INDEX PARTICIPATION UNITS AND THEIR EFFECTS ON THE CANADIAN MARKET: EVIDENCE FROM NEW ISSUES AND REDEMPTIONS OF TIPS

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ABSTRACT

INDEX PARTICIPATION UNITS AND THEIR EFFECTS ON THE CANADIAN MARKET: EVIDENCE FROM NEW ISSUES AND REDEMPTIONS OF TIPS

By

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This study provides new evidence related to basket portfolio trading using the Canadian index participation units, TIPs. First, we determine the linkage between TIPs and the Canadian market as well as the US market. We show that TIPs are Granger-caused by the T35, the T300 and the S&P 500. Also, we find that the T35, which is the basis of TIPs, exerts a substantial impact on the T300; no relation was revealed between the T35 and the S&P 500. Second, we study the effect of issues and redemptions of TIPs on the prices of TIPs, the value of the underlying index, and the prices of the constituent companies in the context of the hypothesis of negatively sloped demand curves for equities. Not only do we uncover a positive price effect stemming from the issue of TIPs for both the constituent companies as well as the T35 Index, but we also document a stronger market impact for large as opposed to small issues. These results support the downward sloping demand curve hypothesis. In addition, we find that the abnormal returns are permanent thus supporting the imperfect substitute hypothesis as opposed to the price pressure hypothesis for new issues. The empirical evidence on the redemptions of TIPs does not support nor reject the downward sloping demand curve hypothesis. It is shown that, based on an information-cleansed sample, redemptions result in insignificant abnormal returns. Finally, it is found that the price of TIPs decreases (increases) following an issue (redemption).

TO MY GRANDMA

YVONNE

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1. INTRODUCTION

In recent years, a new investment trend has emerged. Portfolio managers and the exchanges, seeking to provide investors with an opportunity to invest in the market as a whole in accordance with the dictates of modern portfolio theory, created "basket portfolios" as investment vehicles. These baskets are portfolios of stocks designed to move with general market trends. The Toronto Stock Exchange (TSE) was the first exchange to create baskets of this sort when it introduced the Toronto 35 Index Participation Units (TIPs) in March 9, 1990. TIPs enable all investors, small and large, to easily and quickly participate in the Canadian market. TIPs are units of a trust, the Toronto 35 Index Participation Fund, that holds baskets of stocks included in the Toronto 35 Index in the same proportion as these shares are reflected in the index. They can be held long or short, and are redeemable at any time for the underlying shares subject to a prescribed minimum investment[1]. TIPs are one of the most active issues on the exchange with an average trading of about 260,000 units per day. As of September 30, 1996, 91,255,808 units TIPs valued at over $2.5 billion were issued and outstanding.

[1] The prescribed number of TIPs required for an investor to redeem them for shares is the result obtained when the number of Baskets of shares outstanding is divided into the number of TIPs outstanding. On September 30, 1996, the prescribed minimum was 56,192 units worth approximately $1.5 million.

Since the introduction of TIPs, other Exchanges started offering similar products. On January 29, 1993, the American Stock Exchange began trading the Standard & Poor's Depositary Receipts (SPDRs). SPDRs perform a similar role to that of TIPs but they use the Standard & Poor 500 Composite Stock Price Index as the base. The Trust for SPDRs increased from $40 million to $3.2 billion since they first started trading in 1993. Moreover, on March 18, 1996, the American Stock Exchange introduced the World Equity Benchmark Shares (WEBS). WEBS are portfolios of stocks designed to track the performance of selected Morgan Stanley Capital International (MSCI) country indexes. More recently, on June 5, 1997, and for the first time in the 101-year history of the Dow Jones Industrial Average, the Dow Jones & Company made the world's most recognized stock market index available to investors by proposing DIAMONDS, an exchange-traded fund based on the DJIA. Each of the DIAMONDS will be valued at one-hundredth of the Dow and are scheduled to begin trading on the AMEX in late 1997[2].

Given the novelty of these products, research on their effects to date is limited. This study provides new evidence on two issues:

(a) How well the baskets move with alternative domestic market portfolios as well as with foreign markets. In particular, we will examine the linkage between TIPs, the T35 Index, the T300 Composite Index, and the S&P 500. The analysis will provide new evidence on the interactions between the basket traded and the market as a whole as well as on the integration of the U.S. and the Canadian market.

[2] See F. Norris, "After 15 years, Dow Jones Lets Futures Trade on its Average", *New York Times*, June 6, 1997, p.D1.

(b) The extent to which issues and redemptions of basket portfolios affect the basket itself, the underlying index, and the constituent companies. In this study, we will focus on how the issues and redemptions of TIPs affect the market for TIPs, the T35 Index as well as the 35 companies composing the Index. The longer historical experience of TIPs provides a certain advantage in studying these issues relative to other products[3]. Finally, our results will shed new light on the literature on the empirical shape of the demand curve for equities.

The thesis is organized as follows. Section 2 provides an overview on the literature on TIPs and outlines the hypotheses regarding the issues and redemptions of TIPs. Section 3 reviews the related literature on demand curves for equity. Section 4 describes the data collection procedures and the sample. Section 5 explains the methodology employed. In section 6, the results are presented and analyzed. Finally, section 7 concludes with final remarks.

[3] For example, the first new issue of TIPs was in October 1990; new SPDRs issues (or creations) did not occur until May 1994.

2. BACKGROUND ON TIPS AND HYPOTHESIZED RELATIONSHIPS

2.1 DESCRIPTION OF TIPS

TIPs have been designed to accurately track, but not outperform, the Toronto 35 Index. They present investors, large and small, with an easy and quick way to participate in a diversified portfolio of senior Canadian corporations representative of most sectors of the Canadian economy. Unit holders are offered a proportionate share of economic benefits equivalent to that which they could get through individual investments in the shares included in the Index. Dividends issued on the underlying stocks are passed through to TIPs unit holders quarterly in April, July, October, and December of each year. Other distributions, such as Rights and Warrants, are sold with their value being passed on as part of the quarterly dividend payment. Unit holders also receive the accrued distribution amount paid to the trust on an issue of TIPs as well as any remaining revenue from the investment of dividends pending distribution and from security lending after all the expenses incurred by the trust are accounted for. Unit holders are entitled to vote over the Baskets of shares if they hold at least the Prescribed number of TIPs. Moreover, TIPs qualify for the dividend tax credit under the Canadian Dividend Tax Credit, the registered retirement savings plans, deferred profit sharing plans, and registered retirement income funds. As with any other listed securities, investors can buy and sell the units through any member of the Exchange registered as a broker or dealer in the province where the investor resides.

The value of each TIP unit is approximately 1/10th the value of the Toronto 35 Index (a description of the TSE 35 Index is given in the Appendix). For example, on September 30, 1996, the index value was $276.03 so that the core asset share value of each unit would be approximately $27.603. The Exchange "tracks" the Core Asset Share Value per TIP to ensure that it will continue to equal 1/10th of the Index Level- for instance, when the Index is adjusted, adjustments will be made in the shares held by the Trust or to the number of TIPs outstanding. From time to time, however, there may be a shift in tracking due to certain events such as a takeover bid made for one of the constituent companies. If a significant shift in tracking occurs over time, the Exchange may cause the number of TIPs to be consolidated or split to move the Core Asset Share Value per TIP closer to 1/10th of the Index Level. The market value of a TIP in dollars may be expected to reflect the Core Asset Share Value per TIP plus an amount to reflect potential distributions. Actual market values may be affected by demand and supply and other market factors. TIPs trade on the Exchange with a minimum bid-ask spread of $0.10.

TIPs are issued to underwriters and specialists on general issue days determined by the Exchange. On that day, an integral multiple of the Prescribed number of TIPs is issued pursuant to allotments by the Exchange made four trading days prior to the issue days. For each Prescribed number of TIPs, the underwriters and specialists will remit to the trust one basket of shares[4] plus the accrued distribution amount[5] per TIP calculated as the

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[4] One Basket of shares includes the shares of the constituent companies in the same number and class as those shares are included in the Toronto 35 Index.

trading day before the day of issue. For example, on April 29, 1991, it was reported that the Exchange decided to issue 166 Baskets worth of TIPs to underwriters and specialists and that the issue will be distributed on May 3, 1991. These 166 Baskets of shares represented 8,331,540 units of TIPs (166 Baskets x the Prescribed number of TIPs which equaled 50,190). In return, underwriters and specialists deliver 166 baskets of shares to the Trust.

TIPs can also be redeemed on any trading day for either a Basket of shares or for cash. For the redemption to be effective on a trading day, the certificates for the TIPs to be redeemed and a redemption commitment must be deposited with the Trustee before 9:00 a.m.- this day is referred to as the *effective redemption day*. TIPs are redeemed for the underlying basket of stocks if investors hold a minimum (or integral multiples) of the prescribed number of TIPs. When investors have less than the prescribed number, they can still redeem their TIPs for cash. The cash redemption price is a percentage of the closing bid price for TIPs on the Exchange on the effective day of the redemption, depending on the number of TIPs redeemed. For example, if the number of Tips redeemed is between 1 and 200, the redemption price is 96% of the closing bid price; if that number is between 5,001 and 15,000, the redemption price is 99% of the closing bid price. The payment of the cash redemption price as well as the settlement of redemptions for Baskets of shares is done three trading days after the effective redemption date.

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[5] The accrued distribution amount per TIP is the amount received or receivable by the Trust as declared dividends on shares of constituent companies plus amounts paid to the Trust on the issue of TIPs on account of distributions on constituent company shares accrued to the date of the issue of TIPs, less distributions by the Trust.

Investors redeeming TIPs for cash will be entitled to the Accrued Distribution Amounts per TIP redeemed only if the record date occurs before the effective redemption date. On the other hand, those redeeming TIPs for baskets of shares will receive the Accrued Distribution amount per TIP redeemed paid as a regular distribution by the trust following redemption and calculated as of the trading day before the day for settlement in Baskets of shares.

TIPs can satisfy the needs of a wide range of investors. Because of their relatively low unit cost, TIPs offer small investors an affordable way to diversify their portfolios. Moreover, they avert many of the drawbacks present in the similar products on the market index. For example, the margin requirements and the marking to market involved in the Index Futures are avoided; the constant rebalancing necessary for the Index Options is eliminated; the high management fees present for Index Mutual Funds are lowered. In sum, TIPs present an efficient and effective tool to track the market movement.

2.2 LITERATURE ON TIPS AND BASKET PORTFOLIOS

The literature on index participation units to date is limited given the novelty of these products. One study by Park and Switzer (1995) examines the effects of TIPs trading on the index futures market in Canada. They show that the trading activity of the T35 Futures Contract increases suggesting an increased ease of hedging and arbitrage. Moreover, in comparing the actual with the theoretical index futures prices, they find that the T35 index futures price conforms to the theoretical value much better after the introduction of TIPs. Accordingly, they conclude that the efficiency of the T35 Index futures markets has improved after the introduction of TIPs. Another study by Switzer *et al.*(1997) focuses on the effect of SPDR trading on the pricing efficiency of the S&P Index futures contracts. Using a measure of efficiency based on the signed difference between the observed futures price and the theoretical futures price, they report that the significantly positive (but small) pricing error observed before the introduction of SPDRs is almost entirely eliminated with the introduction of SPDRs. Also, they show that the absolute error terms are smaller in the post-launch SPDR period.

These studies examined the effect of basket trading on the derivative market of the underlying index. No study has yet addressed the issues we are analyzing in this study. Focusing on TIPs, we attempt to establish the linkage between the basket traded and the alternative domestic markets as well as the foreign markets. Moreover, we study the effect of the issues and redemptions of basket portfolios on the basket itself, the underlying index, and the constituent companies.

2.3 HYPOTHESES TESTED

The analysis of the issues and redemptions of TIPs provides a test for an assumption that has interested financial analysts for many years: Horizontal Demand Curves for equity. The Efficient Market Hypothesis assumes that firms are faced with horizontal demand curves where the prices of securities are determined solely by risk and expected return, with the implication that securities are near perfect substitutes for each other. Hence, the excess demand for a single security is very elastic, and the sale or purchase of a large number of shares does not affect prices. The literature also postulates an alternative hypothesis claiming a downward sloping demand curve for equity where a large trading activity affects stock prices even if no new information is disseminated. To the extent that the latter is supported, we can also provide evidence to distinguish between two corollary hypotheses: (a) the Imperfect Substitute Hypothesis (ISH), and (b) the Price Pressure Hypothesis (PPH). The ISH assumes that securities are not close substitutes for each other, and hence, that long-term demand is less than perfectly elastic. Under this hypothesis, equilibrium prices change when demand curves shift after an event such as the purchase or sale of a large number of shares. Price reversals are not expected because the new price reflects a new equilibrium distribution of security holders. In contrast, the PPH predicts a perfectly elastic long-run demand curve where the increase in price is followed by a price decline. This theory assumes that some investors provide liquidity to the market when they agree to immediately buy or sell securities to which they are attracted to only because of an immediate price drop (rise) associated with large sales (purchases). These investors are compensated for their liquidity services when prices rise (drop) to their full-information levels.

We hypothesize that, based on the *Downward Sloping Demand Curve Hypothesis* for equity (henceforth DSDCH) as advanced by Shleifer (1986) and Harris and Gurel

(1986), an issue of TIPs would lead to an increase in the price of the Index and its constituent companies. When the Exchange announces a TIPs issue, underwriters and specialists would have to buy or borrow the shares of the companies thus driving the share price up. Given that underwriters and specialists have four trading days (from the day of the announcement of the TIPs issue until one day prior to the actual issue day) to acquire the needed shares, the event window of interest is [0;+3] where Day 0 is the announcement day of the TIPs issue. A price reversal occurring after that event window would support the Price Pressure Hypothesis (PPH). In contrast, a permanent price reduction would support the Imperfect Substitute Hypothesis (ISH).

The expectations regarding the price effect on the shares of the constituent companies of a redemption of TIPs is ambiguous. It is not clear what happens to the Baskets of shares after redemption. One hypothesis is that underwriters and specialists sell the shares of the constituent companies after the settlement of TIPs for Baskets of shares. Consequently, and on the basis of the Downward Sloping Demand Curve Hypothesis, we expect the share price of the constituent companies to decrease on or surrounding the settlement date.

We also expect the price of TIPs to decrease on issue days[6]. When there is an issue of TIPs, the number of TIPs outstanding increases by the number of TIPs units issued (e.g., 8,331,540 units on May 3, 1991). This represents an increase in supply thus

[6] The supply effect might be swamped by the demand effect. The hypothesis of a decrease in the price of TIPs due to an increase in the number of TIPs outstanding is thus examined in the context of a

leading to a decrease in price. By the same token, we expect the price of TIPs to increase on the settlement day following a decrease in the number of TIPs outstanding.

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microstructure effect.

3. LITERATURE REVIEW

3.1 NEGATIVELY SLOPED DEMAND CURVES FOR EQUITY IN THE FINANCE LITERATURE

In testing whether or not the demand curve for equity is negatively sloped, researchers have focused on explaining the price effect associated with changes to an index as well as with equity issues. However, those events are confounded by effects other than that of the shape of the demand curve, such as an information effect, liquidity costs, taxes. Consequently, the finance literature has been unable to provide clear evidence for or against a downward sloping demand curve for equities as few studies could filter out the different effects.

The inclusion or exclusion of a stock to and from an index has been extensively studied to test the shape of the demand curve for equities. According to Shleifer (1986), a substantial portion of the firm's shares are bought by index funds subsequent to the announcement of an inclusion, thus leading to an outward shift of the demand curve for the firm's equity. If demand curves are downward sloping, inclusion of a stock into an index should increase the share price. By the same token, the exclusion of a stock from an index is expected to decrease its demand, hence its price. The empirical evidence reports a significant positive stock price reaction to the announcement of new listings on the S&P 500, varying between 1.52% and 3.33% depending on the sample period, as shown in Table 1, Panel A. Similarly, a significantly negative stock price response, an average of

-1.28%, is noted for deleted stocks. Researchers have attributed this price effect to downward sloping demand curves, as well as other explanations such as information signaling, and liquidity and information cost.

Both Shleifer (1986) and Harris and Gurel (1986) support a DSDCH. Harris and Gurel (1986) report a large increase in volume subsequent to the announcement of a stock addition accompanied by a significant 3.13% increase in share price. This finding is further reinforced by Schleifer (1986) as he uncovers a positive relation between the share price increase on the announcement date and the shift of the demand curve[7]. Moreover, they both show that the price increase is dependent on the behavior of index funds. Indeed, the price effect is present only after 1977 when index fund began to grow; also, the abnormal return grew over time coincident with the growth of index funds. Hence, they conclude that it is unlikely that the announcements, by themselves, cause the price change. The latter finding is also reported by Lamoureux and Wansley (1987).

Pruitt and Wei (1989) find that net changes in institutional ownership in the quarters surrounding an addition to (a deletion from) the S&P 500 are significantly positively related to event day abnormal returns. This finding augments and further supports the results and conclusions obtained by both Harris and Gurel (1986) and Schleifer (1986), i.e., that price fluctuations following changes in the composition of an

[7] Two regressions revealed such a relation. The first regression regressed abnormal announcement date return on abnormal announcement date volume, as measured by the difference between the announcement date volume and the average daily volume in the previous six months both expressed as a fraction of the number of shares outstanding. The second regression regressed abnormal announcement date return on

index are due to changes in security demand by index funds and other institutional buyers.

Jain (1987) finds no support for the DSDCH, but rather attributes the observed stock price effect to information about firms' future prospects. Indeed, he shows that the excess return of 3.07% experienced by the firms added to the S&P 500 are similar to the 2.93% excess return of firms included in the supplementary indexes[8]. Accordingly, he argues that an inclusion of a firm in the S&P 500 may reflect a reduction in the riskiness of its securities as the S&P pick stable firms for the indexes; or it may signal an increase in the quality of management given that the S&P closely monitor the companies in its indexes.

Similarly, Beneish and Gardner (1995) reject the DSDCH in their study which focuses on the changes in the DJIA. They report that for newly listed firms, the trading activity and the returns in the three-day period around the announcement date do not increase significantly. As for delisted firms, the trading activity is unaffected but the excess return is significantly negative. These price and volume results are inconsistent with the DSDCH, reflecting the fact that no index fund rebalancing occurs at the time of DJIA changes since index fund portfolios are historically tied to the S&P 500 index. Furthermore, they argue that an information-signaling hypothesis is inadmissible since

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announcement date volume and usual volume.

[8] The supplementary indexes are indexes published by Standard & Poor's and cover about 40 firms that are not included in the S&P 500. Some index fund portfolios do not include stocks in these supplementary indexes, and hence the inclusion of a stock in one of the supplementary index should not imply increased demand for that stock on the part of money managers. Consequently, the stocks included in the supplementary indexes should not earn or earn significantly lower excess returns than the stocks included in the S&P 500.

added and deleted firms exhibited similar performance subsequent to the DJIA change, and hence do not provide information about future performance. Their findings are consistent with an explanation based on liquidity and information costs. An exclusion from the DJIA is followed by a decreased scrutiny by the market, and thus the information environment of the firm is poorer leading the stock to trade less widely and becoming less liquid. The inclusion of a stock in the DJIA revealed no effect because those firms are prominent and actively traded. The finding that the stock price reaction is more adverse the greater the increase in spreads and the greater the reduction in the quantity of costless available information, further strengthens their argument.

Studies on new equity issues also presented the DSDCH as an explanation for the significant negative stock price reaction experienced by companies around the announcement of stock offerings. An average two-day abnormal common stock return of -3.14% is reported for industrial firms and –0.75% for utility firms (Smith 1986)[9], as shown in Table 1, Panel B.

Traditional tests of the shape of the demand curve have consisted of investigating the relation between price and quantity changes at the time of stock offerings and have resulted in mixed evidence. Critics of the DSDCH indicate that the relation between the magnitude of the price effect and the relative size of new equity issues is not significant

[9] Returns are weighted averages by sample size of the returns reported by the following studies: Asquith and Mullins(1986), Kolodney and Suhler(1985), Masulis and Korwar(1986), Mikkelson and Partch(1986), Schipper and Smith (1986) for Industrial firms; Asquith and Mullins(1986), Masulis and Korwar(1986), Pettway and Radcliffe(1985) for utility firms.

(Marsh, 1979; Mikkelson and Partch, 1986; Sant and Ferris, 1994; Hess and Baghat, 1985; Baghat and Frost, 1985; Hess and Frost, 1982). For example, Hess and Baghat (1985) report that the relative issue size accounts for approximately 3% of the cross-sectional variation in the announcement day abnormal return for a sample of utility issues. In another instance, Scholes (1972), although uncovering a permanent price reduction of approximately 2% associated with secondary offerings, shows that the price reduction is not associated with the size of the distribution and hence argues that the decline is due to a discrete information effect.

On the other hand, proponents of the DSDCH claim the existence of a negative relation between size and excess return (Asquith and Mullins, 1986; Masulis and Korwar, 1986; Loderer and Zimmermann, 1988; Mikkelson and Partch, 1985). For example, Asquith and Mullins (1986), using the planned proceeds of the offering divided by the pre-announcement value of the firm's equity as a proxy for the relative size of the issue, show that the announcement day excess return is significantly and negatively related to the size of the equity offering. However, this finding is disputed by Kalay and Shimrat (1987) who argue that this relationship is also consistent with both the signaling hypothesis and the wealth redistribution hypothesis. The issue size can be interpreted as a proxy for the amount of unfavorable information, and thus larger issues will reveal more negative information. Also, the issue size can be taken as a proxy for the change in leverage ratio, and thus larger issues will lead to a higher increase in the market value of the debt. Similarly, Kraus and Stoll (1972) find a small, temporary intra-day price decline associated with secondary offerings that is significantly related to the value of the distribution; however, they can not determine whether this relationship is due to DSDCH or information effects.

In an attempt to isolate the information effect associated with equity issues, Loderer, Cooney, and Van Drunen (1991) test the relation between price changes and possible determinants of demand elasticities in a sample of primary stock offerings by US-regulated firms. According to Merton's (1987) model of price elasticity, it is expected that the announcement period abnormal stock returns are inversely related to both firm size and return variance, and positively related to the investor base holding the stock. In their study, Loderer *et al.* conclude that finite price elasticities explain the negative stock price reaction to announcement of stock offerings. Indeed, they find no evidence that the decline is the result of adverse information about future cash flows, but rather they report some evidence that the offer announcement effects are related to Merton's (1987) determinants of price elasticities.

In sum, neither a change to an Index nor an equity issue presents conclusive evidence regarding the downward sloping demand curve for equities given that researchers have been unable to distinguish between the proposed competing explanations.

3.2 THE PRICE PRESSURE HYPOTHESIS VS. THE IMPERFECT SUBSTITUTE HYPOTHESIS

The hypothesis of a downward sloping demand curve for equity gives rise to two corollary hypotheses: the Price Pressure Hypothesis and the Imperfect substitute hypothesis. These hypotheses differ with respect to the long-term demand curve. The PPH implies that traders who provide the liquidity required to eliminate excess demand will require compensation in the form of a price reversal. In contrast, the ISH proposes that a shift in the demand curve for equity leads to an equilibrium price change which will reflect a new equilibrium distribution of security holders. Events such as changes to an Index, equity issues, and stock repurchases were used to test these hypotheses.

In their analysis of the price effect associated with changes in the index, Harris and Gurel (1986) find support for the price pressure hypothesis, in which a price increase is followed by a price decline. Using observations from 1978-1983, they find that stock prices tend to return to their pre-announcement level after about three weeks. Hence, they conclude that passive demanders, attracted by an immediate increase in price, tender their shares and then reestablish their position at a net profit when prices drop to their full-information level. This finding is consistent with that reported by Lamoureux and Wansley (1987). Using a sample extending from 1976 to 1985, they show that the CAARs decline by an amount virtually identical to the announcement day excess return during the twenty trading days following the announcement. Woolridge and Ghosh

(1986) report similar evidence for the stocks deleted from the S&P 500.

However, Dhillon and Johnson (1991) question the finding of Harris and Gurel (1986) by arguing that the price decline in the post-announcement period is due to a problem in the adjustment for risk and not to a mere reversal of a price rise induced by price pressure. In fact, they extend Harris and Gurel's post-announcement period and find that the price decline continued for at least 60 days after the announcement. They further strengthen their rejection of the price pressure explanation by showing that call prices increase by 26%, and that there is no significant difference between the price rise for stocks that do and do not have traded options. The argument is that, for the price pressure hypothesis to hold, both call and stock prices increase, but the stocks without traded options should be affected more than the stocks with options because market makers in the option are forced to share the price pressure. In sum, Dhillon and Johnson (1991) argue that their results are consistent with the information signaling hypothesis, inconsistent with the price pressure hypothesis, and consistent with the imperfect substitutes hypothesis only if stocks, bonds, puts and calls for the same firm are close substitutes.

Other studies analyzing the price effect of a change to an index support the imperfect substitute hypothesis. Shleifer (1986), Goetzmann and Garry (1986), Woolridge and Ghosh (1986), and Jain (1987), focusing on the same sample periods as Harris and Gurel (1986), and Lamoureux and Wansley (1987), do not find statistically significant price reversals in the post event period. For example, Shleifer (1986) reports that prices do not fall significantly in the 20 days after the announcement day. Moreover, most of the 2.79% announcement date capital gain persists for at least 10 to 20 trading days. Woolridge and Ghosh (1986) indicate that prices of stocks added to the S&P 500 do not return to their pre-addition levels, at least not in the following six trading weeks. The effect is stronger in the 1980's coincident with the growth of index funds.

In examining the price effect associated with equity issues, both Smith (1977) and Hansen (1988) report that the price decline is temporary, and thus supports the PPH. Smith (1977) shows that stock prices recovered over the two months after the issue what they lost in the two months prior to the issue. Hensen (1988) finds a significant correlation between the abnormal returns over the 20 trading days preceding the offer period and the 20 days following the offer expiration for a sample of standby right offerings.

Davidson *et al.*(1996), focusing on the stock price reaction to tender offers, present evidence consistent with a price pressure hypothesis but that operates simultaneously with information signals. They report that the increase in volume is accompanied by an increase in price at the tender offer announcement (a price increase of about 13.75%), and by a decrease in price at expiration (price decreased by nearly 1.5%). They argue that the increase in volume that occurs at the announcement is larger than can be explained from only the release of information. Most importantly and consistent with the price pressure hypothesis, they find that the level of short positions in the sample firms increases just before the final expiration of the tender offers. This implies that passive suppliers of liquidity, believing in a temporary price effect, expect a drop in price that occurs at the expiration of the offer.

To conclude, although the price pressure hypothesis and the imperfect substitute hypothesis have been examined in different contexts, neither hypothesis has been uniformly supported in the literature to date. In most studies, researchers have had difficulties distinguishing between stock price effects in the presence of information effects. Focusing on the market's reaction to TIPs while isolating company specific effects allows us to shed new light on the empirical characteristics of the demand curve for equity holding constant such information effects.

4. SAMPLE AND DESCRIPTION OF DATA

A list of the issues and redemptions of TIPs that occurred between March 1990 and October 1995 was obtained from the Toronto Stock Exchange. Table 2 gives the distribution of the issues and the redemptions per year. Whereas all issues were included in the sample, only the redemptions for which more than 20 baskets were redeemed were included. For the redemption analysis, we chose a limit of 20 baskets since this represents the smallest new issue size authorized by the TSE to date. As can be seen in Table 2, the average new issue size (126 baskets) is substantially greater than the average redemption size (48 baskets). Furthermore, where event dates are very close (less than 5 trading days difference), only the event date with the highest number of units of TIPs issued or redeemed is included. The resulting sample includes 21 issue dates and 13 redemption dates.

The sample used in testing the effect of an issue on the price of the constituent companies and on the price of the Index excludes all the event dates where an issue occurred due to an Index adjustment[10]. The final sample thus consists of 14 issue dates and 13 redemption dates. This represents 489 companies for the issue dates and 455 companies for the redemption dates[11].

[10] Whenever the Index is adjusted by adding or removing shares of a constituent company, the Trust has to acquire or dispose of the appropriate number of shares at the quoted market value at which those shares are added to or subtracted from the Index. This is done through the issue for these shares or the redemption for these shares of TIPs to and from the Specialists. This process however does not affect the Basket of shares outstanding. It only affects the deleted or added stock.

[11] The sample of 489 companies is obtained by multiplying the 14 issue dates by the 35 constituent companies, less one company that had missing returns.

Daily common stock returns including dividends for the constituent companies for 120 days before and 60 days after the announcement, issue and redemption dates are retrieved from the TSE/Western Data Base. None of the companies had missing returns during the event window. The returns on the TIPs are also taken from the TSE/Western Data Base. Missing returns on TIPs were collected manually from the Financial Post and Globe and Mail using the closing prices. The returns on the Toronto 35 Index were acquired from the Exchange.

The sample of 455 companies is obtained by multipying the 13 redemption dates by the 35 constituent

5. METHODOLOGY

To assess the effect of an issue and redemption of TIPs a dummy variable approach was used. The following market model, as in Eckbo (1990), is estimated:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{k=1}^{K} \gamma_{ik} * d_k + \in_{it}$$

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

R_{mt} = return on value-weighted market index on day t

α_i = intercept for stock i

β_i = estimated beta for stock i

d_k = event dummy which equals one on day k and zeros otherwise

γ_{ik} = the measure of abnormal return on day k for stock i, or AR_{ik}

$\in_{it}$ = estimated error term for stock i on day t, which is assumed to be normally distributed with mean zero and constant variance

The average abnormal return for day k, AAR_k, is determined as

$$AAR_k = [1/N] \quad \sum_{i=1}^{N} AR_{ik}$$

where N is the number of stocks, and AR_{ik} is the measure of the abnormal return on day k for stock i.

The cumulative average abnormal return ($CAAR_{dt}$) is calculated as

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companies.

$$CAAR_{dt} = \sum_{k=t1}^{t2} AAR_k$$

where dt is the time interval $[t_1, t_2]$.

If the issue and redemption of TIPs events do not affect the firm returns, both AAR_k and $CAAR_{dt}$ should equal zero. In order to detect whether they are significantly different from zero, the average standardized abnormal return (ASARk) and the average standardized cumulative abnormal return ($ASCAR_{dt}$) are calculated as

$$ASAR_k = [1/N] \sum_{i=1}^{N} [AR_{ik} / S_{ik}]$$

$$ASCAR_{dt} = \sum_{k=t1}^{t2} ASAR_t$$

where, for stock i on event day k, S_{ik} is the estimated standard deviation of γ_{ik}.

Tests of significance are based on the computed Z-statistics

$$Z(AAR_k) = ASAR_k \,.\, N^{1/2}$$

$$Z(CAAR_{dt}) = ASCAR_{dt} \,.\, N^{1/2} / (t_2 - t_1 + 1)^{1/2}$$

which are based on the assumptions that the standardized abnormal returns are normally and independently distributed across securities and time.

6. EMPIRICAL RESULTS

6.1 BACKGROUND ANALYSIS

TIPs have been developed for the purpose of enabling investors to follow the Toronto 35 Index, which is composed of Canada's largest publicly traded corporations. The Toronto 35 Index, in turn, has all of its constituent companies included in the TSE 300 Composite Index and some included in the Standard and Poor 500. This section studies the linkage between the TIPs, the T35 Index, the T300 Index and S&P 500 from March 1990 to December 1995, using the theory of causality and cointegration developed by Granger (1983), Granger and Weiss (1983), and Engle and Granger (1987). The plots of the prices of TIPs against the T35, the T300, and the S&P 500 are presented in Figure 1, Figure 2, and Figure 3, respectively. Similarly, the plots of the prices of the T35 against the T300 and the S&P 500 are presented in Figures 4 and 5, respectively.

The methodology consists of a multi-step testing procedure. First, the order of integration of the variables must be determined prior to testing for causality. The cointegration of variables is then examined to see whether there exists a linear combination of the series that is stationary, even if the individual series are not. Finally, a test of Granger (1980) causality or an error correction test (Engle and Granger, 1987) is used, depending on the cointegration test, to examine the relation between the variables.

6.1.1 Unit Root Tests

Stationarity of the series means that there exists a stable long-run relation between them and the use of OLS techniques on the levels is appropriate. However, if the series follow random walk, a standard regression to test for causation between them is misspecified. Both Dickey-Fuller and Philip-Perron tests are used for the unit-root tests. The Dickey-Fuller (1981) test, for instance, is based on the following regressions with a time trend:

$$X_t = \alpha_0 + \alpha_{1T} + \beta X_{t-1} + \sum_{i=2}^{n} \delta_i X_{t-i} + \varepsilon_t$$

where X_t is a time series; α_0, α_1, β and δ_i are arbitrary coefficients; and ε_t is the error term. X_t is said to be non-stationary if $\beta = 1$. For the tests run on estimated regressions with no trend, α_{1T} is eliminated from the regression. Table 3 presents the results of these tests performed on the series as well as on the first differences of the series. Unit roots prevail for all three indices and for TIPs; however, stationarity is achieved on taking the first differences. This means that the series are integrated of order one. Thus, based on these results, a standard regression to test for causation between the variables would have led to spurious results.

6.1.2 Cointegration Test

When price series are integrated of the same order and some linear combination of the series is stationary, a long-run equilibrium relation exists between the series and they are said to be cointegrated. This relationship can be written as:

$$Y_t = \alpha + \beta X_t + \varepsilon_t \qquad (1)$$

where X_t and Y_t are non-stationary series, and ε_t is the error term that is stationary given that this relationship exists. When testing for cointegration, an OLS estimation of the cointegrating regression (1) is used to examine the stationarity of the residuals, ε_t. Again, the Dickey-Fuller and Phillips-Perron tests are used with the null hypothesis implying that the residual series have a unit root:

$$\Delta\varepsilon_t = -b\,\varepsilon_{t-1} + \theta_t$$

where $\Delta\varepsilon_t$ is the change in the error term from the cointegration equation and θ_t is a random error. X_t and Y_t are said to be cointegrated if b is statistically different from zero.

Cointegration of indices represents a long-term equilibrium relation between them and hence an absence of exploitable long-term portfolio gains. It also suggests that one stock price can be used to forecast the other thus presents a case against the weak form market efficiency. On the other hand, a lack of cointegration indicates a deviation from equilibrium and hence a potential long-term portfolios gain.

Table 4 presents the results of the cointegration tests. The S&P 500 appears not to be cointegrated with neither the T35 nor the TIPs. This implies that the performance of the S&P 500 has no impression on these financial products. This may be explained by the differences in information costs, settlement and other business practices between the Canadian and US markets. This lack of cointegration suggests that a portfolio consisting of the S&P 500 and the T35 (or the TIPs) has a potential for long-term portfolio diversification gains. The cointegration test performed on the T300 shows an integration with the T35 but not with the TIPs. This means that while a long-term equilibrium relation exists between the T35 and the T300, no such relation exits between the T300 and the TIPs. Consequently, an investor is better off forming a portfolio of the T300 and the TIPs given that such a portfolio provide long-term gain and still includes the benefits of the T35 Index. Finally, the T35 and TIPs are cointegrated as one would expect given that TIPs are created to track the T35[12].

6.1.3 Causality and Error Correction Tests

Having established the cointegration level of the variables, a causality test is performed to determine the interaction among them. Granger causality tests are essentially tests of the prediction ability of time-series models. However, in the presence of cointegration, an error correction model should be used instead of the Granger test (1980). The error correction model, developed by Engle and Granger (1987), can capture both the short-run dynamics between time series and their long-run equilibrium relation.

The Granger (1980) causality test is based on the following model:

$$\Delta X_t = \sum_{i=0}^{n} \alpha_i \Delta X_{t-i} + \sum_{i=1}^{n} \beta_i \Delta Y_{t-i} + \varepsilon_t \quad (4)$$

[12] It is worth noting that the finding of a long-run relation between the T35 and the T300 and between the T35 and the TIPs does not necessarily imply the existence of such a relation between the TIPs and the T300. One interpretation might be that an unstable relation (sometimes in the short-term and at other times in the long-run) exists between the TIPs and the T300 preventing the emergence of a stable long-run relation.

$$\Delta Y_t = \sum_{i=0}^{n} \delta_i \Delta Y_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta X_{t-i} + \varepsilon'_t \qquad (5)$$

The null hypothesis of no causality is rejected if β_j and λ_i are significantly different from zero. The test for causality is based on F-statistics calculates as:

$$F = [(SSEr - SSEu)/m] \ / \ [SSEu/(T-2m-1)]$$

which follows an F-distribution with m and (T-2m-1) degrees of freedom. SSEr is the sum of squared errors calculated by estimating equations (4) and (5) in restricted forms (with β_i and $\lambda_i = 0$) and SSEu is the sum of squared errors calculated by estimating equations (4) and (5).

Engle and Granger (1987) developed the following error correction model to be used in the presence of cointegration:

$$\Delta X_t = \sum_{i=0}^{n} \alpha_i \Delta X_{t-i} + \sum_{i=1}^{n} \beta_i \Delta Y_{t-i} + \psi \varepsilon_{t-1} + v_t$$

$$\Delta Y_t = \sum_{i=0}^{n} \delta_i \Delta Y_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta X_{t-i} + \theta \varepsilon'_{t-1} + wt$$

where ε_{t-1} and ε'_{t-1} are the lagged values of the fitted error term in the cointegration regressions, and v_t and w_t are the new residuals.

Akaike and Schwarts Information Criteria are used to identify the optimal lag structure of the causality tests. Different lag lengths were used (24,15 and 10) and led to the same optimal length. The optimal lag is reported in brackets [] for each case in Table 5. Panel A presents the Granger (1980) causality tests while Panel B show the error correction tests.

The results show that both local market indices, the T35 and the T300, exert a substantial amount of influence on TIPs. Indeed, TIPs are found to be Granger-caused by the T300 and the T35 at the 1% significance level in both cases. This implies that TIPs serve their purpose of being a proxy for the pre-existing conditions in the Canadian market. The presence of causality indicates a joint market inefficiency and hence, a potential for short-term arbitrage between the fund and the fund's asset (proxied by the T35 and the T300) in the absence of transaction costs and barriers. This result is similar to that reported by Ben-Zion *et al. (1996)* who found a close short-term causal interaction of the German, British and Japanese funds with their respective national markets.

It is also found that the S&P 500 has a short-term causal interaction with the TIPs. This suggests that the performance of the TIPs reflect the US market sentiment as argued by Bodurtha, Kim and Lee (1994). A similar finding is presented by Ben-Zion *et al.* (1996) who showed a causal relationship between the U.S. market and the U.K. Fund.

Another interesting result is that while the S&P 500 leads the TIPs, there is neither a short-term nor a long-term relation (given by the cointegration relation) between the S&P 500 and the T35. This finding is also consistent with the Ben-Zion *et al.* study in which the U.S. market and the UK market did not have any relation, but where the US market Granger-caused the UK Fund. In another study, Smith *et al.* (1993) concluded that shocks from one market are not transmitted to other markets around the world. They focused on the U.S., German, U.K. and Japan markets and found a lack of Granger-causality from market to market, with the exception of the US/German relationship.

Finally, it is shown that the T35 exerts a substantial amount of influence on the T300. This implies that the 35 companies comprising the T35 react faster to new information than the remainder of the companies included in the T300.

6.1.4 Summary

This section presented the linkage between TIPs, the T35 Index, the T300 Composite Index, and the S&P 500. It was revealed that TIPs are Granger-caused by the T300 and the T35, the indices representing the Canadian market, as well as by the S&P 500, which represent the US market. Moreover, we found no relation between the T35 and the S&P 500 neither in the short-term nor in the long-term. Finally, we show that the T35 exerts a substantial impact on the T300. This analysis provided new evidence on the interactions between the fund and the fund's assets as well as on the integration of the US and the Canadian market.

6.2 EVENT STUDY ANALYSIS

.2.1 New issues of TIPs

When a TIPs issue is announced, underwriters and specialists have four trading days to acquire the new shares of the constituent companies, hence creating an unusually high demand for the shares during that period. Consequently, and according to the DSDCH, we expect the shares of the constituent companies and thus the index level as a whole to increase on the four trading days surrounding the day of the announcement of an issue of TIPs, i.e., the event window [0;+3] where Day 0 is the announcement day. Moreover, given that the number of TIPs outstanding increases during an issue thus representing an increase in supply, we expect the price of TIPs to decrease on the issue day.

The mean abnormal returns of TIPs and their significance tests for 21 issue dates are presented in Table 6. The two-day [0;+1] CAAR is negative (-0.30%) and is significant at the 5% level. This result is found in more than 70% of the cases. Furthermore, no significant abnormal returns are observed preceding or following the issue period. Figure 6 plots the AARs and the CAARs for the 21-days period surrounding the issue date of TIPs. The graph reveals a clear downward drift for both measures at the issue date; indeed, the CAAR dropped by more than 144% from Day 0 to Day 1. This result can be explained by a positively sloping supply curve for equities.

To study the price effect of an issue of TIPs on the shares of the constituent companies, two different samples were used. The first sample includes all of the companies of the T35 Index representing a sample of 489 firms. The second sample excludes those firms that have news listed in the financial press that coincide with announcement and issue dates of TIPs. Lexis-Nexis was used to collect news about the constituent companies for two-days before the announcement to two-days after the issue of TIPs. The information-cleansed sample consists of 358 firms. Both event studies are reported below.

Table 7 presents the mean abnormal returns and their significance tests around the announcement day for the sample of 489 companies. Sample firms realize, on average, a significantly positive abnormal stock return of 0.11% over the event window [0;+3] (z-stat = 2.09). This supports the DSDCH where an increase in the demand for the shares of the companies leads to an increase in their prices. Taking each day individually, the ARs on day [0], [+1], [+2] and [+3] are all insignificantly different from zero. This means that there is not a "one" day effect but rather a four days cumulative effect, reflecting the fact that the buying process is spread over a four days period. Moreover, the CAARs over the event windows [0;+1] and [0;+2] are also significant with a value of 0.12% and 0.13%. Figure 7 charts the average abnormal return and the cumulative average abnormal returns for the 21-day events centered around the announcement date. The apparent downward drift of the CAARs prior to the issue of TIPs is reversed by the announcement up to Day 5.

The results of the event study performed on the Toronto 35 Index are similar to those of the sample of the constituent companies, and hence also support the DSDCH.

Table 8 presents the mean abnormal returns and their significance tests for the sample of 14 issue dates. The CAAR for the event window [0;+3] is 0.19% and is significant at the 5% level. Moreover, more than 60% of the increase in price occurs on the announcement day: the AR on Day 0 is 0.12% and is significant at the 5% level. These results are not driven by few outliers given that over 93% of the cases are positive on Day 0 and over 70% are positive over the period [0;+3]. The AARs and the CAARs for the 21-days event period are plotted in Figure 8. The CAARs exhibit an upward trend beginning at Day –2 until the end of the announcement period. However, the greatest increase in CAARs (81.28%) occurs on Day 0: the AARs increased from 0.02% to 0.12%.

Table 9 reports the results of the event study performed on the news-cleansed sample[13] of 358 firms. The following findings strengthen and further support the results and conclusion obtained from the test performed on the whole sample, i.e., they support the DSDCH. The CAARs for the announcement period is higher and more significant when firms with news are excluded from the sample: 0.28% (z-stat=2.67) for no news sample compared with 0.11% (z-stat=2.08) for the whole sample. The same can be said for the event periods [0;+1] and [0;+2]. The CAARs plotted in Figure 9 show a negative trend clearly reversed on the announcement day. Indeed, whereas the CAARs are all negative prior to Day 0, they are all positive after that day. Furthermore, the CAARs preceding the announcement date [-10;-1] and following the issue date [4;+10] are

[13] Six individual extreme outliers defined as AR > 10% and AR < -10% for days +1 (2 cases), +5 (2 cases), and +6 (2 cases) were replaced by mean values to minimize their distorting impact on the result. However, the results of the event studies performed on the sample with outliers and on the sample without outliers provided similar results due to the large sample size.

essentially zero. This suggests that news of a TIPs issue has not leaked to the market prior to the announcement and that the price increase was not reversed after the announcement.

6.2.1.a Issue Size Effects

A larger issue of TIPs translates into a greater purchase volume of the shares of the constituent companies. Based on a DSDCH, we expect the positive price effect experienced by the constituent companies to be more pronounced for larger issues of TIPs.

The information-cleansed sample was divided into a large-issue sample (> 85 Baskets of shares) and a small-issue sample (< 85 Baskets of shares). The large-issue sample includes 230 companies while the small-issue sample consists of 128 companies. An event study is conducted on both samples and a difference in means test is performed to assess the degree of difference between both samples.

The results of the event studies for the large sample and the small sample are presented in Tables 10 and Table 11, respectively. A striking observation in Table 11 is that none of the CAARs of the announcement event periods, i.e., [0;+3], [0;+2] and [0;+1], is significantly different from zero. This means that small issues do not create an abnormal purchasing volume for the shares of the constituent companies and thus do not affect the prices of the shares. In contrast, the announcement event periods CAARs for the large-issues sample are all significant at high confidence levels. This result is consistent with the predictions of the DSDCH. It is also worth noting that the CAAR for the event window [0;+3] is 0.44% with a z-stat = 3.11; this figure is greater in magnitude than the CAAR of 0.28% reported for the whole sample. This implies that the actual abnormal returns are lowered by the inclusion of small issues that prove not to affect the prices of the shares of the constituent companies.

Figures 10 and Figure 11 plot the CAARs for the 21-days interval centered around the announcement day. Whereas Figure 11 shows no specific trend, Figure 10 indicates that the CAARs exhibit an upward drift beginning at the announcement date. The CAARs, clearly reversed by the announcement day, are all positive after that date. Finally, a t-test for the difference in CAARs between the large-issues and the small-issues samples for different event windows is reported in Table 12. The test shows that the difference in the CAARs of 0.55% for the event period [0;+3] is significant at the 10% level. Figure 12 plots the CAARs of the large issues against and those of the small issues.

6.2.1.b Summary

The results presented in this section uncovered a positive price effect stemming from the issue of TIPs. This price effect coupled with the increase in trading volume caused by the purchase of Baskets of shares by underwriters and specialists supports the

DSDCH. Finally, an analysis of the post-period returns over the event window [+4;+60], undertaken to ascertain whether the announcement period abnormal returns are merely temporary, found an insignificant CAAR of –0.48% (z-stat = -0.70) for the information-cleansed sample of 358 firms. The CAAR over the same period for the large-issue sample is –0.86% but is also insignificant (z-stat = -1.22). This leads us to conclude that the imperfect substitute hypothesis rather than the price pressure hypothesis is supported in our study.

6.2.2 Redemption of TIPs

When underwriters and specialists redeem TIPs, they get Baskets of shares in return. We hypothesize that the price of the shares of the constituent companies and thus the index level will decrease if the Baskets of shares are sold on or surrounding the settlement date based on a downward sloping demand curve. Furthermore, we expect the price of TIPs to increase on the settlement date following the decrease in the number of TIPs outstanding.

The results of the event study performed on TIPs are reported in Table 13. The resulting abnormal returns indicate a significant positive impact upon share prices and returns associated with the announcement of TIPs redemption. The average abnormal returns from Day –10 to Day +10 are positive over the whole interval. However, the AAR is most significant on the day after the settlement day. In fact, the most statistically significant increase occurs on that day: the AAR increases from 0.017% on Day 0 to 0.38% on Day 1. Furthermore, the CAAR for the event window [0;+1] is 0.37% with a z-statistic = 2.06. This result is not caused by few outliers. In 61.54% of the events, the abnormal returns are positive. Finally, the movement of CAARs over the twenty-one day interval, plotted in Figure 13, is significantly positive. Thus, TIPs prices change during the period around the settlement day by 2.76%, implying a positively sloping supply curve.

Table 14 presents the mean abnormal returns and their significance tests for the event window [-10;+10] centered around the announcement day for the sample of 455 companies. Contrary to our hypothesis, a redemption of TIPs produces a positive price effect on the shares of the constituent companies. The CAAR for the event window [0;+1] is 0.21% and significant at the 5% level. More specifically, each individual day [0] and [+1] is positive and significant with z-stat of 1.70 and 2.19, respectively. Figure 14 presents the CAARs for the 21-days period centered around the settlement date. The movement of the CAARs indicates a positive trend over the whole the period.

The evidence from the T35 Index confirms the positive abnormal return stemming from the redemption of TIPs. The CAAR for the event period [0;+1], presented in Table 15, is positive (0.15%) and significant at the 5% level; this effect is present in approximately 70% of the cases. The plot of the CAARs over the event window [-10;+10] in Figure 15 also shows a positively increasing trend over the entire period.

Both tests contradict the hypothesis of a decrease in the price shares of constituent companies and the Index level following a settlement of TIPs for Baskets of shares. However, this evidence by itself does not reject a downward sloping demand curve given that there is no proof of a large sale of shares. Rather, our assumption that underwriters and specialists sell the shares on or around the settlement day is erroneous. The positive abnormal return might be caused by an unusual demand for the shares of the constituent companies and/or by positive information released around the announcement of redemptions.

Given the possibility that some positive company news are affecting the price of the shares prices thus distorting the impact of a redemption of TIPs, we excluded those companies that had news reported in the financial press two days before to two days after the settlement day. Firm-specific news was collected using Lexis-Nexis. The information-cleansed sample consists of 289 firms. The results of the event study[14], reported in Table 16, show an insignificant CAAR over the event period [0;+1]. Moreover, the AARs for Day 0 and Day +1 are both essentially zero. This implies that the positive CAAR found in the study of the full sample is mainly caused by positive firm-specific news rather than by the pure effect of a redemption of TIPs. Figure 16 presents the plot of the cumulative mean abnormal returns for the new-cleansed sample.

[14] Five extreme outliers defined as AR <-10% for days –4,-3,-1,0 and +7 were replaced by mean values. Similar results revealed from the sample with and the sample without the outliers.

7. CONCLUDING REMARKS

Basket trading is increasing in popularity and yet finance research on that trend is still preliminary. This study provided new evidence related to index participation units by examining two issues:

(a) The interaction between basket portfolios and the domestic market as well as the foreign market.

(b) The effect of issues and redemptions of basket portfolios on the basket itself, the underlying index, and the constituent companies.

In this study, we analyze the Canadian index participation units, TIPs, since they are the first to be introduced in North America and hence they offer a certain advantage relative to the US products in terms of historical trading.

Using the theory of causality and cointegration, we show that TIPs are Granger-caused by the T300, which represents the Canadian market, and by the S&P 500, which represents the US market. Also, the T35 is found to have a substantial impact on TIPs, a result expected since the T35 is the base of these index participation units. Furthermore, neither a short-term nor a long-term relation was revealed between the T35 and the S&P 500, even though many of the T35 constituent companies are also part of the S&P 500. As for the two indices representing the Canadian market, it is shown that not only is the T35 cointegrated with the T300, but it also leads it.

The effect of the issues and redemptions of TIPs are tested based on the hypothesis of a negatively sloping demand curves for equities. When the Exchange announces a new issue of TIPs, underwriters and specialists have four trading days to buy or borrow the shares of the constituent companies in order to deliver Baskets of shares to the Trust in exchange for TIPs. This process leads to an outward shift of the demand curve for the constituent companies and thus for the T35 Index, inducing an increase in their prices. Consistent with this hypothesis, we uncover a positive price effect stemming from the issue of TIPs for both the constituent companies as well as the T35 index. Moreover, in dividing the sample based on the issue size, we find that the abnormal return for large issue is greater in magnitude and more significant than that of small issues. This latter result further strengthens our support for the DSDCH because larger issues lead to a greater increase in trading volume, hence a larger abnormal return. We also provide evidence to distinguish between the PPH and the ISH, which are the two corollary hypotheses derived from the DSDCH: the results reveal that the announcement period abnormal returns are permanent leading to a support for the ISH.

The empirical evidence on the effect of redemptions of TIPs does not support nor reject the DSDCH. Based on an information-cleansed sample, we find insignificant abnormal returns surrounding the redemption date. The discrepancy between the result of the event-study on new issues and that on redemptions may be caused by the small redemption size relative to the issue size and/or by the possibility that no selling pressure occurs around a redemption date.

As for the effects of issues and redemptions of TIPs on the prices of TIPs, it is shown that they decrease (increase) following an issue (redemption) of TIPs since the number of TIPs outstanding rises (drops).

This study offers some directions for future research. One suggestion is to study the same issues considered in this thesis based on the index participation units of the US market, such as SPDRs, WEBS, and DIAMONDS. Further work can also extend the sample period given the availability of the data in the future and examine if the same effects persist.

BIBLIOGRAPHY

Asquith, P., and D. Mullins, 1986, "Equity Issues and Offering Dilution," *Journal of Financial Economics*, 15, 61-90.

Asquith, P., and D. Mullins, 1986, "Signalling with Dividends, Stock Repurchases, and Equity Issues," *Financial Management*, (Autumn), 27-44.

Ben-Zion, U., J. Choi, and S. Hauser, 1996, "The Price Linkage Between Country Funds and National Stock Markets: Evidence from Cointegration and Causality Tests of Germany, Japan and UK Funds," *Journal of Business and Economics*, 23, 1005-1017.

Beneish, D. and J. Gardner, 1995, "Information Costs and Liquidity Effects from Changes in the Dow Jones Industrial Average List," *Journal of Financial and Quantitative Analysis*, 30, 135-157.

Bodurtha, N., D.-S. Kim, and C.Lee, 1994, "Closed-End Country Funds and US Market Sentiment," Working Paper.

Davidson, W., I. Chhachhi, and J. Glascock, 1996, "A test for Price Pressure Effects in Tender Offer Stock Repurchases," *The Financial Review*, 31, 25-49.

Dhillon, U., and H. Johnson, 1991, "Changes in the Standard and Poor"s 500 List," *Journal of Business*, 64, 75-85.

Engle, R.F., and Granger, C.W., 1987, "Cointegration and Error-Correction: Representation, Estimation and Testing," *Econometrica*, 55, 987-1007.

Granger, C.W.J., and A. Weiss, 1983, "Time Series Analysis of Error-Corrective Models," *Multivaria Statistics*, (Academic Press, New York).

Goetzmann, W., and M. Garry, 1986, " Does Delisting from the S&P 500 Affect Stock Price?," *Financial Analysts Journal*, 64-69.

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

Hensen, R., 1988, "The Demise of the Rights Issue," *Review of Financial Studies*, 1, 289-309.

Hess, A., and S. Bhagat, 1986, "Size Effects of Seasoned Stock Issues: Empirical Evidence," *Journal of Business*, 59, 567-584.

Hess, A., and P. Frost, 1982, "Tests for Price effects of New Issues of Seasoned Securities," *Journal of Finance*, 36, 11-25.

Jain, P.C., 1987, "The Effect on Stock Price of Inclusion in or Exclusion from the S&P 500," *Financial Analysts Journal*, 43, 58-65.

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

Kolodny, R., and D. Suhler, 1985, "Changes in Capital Structure, New Equity Issues, and Scale Effects," *Journal of Financial Research*, 8, 127-136.

Kraus, A., and H. Stoll, 1972, "Price Impacts of Block Trading on the New York Stock Exchange," *Journal of Finance*, 27, 569-588.

Lamoureux C., and J. Wansley, 1987, "Markets Effects of Changes in the Standard and Poor"s 500 Index," *The Financial Review*, 22, 53-69.

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

Loderer, C., and H. Zimmermann, 1988, "Stock Offering in a Different Institutional Setting: The Swiss Case," *Journal of Banking and Finance*, 839-862.

Marsh, P., 1979, "Equity rights issues and the efficiency of the U.K. Stock market," *Journal of Finance*, 34, 839-862.

Masulis, R., and A. Korwar, 1986, "Seasoned Equity Offerings: An Empirical Investigation," *Journal of Financial Economics*, 14, 165-194.

Merton, R., 1987, "A Simple Model of Capital Market Equilibrium with Incomplete Information," *Journal of Finance*, 483-510.

Mikkelson, W., and M. Partch, 1985, "Stock Price Effects and Costs of Secondary Distributions," *Journal of Financial Economics*, 15, 31-60.

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

Park, T. H. and L. N. Switzer, 1995, "Index Participation Units and the Performance of Index Futures Markets: Evidence from the Toronto 35 Index Participation Units Markets," *Journal of Futures Markets*, 15, 187-200.

Pettway, R., and R. Radcliffe, 1985, "Impacts of New Equity Sales Upon Electric Utility Share Prices," *Financial Management*, (Spring), 16-25.

Pindyck, R. and D. Rubinfild, 1991, "*Econometric Models and Economic Forecasts*," 3rd Ed. New York: McGraw Hill.

Pruitt, S., and Wei, K., 1989, "Institutional Ownership and Changes in the S&P 500," *Journal of Finance*, 44, 509-513.

Sant, R., and S. Ferris, 1994, "Seasoned Equity Offerings: The Case of All Equity Firms," *Journal of Business Finance and Accounting*, 21, 429-444.

Schipper, K., and A. Smith, 1986, "A Comparison of Equity Carve-outs and Seasoned Equity offerings: Share Price Effects and Corporate restructuring, " *Journal of Financial Economics*, 15, 153-186.

Scholes, M., 1972, "The market for Securities: Substitution Versus Price Pressure and the Effects of Information of Share Prices," *Journal of Business*, 45, 179-211.

Shleifer, A., 1986, "Do Demand Curves for Stocks Slope Down?, *Journal of Finance*, 41, 579-590.

Smith, C., 1977, "Alternative Methods for Raising Capital: Rights versus Underwritten Offering," Journal of Financial Economics, 5, 273-307.

Smith, C., 1986, " Investment Banking and the Capital Acquisition Process," *Journal of Financial Economics*, 15, 3-29.

Smith, K., J. Brocato, and J. Rogers, 1993, "Regularities in the Data between Major Equity Markets: Evidence from Granger Causality Tests," *Applied Financial Economics*, 3, 55-60.

Switzer, L.N., P. Varson, and S. Zghidi, 1997, "Standard and Poor"s Depository Receipts and the Performance of the S&P 500 Index Futures Market," Working Paper (Concordia University, Quebec, Canada).

Woolridge, J., and C. Ghosh, 1986, "Institutional Trading and Security prices: The Case of Changes in the Composition of the S&P 500 Index," *Journal of Financial Research*, 9, 13-24.

TABLE 1: Summary of Results of Previous Studies on Index Changes and on Equity Issues.

Panel A: Changes to an Index (Additions)

Study	Sample Period	Sample Size	Event Window	Average Return
Shleifer (1986)	1976 -1983	102	0	2.79
			(0;+5)	2.22
			(0;+10)	1.94
Harris & Gurel (1986)	1973 – 1983	194	0	1.52
			(0;+5)	1.62
	1978 – 1983	84	0	3.13
			(0;+5)	2.77
Jain (1987)	1977 – 1983	87	(-1;0)	3.10
			0	3.07
			(0;+1)	3.30
Dhillon and Johnson (1991)	1978 – 1983	86	0	2.26
			(0;+1)	2.38
	1984 – 1988	101	0	3.33
			(0;+1)	3.55

Panel B: New Equity Issues

Study	Sample Period	Sample Industrials	Size Utilities	Event Window	Average Industrials	Return Utilities
Kolodny and Suhler (1985)	1973-1981	137		0	-2.49	
Pettway and Radcliffe (1985)	1973-1980		366	0		-2.81
				[0;+1]		-0.58
asulis and Korwar (1986)	1963-1980	388	584	[0;+1]	-3.25	-0.68
Asquith and Mullins (1986)	1963-1981	128	264	[-1;0]	-3.0	-0.9
Hess and Baghat (1986)	1963-1978	95	20	[0;+1]	-4.28	-1
Kalay and Shirmat (1987)	1970-1982	185		[-1;0]	-3.36	
Eckbo and Masulis (1992)	1963-1981	389	646	[-1;0]	-3.43	-0.8

TABLE 2: The frequency distribution of the sample of the issues and redemptions of TIPs between 1990 and 1995 is presented below.

Year of Announcement	Date of Issue	Issue Size (in baskets)
1990	October 01	320
1991	January 25	267
	February 14	Index Adjusted
	May 03	166
	September 27	79
	December 20	90
1992	February 14	Index Adjusted
	June 26	163
	September 25	50
	December 17	Index Adjusted
1993	February 18	Index Adjusted
	June 25	65
	September 28	50
1994	March 29	145
	April 12	Index Adjusted
	June 28	116
	September 08	Index Adjusted
1995	February 16	Index Adjusted
	March 26	20
	June 29	88
	September 27	143

Year of Announcement	Date of Redemption	Redemption Size (in baskets)
1990	March 12	22
	April 18	29
	September 28	20
1991	May 17	96
1992	February 21	40
	March 31	30
	April 23	39
	October 08	30
1993	June 28	29
	July 09	93
	August 04	122
	October 08	42
1994	April 11	35

Figure 1
TIPs vs. T35
from March 1990 to December 1995

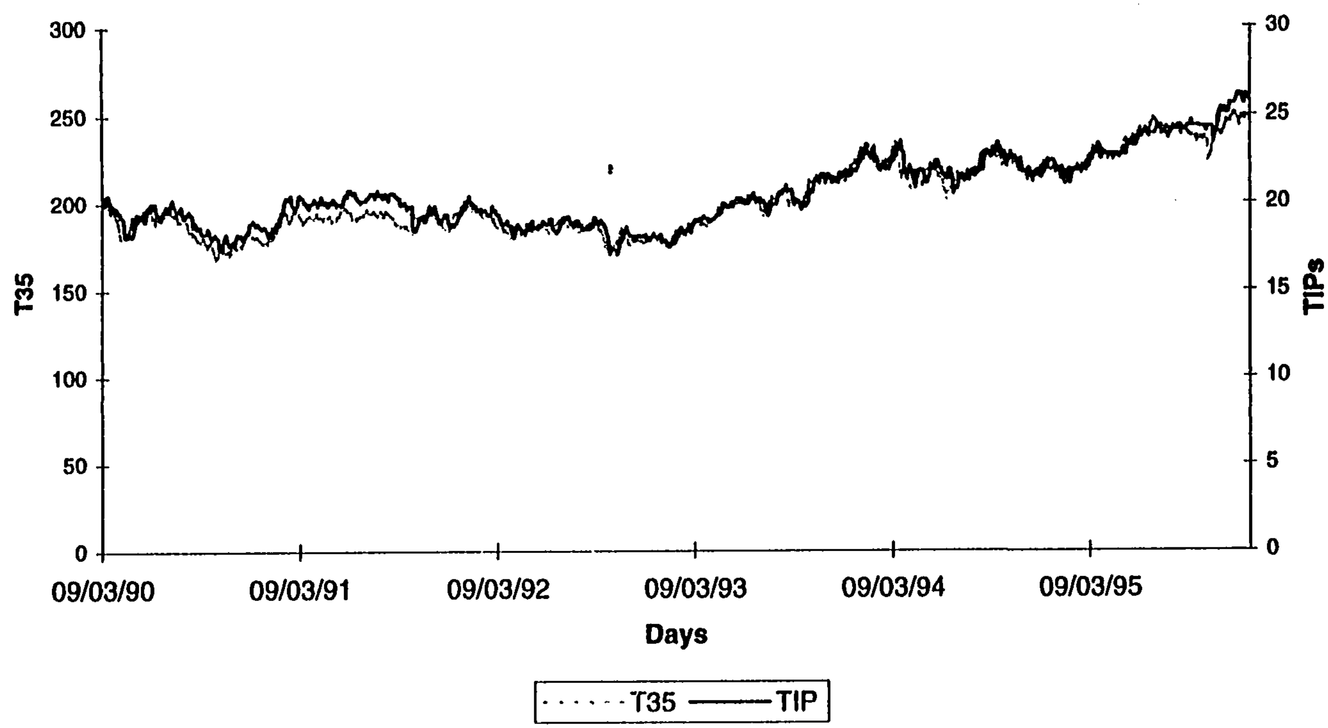


Figure 2
TIPs vs. T300
from March 1990 to December 1995

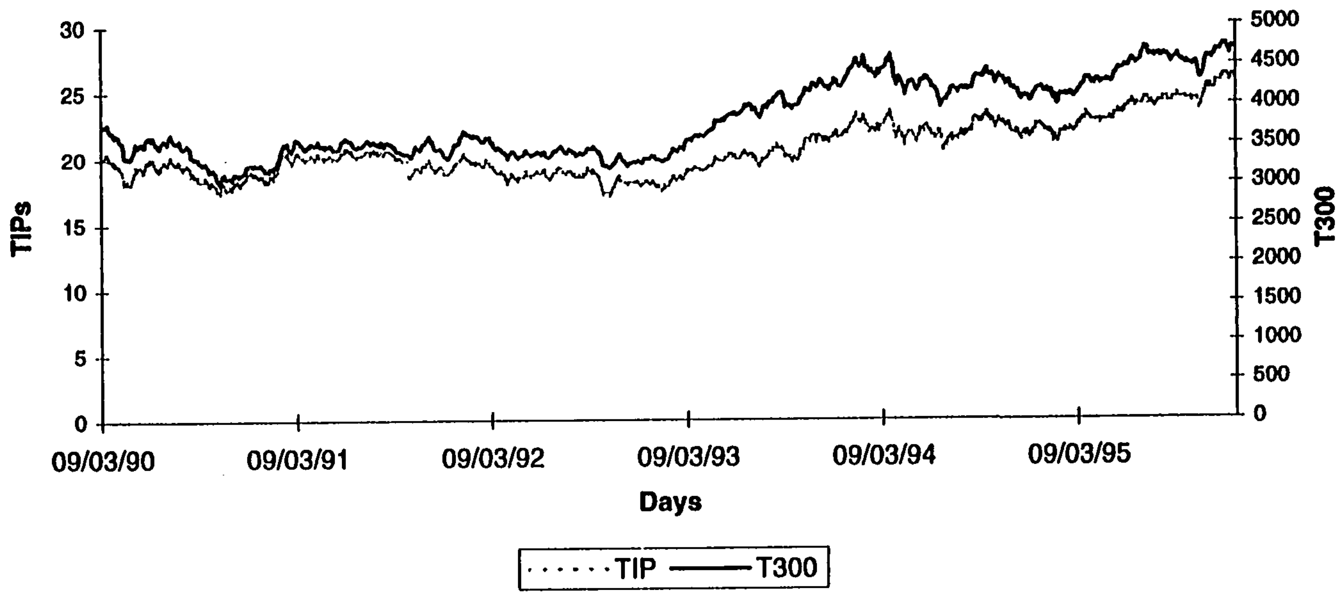


Figure 3
TIPs vs. S&P 500
from March 1990 to December 1995

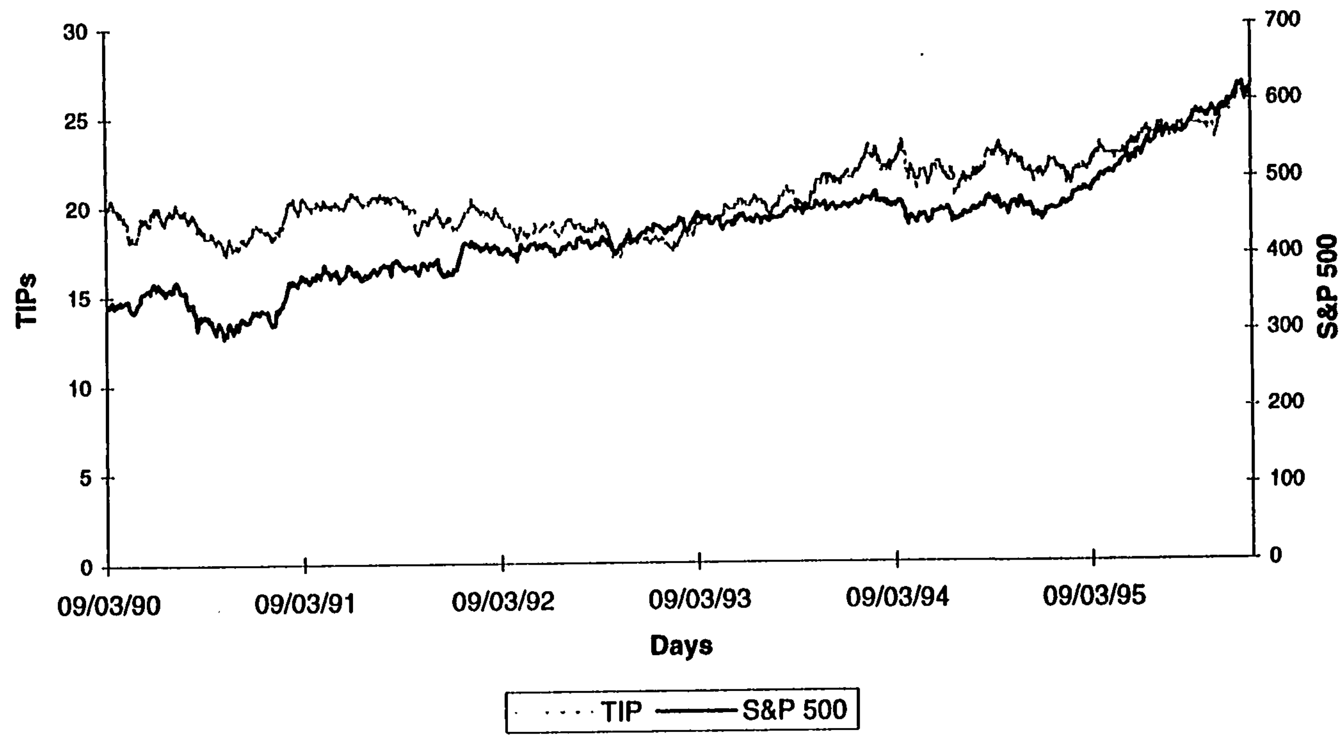


Figure 4
T35 vs. T300
from March 1990 to December 1995

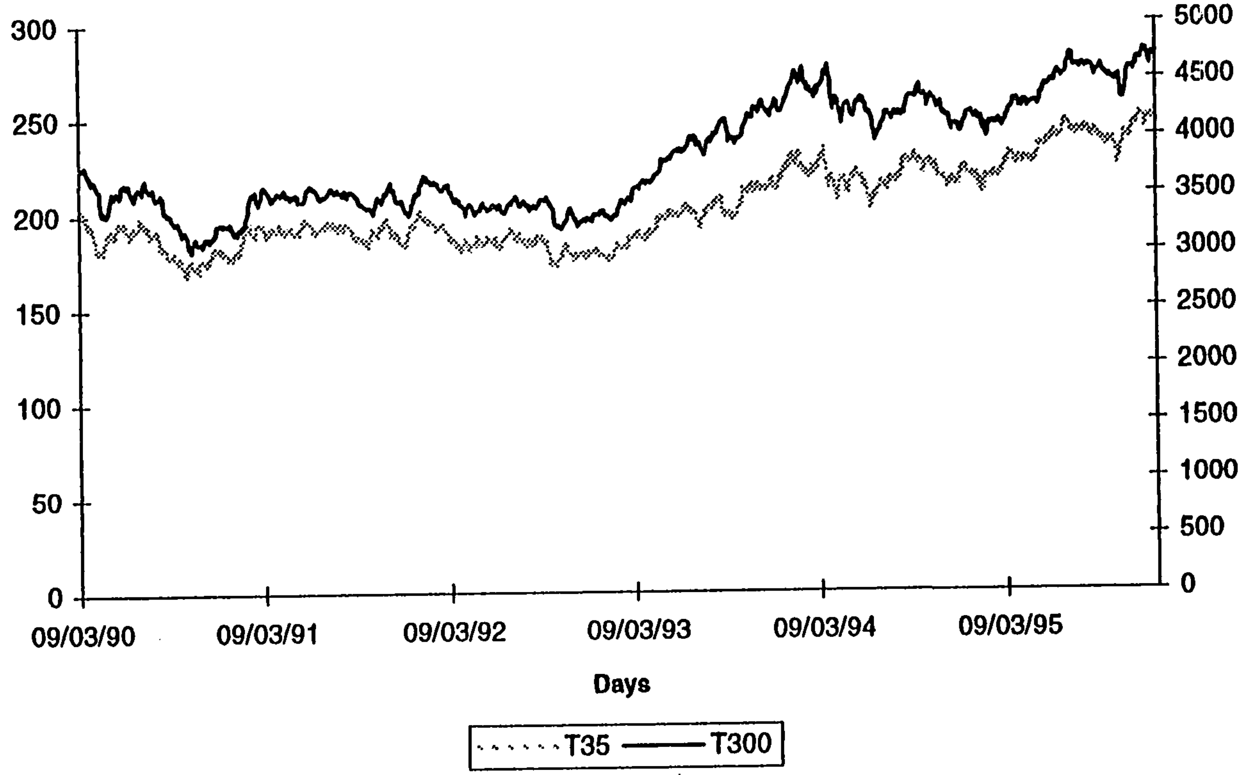


Figure 5
T35 vs. S&P 500
from March 1990 to December 1995

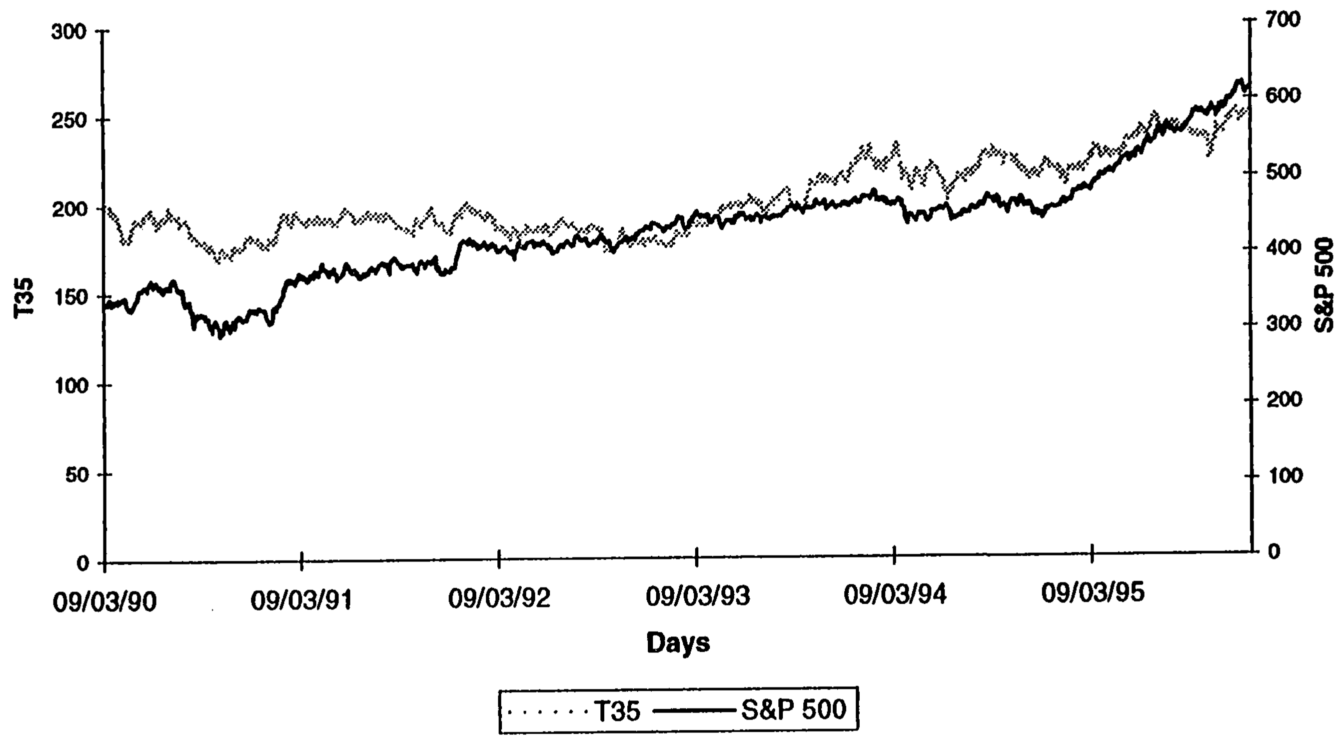


TABLE 3: Unit Root Tests Statistics

	Levels				Differences			
Data Series	**DF**[a]	**DFT**[b]	**PP**[a]	**PPT**[b]	**DF**	**DFT**	**PP**	**PPT**
TIPs	-0.646	-2.542	-0.646	-2.545	-380.36	-380.04	-380.62	-380.43
T35	-0.357	-2.980	-0.357	-2.982	-820.53	-820.01	-82109	-820.84
T300	0.059	-2.667	0.059	-2.670	-1476.94	-1476.39	-1477.96	-1477.91
S&P 500	0.042	-2.232	0.042	-2.234	-812.07	-811.14	-812.63	-811.99
95% critical value	-3.37	-3.80	-3.37	-3.80	-3.37	-3.80	-3.37	-3.80

[a] DF and PP denote the Dickey-Fuller and Phillips-Perron t-statistics for the following regression without a time trend:

$$X_t = \alpha_0 + \beta X_{t-1} + \sum_{i=2}^{n} \delta_i X_{t-i} + \varepsilon_t$$

where X_t is a time series; α_0, β and δ_i are arbitrary coefficients; and ε_t is the error term.

[b] DFT and PPT denotes the Dickey-Fuller and Phillips-Perron t-statistic for the following regression with a time trend:

$$X_t = \alpha_0 + \alpha_{1t} + \beta X_{t-1} + \sum_{i=2}^{n} \delta_i X_{t-i} + \varepsilon_t$$

TABLE 4: Cointegration Regressions

		X ⇒ Y				Y ⇒ X			
X	**Y**	**DF**	**DFT**	**PP**	**PPT**	**DF**	**DFT**	**PP**	**PPT**
T35	**T300**	-5.633*	-5.654*	-5.637*	-5.659*	-5.611*	-5.669*	-5.615*	-5.675*
T35	**S&P 500**	-3.137	-3.243	-3.139	-3.246	-3.148	-3.205	-3.151	-3.208
TIPs	**T35**	-6.122*	-6.215*	-6.126*	-6.221*	-6.096*	-6.465"	-6.101*	-6.472*
TIPs	**T300**	-2.832	-2.733	-2.834	-2.735	-2.721	-2.789	-2.722	-2.792
TIPs	**S&P 500**	-2.439	-2.501	-2.441	-2.503	-2.418	-2.433	-2.419	-2.435
95% critical value		-3.37	-3.80	-3.37	-3.80	-3.37	-3.80	-3.37	-3.80

*significant at the 5% level.

Cointegration Equation: $Y_t = \alpha + \beta X_t + \varepsilon_t$ (X ⇒ Y)

$X_t = \alpha + \beta Y_t + \varepsilon_t$ (Y ⇒ X)

Dickey-Fuller Equation: $\Delta\varepsilon_t = -b\,\varepsilon_{t-1} + \theta_t$ where $\Delta\varepsilon_t$ is the change in the error term from the cointegration equation and θ_t is a random error. X_t and Y_t are said to be cointegrated if b is statistically different from zero.

TABLE 5: Causality Tests

Direction of Causality	F-statistics $\beta_i = 0$	$\lambda_i = 0$
Panel A: Causality Tests[a]		
T300 → TIPs	83.085 [2]	
TIPs→ T300		0.302 [1]
S&P 500 → TIPs	3.902 [14]	
TIPs → S&P 500		0.865 [1]
S&P 500 → T35	1.102 [14]	
T35 → S&P 500		0.169 [2]
Panel B: Error-Correction Causality Tests[b]		
T300 → T35	0.962 [2]	
T35 → T300		8.388 [2]
T35 → TIPs	84.186 [2]	
TIPs → T35		0.001 [1]

[a] The causality tests are based on the following regressions:

$$\Delta X_t = \sum_{i=0}^{n} \alpha_i \Delta X_{t-i} + \sum_{i=1}^{n} \beta_i \Delta Y_{t-i} + \varepsilon_t$$

$$\Delta Y_t = \sum_{i=0}^{n} \delta_i \Delta Y_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta X_{t-i} + \varepsilon'_t$$

[b] The error-correction tests are based on the following regressions:

$$\Delta X_t = \sum_{i=0}^{n} \alpha_i \Delta X_{t-i} + \sum_{i=1}^{n} \beta_i \Delta Y_{t-i} + \psi \varepsilon_{t-1} + v_t$$

$$\Delta Y_t = \sum_{i=0}^{n} \delta_i \Delta Y_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta X_{t-i} + \theta \varepsilon'_{t-1} + wt$$

TABLE 6: The mean abnormal returns for the TIPs surrounding an issue date.

Panel A:	Average Abnormal Return						
Event Day/Period	AARs (%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Percentage Negative
-10	0.0357	0.3235	-0.1880	-0.9712	1.3200	0.0357	57.14%
-9	0.0207	0.1945	-0.0500	-0.8326	0.7755	0.0564	52.38%
-8	0.0899	0.7924	0.0457	-0.6989	1.0600	0.1463	38.10%
-7	-0.0062	0.0078	-0.0463	-0.6817	1.2600	0.1401	66.67%
-6	0.1711	1.1785	-0.0645	-0.7460	4.5000	0.3112	57.14%
-5	-0.1543	-1.5098	-0.1750	-1.0000	0.4857	0.1569	61.91%
-4	-0.0397	-0.3728	0.0755	-1.0200	0.4070	0.1172	47.62%
-3	0.1001	0.9543	-0.0479	-0.6760	1.6300	0.2173	52.38%
-2	-0.0603	-0.2313	-0.0577	-1.2000	1.3700	0.1570	61.91%
-1	0.0355	0.1839	0.1190	-1.0600	0.7662	0.1925	38.10%
0	0.0421	0.2418	0.1100	-1.1400	0.8326	0.2346	38.10%
1	-0.3387	-3.1236*	-0.3980	-0.8579	0.1570	-0.1041	80.95%
2	-0.1004	-0.8120	-0.1180	-1.3300	0.5946	-0.2045	61.91%
3	-0.0302	-0.5476	0.0289	-0.8810	1.4800	-0.2347	47.62%
4	0.0719	0.9225	-0.0045	-0.8742	1.2500	-0.1628	52.38%
5	-0.0291	-0.3279	-0.0081	-1.3200	2.5400	-0.1919	57.14%
6	0.1292	1.4292	0.0957	-0.6654	1.5300	-0.0627	38.10%
7	0.0524	0.5483	0.0826	-2.4100	1.3400	-0.0103	38.10%
8	-0.0382	-0.3724	-0.0334	-0.7144	1.0400	-0.0485	38.10%
9	0.0476	0.5723	-0.0432	-0.8794	1.1500	-0.0009	52.38%
10	-0.0906	-0.9487	-0.1100	-1.2300	0.6184	-0.0915	61.91%

Panel B:	Cumulative Average Abnormal Return			
Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Percentage Negative
[-10;-1]	0.1930	0.4810	0.0051	47.62%
[-5;-1]	-0.1190	-0.3983	0.0385	42.86%
[0;+1]	-0.2970	-2.0377*	-0.3070	71.43%
[2;+5]	-0.0878	-0.3825	-0.1940	66.67%
[2;+10]	0.0126	0.1546	-0.1450	52.38%

*significant at the .05 level
** significant at the .10 level

Figure 6
Cumulative Abnormal Returns for the TIPs for the Event Window [-10;+10] Centered on the Issue Date

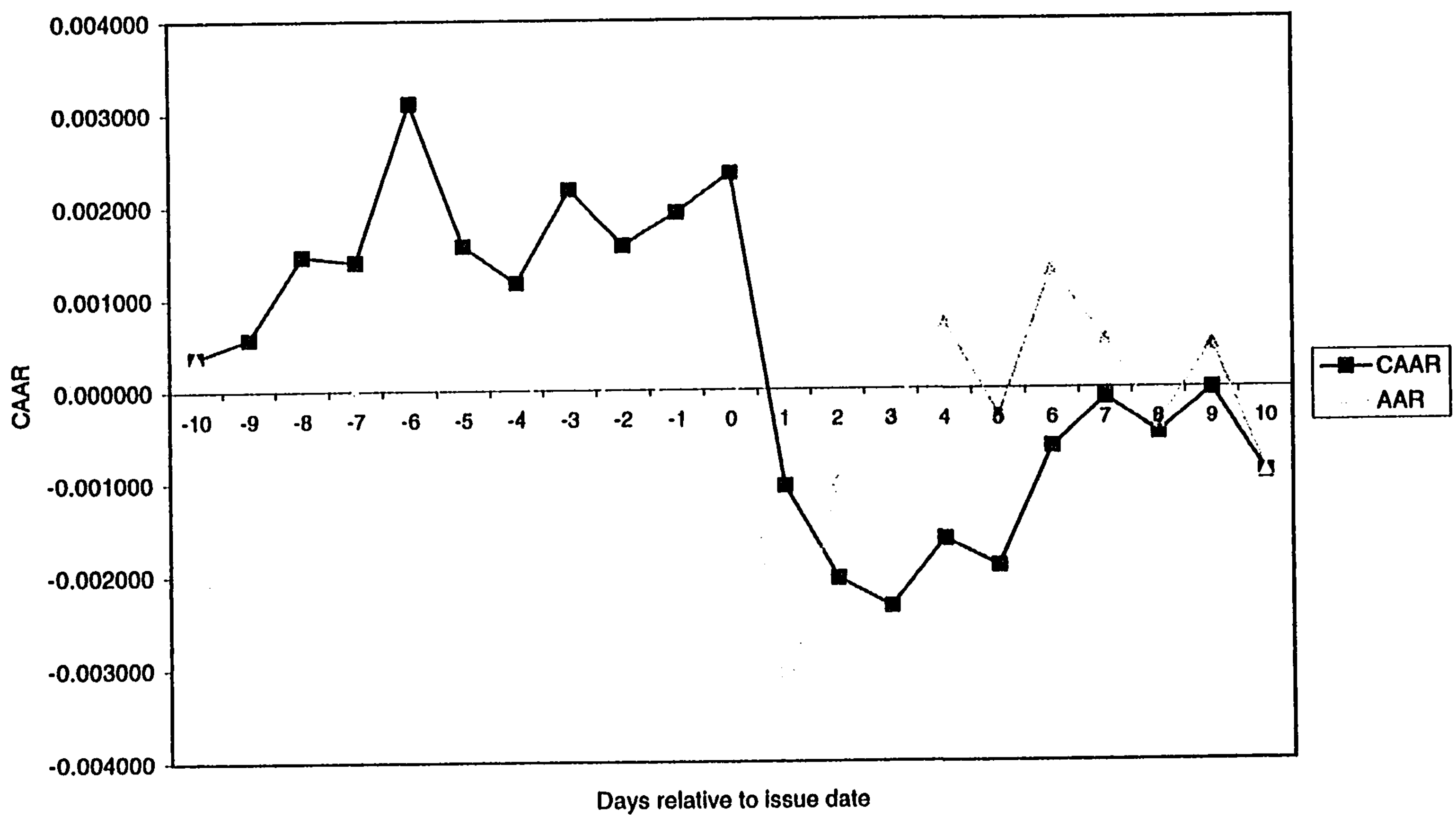


TABLE 7: The mean abnormal returns for the constituent companies surrounding the announcement of new TIPs issues for the sample of 489 firms.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Positive Stock Return(%)
-10	-0.0604	-2.0771*	-0.1080	-8.6300	9.8700	-0.0604	46.42%
-9	-0.0466	-0.4769	-0.0526	-4.7000	6.3000	-0.1070	47.44%
-8	0.0607	1.0500	0.0462	-6.6400	7.4200	-0.0463	51.33%
-7	-0.1003	-0.9301	-0.1280	-8.9000	4.5400	-0.1466	44.79%
-6	-0.0650	-0.9365	-0.0362	-30.7200	5.3000	-0.2116	49.08%
-5	0.0699	0.2669	-0.0735	-9.5000	7.8200	-0.1417	46.63%
-4	0.0046	0.0153	-0.0208	-5.3000	6.9000	-0.1371	48.47%
-3	-0.0955	-1.7669**	-0.0701	-5.7600	6.9100	-0.2326	46.63%
-2	0.0068	0.8803	0.1600	-11.4000	6.3700	-0.2258	56.44%
-1	-0.0574	-1.3229	-0.0942	-5.5000	8.8400	-0.2832	46.01%
0	-0.0006	1.3235	0.0953	-10.2300	6.6800	-0.2838	52.35%
1	0.1239	1.2141	0.0564	-10.0400	11.0000	-0.1599	52.56%
2	0.0080	0.5920	-0.0137	-10.1000	7.4800	-0.1519	49.49%
3	-0.0225	1.0411	-0.0130	-7.7200	6.3300	-0.1744	48.67%
4	0.0321	1.3269	0.0359	-14.8900	6.9000	-0.1423	51.94%
5	-0.0056	-0.5484	0.0166	-20.3700	12.2800	-0.1479	50.31%
6	-0.0109	-0.9210	-0.0257	-11.8200	10.9100	-0.1588	49.28%
7	-0.0376	-0.7340	-0.0454	-4.4900	9.0200	-0.1964	47.65%
8	-0.0863	-1.0107	-0.2310	-6.0600	7.3000	-0.2827	47.65%
9	0.0870	0.5769	0.0201	-7.0600	9.4400	-0.1957	50.51%
10	0.0457	1.5073	0.0249	-6.7700	7.8200	-0.1500	51.33%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Positive Stock Return(%)
[-10;-1]	-0.2830	-1.6753**	-0.5960	44.79%
[0;+3]	0.1090	2.0853*	0.1750	52.97%
[0;+2]	0.1310	1.8069**	0.1170	52.35%
[0;+1]	0.1230	1.7943**	0.2440	55.62%
[+4;+10]	0.0243	0.0745	-0.2200	47.85%

*significant at the .05 level
** significant at the .10 level

Figure 7
Cummulative Abnormal Returns for the Sample of 489 Firms for the Event Window [-10;+10] Centered on the Announcement Date of TIPs Issue

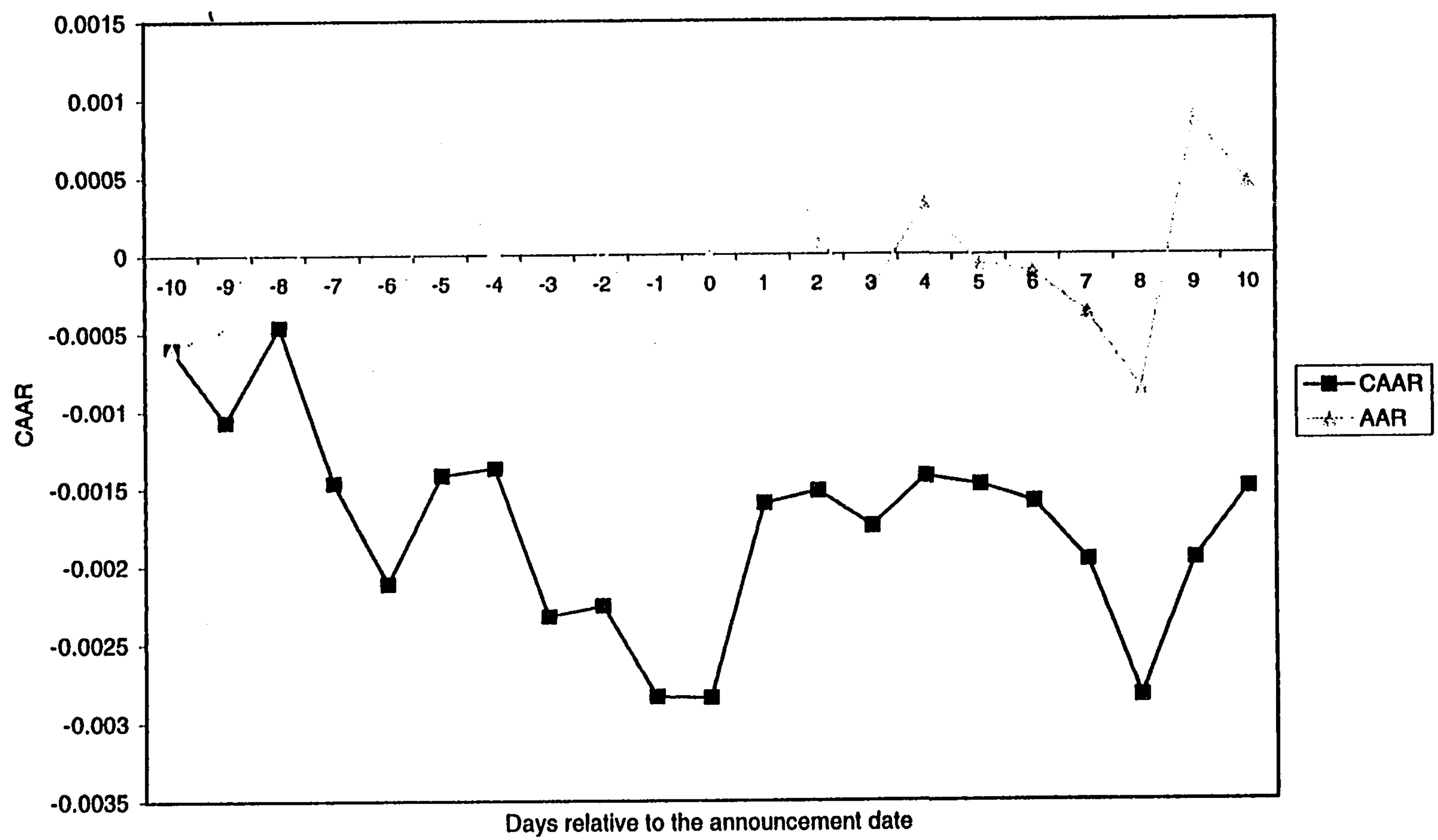


TABLE 8: The mean abnormal returns for the T35 Index surrounding the announcement of a new TIPs issue.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR	Percentage Positive
-10	-0.0210	-0.4600	-0.0765	-0.2176	0.4315	-0.0210	35.71%
-9	-0.0216	-0.3455	0.0354	-0.3424	0.1949	-0.0426	64.29%
-8	0.0608	1.2746	0.0448	-0.1151	0.2762	0.0182	71.43%
-7	-0.0017	0.3648	0.0012	-0.3595	0.2490	0.0165	50.00%
-6	-0.0501	-0.7724	-0.0084	-0.4864	0.2383	-0.0336	42.86%
-5	0.0844	1.9917**	0.0826	-0.2172	0.3297	0.0508	64.29%
-4	0.0225	0.4898	0.0680	-0.3328	0.3495	0.0733	71.43%
-3	-0.0186	-0.4432	-0.0207	-0.3571	0.1908	0.0547	42.86%
-2	0.0640	1.7497**	0.0687	-0.2308	0.3176	0.1187	71.43%
-1	0.0234	0.3922	0.0197	-0.3836	0.4745	0.1421	50.00%
0	0.1155	2.7595*	0.1130	-0.1058	0.3017	0.2576	92.86%
1	0.0380	1.2611	0.0558	-0.2906	0.2502	0.2956	78.57%
2	0.0055	0.4599	0.0698	-0.3838	0.2287	0.3011	57.14%
3	0.0288	0.3302	-0.0055	-0.3106	0.5538	0.3299	42.86%
4	0.0260	0.3586	0.0229	-0.3180	0.4338	0.3559	50.00%
5	-0.0142	0.0458	-0.0095	-0.4360	0.3631	0.3417	50.00%
6	-0.0527	-1.3290	-0.0911	-0.3246	0.2083	0.2890	42.86%
7	-0.0436	-1.3086	-0.0492	-0.2485	0.3505	0.2454	42.86%
8	-0.0490	-1.1099	0.0148	-0.8268	0.3230	0.1964	42.86%
9	0.0571	0.8175	0.0397	-0.3239	0.4730	0.2535	50.00%
10	0.0539	1.5040	0.0330	-0.3291	0.7484	0.3074	71.43%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Percentage Positive
[-10;-1]	0.1420	1.34137	0.0686	50.00%
[0;+3]	0.1880	2.40532*	0.2560	71.43%
[0;+2]	0.1590	2.5868*	0.2380	71.43%
[0;+1]	0.1540	2.84299*	0.1750	78.57%
[4;+10]	-0.0226	-0.3862	0.2110	57.14%

*significant at the .05 level
** significant at the .10 level

Figure 8
Cummulative Abnormal Returns for the T35 Index for the Event Window [-10;+10] Centered on the Announcement of a new TIPs Issue Date

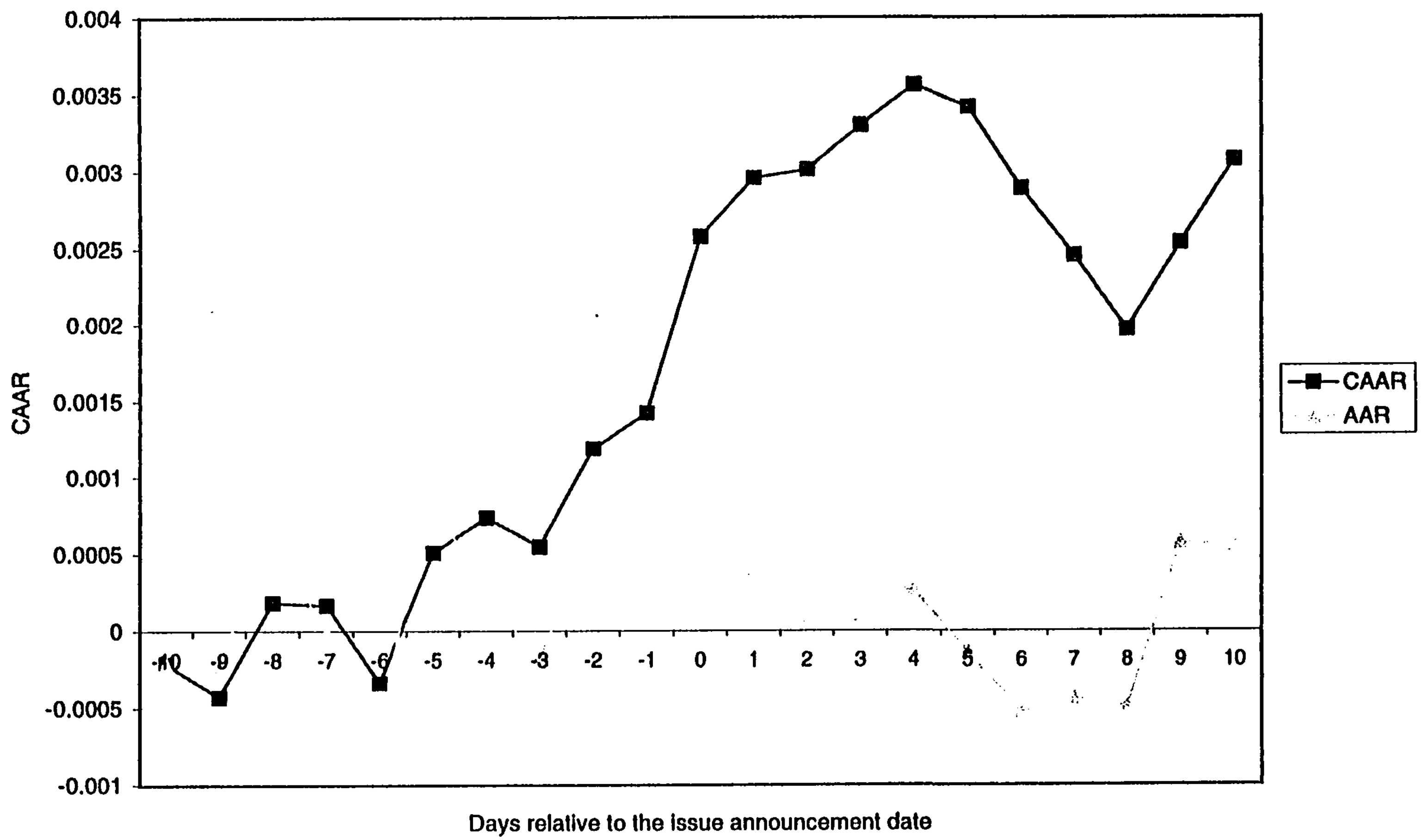


TABLE 9: The mean abnormal returns for the constituent companies surrounding the announcement of new TIPs issues for the sample of 358 firms.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Positive Stock Return(%)
-10	-0.1165	-2.3358*	-0.1280	-8.6300	9.8700	-0.1165	44.69%
-9	-0.0560	-0.7019	-0.0822	-4.7000	6.3000	-0.1725	45.53%
-8	0.0542	0.5119	0.0213	-6.6400	7.4200	-0.1183	50.28%
-7	-0.0854	-0.7063	-0.1020	-7.9300	4.5400	-0.2037	46.09%
-6	0.0772	0.3484	0.0003	-5.8900	5.3000	-0.1265	50.00%
-5	0.0816	0.2420	-0.1050	-4.2000	7.8200	-0.0449	45.25%
-4	-0.0057	-0.0027	-0.0047	-5.3000	6.9000	-0.0505	49.72%
-3	-0.1322	-2.0292*	-0.0697	-5.7600	6.9100	-0.1828	47.21%
-2	0.0199	0.7630	0.1640	-6.6800	6.3700	-0.1629	56.70%
-1	-0.0147	-0.9018	-0.0876	-4.1600	8.8400	-0.1775	46.65%
0	0.0494	1.5334	0.1230	-6.9600	6.6800	-0.1281	53.35%
1	0.1616	1.6999**	0.0824	-4.8500	9.0000	0.0335	53.91%
2	0.1088	1.5220	0.0258	-5.1700	5.6300	0.1423	51.40%
3	-0.0405	0.5870	-0.0411	-6.3200	6.3300	0.1018	46.93%
4	0.0748	1.5138	0.0497	-8.3600	6.9000	0.1766	52.51%
5	0.0557	0.3651	0.0028	-4.5400	6.3300	0.2322	49.72%
6	0.0655	0.0908	0.0225	-9.0300	9.8800	0.2977	50.84%
7	-0.0135	-0.1994	-0.0353	-4.4900	9.0200	0.2843	48.32%
8	-0.0712	-0.1996	-0.2070	-5.2100	7.3000	0.2130	48.32%
9	0.0375	-0.2327	-0.0747	-3.5200	9.4400	0.2506	48.05%
10	0.0430	1.1572	0.0127	-6.7700	7.8200	0.2936	50.84%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Positive Stock Return(%)
[-10;-1]	-0.1780	-1.5218	-0.5350	46.65%
[0;+3]	0.2790	2.6711*	0.2170	53.35%
[0;+2]	0.3200	2.7455*	0.1680	54.47%
[0;+1]	0.2110	2.2863*	0.3220	57.26%
[+4;+10]	0.1920	0.9431	-0.2010	48.05%

*significant at the .05 level
** significant at the .10 level

Figure 9
Cummulative Abnormal Returns for the Sample of 358 Firms for the Event Window [-10;+10] Centered on the Announcement Date of new TIPs Issues

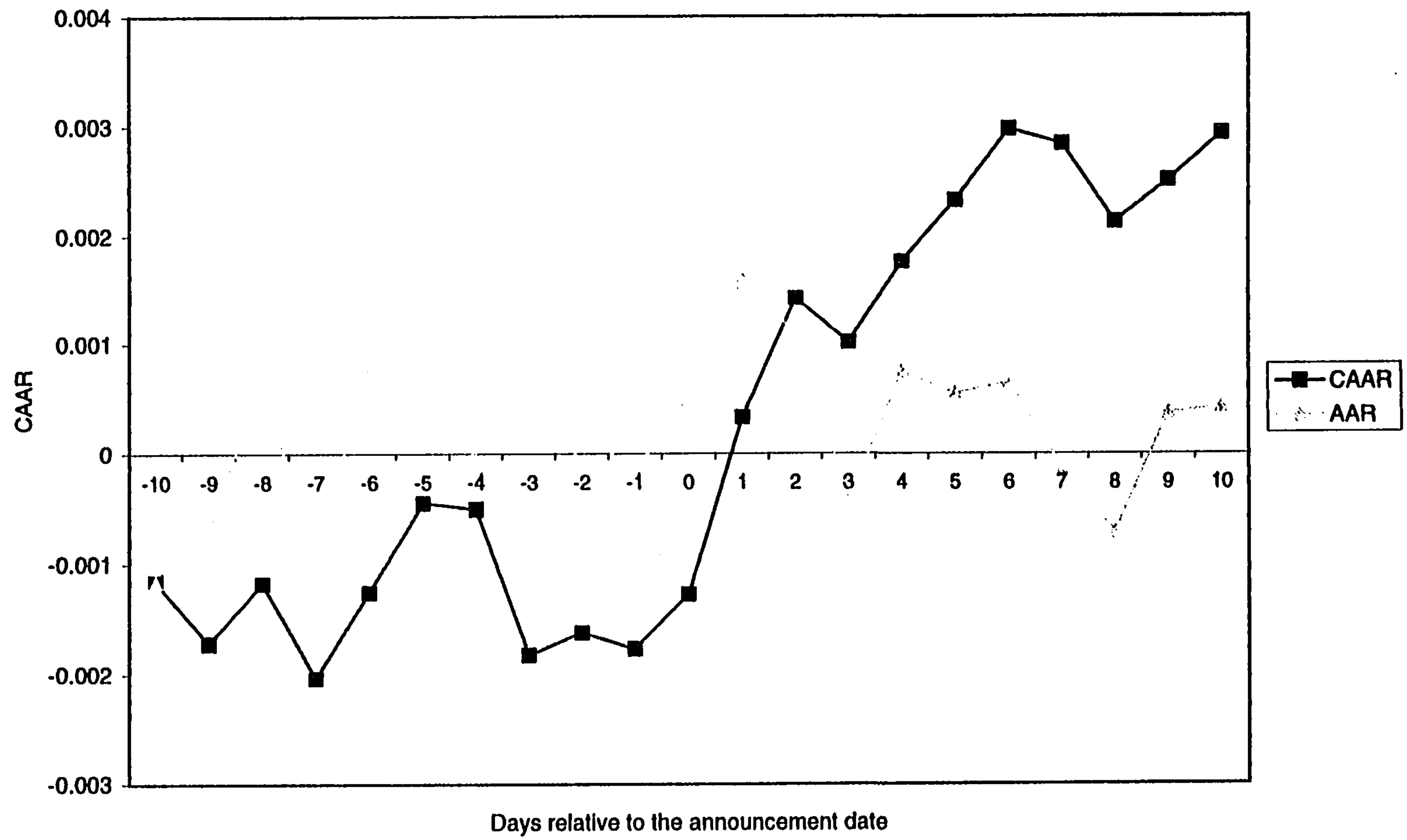


TABLE 10: The mean abnormal returns for the constituent companies surrounding the announcement of large TIPs issue for the sample of 230 firms.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Positive Stock Return(%)
-10	-0.1720	-2.3659*	-0.1150	-8.6300	7.2400	-0.1720	44.35%
-9	-0.0087	-0.0763	-0.0607	-4.2600	6.3000	-0.1807	46.52%
-8	0.0397	-0.1279	-0.0848	-6.6400	7.4200	-0.1410	47.83%
-7	-0.1167	-1.3663	-0.1740	-7.9300	4.5400	-0.2577	42.61%
-6	0.1323	0.8103	0.0827	-3.8900	5.3000	-0.1254	53.04%
-5	0.0600	0.2440	-0.1140	-4.2000	7.0000	-0.0654	46.52%
-4	0.0012	1.1542	0.0723	-5.3000	3.6300	-0.0642	53.48%
-3	-0.0718	-0.7899	0.0318	-5.7600	4.4200	-0.1360	50.44%
-2	0.0580	1.2884	0.2270	-6.6800	6.0500	-0.0780	60.44%
-1	0.0257	-0.1618	-0.0966	-4.1500	6.2800	-0.0523	46.09%
0	0.1164	1.6071	0.1400	-6.0100	6.6800	0.0641	53.91%
1	0.1681	1.5072	0.0920	-10.0400	11.0000	0.2322	56.52%
2	0.1234	1.4188	0.1320	-5.1700	5.6300	0.3556	56.09%
3	0.0404	1.6792**	0.0166	-5.8200	4.7000	0.3960	50.44%
4	0.1264	2.3078*	0.0918	-8.3600	6.9000	0.5224	53.48%
5	0.0021	0.1201	0.0438	-18.5800	6.3300	0.5245	51.30%
6	0.0599	0.0457	0.0322	-11.8200	10.9100	0.5844	53.04%
7	-0.0404	-0.2406	0.0027	-4.0900	9.0200	0.5440	50.44%
8	-0.0173	0.7860	-0.1860	-4.1600	7.3000	0.5267	50.44%
9	0.1012	0.4091	-0.0094	-3.5200	9.4400	0.6279	50.00%
10	-0.0221	0.1484	-0.0440	-6.2900	7.8200	0.6058	48.26%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Positive Stock Return(%)
[-10;-1]	-0.0523	-0.4399	-0.0714	50.00%
[0;+3]	0.4480	3.1062*	0.4160	56.96%
[0;+2]	0.4080	2.6172*	0.2730	56.96%
[0;+1]	0.2840	2.2021*	0.4150	59.13%
[+4;+10]	0.2100	1.3518	-0.1880	48.70%

*significant at the .05 level
** significant at the .10 level

Figure 10
Cummulative Abnormal Returns for the Sample of 230 Firms for the Event Window [-10;+10] Centered on the Announcement Date of large TIPs Issues

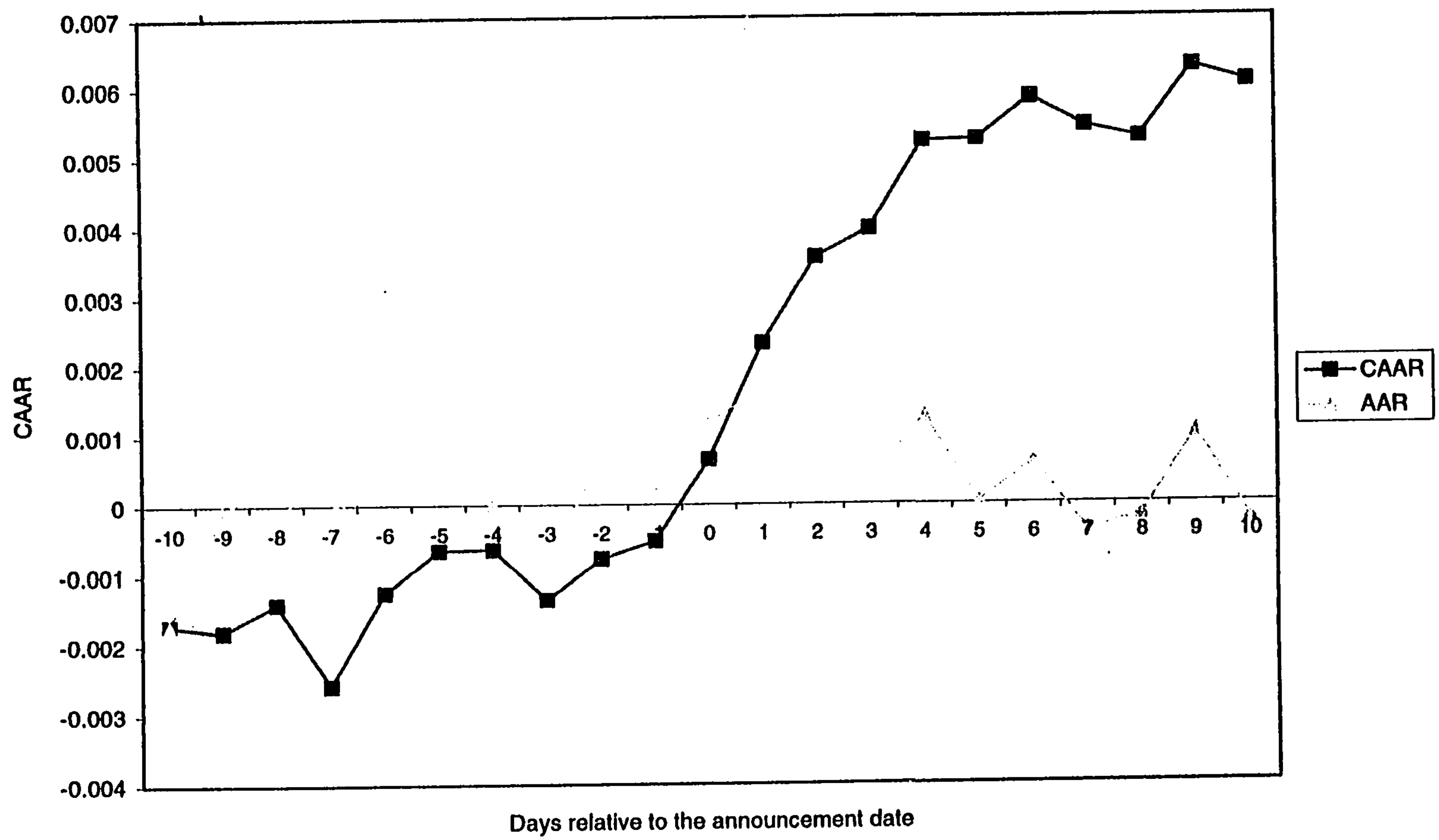


TABLE 11: The mean abnormal returns for the constituent companies surrounding the announcement of small TIPs issue for the sample of 128 firms.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Positive Stock Return(%)
-10	-0.0168	-0.7350	-0.1380	-4.1100	9.8700	-0.0168	45.31%
-9	-0.1410	-1.0717	-0.1580	-4.7000	3.6900	-0.1578	43.75%
-8	0.0801	1.0276	0.0976	-4.9500	4.2500	-0.0777	54.69%
-7	-0.0290	0.6503	0.0348	-3.6200	3.3600	-0.1067	52.34%
-6	-0.0218	-0.5035	-0.1260	-5.8900	4.6100	-0.1285	44.53%
-5	0.1205	0.0776	-0.0927	-3.3200	7.8200	-0.0079	42.97%
-4	-0.0181	-1.5518	-0.1680	-3.7600	6.9000	-0.0261	42.97%
-3	-0.2408	-2.3347*	-0.0923	-5.5800	6.9100	-0.2669	41.41%
-2	-0.0486	-0.4509	-0.0145	-5.4500	6.3700	-0.3155	50.00%
-1	-0.0872	-1.2912	-0.0590	-4.1600	8.8400	-0.4027	47.66%
0	-0.0708	0.4102	0.0300	-6.9600	4.7500	-0.4735	52.34%
1	0.0706	0.5427	-0.0022	-2.3600	5.7200	-0.4030	49.22%
2	0.0823	0.6434	-0.1420	-3.7400	4.7500	-0.3206	42.97%
3	-0.1860	-1.2692	-0.2110	-6.3200	6.3300	-0.5066	40.63%
4	-0.0178	-0.5618	0.0133	-3.8100	4.0300	-0.5245	50.78%
5	0.1021	0.1151	-0.0648	-3.2300	12.2800	-0.4223	46.88%
6	0.0676	0.1037	-0.0897	-4.3900	4.1500	-0.3548	46.88%
7	0.0348	-0.0111	-0.0610	-4.4900	4.2400	-0.3199	44.53%
8	-0.1681	-1.3874	-0.2730	-5.2100	4.0200	-0.4880	44.53%
9	-0.0769	-0.9376	-0.1450	-3.3500	5.5600	-0.5649	44.53%
10	0.1599	1.7364**	0.1240	-6.7700	5.3900	-0.4050	55.47%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Positive Stock Return(%)
[-10;-1]	-0.4030	-1.9553*	-1.1620	40.63%
[0;+3]	-0.1040	0.1635	-0.0896	46.88%
[0;+2]	0.0821	0.9216	-0.0225	50.00%
[0;+1]	-0.0003	0.6738	0.1500	53.91%
[+4;+10]	0.1020	-0.3563	-0.2340	46.88%

*significant at the .05 level
** significant at the .10 level

Figure 11
Cummulative Abnormal Returns for the Sample of 128 Firms for the Event Window [-10;+10] Centered on the Announcement Date of small TIPs Issues

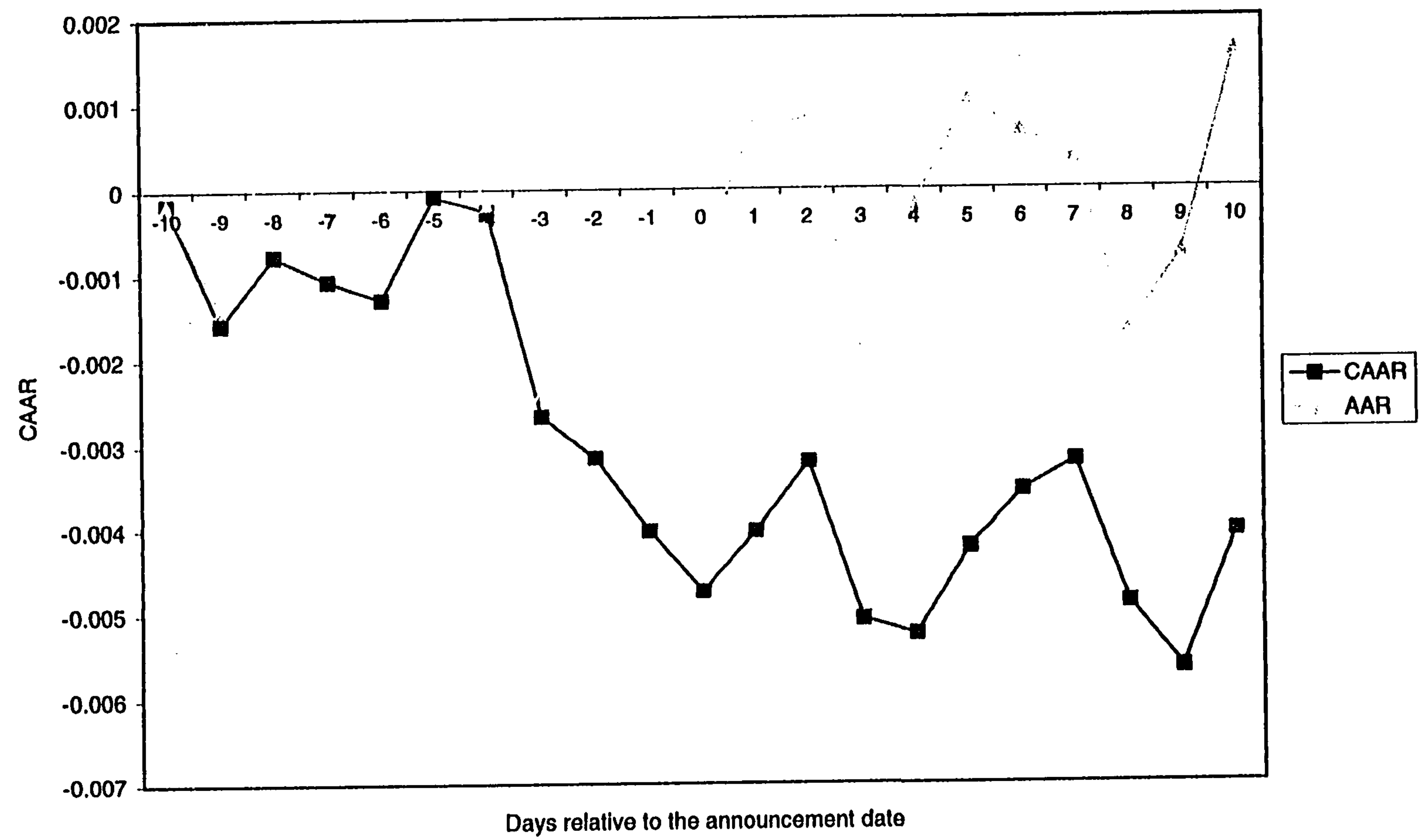


TABLE 12: Analysis of the difference in means between the CAARs of the two subsamples of large issues and small issues.

	All Issues		Large Issues		Small Issues		
Event Period	CAARs (%)	Z-test	CAARs(%)	Z-test	CAARs(%)	Z-test	t-test difference of means
[-10;-1]	-0.1780	-1.5218	-0.0523	-0.4399	-0.4030	-1.9553**	0.6596
[0;+3]	0.2510	2.5875*	0.4480	3.1062*	-0.1040	0.1635	1.7332**
[0;+2]	0.2910	2.6489*	0.4080	2.6172*	0.0821	0.9216	1.1458
[0;+1]	0.183	2.1680*	0.2840	2.2021*	-0.0003	0.6738	1.1362
[+4;+10]	0.171	0.8705	0.2100	1.3518	0.1020	-0.3563	0.2381

*significant at the .05 level
**significant at the .10 level

Figure 12
Comparison of the Cummulative Abnormal Returns of the Large Issue Sample and the Small Issue Sample for the Event Window [-10;+10] Centered on the Announcement Date

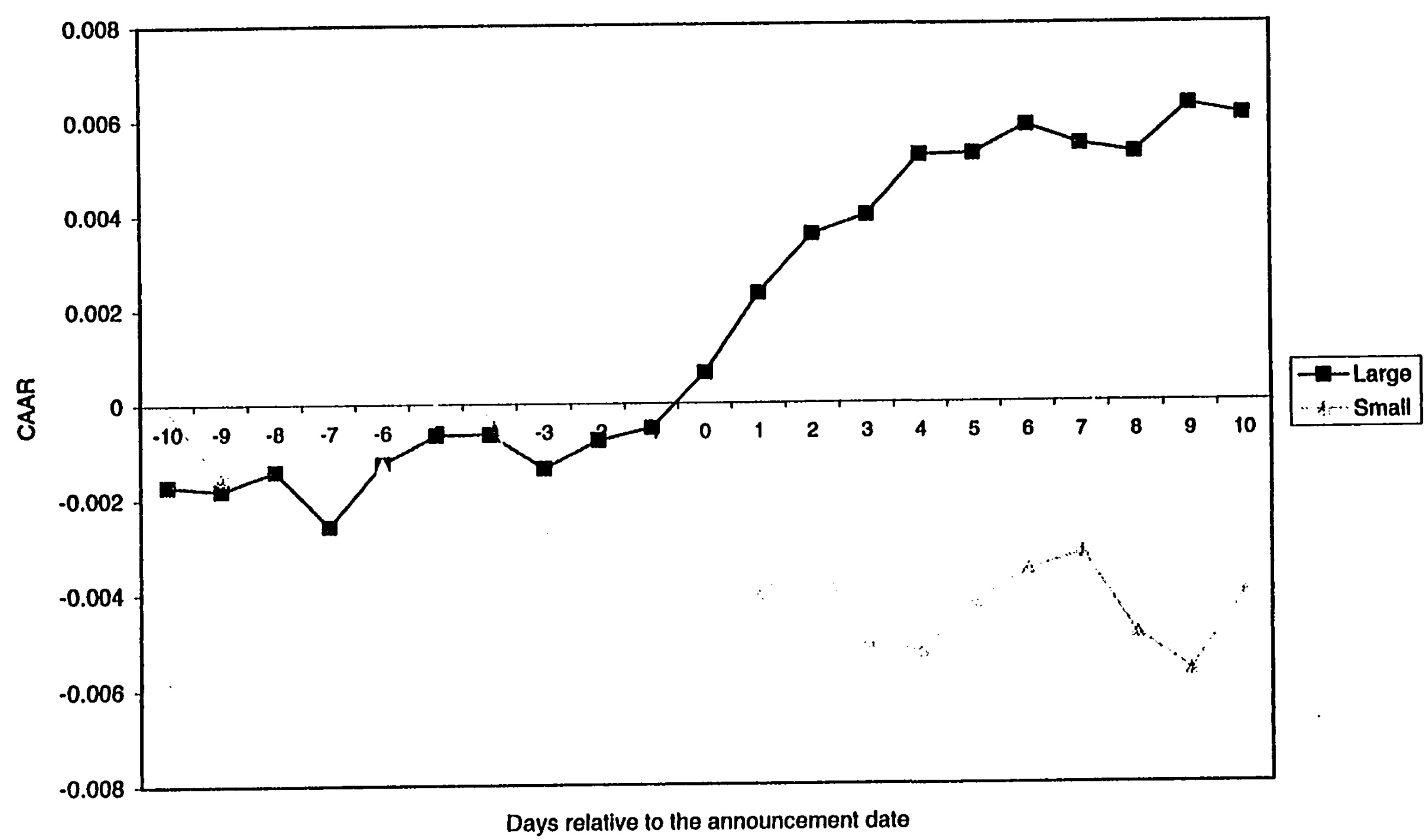


TABLE 13: The mean abnormal returns for the TIPs surrounding a redemption date.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Percentage Positive
-10	0.1035	0.7882	0.2380	-1.3900	1.0600	0.1035	61.54%
-9	0.2022	1.6492	0.0732	-0.4152	1.5500	0.3057	53.85%
-8	0.2569	2.0561*	0.1990	-0.2044	0.9706	0.5626	76.92%
-7	0.0887	0.7472	0.0621	-1.3300	2.5500	0.6513	53.85%
-6	0.0788	0.7601	0.0844	-0.8249	1.5700	0.7301	53.85%
-5	0.0134	0.0898	-0.1200	-0.8764	1.1300	0.7435	38.46%
-4	0.1696	1.1357	0.1550	-0.5675	1.3700	0.9131	61.54%
-3	0.1519	-1.1670	-0.1560	-0.8742	0.6812	1.0650	30.77%
-2	0.0378	0.1733	0.0674	-1.4700	0.9760	1.1028	61.54%
-1	0.0764	-0.5117	-0.0750	-0.7099	0.7452	1.1792	30.77%
0	0.0179	0.1681	0.2380	-1.3300	0.8398	1.1971	53.85%
1	0.3868	2.7467*	0.3460	-1.4600	1.4700	1.5839	84.62%
2	0.2341	-1.7134**	-0.0878	-1.2300	0.3227	1.8180	46.15%
3	0.1625	1.3250	0.1900	-0.4692	0.8288	1.9805	69.23%
4	0.1176	0.9168	0.0505	-0.3438	0.8603	2.0981	53.85%
5	0.0301	0.0836	-0.0589	-0.8635	0.9726	2.1282	46.15%
6	0.0258	-0.3532	-0.1060	-1.1900	0.9594	2.1540	38.46%
7	0.1421	1.2161	0.2450	-0.4265	0.6416	2.2961	53.85%
8	0.0382	-0.4369	-0.0013	-0.5999	0.5276	2.3343	53.85%
9	0.1624	1.2232	0.2310	-0.8400	1.1600	2.4967	53.85%
10	0.2602	-1.9607*	-0.2460	-0.7991	0.1407	2.7569	15.39%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Percentage Positive
[-10;-1]	0.7230	1.8091**	0.4850	61.54%
[0;+1]	0.3690	2.0611*	0.3790	61.54%
[2;+10]	0.0564	0.1002	-0.0857	46.15%

*significant at the .05 level
** significant at the .10 level

Figure 13
Cummulative Abnormal Returns for the TIPs for the Event Window [-10;+10] Centered on the Redemption Date

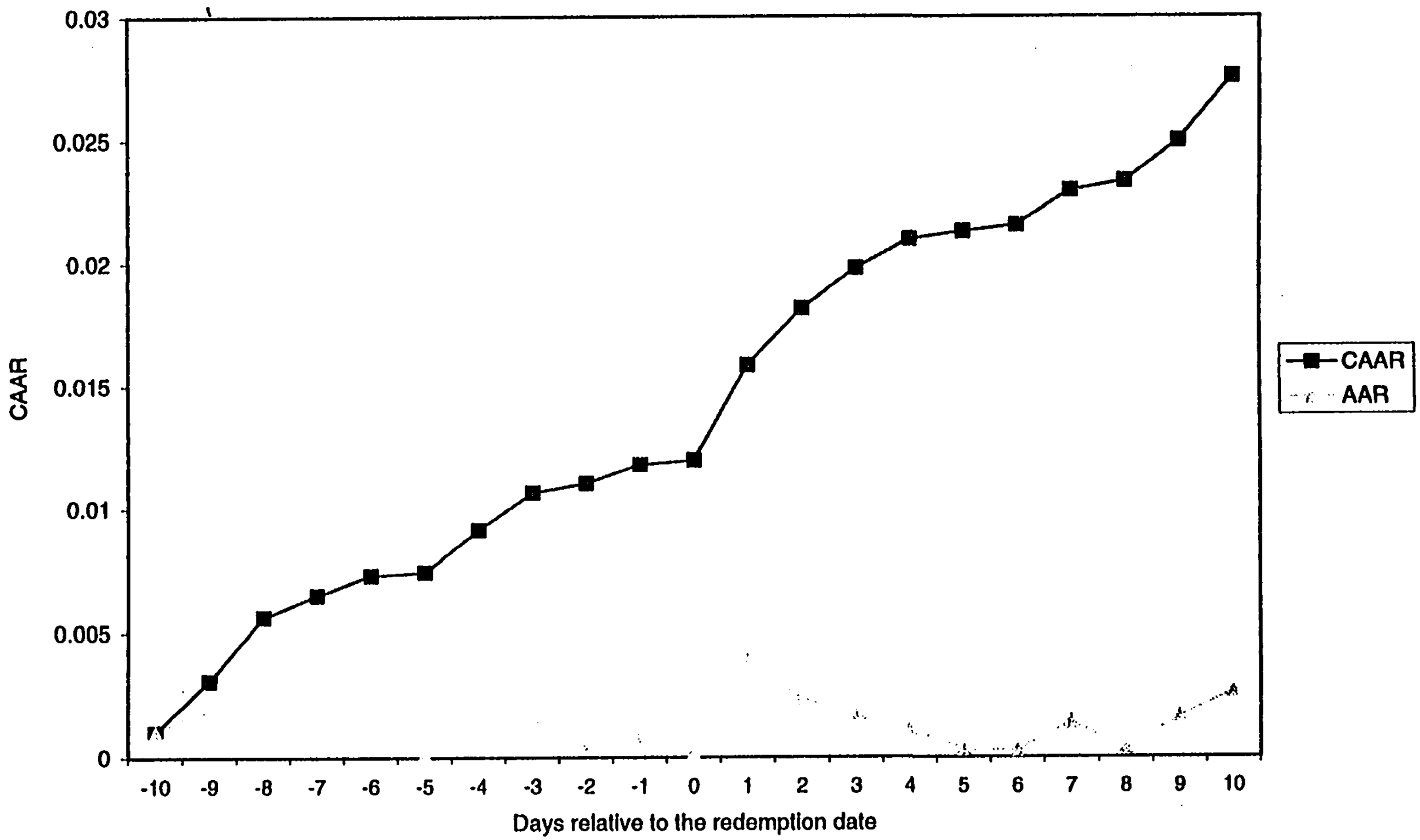


TABLE 14: The mean abnormal returns for the constituent companies surrounding the redemption of TIPs for the sample of 455 firms.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Positive Stock Return(%)
-10	0.0774	0.4999	0.0241	-5.4200	5.8200	0.0774	50.55%
-9	0.0334	0.1920	0.0054	-5.2300	7.5100	0.1108	50.11%
-8	0.0261	1.0238	-0.0029	-7.0000	7.1500	0.1369	49.89%
-7	-0.0508	-1.0195	-0.0934	-4.5500	9.3200	0.0861	45.28%
-6	0.1514	1.8836**	0.0457	-5.8500	14.7200	0.2375	52.09%
-5	0.0060	0.2344	-0.0666	-6.7700	6.3500	0.2435	45.93%
-4	-0.0052	0.4291	0.0000	-13.1400	5.7900	0.2383	45.28%
-3	0.0351	0.8973	0.0201	-20.3700	12.6800	0.2734	50.99%
-2	0.0749	1.8833**	0.1140	-9.3900	11.4500	0.3483	54.51%
-1	-0.0719	0.3053	-0.0177	-18.6200	5.1700	0.2764	49.23%
0	0.0965	1.6981**	-0.0393	-11.7100	9.7500	0.3729	48.57%
1	0.1224	2.1944*	0.0755	-5.2800	9.0900	0.4953	54.07%
2	0.0529	0.3545	0.0055	-6.6500	7.3900	0.5482	50.11%
3	0.0061	1.1593	-0.0073	-6.3300	7.8000	0.5543	49.67%
4	0.0405	0.3419	0.0038	-7.2400	9.4700	0.5948	50.33%
5	0.1566	1.6894**	-0.0231	-4.8100	6.1700	0.7514	48.57%
6	0.0144	0.2830	0.0299	-5.6600	6.4700	0.7658	51.43%
7	-0.0888	-0.1201	-0.0818	-13.9200	5.6900	0.6770	45.93%
8	0.0147	0.9793	0.0514	-9.3900	6.4000	0.6917	45.93%
9	-0.0155	-1.0083	-0.1460	-8.9300	5.1600	0.6762	44.40%
10	-0.0599	-0.8086	-0.0908	-5.2500	6.1400	0.6163	45.71%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Positive Stock Return(%)
[-10;-1]	0.2770	2.0015*	0.5580	56.70%
[0;+1]	0.2190	2.7524*	0.0971	51.87%
[+2;+10]	0.121	0.9568	0.217	52.97%

*significant at the .05 level
**significant at the .10 level

Figure 14
Cummulative Abnormal Returns for the Sample of 455 Firms for the Event Window [-10;+10] Centered on the Redemption Date of TIPs

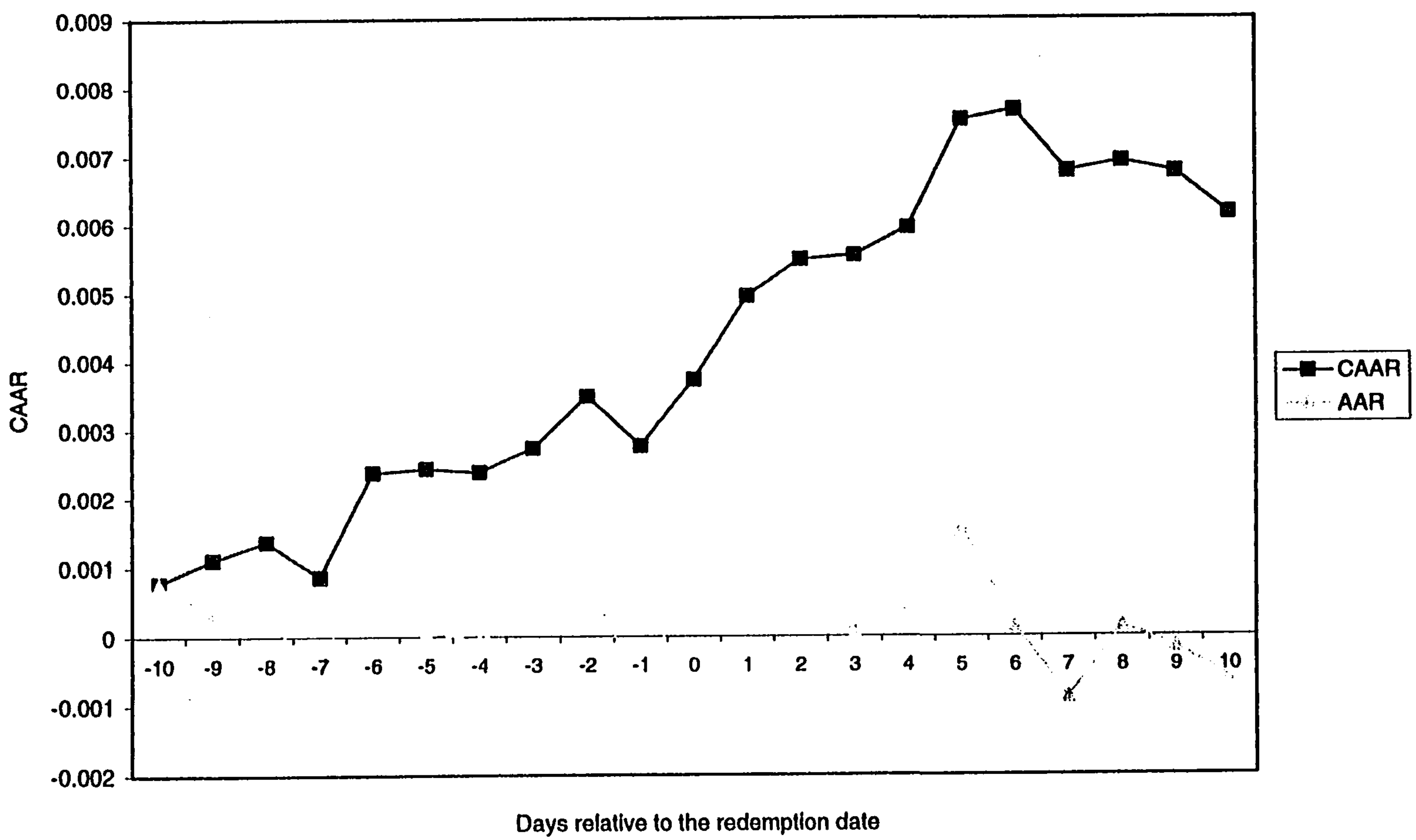


TABLE 15: The mean abnormal returns for the T35 Index surrounding the redemption of TIPs.

Panel A: Average Abnormal Return

Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Percentage Positive
-10	0.0604	1.6596**	0.0304	-0.2033	0.3537	0.0604	61.54%
-9	0.1172	2.7764*	0.0460	-0.1702	0.7605	0.1776	69.23%
-8	0.0684	1.3695	0.0311	-0.1553	0.3678	0.2460	61.54%
-7	-0.0213	-0.2496	0.0340	-0.8239	0.3087	0.2247	69.23%
-6	0.1194	3.0106*	0.0804	-0.4846	0.7625	0.3441	61.54%
-5	0.0000	-0.1098	0.0268	-0.3132	0.1671	0.3441	69.23%
-4	0.0486	1.3090	0.0170	-0.2766	0.3828	0.3927	53.85%
-3	0.0490	1.4411	0.0951	-0.4334	0.3120	0.4417	76.92%
-2	0.0454	1.1771	0.0222	-0.2146	0.4368	0.4871	53.85%
-1	0.0379	0.8037	-0.0193	-0.1700	0.7514	0.5250	30.77%
0	0.0772	1.5351	0.0740	-0.1573	0.4526	0.6022	76.92%
1	0.0788	1.6114	0.1080	-0.2099	0.3695	0.6810	61.54%
2	-0.0133	-0.3585	0.0105	-0.1661	0.1356	0.6677	53.85%
3	0.0253	0.5915	0.0472	-0.2547	0.3275	0.6930	53.85%
4	0.0425	0.6321	0.0185	-0.2703	0.3965	0.7355	61.54%
5	0.0639	1.6017	0.0554	-0.2230	0.2353	0.7994	69.23%
6	0.0002	0.0677	0.0221	-0.2790	0.2911	0.7996	53.85%
7	0.0246	0.7974	-0.0002	-0.3987	0.4361	0.8242	46.15%
8	0.0523	1.3614	0.0415	-0.1487	0.3055	0.8765	46.15%
9	0.0369	0.6798	0.0913	-0.4679	0.3017	0.9134	69.23%
10	0.0250	0.9240	0.0094	-0.2201	0.4257	0.9384	53.85%

Panel B: Cumulative Average Abnormal Return

Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Percentage Positive
[-10;-1]	0.5250	4.1702*	0.3930	84.62%
[0;+1]	0.1560	2.2249*	0.1330	69.23%
[+2;+10]	0.2570	2.0990*	0.0685	61.54%

*significant at the .05 level
** significant at the .10 level

Figure 15
Cummulative Abnormal Returns for the T35 Index for the Event Window [-10;+10] Centered on the Redemption Date of the TIPs

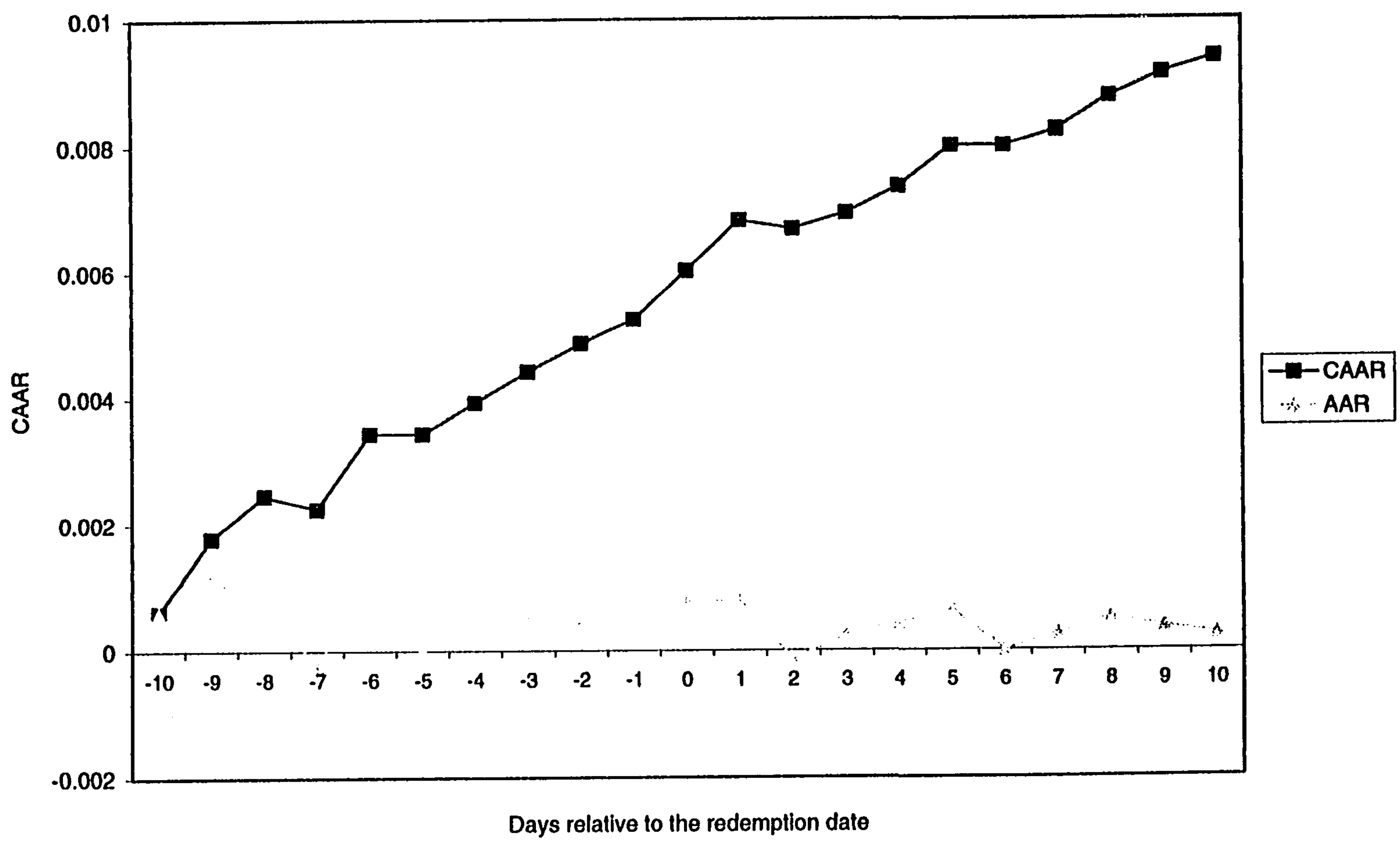


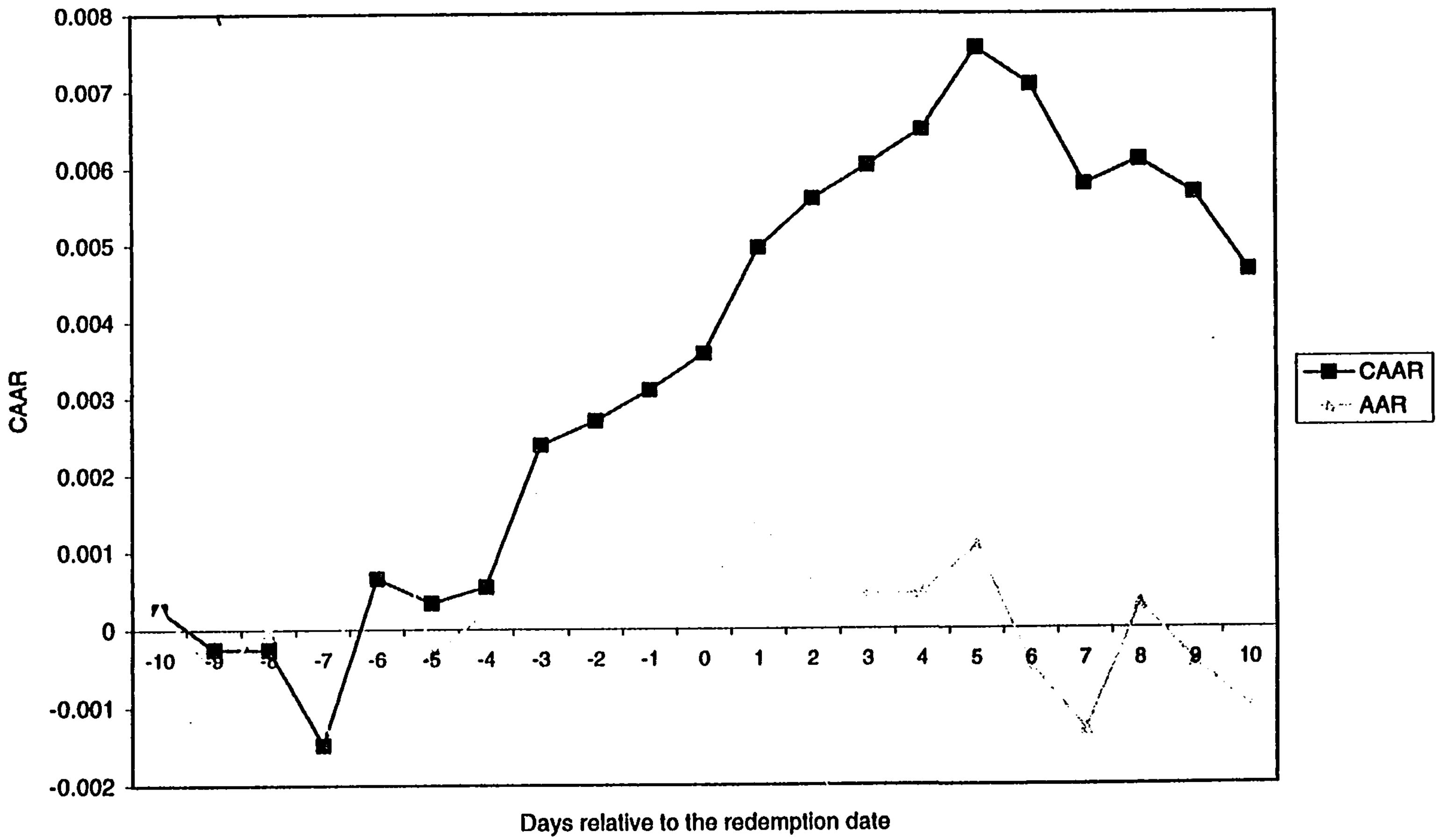
TABLE 16: The mean abnormal returns for the constituent companies surrounding the redemption of TIPs for the sample of 289 firms.

Panel A: Average Abnormal Return							
Event Day/Period	AARs(%)	Z-test	Median(%)	Minimum(%)	Maximum(%)	CAAR(%)	Positive Stock Return(%)
-10	0.0253	-0.2045	-0.0598	-5.4200	5.8200	0.0253	49.48%
-9	-0.0496	-0.7885	-0.0488	-5.2300	7.5100	-0.0243	47.41%
-8	-0.0005	0.7252	-0.0116	-6.9700	5.1300	-0.0248	49.83%
-7	-0.1233	-1.3812	-0.1260	-4.5500	5.4500	-0.1481	43.60%
-6	0.2132	2.5002*	0.0983	-5.8500	5.2300	0.0651	56.06%
-5	-0.0316	-0.0511	-0.0547	-6.7700	6.3500	0.0335	47.06%
-4	0.0206	0.6124	0.0000	-6.0000	5.7900	0.0541	48.44%
-3	0.1847	2.4417*	0.0735	-6.3600	6.2200	0.2388	52.25%
-2	0.0310	1.1944	0.0444	-8.6800	6.8600	0.2698	52.94%
-1	0.0400	1.5366	-0.0095	-6.9900	5.1700	0.3098	49.83%
0	0.0482	0.5987	-0.0302	-6.4600	9.7500	0.3580	48.10%
1	0.1373	1.5149	0.0507	-5.2800	9.0900	0.4953	53.98%
2	0.0637	0.3209	0.0328	-4.1300	7.3900	0.5590	51.56%
3	0.0437	1.4956	0.0235	-6.0000	7.8000	0.6027	50.87%
4	0.0455	0.3684	0.0009	-4.8100	9.4700	0.6482	50.17%
5	0.1064	1.1960	-0.0231	-4.5000	6.1700	0.7546	49.48%
6	-0.0472	-0.1356	-0.0355	-5.6600	5.5700	0.7074	48.44%
7	-0.1297	-0.4417	-0.0818	-9.8200	3.4400	0.5777	44.98%
8	0.0311	1.5102	0.1320	-9.3900	6.5600	0.6088	44.98%
9	-0.0423	-0.9511	-0.0980	-8.5000	5.1600	0.5665	46.71%
10	-0.1011	-1.2157	-0.1070	-5.2500	5.3800	0.4654	43.60%

Panel B: Cumulative Average Abnormal Return				
Event Period	Daily Average Abnormal Return(%)	Z-test	Median(%)	Positive Stock Return(%)
[-10;-1]	0.3100	2.0824*	0.4680	56.06%
[0;+1]	0.1860	1.4945	-0.0490	48.44%
[+2;+10]	-0.0300	0.7157	0.2160	53.28%

*significant at the .05 level
** significant at the .10 level

Figure 16
Cummulative Abnormal Returns for the sample of 289 firms the Event Window [-10;+10] Centered on the Redemption Date of the TIPs



APPENDIX A

DESCRIPTION OF THE TORONTO 35 INDEX

The Toronto 35 Index comprises some of Canada's largest and most heavily traded stocks in the exchange. It was launched by the Toronto Stock Exchange in May 1987 for the purpose of trading derivative products specifically designed to meet the trading and hedging needs of private investors and professional fund managers. Both an options (TXO) and a futures (TXF) contract based on the Index were also introduced at the same time on the Toronto Futures Exchange.

The Toronto Stock Exchange maintains the Toronto 35 Index and thus reserves the right to exclude or include any stock in the Index system. The constituent companies in the Index are chosen based on several criteria, including the requirements that: the company must be Canadian incorporated; the stock must be in the TSE 100 Index; the stock must also rank in the top 125 in the TSE 300 Composite Index for the 12 month trailing period based on volume traded, value traded, and total transactions executed on the Exchange. The Toronto 35 Index has direct representation from all the TSE 300 industry groups (of which there are currently 14) which have a weight of more than 5%. Indeed, it is designed to closely track the movement of the TSE 300 Composite Index: a 94.5% correlation existed during a period from May 1987 to March 1995.

The Toronto 35 Index is a modified capitalization weighted index in that the larger capitalization stocks have heavier weighting within the Index. For example, on September 30, 1996, BCE Inc. had the highest weight of 7.51% with a quoted market value of $116,500. Stocks in the Index cannot have a weight more than 10% to ensure that no stock or industry dominates the Index. The Toronto 35 is calculated by multiplying the price of each of the 35 stocks by its predetermined number of shares - that is, the closing quoted market value (QMV). These 35 QMVs are totaled and divided by a base value to arrive at an index level. On September 30, 1996, the total closing QMV and the base were $1,551,090 and 5619.22, respectively, leading to an Index level of $276.03. The opening Index Level on any trading day is calculated using the official opening trade price for each stock. If a stock does not open, the opening calculation of the Index Level uses the last trade price for that stock. The base is adjusted to reflect changes to the portfolio such as additions, deletions, or large stock/cash distributions. Other events, i.e., stock splits, stock dividends and consolidations are made by adjusting the shares of the affected stock. Any adjustment to the Index is made after the close of trading on any trading day effective the opening of trading on the following day. Any adjustment made to the Index as a result of an event with a record date, such as the payment of a Special Dividend, will be effective on the applicable ex-date.

The Toronto 35 Index is reviewed on an annual basis as well as once every five years. The annual revision is announced early in January of each year and is implemented at the open on the same day as the expiry of the February futures and options contracts, which is usually the third Friday of the month. The purpose of the annual revision is to ensure that the stocks of the constituent companies continue to meet inclusion specification, and to maintain reasonable tracking between the Toronto 35 Index and the TSE 300. For example, on January 19, 1993, the TSE announced that AIR Canada and Gulf Canada Resources would be removed and replaced by Canadian Occidental Petroleum and Rogers Communications Cl.B shares. The changes were implemented on February 19,1993. On the other hand, the five year review is done to ensure that each stock in the Index is representative of its industry sector, regarding the market capitalization and liquidity of the stock. For example, on August 5, 1995, the Exchange announced that Echo Bay mines, Power Corporation of Canada, Ranger Oil and Telus Corporation will be removed and replaced by Abitibi-Price, Magna international, Talisman Energy and TVX Gold. The changes took place on February 16, 1996.