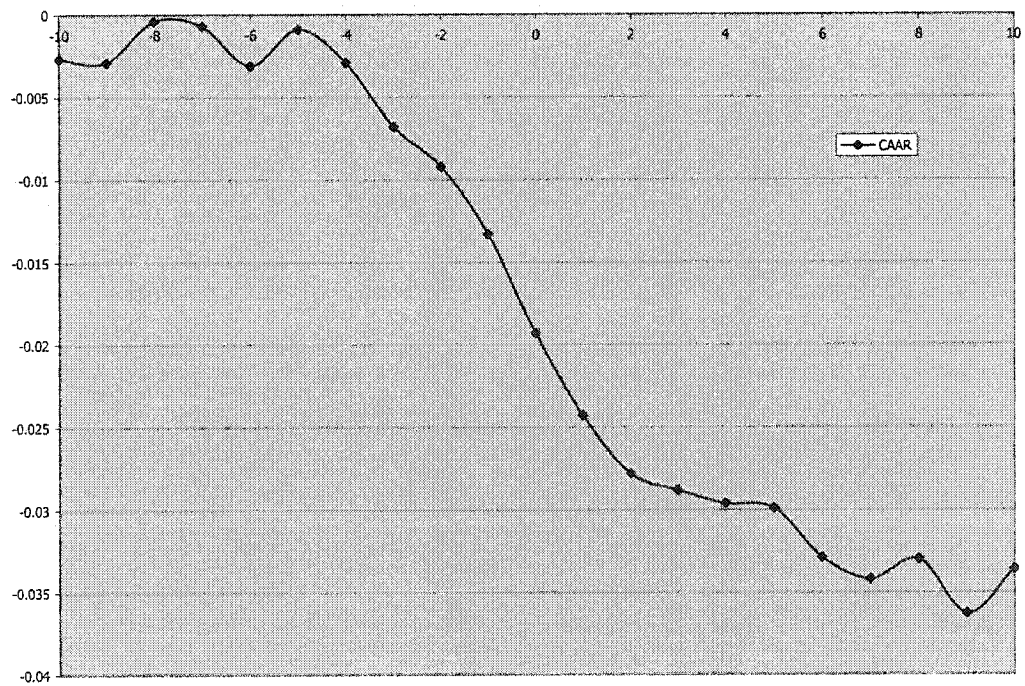
Figure 5: AARs around the announcement date using the complete announcement sample of 65 firms:
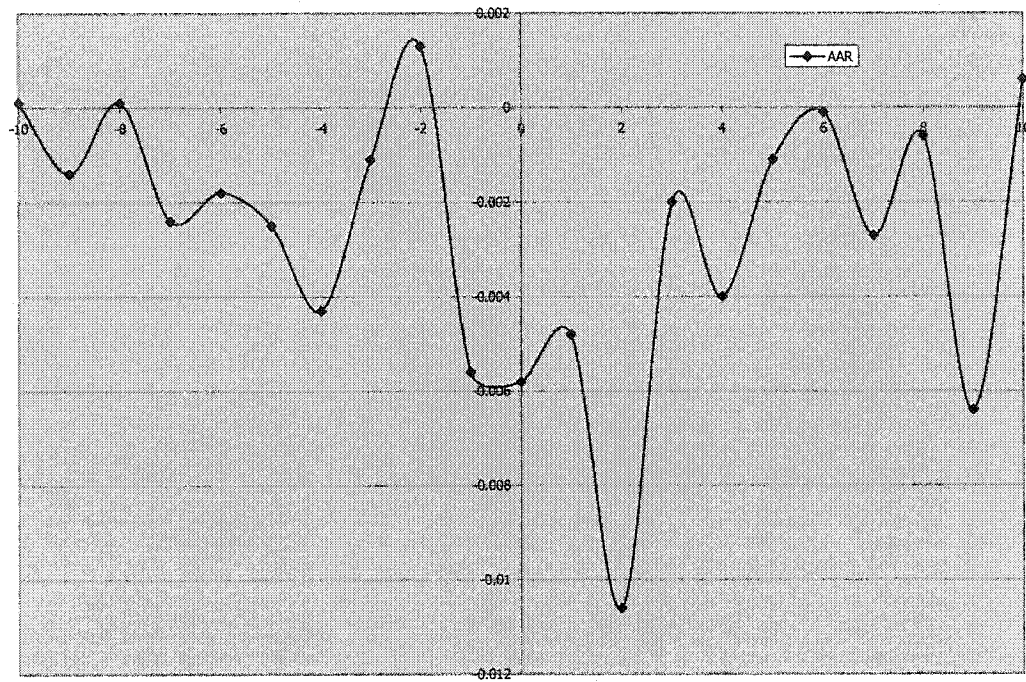
Figure 6: CAARs around the announcement date using the complete announcement sample of 65 firms:
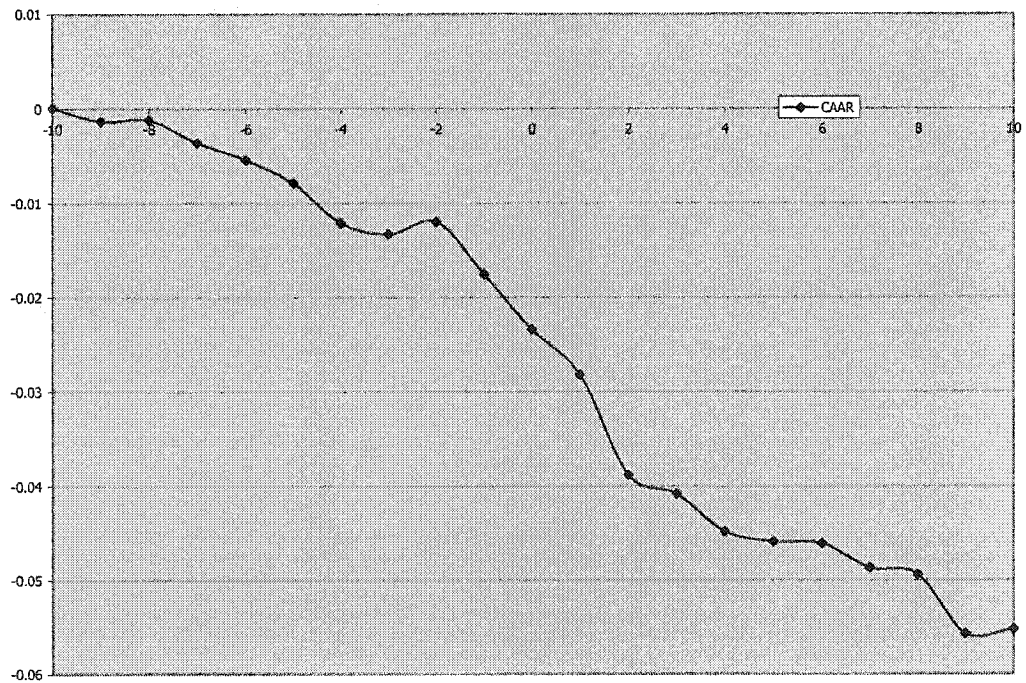
Figure 7: AARs around the announcement date using sample of 53 firms after the elimination of the outliers:
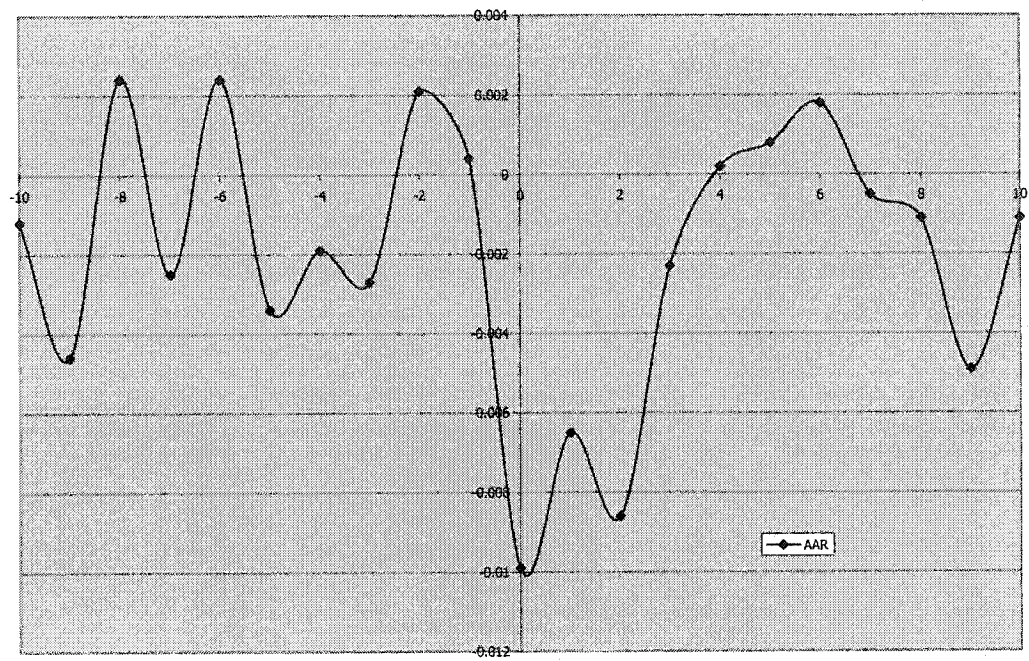
Figure 8: CAARs around the announcement date using sample of 53 firms after the elimination of the outliers:

63
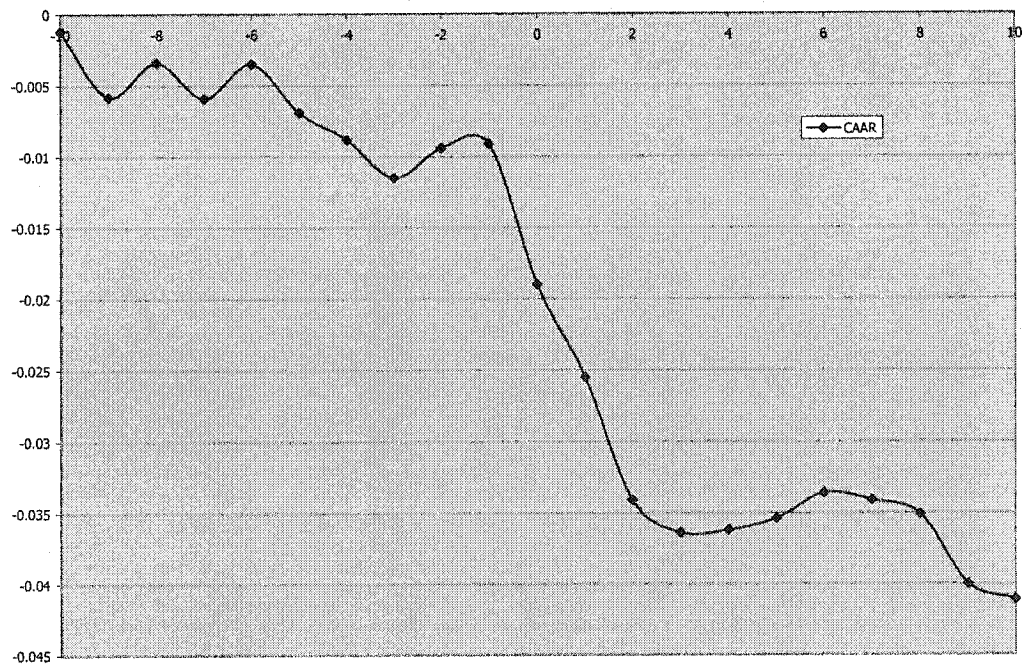
Table 8:

This table presents the dependant variables of the regression of CAARs for the period [0, 1]. For each company are given the: (a) Size of the issue divided by the market capitalization of the firm in the fiscal year prior to the new warrant issue (b) Ln Total Assets (in millions of dollars) (c) Book to Market Ratio (d) Dummy variable 1, dum1=0 when only warrants are issued by the company and dum1= 0 if units of common shares and warrants are issued (e) Dummy variable 2, dum2=1 if the company issuing the warrant is a Resource company and dum2 =0 otherwise. Also the 3 first columns presents the issuance, the announcement and the expiration date of the warrants.

	Company	Iss date	Ann date	Exp date	Size	Tot Assests	BM	wts or units	Res comp
1	Brascan Corp.	6/27/1991	6/3/1991	12/31/1993	0.0000541	6,317.42	1.029	0	1
2	Teck Cominco Corp.	7/30/1991	6/11/1991	12/15/1993	0.0000527	1,180.37	0.467	0	1
3	Stelco	9/11/1991	8/23/1991	3/15/1994	0.0001502	2,029.00	2.259	0	1
4	Dofasco Inc.	10/7/1991	6/11/1991	4/1/1994	0.0000908	3,450.10	1.207	0	1
5	Potash Corp of Saskatchewan	10/29/1991	9/12/1991	9/30/1994	0.0000876	1,433.63	0.840	1	1
6	Rogers Communications	2/11/1992	1/13/1992	8/4/1994	0.0001218	3,348.75	0.296	0	0
7	Cascades	8/4/1992	7/9/1992	8/31/1997	0.0001235	1,713.31	1.048	0	0
8	Air Canada	12/14/1993	11/12/1993	12/6/1995	0.0000746	5,039.00	0.541	0	0
9	Rio Algom	2/23/1994	2/2/1994	2/29/1996	0.0003303	2,260.41	0.841	0	1
10	Atlantis Communication	10/3/1994	7/22/1994	8/9/1996	0.0000861	229.36	0.616	0	0
11	Campbell Resources Inc.	2/26/1996	2/16/1996	2/26/1999	0.0001236	228.44	0.723	0	1
12	Golden Star	3/6/1996	2/7/1996	3/3/1997	0.0000637	180.41	0.594	0	1
13	Westburne Inc	3/20/1996	2/15/1996	3/31/1998	0.0000042	880.35	0.907	0	1
14	Westmin Resources	5/26/1996	4/12/1996	1/21/1998	0.0001416	826.74	0.632	0	1
15	Greenstone Resources Inc.	2/27/1997	2/7/1997	2/28/2002	0.0000355	348.53	0.253	0	1

Table 8: continued:

16	Inmet Mining Corp	7/3/1997	3/27/1997	9/3/1998	0.0002116	1,457.62	1.047	0	1
17	Revenue Properties Company	3/2/1998	2/9/1998	9/1/2000	0.0000896	1,951.37	0.613	0	0
18	McWatters Mining Inc	3/10/1998	912//1997	9/12/1999	0.0000066	202.94	0.659	0	1
19	Inmet Mining Corp	9/8/1998	8/10/1998	9/5/2000	0.0010732	735.59	1.002	1	1
20	Pan American Silver Corp	2/19/1999	1/27/1999	2/13/2001	0.0023337	189.63	0.495	0	1
21	Goldcorp	5/13/1999	5/6/1999	2/13/2009	0.0008291	247.18	0.131	0	1
22	Teck Cominco Corp.	5/26/1999	5/6/1999	5/25/2004	0.0004703	2,662.06	1.097	0	1
23	Elk Point Resource	10/14/1999	9/27/1999	10/13/2000	0.0002563	283.33	1.283	0	1
24	Haemacure	7/20/2000	4/27/2000	12/31/2001	0.1020042	31.85	0.238	0	0
25	Transglobe	7/27/2000	5/26/2000	7/4/2004	0.0001032	24.56	0.657	0	1
26	Total Energy Services	9/12/2000	7/31/2000	3/12/2002	0.0004741	57.51	0.996	0	1
27	Helix biopharma	10/6/2000	11/25/1999	3/1/2001	0.0002689	14.68	0.429	1	0
28	M G I Software Corp	2/9/2001	1/17/2001	7/31/2002	0.0001370	67.35	0.140	0	0
29	Infowave Software	3/21/2001	2/13/2001	8/22/2002	0.0002116	20.78	0.148	0	0

Table 9: Cross-Sectional Regression of the determinants of Abnormal Returns:

This table presents the estimated coefficient from the OLS regression of the cumulative abnormal return for the window [0, 1] (CAAR) on various explanatory variables.

The dependant variable is the (CAAR) for the window [0,1], computed using the Karafiath's Dummy variable methodology. The independent variables are: (a) LNA computed as the Log of Total Assets (b) BM which is the Book to Value ratio (c) Size of the offering divided by the market capitalization of the firm in the fiscal year prior to the new warrant issue (d) Dummy variable 1, Dum1=1 when only warrants are issued and Dum1= 0 if units are issued by the company (e) Dummy variable 2, where Dum2 = 1 if the company is a Resources company and Dum2=0 otherwise

Variable	Coefficient	Std Error	T-Stat	Significance
Constant	-0.0588	0.0354	-1.6638	0.1097
LNA	-0.0034	0.0060	-0.5631	0.5788
BM	0.0906*	0.0254	3.5732	0.0016
SIZE	-1.1102*	0.5003	-2.2193	0.0366
DUM1	0.0157	0.0301	0.5208	0.6075
DUM2	-0.0136	0.0217	-0.6274	0.5366

* Significant at the 5% level of significance.

Centered R**2   0.447110
Uncentered R**2   0.534730

Table 10: Volatility Test for the Complete Issuance Sample (144 firms)

This table reports the unadjusted and adjusted volatility ratios for the window of 60, 45, 30 and 10 days around the issuance date using the complete issuance sample of 144 firms. Unadjusted volatility ratios are computed by dividing the standard deviation for stock, i, after the introduction by the standard deviation for stock, i, before the introduction. The adjusted volatility ratio are computed the same but with adjusted standard deviation which is calculated by dividing each stock's standard deviation by its contemporaneous standard deviation of the market. Thereafter, for each window, all ratios are added and then divided by the number of stocks.

Wilcoxon signed rank test is conducted to test the null hypothesis that the unadjusted and adjusted volatility ratio are not different and thus the mean ratio for all stocks should equal 1.

	Unadjusted Volatility Ratio				Adjusted Volatility Ratio			
	60	45	30	10	60	45	30	10
Mean Ratio	1.0820	1.1036	1.1205	1.2017	1.0304	1.0594	1.1233	1.2596
Median Ratio	1.0140	1.0061	0.9225	1.0183	0.9375	0.8906	0.9336	0.9118
Std Deviation Ratio	0.5060	0.6019	0.7912	1.1258	0.5881	0.6606	0.8980	1.5281
Minimum Ratio	0.2750	0.2761	0.1533	0.0624	0.1604	0.2475	0.1524	0.0458
Maximum Ratio	4.7520	5.2566	7.1857	12.5610	5.5276	5.2069	7.0347	16.4400
Number of Firms	144	144	144	144	144	144	144	144
Number of Ratios <1	70	71	83	71	81	85	82	78
Wilcoxon Z-stat	0.7650	0.6751	0.0509	1.4548	1.0001	1.2016	1.2913	0.6053
Wilcoxon P-Value	0.4440	0.4996	0.9594	0.1457	0.3172	0.2295	0.1966	0.5450

* Significant at the 0.05 level

Table 11: Volatility Test for the Issuance sample without Outliers

This table reports the unadjusted and adjusted volatility ratios for the window of 60, 45, 30 and 10 days around the issuance date using the clean issuance sample of 109firns. The eliminated firms are those having AAR> 10% and AAR<-10% for the event window [-10, +10].
Unadjusted volatility ratios are computed by dividing the standard deviation for stock, i, after the introduction by the standard deviation for stock, i, before the introduction. The adjusted volatility ratio are computed the same but with adjusted standard deviation which is calculated by dividing each stock's standard deviation by its contemporaneous standard deviation of the market. Thereafter, for each window, all ratios are added and then divided by the number of stocks. Wilcoxon signed rank test is conducted to test the null hypothesis that the unadjusted and adjusted volatility ratio are not different and thus the mean ratio for all stocks should equal 1.

	Unadjusted Volatility Ratio				Adjusted Volatility Ratio			
	60	45	30	10	60	45	30	10
Mean Ratio	1.0410	1.0610	1.0599	1.0814	0.9854	1.0123	1.0792	1.1020
Median Ratio	0.9709	0.9480	0.8930	0.9598	0.9158	0.8796	0.9307	0.9183
Std Deviation Ratio	0.3773	0.4829	0.5910	0.5288	0.4423	0.5671	0.7832	0.7636
Minimum Ratio	0.4239	0.3957	0.3265	0.1116	0.1604	0.2653	0.3212	0.0913
Maximum Ratio	2.2969	4.0521	5.3119	3.0098	2.6965	3.5736	4.3630	4.2820
Number of Firms	109	109	109	109	109	109	109	109
Number of Ratios <1	56	58	68	56	64	68	64	60
Wilcoxon Z-stat	0.0242	0.0181	0.8042	0.7105	1.5570	1.9591	1.7626	0.0333
Wilcoxon P-Value	0.9807	0.9855	0.4213	0.4774	0.1195	0.0501	0.0780	0.9735

* Significant at the 0.05 level

Table 12: Volatility Test for the Complete Announcement Sample

This table reports the unadjusted and adjusted volatility ratios for the window of 60, 45, 30 and 10 days around the issuance date using the complete announcement sample of 65 firms. Unadjusted volatility ratios are computed by dividing the standard deviation for stock, i, after the introduction by the standard deviation for stock, i, before the introduction. The adjusted volatility ratio are computed the same but with adjusted standard deviation which is calculated by dividing each stock's standard deviation by its contemporaneous standard deviation of the market. Thereafter, for each window, all ratios are added and then divided by the number of stocks. Wilcoxon signed rank test is conducted to test the null hypothesis that the unadjusted and adjusted volatility ratio are not different and thus the mean ratio for all stocks should equal 1.

	Unadjusted Volatility Ratio				Adjusted Volatility Ratio			
	60	45	30	10	60	45	30	10
Mean Ratio	0.9330*	1.0049*	1.088*	0.953*	0.9965	1.0885	1.1620	1.1676
Median Ratio	0.8832	0.8731	0.8167	0.8119	0.9101	0.9562	0.9536	0.9969
Standard Deviation Ratio	0.3301	0.5745	0.8913	0.4783	0.3964	0.5323	0.7945	0.8636
Minimum Ratio	0.4179	0.3953	0.3462	0.1470	0.1664	0.2132	0.2679	0.1757
Maximum Ratio	2.0550	4.0521	5.3120	3.0886	2.0999	3.5737	4.4940	4.0213
Number of Firms	65	65	65	65	65	65	65	65
Number of Ratios <1	41	45	45	44	38	35	37	33
Wilcoxon Z-stat	2.3395	2.0454	2.0258	2.0781	0.5489	0.3594	0.0523	0.3006
Wilcoxon P-Value	0.0193	0.0408	0.0428	0.0377	0.5831	0.7193	0.9583	0.7637

* Significant at the 0.05 level

Table 13: Volatility Test for the Announcement Sample without the Outliers

This table reports the unadjusted and adjusted volatility ratios for the window of 60, 45, 30 and 10 days around the issuance date using the clean announcement sample of 53 firms. The eliminated firms are those having AAR> 10% and AAR<-10% for the event window [-10, +10].

Unadjusted volatility ratios are computed by dividing the standard deviation for stock, i, after the introduction by the standard deviation for stock, i, before the introduction. The adjusted volatility ratio are computed the same but with adjusted standard deviation which is calculated by dividing each stock's standard deviation by its contemporaneous standard deviation of the market. Thereafter, for each window, all ratios are added and then divided by the number of stocks. Wilcoxon signed rank test is conducted to test the null hypothesis that the unadjusted and adjusted volatility ratio are not different and thus the mean ratio for all stocks should equal 1.

	Unadjusted Volatility Ratio				Adjusted Volatility Ratio			
	60	45	30	10	60	45	30	10
Mean Ratio	0.9471	1.0285	1.1340	0.9616	1.0089	1.1111	1.1787	1.1493
Median Ratio	0.8832	0.8731	0.7904	0.8119	0.9196	0.9619	0.9410	0.9969
Standard Deviation Ratio	0.3480	0.6190	0.9729	0.4967	0.3926	0.5447	0.8386	0.8247
Minimum Ratio	0.4179	0.3953	0.3509	0.1470	0.3434	0.5157	0.4031	0.1757
Maximum Ratio	2.0550	4.0521	5.3120	3.0886	2.0999	3.5737	4.4940	4.0213
Number of Firms	53	53	53	53	53	53	53	53
Number of Ratios <1	34	37	37	34	31	28	32	27
Wilcoxon Z-Stat	1.8591	1.6997	1.6997	1.7706	0.4869	0.5931	0.3630	0.2036
Wilcoxon P-Value	0.0630	0.0892	0.0892	0.0766	0.6263	0.5531	0.7166	0.8387

* Significant at the 0.05 level

APPENDIX

Announcement of warrant offering for Rio Algom Ltd

HEADLINE: RIO ALGOM LIMITED ANNOUNCES $ 157.5 MILLION FINANCING

DATELINE: TORONTO, Feb. 2

BODY:
   Rio Algom Limited today announced that it has agreed with a group of
underwriters led by RBC Dominion Securities Inc., and including Burns Fry
Limited, Gordon Capital Corporation, Nesbitt Thomson Inc., Richardson
Greenshields of Canada Limited, ScotiaMcLeod Inc., Wood Gundy Inc., Toronto
Dominion Securities Inc., First Marathon Securities Limited, and
Trilon Securities Corporation, to sell 7,000,000 units, at a price of $
22.50 per unit, for gross proceeds of $ 157,500,000. Each unit consists of one
Common Share of Rio Algom Limited and one-half of a Common Share purchase
warrant; each full warrant will entitle holders thereof to purchase one
Common Share of the Company at any time within two years at a price of $ 25.00
per share.

   This underwriting, which is subject to regulatory approval, is expected to
close on or about February 23, 1994. Portions of the proceeds of the sale will
be used for the Cerro Colorado copper mining project and to replace funds used
for redemption of all outstanding Second Preference Shares Series C. The
remainder will be added to Rio Algom's funds to be used for general corporate
purposes including potential acquisitions and development opportunities.

   Rio Algom is a leading diversified Canadian mining company with interests
in North America and Chile. The Corporation is active in minerals exploration,
particularly for long-life, low-cost base and precious metals deposit. Rio
Algom also operates metals distribution businesses throughout Canada, in the
Central and Southern United States and in Australia and New Zealand.

Announcement of warrant offering for Atlantis Communication Inc

July 22, 1994, Friday

SECTION: Financial News

DISTRIBUTION: Attention Business/Entertainment Editors

LENGTH: 282 words

HEADLINE: ATLANTIS COMMUNICATIONS INC. FILES PRELIMINARY PROSPECTUS

DATELINE: TORONTO, July 22

BODY:

Atlantis Communications Inc. announced today that it has begun filing a preliminary prospectus dated July 20, 1994 in all of the provinces of Canada to qualify 1,250,000 subordinate voting shares and 625,000 subordinate voting share purchase warrants issuable upon the exercise of special warrants to be issued on August 9, 1994. Each share purchase warrant entitles holders to purchase a subordinate voting share of Atlantis for $ 14.50 two years after the closing of the special warrant offer.

The special warrants were sold, subject to certain conditions including regulatory approval, to the underwriters ScotiaMcLeod Inc., Gordon Capital Corporation and RBC Dominion Securities Inc. under a "bought-deal" arrangement for an aggregate purchase price of approximately $ 16 million. The underwriters intend to arrange for substituted purchasers of the special warrants. If all share purchase warrants are exercised, Atlantis will receive further net proceeds of approximately $ 9 million. (The details of the bought-deal arrangement were described in a press release issued by Atlantis on July 20, 1994).

Atlantis is Canada's leading independent entertainment supplier specializing in television program and specialty broadcasting. It is an award-winning producer and distributor focusing on English language television drama and comedy. Atlantis was recently awarded a licence to operate a national lifestyle television service, YOUR CHANNEL TELEVISION, by the CRTC and has acquired a 40.6% interest in YTV, Canada's national youth television service.

73

Announcement of warrant offering for Elk Point Resources

HEADLINE: Elk Point Resources Inc. Announces Equity Financing

SOURCE: NEWS RELEASE TRANSMITTED BY CANADIAN CORPORATE NEWS

NOT FOR DISTIRBUTION TO THE U.S. NEWSWIRE SERVICES OR FOR DISSEMINATION IN THE UNITED STATES.

Elk Point Resources Inc. ("Elk Point") today announced that it has entered into an agreement with a syndicate of underwriters to issue 3,000,000 Units at $6.00 per Unit to raise gross proceeds of $18.0 million on a "bought deal" basis. Each Unit will consist of 1.0 Common Shares and 0.5 Common Share Purchase Warrants. Each full Common Share Purchase Warrant is exercisable for one Common Share of Elk Point on or before October 13, 2000 at an exercise price of $7.00. Elk Point has granted the underwriters an option, exercisable until closing, to purchase up to an additional 300,000 Units at the same offering price to cover any over-allotments. Should this option be fully exercised, the total gross proceeds of the issue would be $19.8 million. The issue will be offered in the provinces of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Quebec. Closing is expected to occur on October 14, 1999.

The underwriting syndicate is led by CIBC World Markets Inc. and includes RBC Dominion Securities Inc., Dundee Securities Corporation, Merrill Lynch Canada Inc., Peters & Co. Limited, ScotiaMcLeod Inc., TD Securities Inc. and Research Capital Corporation.

The net proceeds from the issue will be used to fund Elk Point's expanded exploration and development programs in the west central and Peace River Arch areas of Alberta, the Powder River Basin of Wyoming and the San Joaquin Basin of California during the remainder of 1999 and into 2000.

This news release shall not constitute an offer to sell or the solicitation of an offer to buy the securities in any jurisdiction. The Common Shares and Common Share Purchase Warrants will not be and have not been registered under the United States Securities Act of 1933 and may not be offered or sold in the United States or to a U.S. person except pursuant to available exemptions from registration.

Elk Point is a Calgary-based oil and gas company, actively engaged in the acquisition, development, production and sale of crude oil, natural gas and natural gas liquids in Canada and the United States. Common shares of Elk Point are traded on the Toronto Stock Exchange under the symbol "ELK".

FOR FURTHER INFORMATION PLEASE CONTACT:
Elk Point Resources Inc. Mr. Aidan M. Walsh President and Chief Executive Officer (403) 264-1358 (403) 261-8702 (FAX) or Elk Point Resources Inc. Vivian

K.L. Truesdale Chief Financial Officer (403) 264-1358 (403) 261-8702 (FAX)
Announcement of warrant offering for Ashton Mining of Canada Inc

August 31, 1993, Tuesday

SECTION: Financial News

DISTRIBUTION: Attention Business Editors

HEADLINE: ASHTON MINING OF CANADA INC. ANNOUNCES INITIAL PUBLIC OFFERING

DATELINE: TORONTO, Aug. 31

Ashton Mining of Canada Inc. announced today that it filed a preliminary prospectus on August 31, 1993 with the Ontario Securities Commission and other provincial regulatory authorities for an initial public offering (IPO) of units each consisting of one common share plus one-half common share purchase warrant.

Ashton Mining of Canada Inc. is currently a wholly-owned subsidiary of Australian-based Ashton Mining Limited, a 40 per cent owner of the world's largest diamond mine by production volume; the Argyle Diamond Mine in Western Australia. Ashton Mining Limited will subscribe for $ 5 million of the estimated $ 30 million offering and intends to retain a majority interest in Ashton Mining of Canada Inc. Ashton Mining Limited has granted Ashton Mining of Canada Inc. an exclusive mandate for diamond exploration for the Ashton group in North America.

Ashton Mining of Canada Inc. will use the proceeds of the offering to initiate an aggressive exploration strategy on their portfolio of diamond exploration projects in North America. The portfolio consists of joint venture projects located in the Lac de Gras area in the Northwest Territories, the Wisconsin-Upper Peninsula area of Michigan in the United States, the James Bay Lowlands of Ontario and the Le Tac area of Quebec.

"The management and employees of Ashton mining of Canada Inc. are enthusiastic about the prospect of becoming a public Canadian company and by the exploration potential of the projects in our portfolio," said David Hurburgh, President and Chief Executive Officer of Ashton Mining of Canada Inc.

Through the sponsorship of Ashton Mining Limited, Ashton Mining of Canada Inc. will apply its highly regarded exploration and technical experience and strong project management expertise to its North American projects. Ashton Mining Limited's systematic diamond exploration methods, which have been successfully applied in other parts of the world, will be utilized by Ashton Mining of Canada Inc. in development of its extensive portfolio of diamond exploration projects. Ashton Mining of Canada Inc. will also establish a laboratory facility in Vancouver utilizing advanced methods to analyze samples and turnaround results more efficiently.

An underwriting syndicate led by Wood Gundy Inc. has been formed to manage the offering which is expected to be priced in early October and completed by the end of October 1993.

For further information: David Hurburgh, President and Chief Executive Officer, Ashton Mining of Canada Inc. (416) 865-4387; Jane Watson, Barnes

75

INVESTMENT NEWS

Cambior selling five million shares

Montreal-based gold miner Cambior Inc. is selling about $39-million worth of stock.

A group of underwriters led by Lévesque Beaubien Geoffrion Inc. and RBC Dominion Securities Inc. is to sell five million common shares at $7.87 each.

The company has about 30.7 million shares outstanding.

Soquem, a Quebec government agency that already owns about 6.4 million Cambior shares, said it won't purchase any stock under the offering. The issue will reduce Soquem's stake in the company to 18 per cent from 21 per cent.

Canadian Natural Res.

Canadian Natural Resources Ltd. is issuing new stock for gross proceeds of $22.5-million.

The Calgary-based oil and gas company has agreed to sell 2.5 million special warrants at 59 each on a bought-deal basis to a group of underwriters: Lacwen Ondaatje McCutcheon & Co., Midland Walwyn Capital Inc. and Peters & Co. Each warrant can be swapped for a common share.

Majestic Electronic

Majestic Electronic Stores Inc. of Toronto is selling up to $7.1-million worth of shares.

The company, which sells consumer electronics products, has agreed to sell to BBN James Capel Inc. 2.5 million special warrants, each of which can be swapped for a common share, at $2.43 each.

The company said the agreement also gave BBN the right to purchase an additional 400,000 special warrants at the same price.

Majestic, which currently has about 5.2 million shares outstanding, said a condition of the deal is that it won't proceed with a pre-posed share capital reorganization that was to be considered at its annual meeting June 18.

Noma Industries

Noma Industries Ltd. of Toronto plans an offering of 3.5 million class A non-voting shares at $6.23 each for gross proceeds of about $21.9-million.

The company, whose products include Christmas lights and other electrical goods, said the lead underwriters will be ScotiaMcLeod Inc. and Wood Gundy Inc., who have agreed to purchase the shares as principals.

Cominco Resources

Cominco Resources International Ltd. says its board has approved the filing of a final prospectus for its $20-million offering of units.

The company will issue 3,344,000 units at $2.49 each. Each unit consists of one common share and one-half of a common share pur-chase warrant. Each full warrant will entitle its holder to purchase an additional common share at $2.80 until Sept. 29, 1994.

RBC Dominion Securities Inc. and Midland Walwyn Capital Inc. are underwriters.

The company has 51.5 million common shares outstanding. Cominco Ltd., which owns 33.5 million of those shares, won't be buying into the new issue.

Echo Bay Mines

Echo Bay Mines Ltd. of Edmonton says it plans a public sale of $100-million (U.S.) of convertible preferred shares.

The issue consists of four million $25 perpetual preferred shares of Echo Bay Finance Corp., a new Delaware corporation, convertible into common shares of the parent Echo Bay Mines. The conversion ratio and dividend rate are yet to be determined. The shares would be noncallable for three years.

U.S. dollar picks up steam

Trading active on world markets

NEW YORK — The U.S. dollar rose broadly in active trading on world currency markets yesterday.

It firmed on technical trading overseas and continued to advance when activity shifted to domestic markets. A U.S. government report showing a larger-than-expected increase in new orders for durable goods propelled the dollar higher.

The Commerce Department said orders for "big-ticket" manufactured goods rose 1.4 per cent in April, far larger than the minuscule 0.2-per-cent increase many economists had been expecting. The advance in durable goods orders — considered a barometer of future economic activity — also marked the longest string of consecutive increases in five years.

The dollar had been pressured lower by expectations that the Fed would trim interest rates to stimulate the economic recovery. Lower interest rates make dollar-denominated securities less valuable to investors, thereby decreasing their need for the U.S. currency.

Trading was active throughout the session. In Europe many traders were squaring up their positions ahead of today's Ascension Day holiday. Analysts said they expected many dealers to be absent Friday as well.

In Tokyo, the dollar rose to a closing 129.78 Japanese yen from 129.15 on Tuesday. Later in London, it rose to 129.9 yen. In New York the dollar settled at 130.2 yen, up from 129.45 on Tuesday.

In London, the British pound fell to 1.801 U.S. dollars from 1.828 late Tuesday. In New York it cost 1.795 dollars to buy one pound, less expensive than Tuesday's 1.825.

Other late dollar rates in New York, compared with late Tuesday's in brackets, included: 1.692 German marks (1.613), 1.4892 Swiss francs (1.452), 5.4694 French francs (5.419), 1,233.75 lire (1,134), and 1.2053 Canadian dollars (1.2024).

FOREIGN EXCHANGE

Buffett leaves Salomon post

NEW YORK — Warren Buffett, the multibillionaire investor who led Salomon Brothers Inc. out of its Treasury bond scandal, stepped down yesterday as head of the brokerage firm's daily operations.

Mr. Buffett remains interim chairman and chief executive of the firm's New York-based parent company, Salomon Inc., but that is not a full-time job.

Deryck Maughan, who was named chief operating officer of Salomon after the scandal emerged last August, was appointed chairman and chief executive of Salomon Brothers.

Mr. Buffett announced in March that he would step down after the government completed its investigations of the firm.

MEETINGS

call: (416) 585-2222

DIVIDENDS

TENDERS

TENDERS

LEGAL

Toronto (416) 585-2233   Vancouver (604) 495-6229   Montreal (514) 982-5920

REPORT ON BUSINESS

Vancouver

Bid and Asked

Fruits and vegetables

Dividends

U.S. dividends

77

Warnaco offers $30 a share for Canadian unit

Shareholders of Warnaco of Canada Ltd. have been offered $30 a share by two divisions of Warnaco Inc. of Bridgeport, Conn. Warnaco currently owns 70 per cent of the common stock in Warnaco of Canada through Warnaco International Inc.

Trading was halted on the Toronto Stock Exchange while news of the offer was released. The stock traded yesterday at $29.50.

The divisions making the bid, Warnaco Men's Sportswear Inc. and C.F. Hathaway Co., offered to purchase the 350,000 shares outstanding.

The Warnaco of Canada board of directors has last moved the date of record for payment of a 22.5 per cent dividend up to March 6 from April 30, so shareholders tendering their stock will receive the dividend when it is paid on April 30.

The Prescott, Ont., apparel manufacturer had a profit of $3,478,000 on sales of $68,473,600 for the year ended Dec. 29, 1984, compared with profit of $2,711,000 on sales of $54,430,900 the previous year. Share profit was $9.90, compared with $9.75.

Among the brand names Warnaco makes are Hathaway, White Stag, Speedo, Warner's and Christian Dior.

Manulife

Manufacturers Life Insurance Co. of Toronto says its operating profit for the year ended Dec. 31, 1984, rose to $90.3-million from $63.8-million a year earlier.

Revenue increased to $5.3-billion from $5-billion.

The company reported a gain on the sale of real estate of $5.5-million in the latest year, an unusual gain of $37.7-million on revaluation for the U.S. dollar and other currencies, $39.5-million from a reversal of a U.S. tax liability, and other unusual items amounting to a loss of $34.1-million. As a result,

final profit was $253.7-million, compared with $108-million in 1983.

At the end of 1984, Manulife's assets totalled more than $13-billion, an increase of 27 per cent over the previous year, mostly because of a significant increase in premium income, which exceeded $2.2-billion.

B.C. Tel

British Columbia Telephone Co. of Burnaby, B.C. says it plans to redeem all 10.16 per cent cumulative redeemable preferred shares outstanding on April 1.

The company is offering $25.25 plus accrued dividends of 70.4 cents a share for the period March 1 to March 31.

The redemption and surrender of share certificates will be conducted through the principal offices of Montreal Trust Co.

Formal notices will be mailed to shareholders on or about Feb. 21. At last report, there were 723,800 of the shares outstanding.

Amex seat

The American Stock Exchange says two regular membership seats were sold, the first for $145,000 (U.S.) and the second for $130,000.

The prices were down from the previous sale of an Amex seat

Feb. 8 for $162,000. Amex said the new market price is $142,500 bid and $145,000 asked.

Denison Mines

Denison Mines Ltd. of Toronto says it has filed a preliminary prospectus for a proposed offering of series B preferred shares, with warrants attached to purchase class B non-voting participating shares to be offered in units.

Underwriters for the offering will be Dominion Securities Pitfield Ltd., Wood Gundy Inc., Burns Fry Ltd., and Nesbitt Thomson Bongard Inc. of Montreal.

TCPL

TransCanada Pipelines Ltd. of Calgary plans to redeem all $1.50 first preferred shares series B on March 22.

On the redemption date, the holders will be paid a total of $50 a share plus accrued and unpaid dividends of 52 cents a share.

Holders may continue to have the shares retracted until March

ITL Industries

The Toronto Stock Exchange says ITL Industries Ltd. of Windsor, Ont., has declared a stock dividend of three common

shares for each series A preferred share held.

The TSE said the stock dividend represents full satisfaction of all accrued and unpaid dividends. The company has been in arrears since January, 1984.

Record date for the dividend is March 1. The payment date was not immediately available.

Average yield

The average yield of 114 dividend-paying stocks on the Toronto Stock Exchange as compiled by Moss Lawson and Co. Ltd. on Feb. 15 prices was 4.43 per cent, compared with 4.47 per cent the previous week, 4.65 per cent a month ago and 4.51 per cent in the corresponding week last year.

Denison Mines

Dominion Bond Rating Service of Toronto says it is assigning a Pfd-2 (middle) rating to the proposed offering by Denison Mines Ltd. of Toronto of cumulative redeemable preferred shares, series B, and is reducing the rating on the series A preferred shares outstanding to Pfd-2 (middle) from Pfd-3 (high).

The rating service noted production difficulties at Denison's Quintette coal operation in British Columbia, uncertainty about future oil prices and the quality of profit for the downgrading.

DBRS said that although Quintette operated for most of 1984, Denison did not record its results in profit. If it had, DBRS said pretax profit would have been about $40-million lower.

Phillips Pete

BARTLESVILLE, Okla. (DJ) — William Douce, chairman and chief executive of Phillips Petroleum Co. of Bartlesville, says his company has not been approached by any prospective white knights.

When asked if his investment bankers had received any overtures from potential white knights, he replied, "not that I'm aware of."

Phillips recessed until today a shareholder meeting held to vote on its recapitalization plan. The votes were still coming in yesterday afternoon and a spokesman said the polls would remain open until Mr. Douce declared them closed.

A Phillips spokesman refused to comment yesterday on whether Phillips knew where it stood on the vote. Takeover experts close to Phillips had speculated that the company might recess the meeting and extend the vote if it appeared the recapitalization plan would not pass.

The meeting is expected to reconvene at 9 p.m. today.

The Phillips plan, originally designed to ward off a takeover bid by Mesa Petroleum Co. of Amarillo, Tex., calls for shareholders to swap each of their shares for a new common share and $62 amount of debt securities. The plan also calls for 24 million Phillips shares to be sold to a new employee stock ownership plan and the issue of one share of

$1.11 preferred stock for each common share outstanding.

The plan would increase the company's debt by $2.3-billion at the end of 1985, according to projections.

Mark Products

CALGARY (DJ) — Mark Products Inc. of Houston says its shareholders have approved an offer by a controlling shareholder Braincrest that the company would repurchase shares it does not already own.

Braincrest, which holds a $2.3 per cent stake in Mark Products, offered to buy about 3.8 million Mark Products shares for about $5.25 (U.S.) a share plus interest.

As a result of the approval of the offer, Braincrest said it has completed the $18-million purchase of the 47 per cent interest in Mark Products that it did not already hold.

The U.S. company will be merged with a wholly owned Braincrest unit, Braincrest International Inc. The Mark Products stock not already held by Braincrest has been converted into the right to receive $5.25 a share in cash plus interest from Feb. 1 to Feb. 22.

Asset values

The following are the net asset values of reporting companies on the date indicated:

BGR Precious Metals Inc. of Toronto, $5.65 a class A share, Feb. 21

Central Fund of Canada Ltd., Ancaster, Ont., $2.13 a class A share, Feb. 21

Goldcorp Investments Ltd. of Toronto, $7.53 a class A share, Feb. 21

Guardian Merton Shulman Precious Metals Inc. of Toronto, $3.46 a share, Feb. 21

Guardian Pacific Rim Corp. of Toronto, $10.75 a share, Feb. 22

Value Investment Corp. of Toronto, $11.19 a share, Feb. 21

Wardvide Equities Ltd. of Toronto, $11.10 a class A share, Feb. 21

Campeau 1984 profit rises to $27,170,000

Campeau Corp., Ottawa. Profit for 11 months ended Dec. 31, 1984, $27,170,000, compared with $22,701,000 a year earlier. Share profit $1.29, compared with $1.16.

Revenue $311,192,000, compared with $183,219,000.

Losses from discontinued operations were $14,511,000, compared with gains of $963,000 a year earlier. Final profit was $10,930,000 or 53 cents a share, compared with $21,755,000 or $1.25. Results from 1984 include a $15,140,000 writedown of discontinued and other assets after tax.

Cash flow was $81,651,000, compared with $46,275,000 a year earlier.

Aberford Res.

Aberford Resources Ltd., Calgary. Profit for year ended Dec. 31, 1984, $5,213,000, compared with $5,031,000 a year earlier. Share profit 31 cents, compared with 30 cents.

Revenue $131,800,000, compared with $115,470,000.

Extraordinary profit of $104,000 or 1 cent a

share brought final profit in 1984 to $5,340,600 or 32 cents a share. The per share amount reflects an increase of 4,996,000 in the 1984 average number of common shares outstanding, as a result of the public issue completed in September, 1983.

Cash flow from operations in 1984 was $42,541,000, compared with $39,064,000 a year earlier.

Strand Oil

Strand Oil and Gas Ltd., Calgary, Alta. Profit for 12 months ended Sept. 30, 1984, $618,431, compared with $982,151 a year earlier. There is a cent, compared with $1,438.

Strand reported a cash flow of $3,263,600 from operations or 84 cents a share. The company paid preferred dividends of $888,204. In May, 1984, Strand acquired Cascadian oil and gas assets from Hunt Oil Co. for $11,200,000. The company

-ay's deficit at year-end was $2,071,000, compared with $1,432,017 in 1983.

Campbell Soup

Campbell Soup Co. Ltd., Toronto. Profit for six months ended Jan. 27, 1985, $600,000 in the 1984 average number of common shares outstanding, as a result of the public issue completed with $1.1-million a year earlier. Share profit 87 cents, compared with 81 cents.

Revenue $151-million, compared with $158.5-million.

Second-quarter profit was $1.5-million or 59 cents a share, compared with $2.2-million or 34 cents a share a year earlier. Revenue was $89.2-million, compared with $87-million.

The company attributed the results to continued growth in volume and profit of its core businesses, in addition to sales growth from several new products.

Barbacon

Barbacon Inc., Toronto. Profit for year ended Dec. 31, 1984, $5,457,000, compared with $5,681,000 a year earlier. Share profit $1.29, compared with $1.35.

Sales $213,853,000, compared with $185,912,000.

CN to lay off 220 workers

Canadian National Railways plans to lay off 220 workers at its main maintenance shops because Via Rail will not be rebuilding old passenger coaches.

Via expects to get the green light from Ottawa within weeks to start spending up to $800-million in federal funds on new equipment. It is already negotiating with two manufacturers for 200 bi-level coaches for transcontinental trains.

Fifty-eight workers in Moncton, 84 in Montreal and 78 in Winnipeg will be laid off, although CN spokesman Bernard Lagacé said help from a federal program for workers affected by Via cutbacks may induce some senior employees to take early retirement, thus cancelling a number of the layoffs.

The layoffs are scheduled to occur in two stages: 144 workers go on May 24 and 76 on June 28.

Mitel

Mitel Corp. of Kanata, Ont., has laid off 130 workers at its Canadian semiconductor plants because of the sluggish semiconductor market.

There were reduced Mitel's work force at its Canadian semiconductor plants to 330 from 460.

Warrants

Symbol	Company	Subscription Terms	Expiry Date
CGI.WT	Canadian General Investments Ltd.	One Warrant to purchase one common share of the company at $7.75 commencing December 18, 2000 until expiry.	June 30, 2007
DPM.WT.A	Dundee Precious Metals Inc.	One Warrant to purchase one Cl A share of the company at $25.00 until expiry.	February 20, 2004
DW.WT	Dundee Wealth Management	One Warrant to purchase one common share of the company at $10.00 until expiry.	December 9, 2002
MED.WT.R	Elacromed Inc. Adjustable	One Warrant to purchase one common share of the company at $10.28 until expiry.	September 25, 2002
FN.WT	Franco Nevada Mining Corporation	One Warrant to purchase four common shares of the company at $200.00 until expiry.	September 15, 2003
G.WT	Goldcorp Inc.	One Warrant to purchase one common share at a price of $20.00 until expiry.	May 13, 2009
N.WT	Inco Limited	One Warrant to purchase one common share of the company at $30.00 (or the U.S. dollar equivalent) until expiry.	August 21, 2006
IW.WT	Intrawave Software Inc.	One Warrant to purchase one common share of the company at $7.15 until expiry.	August 22, 2002
MGI.WT	MGI Software Corp.	One Warrant to purchase one common share of the company at $9.50 until expiry.	July 31, 2002
PVC.WT	Pet Valu Canada Inc. Exchangeable	One Warrant to purchase one common share of the company a) at a price the greater of $7.00 or b) the then current market of an Exchangeable share on the TSE less $7.00, any time until expiry.	July 24, 2006
RIV.WT	River Gold Mines Ltd.	One Warrant to purchase one common share of the company at $1.35 until expiry.	October 31, 2002
SDI.WT	Spectral Diagnostics Inc.	One Warrant to purchase one common share of the company at $3.50 until expiry.	July 31, 2003
THE.WT	T&H Resources Ltd.	One Warrant to purchase one common share of the company at $0.20 until expiry.	January 16, 2002
TEK.WT.R	Teck Cominco Ltd. Cl B Wt SV	One Warrant to purchase one Cl B share of the company at $18.00 until expiry.	May 25, 2004
THT.WT	Thistle Mining Inc.	Ten Warrants to purchase one common share of the company at $1.20 until expiry.	January 27, 2004
TOT.WT	Total Energy Services Ltd.	One Warrant to purchase one common share of the company at $1.50 until expiry.	March 12, 2002
TGL.WT	TransGlobe Energy Corporation	One Warrant to purchase one common share at $0.95 until January 4, 2001 and at $1.15 until expiry.	July 4, 2002
TFC.WT	Triton Financial Corp.	One Warrant to purchase one Cl A share of the company at $11.25 until expiry.	February 28, 2002

79

Warrants Issued in 2001

Issue Name	Date Issued
Enerplus Resources Fund Wt	Jun-28
Infowave Software Inc. Wt J	Mar-21
MGI Software Corp. Wt J	Feb-09
Petrobank Energy And Resources Ltd. Wt	Aug-22
River Gold Mines Ltd. Wt	Oct-12
Spectral Diagnostics Inc. Wt	Aug-22
T&H Resources Ltd. Wt J	Jan-29

Warrants Expired in 2001

Issue Name	Date Delisted
ACD Systems International Inc. Wt	Aug-22
Aberdeen Asia-Pacific Income Investment Company Ltd. Wt	Jun-15
Antrim Energy Inc. Wt	Nov-30
Arcis Corporation Wt	Nov-07
Canadian Splitshare Corporation Secondary Wt	Jan-02
Command Drilling Corporation Wt	Jun-29
Drillers Technology Corp. Wt	Dec-31
EnerMark Income Fund Wt	Jun-27
Enerplus Resources Fund Wt	Dec-17
Ezenet Corp. J Wt	Sep-12
Geomaque Explorations Ltd. Wt	Apr-16
Greenstone Resources Ltd. Wt J	Mar-12
Haemacure Corporation Wt	Dec-31
Helix BioPharma Corp. Wt J	Mar-01
Hope Bay Gold Corporation Wt J	May-01
NCE Diversified Income Trust Units Wt	Feb-28
NCE Energy Trust Wt	Feb-28
Northern Financial Corporation Wt	Jun-01
Pan American Silver Corp. Wt J	Feb-19
Petrobank Energy and Resources Ltd. Wt	Sep-17
Precision Drilling Corporation Wt	Dec-31
Trinidad Drilling Ltd. Wt	Dec-11

Rights Issued in 2001

Company Name	Date Listed	Date Expired
Bell Canada International Inc. Rt	Dec-14	Jan 11, 2002
Boliden Limited Rt	Jul-10	Aug-07
Bushmills Energy Corporation Rt	Sep-17	Oct-17
Canadian Express Ltd. Rt	Aug-27	Sep-19
Canbras Communication Corp. Rt	Jan-30	Feb-27
EnerVest Diversified Income Trust Rt	Jul-24	Aug-21
High River Gold Mines Ltd. Rt	Jun-18	Jul-26
Highwood Resources Ltd. Rt	Dec-19	Jan 11, 2002
Indigo Books & Music Inc. Rt	Dec-14	Jan 14, 2002
Microcell Telecommunications Inc. Cl B Rt	Nov-22	Dec-17
Morguard Real Estate Investment Trust Units Rt	Jan-02	Jan-31
Ontex Resources Limited Rt	Jun-18	Jul-23
Oxbow Equities Corp. Rt	Aug-02	Aug-29
RTO Enterprises Inc. Rt	Jan-04	Jan-31
River Gold Mines Ltd. Rt	Aug-10	Sep-14
Rogers Wireless Communications Inc. Rt	Mar-14	Apr-18
SR Telecom Inc. Rt	Jun-08	Jul-03
Sentry Select Diversified Income Trust Rt	Oct-17	Nov-26
Spectral Diagnostics Inc. Rt	Jun-20	Jul-25
Telesystems International Wireless Inc. Rt	Jan-19	Feb-13
Trailmobile Canada Limited Rt	Aug-08	Aug-31
Western Oil Sands, Inc. Rt	Sep-28	Oct-25