Insider trading restrictions and the stock market: Evidence from the Amsterdam Stock Exchange

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Abstract

This paper examines the effect of introducing insider trading restrictions on the behaviour of the Amsterdam Stock Exchange. From 1987 on, insiders are no longer allowed to trade two months before an annual earnings announcement. The results indicate that stocks became less liquid (when liquidity is measured by trading volume) when insiders were not allowed to trade. We also find some evidence that the introduction of insider trading restrictions reduced the stock market’s speed of adjustment to positive earnings news.

JEL classification: G14

Keywords: Insider trading; Regulation; Liquidity

1. Introduction

On January 1, 1987, the Amsterdam Stock Exchange (ASE) adopted a Model Code, which specified that insiders were no longer allowed to trade in the company’s stock during the two months preceding the announcement of annual
earnings. This study tests whether the introduction of this regulation had any material impact on the behaviour of stock prices and liquidity on the ASE. Specifically, this paper tests for the 'conventional wisdom' about insider trading, i.e., that it reduces outside investors' confidence and that it makes markets more informationally efficient.

Kyle (1985) develops a model that formalises this 'conventional' intuition. In his model a monopolistic insider who has unique access to private information about the underlying asset trades against uninformed liquidity traders and against market makers who set prices on the basis of the aggregate order flow. The insider trades in such a way that his private information is incorporated gradually into prices, so that markets become more informationally efficient (see also Manne, 1966). Kyle's model also captures Bagehot (1971) intuition that market makers compensate themselves for bad trades due to adverse selection of insiders by making the market less liquid (see also Amihud and Mendelsohn, 1986; Copeland and Galai, 1983; Glosten and Milgrom, 1985).

The main problem with the traditional hypothesis is that it only considers three types of traders: a monopolistic insider, liquidity traders and market makers. When many insiders (not just a monopolist) are participating in a market insider trading may actually increase liquidity (Grossman, 1986; Holden and Subrahmanyam, 1992). Moreover, some noise traders (Black, 1986; DeLong et al., 1990) may be attracted by insiders, so that the elimination of insider trading activity may actually reduce liquidity (Cornell and Sirri, 1992). Finally, insider trading restrictions may increase incentives for other information traders (financial analysts, etc.) to collect costly information, so that insider trading restrictions may make markets more efficient, not less (Fishman and Hagerty, 1992).

In short, the predictions of the theoretical literature depend on the assumptions made about the relative importance of insiders, other information traders (financial analysts), liquidity traders and noise traders. Hence, the effect of insider trading activity on stock prices and trading volume is ultimately an empirical issue. The introduction of insider trading restrictions in the Netherlands provides an interesting controlled experimental setting to perform such a test.

To our knowledge, only one other paper (Cornell and Sirri, 1992), employing

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Insiders (as defined by the law) are no longer allowed to trade in the company's stock and stock options during the two months preceding the announcement of annual earnings reports. According to the law, insiders are not only top company officials but also any person 'connected' with the company who can have access to private information, such as employees, stock exchange members and financial journalists with access to the exchange floor. Insider monitoring and penalties occur on two levels. First, every company has a compliance officer in charge of monitoring insider transactions and warning employees that a 'forbidden trading period' has started (Baron van Ittersum, 1989). Hence, insider trading can be considered as a breach of employment contract or fiduciary duties. Besides monitoring by the company, a Stock Watch committee looks for abnormal movements in prices and trading volume.
data on insider trading around the Anheuser–Bush tender offer for Campbell Taggart, has empirically examined the effect of insider trading on market liquidity. The authors reject the first part of the ‘conventional hypothesis’ i.e., the proposition that insider trading reduces liquidity, and argue that insiders attract noise traders. They (and also Meulbroek, 1992) report evidence consistent with the second part of the ‘conventional hypothesis’: through their activity, insiders incorporate a large fraction of the information into share prices before the information is made public. Jarrell and Poulson (1989), however, argue that the price run-up in takeover bids has little to do with insider activity.

2. Data

All 136 Dutch stocks that were continuously listed on the Amsterdam Stock Exchange from January 1984 until June 1989 were considered. The daily stock prices were obtained from Datastream Inc. and adjusted for dividends and other distributions. The choice of 1984 as the start of our sample period was determined by data requirements: complete information on prices and volume on more than 110 Dutch companies was only available after 1983. In order to reduce the likelihood that other structural changes affect our results, we decided to limit our post-regulation sample period to three years. Data on daily trading volume were collected from Stockdata and the financial press (De Officiele Prijscourant and Het Financieele Dagblad). Eleven firms were dropped because stock price data was not available on the Datastream tape.

In addition we collected data on annual earnings announcements. Announcement data for the years 1984 through 1989 were collected from the press releases of the Algemeen Nederlands Persbureau (ANP, the Dutch Press Agency) and Het Financieele Dagblad. Because we were unable to find announcements for a number of companies, our final sample contains 561 annual earnings announcements made by 114 firms. Most annual earnings reports are announced in March and April.

3. Insider trading restrictions and liquidity

‘Liquidity’ can potentially be proxied by three different variables: (1) trading volume; (2) the bid–ask spread, and (3) market depth, i.e., the extent to which trading volume generates significant price movements. The second measure is not relevant on the Amsterdam Stock Exchange: trading on the ASE occurs through matching buy and sell orders through a ‘hoekman’ (market maker) who acts like an auctioneer and, until July 1990, worked for a fixed commission. This commission is set by the ASE and did not change through the sample period. The ‘hoekman’ can trade for his own account, but, in contrast to the NYSE specialist,
does not have to make a market. Thus, the only relevant measures of liquidity are trading volume and market depth.

3.1. The effect of insider trading restriction on trading volume

3.1.1. Methodology and hypotheses

Because the regulation restricted insider trading two months (or 40 trading days) before an annual earnings announcement we define the event period as the period starting 50 trading days prior to the earnings announcement (day - 50) and ending 10 days after the announcement (day + 10). The 10 extra days on both sides of the restricted trading period are added to test for potential shifts in trading behaviour. Different types of traders may want to modify their trading behaviour.

Insiders may want to liquidate their positions prior to the start of the restricted period, rather than be forced to hold the stock for another two months. Hence, as a result of the regulation, trading volume may increase prior to the restricted period. As the regulation will force them to delay their purchases, trading volume may also increase after the restricted period. However, as the Model Code is also intended to eliminate short-term insider trading (buying/selling before the earnings announcement and liquidating the position immediately afterwards), the effect on post-restriction trading volume is ambiguous. One prediction is clear: the regulation should reduce trading volume during the restricted period.

Liquidity traders, who in the past were reluctant to trade in the restricted period (because of the adverse selection problem) may now, after the introduction of the Model Code, no longer feel the need to (1) delay their trades after the earnings announcement or to (2) accelerate their trades prior to the restricted period. Hence, trading volume prior to and after the restricted period may fall, while trading volume during the restricted period will increase.

Non-insider information traders (as defined by Fishman and Hagerty (1992)) don't have to compete with insiders any more. Hence, the regulation may increase the number of short-term speculative traders, so that trading volume before and after the earnings announcement will increase.

Noise traders trade on the basis of what they believe, falsely, is special information (Black, 1986; DeLong et al., 1990). Similar to Cornell and Sirri (1992). We focus on one type of noise trader who may be attracted to insider trading: falsely informed fundamental traders, i.e. investors who trade on fundamentals, but do not have access to inside information. When prices move because of insider trading, such falsely informed traders conclude that the movement is

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2 The trading system on the ASE during a sample period can be characterized as an order-driven system. All orders, whether buy or sell, arrive through brokers with the 'hockman', and are first matched, and then executed at one single price. The price is fixed in such a way that maximum number of buy and sell orders can be satisfied. No bid or ask price can be distinguished.
unjustified and trade against it. If as a result of the Model Code stock prices move less because insiders are staying out of the market, trading volume will fall during the restricted period and possibly thereafter.

Thus, depending on the relative importance of each trader type, trading volume may increase or decrease during the various subperiods.

In order to compute abnormal volume, we assume that the normal trading volume is generated by the Market Model, which assumes that the expected volume has a company-specific component and a market component:

\[ E(\ln V_{it}) = a_i + b_i \ln V_{Mt} \]  

where \( a_i \) and \( b_i \) are constants estimated using data in an estimation period and \( V_{Mt} \) is the average trading volume of our portfolio of 114 securities on day \( t \). The estimation period is defined as the 100 day period covering day \(-100\) until day \(-51\) and day \(+11\) until day \(+60\). To make trading volume comparable over time, the number of shares traded on each day was divided by the number of shares outstanding on that day (see e.g. Beaver (1968) and Morse (1981) for a similar procedure). Note that, by adjusting for the market, we are allowing for the fact that market conditions change across the sample period because of structural events such as the 1987 Crash, volume changes in derivative markets etc. One drawback of the event study method here is that all companies in the index are affected by the event and events may be clustered as many firms announce their annual earnings in March or April. This will reduce the power of our test to detect any abnormal volume (positive or negative). However, it should be noted that (1) we are using daily data and (2) announcements are not concentrated on a specific day. Specifically, during our entire sample period we could not find a single day with more than five announcements.

3.1.2. Results

Table 1 shows the average daily abnormal trading volume around annual earnings announcements in each of the four subperiods: the pre-restricted period \( (P_{-50,-41}) \), the 40-day restricted period \( (P_{-40,-1}) \), the two-day announcement period \( (P_{0,1}) \) and the 9-day post-announcement period \( (P_{2,10}) \). Within the 40-day restricted period we examine three subperiods: \( P_{-30,-1} \); \( P_{-20,-1} \); \( P_{-10,-1} \).

Both before and after the introduction of insider trading regulation, trading volume increases significantly in the announcement period and in the post-announcement period, a result also reported by others employing U.S. data (see e.g. Beaver, 1968; Morse, 1981; Bamber, 1986).

After the regulation trading volume fell significantly in the restricted period and in the three subperiods, and the decline is most pronounced in the ten days

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3 Because of the requirement to have 100 trading days prior to the announcement (approximately five months) and because most earnings announcements are concentrated in March and April, data from 1984 are only used for estimation purposes.
Table 1
Average abnormal daily trading volume around annual earnings announcements in specific sub-periods.

<table>
<thead>
<tr>
<th>Period</th>
<th>Pre-regulation</th>
<th>Post regulation</th>
<th>Post – Pre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-restricted</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( P_{-50,-41} )</td>
<td>-0.006</td>
<td>0.003</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>(0.18)</td>
<td>(-0.10)</td>
<td>(0.22)</td>
</tr>
<tr>
<td><strong>Restricted</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( P_{-40,-1} )</td>
<td>0.038</td>
<td>0.006</td>
<td>-0.044</td>
</tr>
<tr>
<td></td>
<td>(2.35) **</td>
<td>(-0.42)</td>
<td>(-2.04) **</td>
</tr>
<tr>
<td>( P_{-30,-1} )</td>
<td>0.073</td>
<td>-0.011</td>
<td>-0.084</td>
</tr>
<tr>
<td></td>
<td>(3.92) **</td>
<td>(-0.68)</td>
<td>(-3.41) **</td>
</tr>
<tr>
<td>( P_{-20,-1} )</td>
<td>0.097</td>
<td>0.027</td>
<td>-0.070</td>
</tr>
<tr>
<td></td>
<td>(4.26) **</td>
<td>(1.34)</td>
<td>(-2.33) **</td>
</tr>
<tr>
<td>( P_{-10,-1} )</td>
<td>0.155</td>
<td>0.057</td>
<td>-0.098</td>
</tr>
<tr>
<td></td>
<td>(4.81) **</td>
<td>(2.02) **</td>
<td>(-2.29) **</td>
</tr>
<tr>
<td><strong>Announcement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( P_{0,1} )</td>
<td>0.656</td>
<td>0.693</td>
<td>0.036</td>
</tr>
<tr>
<td></td>
<td>(9.08) **</td>
<td>(10.98) **</td>
<td>(0.38)</td>
</tr>
<tr>
<td><strong>Post-announcement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( P_{+2,40} )</td>
<td>0.301</td>
<td>0.331</td>
<td>0.030</td>
</tr>
<tr>
<td></td>
<td>(8.87) **</td>
<td>(11.39) **</td>
<td>(0.806)</td>
</tr>
</tbody>
</table>

Sub-period \( P_{t1,t2} \) covers the period from day \( t1 \) until day \( t2 \), relative to the announcement date. Abnormal volume is computed using the Market Model (Eq. (1)) as a model of equilibrium trading volume. Trading volume is defined as the number of shares traded divided by the number of shares outstanding. \( t \)-statistics are in parentheses. The results are based on 561 annual earnings announcements made by 114 firms traded on the Amsterdam Stock Exchange between 1985 and 1989. The restricted period refers to the 40-day period during which insiders were not allowed to trade starting January 1987. The Post – Pre column computes the difference (and \( t \)-statistics) between trading volume behaviour before and after January 1987, the date when insider trading regulation was introduced.

\* * Value is significantly different from zero at the 5% significance level.

\* Value statistically significantly different from zero at the 10% significance level.

preceding the announcement. The finding that the trading volume in the restricted period is affected, and not in the surrounding periods, supports the hypothesis that the difference is a consequence of the regulation. The result that trading volume falls significantly during the restricted period is particularly strong, considering that event-clustering reduces the power of the test to find any significant (positive or negative) abnormal trading volume.

There exists a lot of evidence that (absolute) stock returns and volume are positively correlated (see e.g. Karpoff, 1986). Hence, the abnormal company-specific volume decline in the restricted period could simply reflect the fact that the company-specific information revealed during the restricted period (and the corresponding abnormal returns) was different after 1986 than before. For example, the restriction of the insiders to trade prior to earnings announcements may
Table 2
Average daily absolute abnormal return, before and after the introduction of insider regulation. a

<table>
<thead>
<tr>
<th>Period</th>
<th>Pre-regulation</th>
<th>Post regulation</th>
<th>Post - Pre</th>
</tr>
</thead>
<tbody>
<tr>
<td>P$-40,-1$</td>
<td>1.20</td>
<td>1.18</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>(-0.33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P$-30,-1$</td>
<td>1.20</td>
<td>1.19</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(-0.17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P$-20,-1$</td>
<td>1.21</td>
<td>1.20</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>(-0.17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P$-10,-1$</td>
<td>1.25</td>
<td>1.21</td>
<td>-0.04</td>
</tr>
<tr>
<td></td>
<td>(-0.57)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Subperiod $P_{t1,t2}$ covers the period from day $t1$ until day $t2$, relative to the announcement day of the annual earnings. Abnormal returns are computed employing the Market Model and are shown in percent. t-statistics are shown in parentheses.

lead to a change in the flow of other firm-specific information released by insiders. Insiders may try to time the release of information such that they are able to trade based on their private information prior to it becoming public.

In order to test for this possibility, for each of the 561 earnings announcements absolute abnormal returns were computed in the 40 day restricted period. The abnormal returns should be good estimates of the company-specific information released during the offer period. The Market Model was used to compute ‘normal’ returns, employing data in the same 100-day estimation period as we used to estimate ‘normal’ volume.

Table 2 shows the average daily absolute abnormal return in the 40-day restricted period and in the three subperiods, both before and after the regulation. The table shows clearly that, for each subperiod, there is no significant difference in average absolute abnormal returns before 1987 and after 1986. Hence the volume decline reported in Table 1 is not simply the result of a decline in flow of company-specific information.

3.2. Insider trading restrictions and market depth

In order to measure market depth we need to measure the extent to which trading volume affects prices, which in turn implies regressing trading volume against price changes. For each of the 561 earnings announcements absolute returns were computed in the test period (i.e. day $-50$ through day $+10$). Hence, we obtained a total of 34,221 observations which we then used in the following pooled regression:

$$ABRET_{it} = a + b \text{Dummy}_{it} + c \ln(V_{it}) + d \text{Dummy}_{it}(\ln(V_{it})) + e_{it}, \quad (2)$$

where $V_{it}$ is the trading volume of security $i$ ($i=1,\ldots,561$) on day $t$ ($t=-50,\ldots,+10$) which is defined as ratio of the number of shares traded on day $t$
divided by the number of shares outstanding on that day; \( ABRET_{it} \) is the absolute value of the return of security \( i \) on day \( t \); \( Dummy_{it} = \) 1 if the observation is drawn from the post-1986 40-day restricted period and zero otherwise. The first dummy in the regression allows for a potential shift in the intercept to allow for a reduction in the fixed costs of trading. (see Cornell and Sirri, 1992). If insider trading restrictions increased market depth the value of \( b \) and/or \( d \) should be negative.

The regression gave the following results: \( a = 0.031 \) (\( t = 71 \)), \( b = -0.001 \) (\( t = -1.69 \)) \( c = 0.00254 \) (\( t = 42 \)) and \( d = -0.001 \) (\( t = -1.53 \)) with an \( R^2 \) of 8%.

Hence, while traded volume and absolute returns are positively correlated (a result also reported by Karpoff (1986)) we are unable to document any significant increase in market depth after 1986. This result is consistent with Cornell and Sirri (1992) who also reject the conventional hypothesis and argue that insiders indirectly increase market depth by encouraging noise traders to trade.

4. The effect of insider trading restrictions on stock price behaviour

If markets become less efficient because of a reduction in insider trading activities, one would expect less stock market anticipation of earnings releases after 1986. In order to test this hypothesis, we develop a method that, unlike the classic method used by Ball and Brown (1968), does not depend on the specification of an earnings expectation model.

4.1. Methodology

First, individual stocks were ranked on the basis of cumulative excess returns from day -40 to day +1, where excess returns are computed as before. The sample was divided into stocks with positive cumulative excess returns and negative cumulative excess returns. While this method guarantees a large `information content' of earnings announcements, it also implicitly assumes that cumulative excess returns 40 days prior to earnings announcements are uniquely caused by the earnings news. For our purposes, it is sufficient to assume that the distribution of non-earnings related company-specific news is uniformly distributed across the sample period.

Next, in order to test the speed of adjustment in a period starting \( T \) days before a specific earnings announcement \( i \), (day \( -T \)) until the announcement day (day 0), we compute the weighted average anticipation time (WAAT) for each announcement \( i \), as

\[
WAAT_i = \frac{\sum_{t=0}^{T} t CAR_{it}}{CAR_{iT}}.
\]
where \( CAR_{it} \) is the cumulative excess return from day \(-T\) until day 0 and \( e_t \) is the abnormal return on day \( t \). In order to minimise the influence of outliers (resulting from dividing by very small numbers) all observations where the absolute value of the \( CAR_{it} \) is smaller than 3% were deleted.

The WAAT corresponds to a duration measure that standardises for the information content of the earnings announcements. To see this, assume that the earnings announcement is the only company specific information released during the 40-day pre-announcement period and announcement day. Hence, in a typical 41 day period, there are 114 information arrivals (one earnings announcement for each of the 114 companies in the sample). Assume further that the insiders are the ones that receive the information first. If insiders are allowed to act on the information they will change prices, directly through their own trades, or indirectly by encouraging others to trade through information ‘leakages’, so that they make markets more efficient. This implies that, if insiders are allowed to trade, a larger fraction of the CAR will be observed early (when \( t \) in Eq. (3) is large). This will increase the WAAT for company \( i \). However, by dividing by the CAR, we ensure that an increase in the information content of an earnings report will not necessarily increase the WAAT.

4.2. Results

Table 3 shows the results for various subperiods in the restricted period. The table compares the mean WAAT pre-regulation and post-regulation. Statistical tests are based on a non-parametric Mann–Whitney rank-sum test.

Results are reported separately for all observations that experienced positive cumulative abnormal returns prior to the earnings announcement (Panel A) and negative cumulative abnormal returns (Panel B), for two reasons. First, as selling short is more costly especially for private investors, we would expect insider trading to occur less prior to bad news than prior to good news. Second, an insider who buys shares prior to the release of good news faces a trade-off. On the one hand, he would like to keep the good information secret in order to accumulate shares without affecting the market price. On the other hand, he would like to minimise his trading risk (related to non-company specific market information) and release the information as quickly as possible (e.g. through rumours). An insider with bad information (and who cannot sell short) does not face such a trade-off. As the only way to ‘benefit’ from negative information is to sell his shares (and e.g. invest the proceeds in a riskless asset), the insider always has an incentive to delay the release of bad information.

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Because it is not clear when exactly the news becomes publicly available, we have computed the “announcement day returns” as the sum of the return on day 0 and day +1.
### Table 3

Mean and standard deviation (in parentheses, below) of the weighted average anticipation time (WAAT) of earnings announcements in the restricted period for various sub periods, before and after restrictions on insider trading. 

<table>
<thead>
<tr>
<th>Subperiod</th>
<th>Pre-regulation</th>
<th>Post regulation</th>
<th>Post – Pre</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Good news sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$P_{-40,0}$</td>
<td>18.57 (25.09)</td>
<td>17.01 (18.03)</td>
<td>-1.56</td>
<td>0.10</td>
</tr>
<tr>
<td>$P_{-30,0}$</td>
<td>13.05 (11.73)</td>
<td>10.97 (13.69)</td>
<td>-2.08</td>
<td>0.35</td>
</tr>
<tr>
<td>$P_{-20,0}$</td>
<td>9.89 (13.12)</td>
<td>7.66 (9.23)</td>
<td>-2.23</td>
<td>0.22</td>
</tr>
<tr>
<td>$P_{-10,0}$</td>
<td>2.97 (5.69)</td>
<td>3.76 (4.40)</td>
<td>0.79</td>
<td>0.15</td>
</tr>
<tr>
<td>B. Bad news sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$P_{-40,0}$</td>
<td>16.81 (19.65)</td>
<td>18.21 (17.18)</td>
<td>1.40</td>
<td>0.32</td>
</tr>
<tr>
<td>$P_{-30,0}$</td>
<td>9.46 (12.51)</td>
<td>13.57 (15.47)</td>
<td>4.11</td>
<td>0.01</td>
</tr>
<tr>
<td>$P_{-20,0}$</td>
<td>6.32 (9.58)</td>
<td>7.52 (13.44)</td>
<td>1.20</td>
<td>0.12</td>
</tr>
<tr>
<td>$P_{-10,0}$</td>
<td>2.67 (4.71)</td>
<td>3.21 (3.69)</td>
<td>0.54</td>
<td>0.40</td>
</tr>
</tbody>
</table>

The table shows the mean and standard deviation of the weighted average anticipation time for companies that prior to earnings announcements experienced positive excess returns (Panel A) and for companies that experienced negative excess returns (Panel B) on the Amsterdam Stock Exchange between 1985 and 1989. The weighted average anticipation time for a specific earnings announcement $i$ and time period $T$ is computed by formula (2) in the main body of the paper, where $e_{it}$ is the abnormal return (using the Market Model) observed $t$ days before the earnings announcement $i$, and the $CAR_{iT}$ is the cumulative excess return from $-T$ until day 0. Because all observations where the absolute value of $CAR_{iT}$ is less than 3% were deleted, the number of observations varies. The measure is computed for various subperiods: Subperiod $P_{t1,t2}$ covers the period from day $t1$ until day $t2$, relative to the announcement date. P-values are based on the non-parametric Mann–Whitney rank sum test.

$^a$ Number of observations.

$^b$ p- value using the Mann–Whitney test.

Interestingly, consistent with these strategic considerations Table 3 shows that, when insider trading was allowed, the mean WAAT was always lower (in corresponding subperiods) prior to bad news than prior to good news. For example, in the subperiods $P_{-30,0}$ and $P_{-20,0}$ the mean WAAT is more than 40% shorter prior to bad news than prior to good news (which is statistically significant at the 10% level). After the introduction of insider trading regulation, the mean WAAT falls prior to good news (except in the subperiod 10 days prior to the earnings announcement) and rises prior to the release of bad news, so that now the mean WAAT is no longer significantly smaller for bad news than for good news.
For the good news sample, the results are consistent with the general view that ‘insider trading makes markets efficient’. In the 40 day restricted period, the mean WAAT falls by 1.56 days (or 8%), which is statistically significant at the 10% level on the basis of the Mann–Whitney test. Note that none of the other results in Panel A are statistically significant at the 10% level or less. The variability of the WAAT makes economically significant declines in the mean WAAT (such as the 22% decline in period \( P_{-20.0} \)) statistically insignificant at the 10% level or less. For the bad news sample, we observe (economically and statistically at the 12% level or less) significant increases in the mean WAAT in period \( P_{-30.0} \) and period \( P_{-20.0} \). This is consistent with the joint hypothesis that (1) short selling is costly and (2) insiders had incentives to delay the disclosure of bad news prior to 1987.

5. Summary

The first major finding of this paper is that after the introduction of restrictions on insider trading, trading volume fell before earnings announcements, while the amount of company-specific information (as measured by the value of absolute excess returns) did not change. At the same time, market depth (i.e. the extent to which trading volume generates significant price movements) was not significantly affected by the regulation. The fact that the volume decline is only observed in the restricted trading period and not in the surrounding periods strongly supports the hypothesis that the difference is a consequence of the regulation. Second, after the introduction of restrictions on insider trading, the market anticipated good news later, but bad news earlier so that, on average, the market’s speed of adjustment to annual earnings announcements was not significantly affected.

Hence, the Model Code was an example of ‘regulatory overkill’ in the sense that it did not increase market liquidity. The argument that eliminating insiders will increase liquidity (something in which the ASE has a vested interest), ignores the liquidity enhancing role of insiders themselves. Besides the direct impact of the elimination of their own trades, restriction of insider trading may have discouraged some noise traders (as argued by Cornell and Sirri (1992)).

The finding that the reduction of insider trading increased the speed of adjustment to bad information may reflect the costs of selling short. Insiders have an incentive to delay the release of bad information: they do not have any incentive to unwind a speculative position early, while at the same time they prefer

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5 Eliminating all observations with cumulative abnormal returns less than 3% does not eliminate all outliers. For example, a stock with a positive CAR could have a very negative WAAT, if the stock experienced negative excess returns at the beginning of the test period but rebounded close to the announcement date.
to unload all their holdings at the highest possible stock price. The finding that after 1986 the market became less informationally efficient with respect to the release of good news is consistent with the traditional argument that ‘insiders make markets more efficient’. This result is also consistent with the findings on U.S. markets by Cornell and Sirri (1992) and Meulbroek (1992).

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