European Journal of Law and Economics, 16: 199–218, 2003

The Effectiveness of Insider Trading Regulation in Italy. Evidence from Stock-Price Run-Ups Around Announcements of Corporate Control Transactions

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Abstract

All developed countries and most emerging countries restrict insider trading in the belief that it may undermine investors' confidence and the integrity of financial markets.

Such regulation, however, has proved to be relatively ineffective almost everywhere, as shown by the records on convictions in the last few decades and by the pervasiveness of insider trading signalled by stock-price run-ups around announcements of private information.

Identifying illegal insider transactions may be difficult: the private information must be material, i.e. price-sensitive, and in some countries prosecutors have to prove the use of such information by corporate insiders. Moreover, the investigative powers of the enforcing Authority may be weak and the deterrence of criminal sanctions may be diminished by lengthy proceedings, especially when alternatives, such as administrative fines and civil actions, do not exist.

To date, the Italian legal system has experienced great difficulty in detecting and punishing illegal insider trading. Since they were first enacted in 1991, the insider trading rules have led to two convictions and to a very low ratio of prosecutions to allegations of illegal trading. Moreover, leakage of private information appears to be widespread, given that news about firm-specific events seems to be incorporated in stock prices long before it is disclosed in public announcements.

This paper examines the effectiveness of Italian insider trading legislation by focusing, among other things, on the stock-price run-up around announcements of corporate events. In particular, after a brief survey of earlier research on legal and illegal insider trading and on the most important weaknesses in the Italian legal framework, standard event-study methodology is used to analyse stock-price run-ups around 29 announcements of corporate control transactions in the period 1998–2000. Indicators of the "leakage" of non-public material information are then constructed, showing that securities prices follow similar patterns regardless of whether insider trading is likely to have occurred. This evidence raises questions as to the efficacy of Italian insider trading regulation and the paper concludes with some suggestions as to how it could be improved.

Keywords: insider trading regulation and enforcement, price run-up

JEL Classification: G14, G18, K22, K42

1. Introduction

Insider trading regulation, which basically prohibits insiders from trading on the basis of material, non-public information, is a feature common to many legal systems. As shown in Bhattacharya and Daouk (2001), at the end of 1998 out of 103 countries with stock markets 87 had restricted insider trading.

However, national legal systems differ both in the toughness of rules and in the strictness of enforcement. The former depends on a series of factors, such as: whether the conviction of insiders requires proof of the knowing use of material, non-public information; whether insiders are prohibited from tipping and encouraging others to trade on the base of private information; whether secondary insiders (also called *tippees*) are subject to the same trading restrictions as primary insiders; whether sanctions are in the form of fines and/or criminal penalties, possibly linked to the amount of illicit profits; and whether investors can sue insiders if they have been injured by their trades. The strictness of enforcement depends on the investigative powers of the controlling authority, since they determine the likelihood of illicit behaviour being discovered, and the efficiency of the judicial system.

Beny (1999) has constructed an index of toughness of insider trading regulation for 35 developed and emerging markets. The index takes into account some of the legal aspects listed above and shows that English common law systems are the strictest, followed by the French and German civil law systems, while the Scandinavian countries appear to be the laxest.

Bhattacharya and Daouk (2001) use the existence of at least one judgement convicting insiders as an imperfect proxy of enforcement and find that 35 countries have enforced insider trading laws, 26 of them only after 1990.

Academics have investigated the effectiveness of restrictions on insider trading and the impact of their enforcement on the financial system. The empirical evidence suggests that, while trading based on inside information may not have declined following the introduction of stricter rules and insiders' profits may even have risen (Seyhun, 1992; Garfinkel, 1997; Bris, 2000), tough enforcement plays a crucial role by increasing the perceived deterrence of sanctions, thus inducing insiders to alter their trading patterns, and by reducing the cost of equity capital, owing to the removal of asymmetries which are likely to have an adverse effect on the functioning of markets (Bhattacharya and Daouk, 2001).

How well does Italian law on insider trading work? The evidence on prosecutions since 1991, when the first anti-insider-trading legislation was passed, is rather discouraging: so far there have been only two convictions.

The major shortcomings of the Italian system are: the fact that insiders can be successfully prosecuted only if it can be proved that their trades were carried out using price-sensitive, non-public information; the weakness of the investigative powers of the Italian supervisory authority, Consob; and the exclusive reliance on criminal sanctions, which involve very lengthy court proceedings handled by the judicial authorities. Therefore, the expected benefits from insider trading are probably still too high for legal restrictions to have a significant effect on insiders' decisions; moreover, a cultural environment in which insider trading is often seen as a good and clever practice weakens the impact of the regulatory transparency regime imposed on issuers and financial operators and makes the reputational sanction ineffective.[1]

This paper examines the effectiveness of Italian insider trading legislation by focusing on the evidence regarding the pervasiveness of information-based trading in the stock market. Section 2 contains a brief survey of earlier research on legal and illegal insider trading and the

effectiveness of regulation in different countries. Section 3 provides an overview of Italian insider trading legislation as well as evidence on the enforcement carried out by Consob and the judicial authorities. Section 4 assesses the pervasiveness of trading based on private information by constructing, using a standard event-study methodology, indicators of the "leakage" of material non-public information for a sample of 29 block sales and takeover bids in the period 1998–2000. Section 5 makes some suggestions as to how regulation and enforcement could be improved.

2. The effectiveness of insider trading laws: An overview of empirical research

Whether insider trading laws, enacted in several countries only in the last decade, are effective is a fiercely debated issue. Empirical research, focusing either on the analysis of illegal insider trading episodes (Meulbroek, 1992) or on reported corporate insiders' transactions (Seyhun, 1992; Bris, 2000; Del Brio et al., 2001 among others; contra Garfinkel, 1997), casts doubts on the ability of legislators and regulators to prevent trading based on material, non-public information. This evidence is confirmed by the findings of analyses of stock-price run-ups around announcements of corporate events (Keown and Pinkerton, 1981; but contra Jarrell and Poulsen, 1980 and Lakonishok and Lee, 2000). A brief examination of each strand of the above-mentioned literature follows.

As regards illegal insider trading, work on the US and Italian financial markets has produced some interesting results. Evidence for the allegations made by the SEC from 1980 to 1989 shows that insiders' transactions caused stock prices to rise by as much as 40 to 50% of the increase registered on the announcement day. On average, the impact of insiders' dealings on daily returns is about 3% on the day of the insider trade, while the disclosure of private information induces an abnormal return of about 18.50% (Meulbroek, 1992). These findings have been confirmed by a case-study analysis (Cornell and Sirri, 1992); however, subsequent work has shown that, again for a single illegal insider trading episode, the price impact of informed trading cannot be statistically distinguished from the price effect of uninformed transactions (Chakravarty and McConnell, 1999).

By replicating Meulbroek's methodology, Bagliano et al. (2001) try to disentangle movements in prices and volumes due to illegal transactions on the Italian financial market, by checking two hypotheses: first, announcements without insider trading do not affect stock prices as early or as persistently as illicit transactions; second, the latter have a marked effect on the time-series of volumes and returns. The authors focus on Consob investigations of events that occurred between May 1991 and March 1999 and were reported to the judicial authorities before July 1999 in order to identify a different pattern of the series when privileged information might have been used. However, the estimates of the correlation parameter on insider trading dates turn out to be too unstable and imprecise, thus ruling out the possibility of using the changing pattern of auto-correlation for detection purposes.

The studies focusing on legal insiders' transactions aim at checking whether and how regulation impacts on corporate insiders' trading.

Seyhun (1992) shows that the increased statutory sanctions, which were introduced in the United States in the 1980s,[2] did not reduce either the abnormal returns or the volumes of corporate insiders' trading. In particular, the analysis of about 840,000 transactions carried out between 1975 and 1989 indicated a rise in estimated abnormal profits from 3.5% before 1980 to 7% after 1984; moreover, the number of stocks exchanged and the frequency of large-volume trades also increased substantially. During the time span considered, however, trading around earnings and takeover announcements lessened: this is probably because such transactions led to the greatest involvement of the courts, thus making insiders reluctant to exploit earnings and bid information. The author concludes, therefore, that insiders' simply readdressed their behaviour towards information usage that, while still profitable, was not covered either by statutes or by case law.

Garfinkel (1997) finds instead that legislation affected and reduced insiders' transactions. This conclusion is supported by two facts observed with reference to a sample of nearly 14,000 quarterly earnings announcements during the period 1984–1991: first, the proportion of buying and selling before the disclosure date declined by 12%; second, the stock-price run-ups measured around such announcements also decreased over time, probably reflecting a drop in illegal trades.

There is also evidence on other countries. Del Brio et al. (2001) question the effectiveness of Spanish legislation given that insiders beat the market by timing their transactions, contrary to outsiders, who, in spite of mimicking insiders' behaviour, do not succeed in obtaining positive excess returns.

Eckbo and Smith (1998) estimate the results of insider trades on the Oslo Stock Exchange (OSE) during a period of lax enforcement of insider trading regulations. They construct a portfolio that tracks all the movements of insiders in and out of OSE firms and, using three alternative performance estimators in a time-varying expected-return setting, find zero or negative abnormal performance by insiders.

Four major studies analysed the impact of directors' trades on the stock prices of UK companies. King and Röell (1988) find significant and very large positive abnormal returns following directors' purchases and insignificant negative abnormal returns following directors' sales. The opposite result is reported by Pope et al. (1990), who, using a data set covering the period 1977–84, found that only negative abnormal returns associated with sales were significant. Gregory et al. (1994, 1996) extend the analysis by considering firm size. The authors argue that in a long-term event study, the size effect, by accounting for the out-performance of smaller firms and its volatility, is essential in the computation of abnormal returns. In particular, Gregory et al. (1996) point out that both positive and negative abnormal returns, following respectively directors' purchases and sales, are statistically significant, although the former last longer than the latter (24 versus 6 months).

Bris (2000) agrees with the evidence for the persistence of stealth trading in spite of the enactment of stringent legislation and tries to identify the effects of the legislation itself on insiders' profits. The author studies the pattern of undetected insider trading profits estimated for a sample of about 5,000 acquisitions in 56 countries between 1990 and 1999 and finds that such profits rose when insider trading legislation was passed. This might be

due to the fact that regulation creates monopoly profits for those who can circumvent it. A cross-section analysis nevertheless shows that such profits are lower in countries where enforcement is stricter (such as the United States).

The announcement effect and the run-up index are regarded as proxies for the extent of illegitimate trading, which is assumed to be directly proportional to the frequency of above-normal price run-ups and inversely proportional to the stock-price reaction at the announcement date. However, this argument is controversial.

Studies on earnings announcements find abnormal movements in returns and volumes on the days immediately preceding and following the announcement (Kandel and Pearson, 1995; Morse, 1981; Penman, 1982). In the case of takeover and merger announcements, the price run-up starts long before (10 to 20 days before the announcement). Such run-ups, however, are not always explained by illicit trading; in fact at least three other factors may be important: acquisition of a foothold block by the prospective bidder before the public announcement (Jarrell and Poulsen, 1989), speculation about control-related operations in the media (Comment, 1986; Gupta and Misra, 1988; Jarrell and Poulsen, 1989), a lower incentive to keep the news secret in the case of a friendly bid (Jarrell and Poulsen, 1989). Jarrell and Poulsen (1989) find that the price run-up is negatively affected by the variable accounting for alleged insider trading, contrary to the expected positive relationship; however, the authors acknowledge that this result might be due to measurement error in the explanatory variable, since alleged insider trading cases capture only illicit behaviour that was detected. Others view increases in stock prices before corporate announcements as resulting from legitimate research and analysis by market analysts and institutional traders who correctly predict takeover targets; in this case, they gain an informational advantage which they exploit before the announcement as compensation for their efforts (Comment and Jarrell, 1988).[3] Arshadi and Eyssell (1993) question this hypothesis, however, by showing, with reference to a sample of US firms in the years 1975–85, that models using published financial data to predict takeover targets are highly inaccurate and cannot explain the ability to earn abnormal returns.

In any case, the empirical evidence cannot be interpreted regardless of the legal framework of the system producing it: in other words, the toughness of both insider trading legislation and the regulation of corporate information disclosure need to be taken into account.[4] Where the expected penalty for illicit trading is low or zero, the absence of a price reaction when private information is disclosed, coupled with a sustained run-up during the preceding days, strongly supports the hypothesis that insider trading is common. This is what Bhattacharya et al. (2000) claim with reference to the Mexican market. On the other hand, Bris (2000) points out that insignificant abnormal returns at the announcement date do not necessarily reflect widespread leakage of non-public information. With reference to the above-mentioned sample of 56 countries, the author argues that lower stock-price reaction at the announcement date may be consistent either with the hypothesis of market underreaction or with higher bid prices. After discarding the former, Bris provides evidence showing that insider trading legislation and enforcement are usually accompanied by higher bid prices. The latter in turn may be explained by greater protection of minority shareholders as a result of other measures approved at the same time as insider trading legislation. Furthermore, lower ownership concentration, which also appears to be

negatively affected by anti-insider trading laws, may also be an important factor (Beny, 1999).

3. Enactment and enforcement of insider trading legislation in Italy

Insider trading has been a criminal offence in Italy since 1991. The original aim of the law, as can be seen in the preparatory reports submitted to the Italian Parliament, was to guarantee a level playing field for participants in the securities markets. Legal scholars, however, criticised this position and argued that the law's purpose had to be restated as the elimination or limitation of market activities by persons who had access to privileged information because they were corporate insiders or connected to the source of the information by virtue of their employment.

Briefly, the practices regarded as criminal offences were: trading while in possession of inside information (obtained by virtue of ownership of capital in a company or by reason of employment), passing inside information to third parties (tipping) and advising third parties to trade on the basis of privileged information (tuyoutage). In order to establish the offence of insider trading, it was not necessary to prove that the reserved information had been exploited knowingly. There were also tippee offences: each of the above-mentioned activities was in fact prohibited for persons who directly or indirectly obtained privileged information from insiders knowing that the information was privileged. The Consolidated Law on Financial Intermediation passed in 1998 substantially modified the definitions of the criminal offences: it is now necessary to prove that transactions were carried out using inside information; moreover, tippees are no longer prohibited from passing on privileged information or advising third parties to trade on the basis of such information.

As far as Consob's powers are concerned, the law gave the regulatory authority specific powers of investigation (which are basically those it has for the performance of its supervisory functions plus the right to request information from and to hear anybody who appears to be acquainted with the facts); moreover, Consob may apply to governmental bodies for assistance and access taxpayer records. It is commonly argued, however, that these powers are not sufficient to permit effective investigations to be carried out; furthermore, the 1998 law eliminated the fines previously applicable to persons subject to the law who failed to cooperate with Consob or hindered its investigations. Consob has to submit the documentation it gathers in its investigations to the judicial authorities.

Penalties have been increased by the Consolidated Law: the maximum fine was raised to about 310 thousand euros (previously 156 thousands) and the maximum jail sentence to 2 years (previously one year); additional penalties (such as the prohibition on holding public office) also apply; the judge may increase the fine up to three times depending on the gravity of the offence; profits and the resources used to carry out transactions are confiscated.

The effectiveness of insider trading regulation has long been questioned. In fact, in spite of Consob's efforts to strengthen and refine its investigative methods and procedures for detecting illicit behaviour, which has led to an increase in the number of reports submitted

Table 1. Reports to the judicial authorities and prosecutions.

Year	Reports	Convictions
1991–1992	0	0
1993	8	0
1994	1	0
1995	1	0
1996	9	0
1997	16	1
1998	17	1
1999	22	0
2000	17	0

Source: Consob's Annual Reports. The figures for convictions do not include plea-bargain settlements.

to the judicial authorities, the number of prosecutions is still far from having a significant deterrent effect (Table 1; for details see Consob's Annual Reports).

The low number of convictions can be explained by several factors: the crime of insider trading is very difficult to prove and the new legislation, by making it necessary to show that the privileged information was used knowingly, has aggravated the situation. Moreover, the public prosecutor has to ascertain whether the inside information was price sensitive, which raises the (debated) question whether Consob can act as a technical expert for the courts.

The evidence on the enforcement of Italian insider trading legislation shows that the expected penalty for an offender is quite low. Does it follow that insider trading is a widespread phenomenon? The next section attempts to answer this question on the basis of price run-ups before announcements of corporate control events, i.e. of the extent to which non-public information is built into stock prices, as an (imperfect) indicator of illegal behaviour.

4. Insider trading around announcements of block sales and takeover bids

4.1. Evidence from an event study analysis

In the last four years, corporate control transactions accounted for the majority of non-public information giving rise to illegal insider trading (Consob, 2001). It is therefore worth assessing the pervasiveness of information-based trading around such events. Illegal insider trading is likely to occur in connection with block transactions and takeover bids because the price offered usually exceeds the target firm's share price, i.e. there is a premium, which vanishes after the announcement of the transaction, so that trading

Table 2. Corporate control transactions (1998–2000).

	Number	Friendly transactions[a]	Announcement with rumours	Suspect of illegal insider trading	Tender premium[b]	
					Min.	Max.
Takeover	16	10	9	5	2.2	53.1
Block sellings	13	–	4	3	−14.4	43.3

Source: Consob and Reuters.
Nine corporate control transactions (both takeovers and block sellings) carried out in the sample period were excluded because there were not available enough observations on share market prices.
[a]Either because they were jointly planned by the offeror and the target or because they had been subsequently favourably judged by the target.
[b]Calculated as the percentage change of the bid price relative to the target stock price 20 days prior to the announcement net of changes in the appropriate market index.

in advance of announcements can be highly profitable. On the other hand, such pre-announcement trading may reflect not only illegal behaviour by insiders and/or tippees but also legitimate trading subsequent to press speculation and rumours. Therefore, it is likely to be difficult to disentangle legal from illegal trading (although it could be objected that rumours may originate from illegal "leakage" of inside information; more on that later).

In order to get an insight into the pervasiveness of insider trading, the daily stock returns for a sample of 13 block sales and 16 takeovers in the period 1998–2000 are examined; Consob reported 8 of the 29 cases to the judicial authorities as suspected of involving illegal insider trading.[5] More details on the sample are reported in Table 2.

Cumulative abnormal returns and stock-price run-ups are computed in order to capture a necessary (although not sufficient) condition for the occurrence of illegal insider trading; these figures are then compared across the two subgroups, one including the 8 corporate control transactions with possibly illegal trades and the other the remaining 21 cases, in order to test whether prices follow different patterns in the two subgroups.

Abnormal returns (ARs) are defined as the daily returns for stocks exceeding the daily returns of either the market index (MIB) or the sector portfolio. Following the standard event-study methodology (Brown and Warner, 1985), for each stock in the sample a market model is estimated using price data from 170 to 21 days before the bid announcement (henceforth also day 0).[6] The latter does not always coincide with the formal announcement date, but is an adjusted date, corresponding to the first day on which the target firm is regarded as such in the media, whenever the public announcement is preceded by widespread "street talk". As shown in Table 2, this occurs in 13 of the 29 sample cases.[7]

Cumulative abnormal returns (CARs) for individual firms over the days of interest (t, T) around the announcement date are equal to:

$$\mathrm{CAR}_i(t, T) = \sum_{j=t}^{T} \mathrm{AR}_{ij}$$

Table 3. Cumulative abnormal returns, run-up index and abnormal return at day 0 for 29 corporate control transactions[a] (1998–2000).

Subperiod	Takeover bids	Block sales	Total
(−20, −11)	3.9	3.1	3.5
(−10, −2)	2.1	5.2	3.5
(−1, +1) or announcement effect	7.2	1.1	4.5
(−20, +1) or total effect	13.2	9.4	11.5
Run-up index at day 0	88.9	93.7	90.7
AR at day 0	4.5	1.7	3.2

[a]With respect to the general market index.

For the overall sample (n), CARs are computed by averaging cumulative abnormal returns:

$$\mathrm{CAR}(t, T) = (1/n) \sum_{i=t}^{n} \mathrm{CAR}_i(t, T)$$

The window of interest is (−20, +20); CARs for different time intervals are reported in Table 3. The table also shows the AR on the announcement date, the CAR (−1, +1) (also called the announcement effect) and the stock-price run-up, defined as the ratio $\mathrm{CAR}(-20, t)/\mathrm{CAR}(-20, +1) \times 100$. The total effect, CAR(−20, +1), has also been called the unanticipated premium for the subperiod (−20, +1) and measures the value of the additional information contained in the period around day 0; the run-up index accounts for the percent of the eventual premium that has been observed on day t.[8]

The CARs, the corresponding t-statistics and the run-up indexes for each day of the window (−20, +20) are shown in figure 1 and reported in the appendix.

It should be noted here that the AR at day 0 is significant at the 5% confidence level for both the takeover bid and the block sale subsamples; moreover, the CARs are statistically significant at the 5% level respectively from 18 and 6 days before the announcement.

Both the announcement effect and the run-up index can be regarded as proxies of informed trading before day 0. In particular, the former captures the market reaction to the information disclosed (the smaller the effect, the more the market had anticipated the event); the latter is a complementary index (the smaller the run-up, the less the market had anticipated the event).

Table 3 shows that the announcement effect is on average larger for the takeover bids, while the price run-up is larger for the block sales.

In order to detect factors other than illegal trading which might explain abnormal stock-price run-ups, we checked for the impact of both media speculation about control-related transactions and the friendly/hostile nature of the bid (Table 4).

Referring to the formal announcement date rather than the news-adjusted date in order to evaluate the run-up effect may be misleading, as can be seen in Table 4, where the CARs for the subsample of 13 transactions preceded by rumours are shown for both dates. For instance, the run-up indexes differ by about 13 percentage points depending on which date

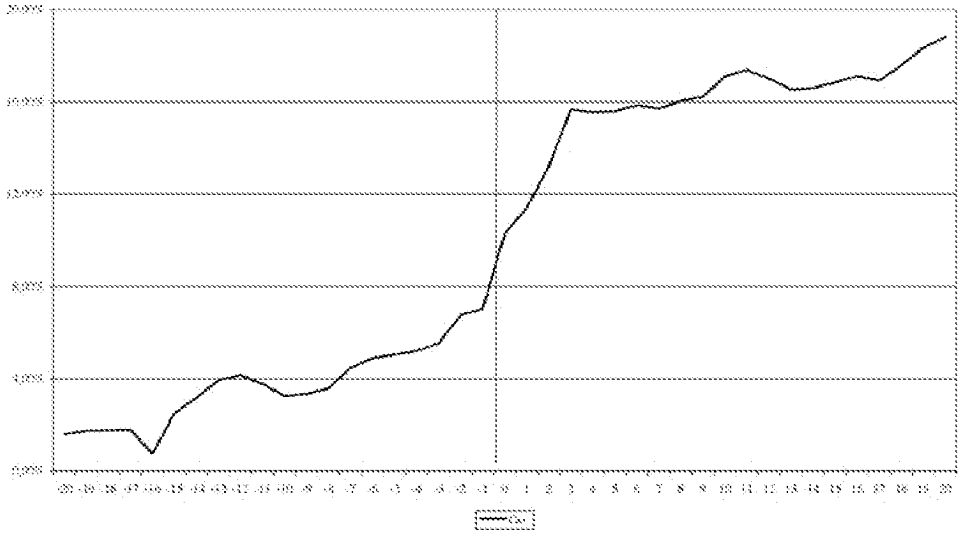

Figure 1. CAR of corporate control transactions.

is considered. This is why, following most event-study literature, news-adjusted dates were used.

As acknowledged by some authors (e.g. Jarrell and Poulsen, 1989; Keown and Pinkerton, 1981) the differential effects of hostile versus friendly transfers of corporate control are difficult to predict. The former might be characterised by less widespread (intentional or unintentional) information leakage, due to the need for the bidders to keep their plans secret in order to prevent defensive moves by the targets; if this is so, hostile bids can be expected to show a lower run-up. On the other hand, hostile bidders might be interested in getting the stock of their targets into the hands of arbitragers, who are more willing

Table 4. Cumulative abnormal returns for different subsamples of corporate control transactions[a] (1998–2000).

	CARs of takeover bids and block sales with rumours:		Takeover bids	
Subperiod	Formal date	News-adjusted date	Friendly	Hostile
(−20, −11)	2.4	3.1	5.8	0.7
(−10, −2)	8.4	4.4	3.2	0.3
(−1, +1) or announcement effect	9.1	7.0	9.2	3.8
(−20, +1) or total effect	19.8	14.4	18.2	4.9
Run-up index at day 0	96.8	83.5	82.4	129.2
AR at day 0	19.2	12.1	4.6	4.3

[a]With respect to the general market index.

than other shareholders to accept hostile offers: if this is so, hostile bidders are likely to be less concerned about information leakage and the effect on the prebid run-up would be unpredictable.

The figures reported in Table 4 do not provide any strong evidence on differences in price patterns between the different types of offers: the CARs in the various subperiods are higher for friendly takeovers, while the ARs at the announcement date are substantially equal and the run-up index is higher for hostile bids. This is consistent with the conflicting considerations recalled above; the empirical evidence in a few studies on the phenomenon in the United States goes in the same direction (Jarrell and Poulsen, 1989).

If the stock-price run-up is due to illegal insider trading, the cases in which such trading occurred should have a larger run-up and a lower announcement effect. In our sample, Consob made formal allegations of illicit behaviour in 8 cases. These allegations do not, of course, necessarily constitute the exact population; in some cases insider trading may have been incorrectly alleged, while in others it may not have been prosecuted because of the difficulty of providing evidence of criminal behaviour.

The total effect for alleged insider trading cases is about 16%, while the difference in the total effect across the two subsamples is around 7%; moreover, the ARs at day 0 are respectively 3 and 4% (Table 5).[9]

Although the cumulative abnormal returns for the sample of transactions with alleged insider trading are higher, the test on the equality of the means of the two subsamples did not support the hypothesis that insider trading causes larger stock-price runups. In particular, for the whole sample stock prices begin to rise to abnormal levels as early as 15 days before the announcement date (figure 1); moreover, as can be seen in figure 2, the pattern of CARs for the transactions with no allegation of illicit behaviour mimics that of the other subgroup, for which the figures, although lower in absolute value, start to increase as early as 8 days before the (adjusted) announcement date.

The patterns of excess returns observed is reflected in changes in trading volumes, which showed that, on average, the portfolio of shares involved in corporate control transactions recorded abnormal volumes in the event period. In particular, the proportion of firms exhibiting trading volumes different from those recorded in the clean period, at the 95% confidence

Table 5. Cumulative abnormal returns for corporate control transactions with and without alleged insider trading[a] (1998–2000).

Subperiod	Allegation of insider trading	No allegation
(−20, −11)	3.2	2.6
(−10, −2)	7.6	1.7
(−1, +1) or announcement effect	5.1	4.2
(−20, +1) or total effect	15.9	8.5
Run-up index at day 0	92.9	87.7
AR at day 0	3.0	4.0

[a]With respect to the general market index.

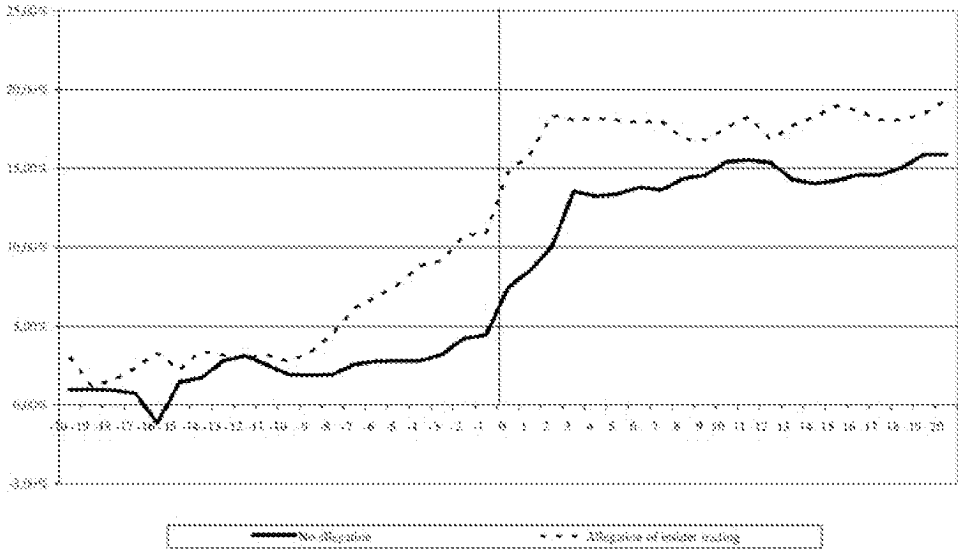

Figure 2. CAR of operations with and without allegation of insider trading.

level, is equal to about 7% ten days before the announcement and rises to 13% five days before. On the announcement date, the proportion is greater than 50% (see Table A.2 for more details).

Finally, it is interesting to check whether alleged insider trading, and hence information leakage, concerns securities issued by big firms more than those issued by small firms. According to economic theory, insiders try to hide the exploitation of non-public information by trading liquid securities, since the more liquid the stock, the better they are able to conceal informed trades (Kyle, 1985; Holden and Subrahmanyam, 1992; Foster and Viswanathan, 1993). Therefore, illegal behaviour should mainly concern stocks issued by big firms. In order to check whether this hypothesis holds in the Italian case, the distribution of the alleged insider trading cases detected by Consob between 1991 and 2000 by the market value of the issuers has been analysed. However, as can be seen in Table 6, where quartiles of market value are reported, the distribution of allegations only partially confirms the theoretical hypothesis, since about 40% of the cases regard firms belonging to the first two quartiles of market value.

4.2. *A few remarks*

The evidence on price patters reported above may be due to several factors. Planning transfers of corporate control generally implies quite a wide circle of people possessing material inside information: directors and employees, outsiders such as lawyers and investment bankers, public relations people, etc. Preventing leakage of information may therefore prove quite difficult, especially if there are only limited incentives to implement effective

Table 6. Distribution of alleged cases of insider trading by issuers' market value quartiles[a] (1991–2000).

Quartiles	Percentage of allegations
Q1	22.4
Q2	17.1
Q3	30.2
Q4	30.3

[a]The securities traded in the alleged cases have been classified according to the issuer's market value at the end of the year in which the suspected trades took place.
Sources: Consob and Datastream.

control systems which might ensure confidentiality (such as Chinese walls restricting the circulation of information inside the firm and confidentiality undertakings for outsiders). Leakage of information may also give rise to media speculation prompted by anomalous price patterns due to informed trades. If this were the case, rumours in the press could not be put forward, as part of the literature is inclined to do, as the main cause, in alternative to illicit trading, of the excess return recorded before the announcement day, but would rather confirm how difficult it is to detect insider trading. In other words, the main problem for the regulatory authority lies in the fact that only some trades can be monitored and those channelled through persons who do not have any legal obligation to keep the information secret easily escape enforcement action. Mention has already been made of how the Consolidated Law passed in 1998 modified tippee offences: secondary insiders are no longer prosecuted if they encourage others to trade after being tipped off by a primary insider; moreover, those who obtain access to the privileged information through a tippee are not prosecuted. This amplifies the effects of information leakage.

The evidence on the persons involved in alleged cases of insider trading in the last two years supports this hypothesis: the proportion of secondary insiders and tippees implicated doubled, rising from 28% in 1997–98 to 56% in 1999–2000.

This problem is common to other countries: in the United States, for instance, the SEC can monitor the trading activities of registered insiders but not those of insiders' relatives or friends; nevertheless, the authority has attempted to control illegal behaviour through a general prohibition on any person having access to non public information.

5. How can the effectiveness of Italian insider trading law be improved?

The conflicting evidence on the effectiveness of insider trading regulation, even for a country such as the United States, which has traditionally been a leading example in the

enactment and enforcement of rules on insider trading, makes it quite difficult to envisage an approach which might reduce illegal conduct. Moreover, simply mimicking other countries may give poor results: policies which are appropriate in other countries may not be suitable for the Italian framework, since differences in capital market development, securities regulation, legal and political institutions matter. However, in spite of various divergences both in the methodology and in the conclusions, theoretical and empirical studies undoubtedly agree on the fact that things go better when enforcement is tougher.

Therefore, the question "How can the effectiveness of Italian legislation be improved" can be reformulated as "How can enforcement be made tougher." The answer implies two levels of intervention, including both preventive and repressive measures. The latter require both a legislative definition of illegal behaviour and sanctions, as well as investigative powers for the regulator ensuring efficient detection and punishment.[10]

Prevention relies mainly on mandatory disclosure of price-sensitive information, transparency and the control of insiders' transactions, together with devices which ensure confidentiality. Although it requires the disclosure of material information, Italian law is weak on several grounds.

First of all, unlike the legislation in some countries (such as the United States and Spain), Italian law does not require officers, directors and large shareholders to report all their transactions in their firms' stocks. This makes it more difficult to detect illegal behaviour. The introduction of reporting obligations could also be combined with prohibitions on transactions which might signal exploitation of private information. In this regard, an example comes from the so-called short-swing rule, that is rule s16(b) enacted by the SEC pursuant to the Securities and Exchange Act of 1933, which compels insiders who have bought and sold stocks of their own firm within a six month period to return any profits they make to the issuer. The rule simply assumes that such transactions are based on non-public information and aims at preventing stock-price manipulation by insiders who, having purchased stocks, want to realise the related profit.

Secondly, the adoption of Chinese walls and measures to prevent the leakage of non-public information does not appear to be a widespread market practice, in spite of the prescriptions of Consob and the recommendations of the self-regulatory Code of Conduct issued in 1999 by the Italian Stock Exchange (Borsa Italiana). In fact, the adoption of the Code by listed companies has not been as fast as would have been desirable. This goes a long way towards explaining the information leakage revealed by the analysis in the previous section; reducing it will probably require both regulatory and self-regulatory measures.[11] In particular, as regards the regulation of corporate control transactions, it would be possible to introduce a rule prohibiting any person who has access to material privileged information concerning an offer, directly or indirectly through the bidder, the target or their employees, from purchasing or selling the securities in question or causing them to be purchased or sold.[12]

Repressive measures can be efficiently enforced if at least three conditions are met: illegal behaviour is clearly defined and can be easily identified; the competent authority has effective investigative powers; and sanctions provide a sufficient deterrent. As mentioned earlier, the 1998 Consolidated Law changed the definition of illicit conduct and made it

more difficult to prove criminal behaviour. At the same time it toughened sanctions, but it failed to meet most of the requests to strengthen Consob's investigative powers. This has led, for instance, to the acquittal of defendants who had suffered a loss from their trading, on the grounds that the non-profitable nature of the transactions was evidence that the insiders had not used non-public information (Milan Tribunal, 1999). Moreover, even if statutory sanctions are tougher than before, the accused can plea-bargain, thus substantially reducing the penalty.

One way to overcome these obstacles, which weaken the effectiveness of the anti-insider trading provisions, would be to restore the pre-1998 prohibition on encouraging to trade and disclosing inside information to third parties for both primary insiders and tippees. Moreover, following the legislative developments in countries such as the United States, France, Spain, and more recently the United Kingdom, the criminal regime could be complemented by an administrative regime, which could be compatible with a less restrictive definition of the offence since convictions would not have to satisfy the high standard of proof required by criminal courts.[13]

The above proposals do not, of course, exhaust all the possible solutions which have emerged in the debate (see Linciano and Macchiati, 2002): However, the issue of whether and how the current Italian regime can be modified is beyond the scope of this paper.

On the other hand, the empirical analysis of the previous section suggests that the main weakness of insider trading regulation is the leakage of information. The most effective way to curb this is through preventive measures, which can be in the form not only of statutory provisions but also of self-regulatory initiatives. The latter may flourish in a legal and cultural framework marked by high standards of corporate governance and protection of small shareholders' rights, and where firms' reputations play a role in the allocation of resources to competing investment projects.

In other words, insider trading control cannot be dealt with separately from the institutional, legal and social factors which underlie any financial system, as a stream of recent empirical literature has increasingly stressed.

Appendix

The following table reports abnormal returns, cumulative abnormal returns and the run-up index for both subsamples of takeovers and block transactions.

The ARs, CARs and corresponding *t*-statistics use estimates of coefficients of the market model. *T*-statistics have been computed under the assumption that the abnormal returns which together make up average abnormal returns are independently and identically distributed; however, similar *t*-statistics are obtained if abnormal returns standardised by time series variances are used in order to account for the fact that some stocks are more volatile than others. Finally, given that small cross sections have been used, the rank test (Corrado, 1988) was carried out in order to check whether prices behave differently immediately before corporate transactions. The test confirmed the null hypothesis, given that the statistics (which under the null hypothesis follow the normal distribution) are equal to 5.891 and 5.320 respectively for the takeover and block transactions.

Table A.1. Abnormal returns (AR), cumulative abnormal returns (CARs) and run-up index for takeovers and block transactions (1998–2000).

	Takeovers					Block transactions				
Trading day (t)	AR $(-20, t)$[a]	t-statistic	CAR $(-20, t)$[a]	t-statistic	Run-up[a]	AR $(-20, t)$[a]	t-statistic	CAR $(-20, t)$[a]	t-statistic	Run-up[a]
−20	1.166	1.414	1.166	1.414	1.269	1.981	1.899	1.981	1.899	2.003
−19	−0.025	−0.036	2.307	1.815	2.510	0.292	0.706	4.254	2.543	4.302
−18	0.593	0.856	4.041	2.434	4.397	−0.649	−1.614	5.879	2.810	5.944
−17	−0.354	−0.801	5.421	2.609	5.898	0.636	1.047	8.139	3.143	8.230
−16	−0.474	−0.872	6.327	2.560	6.884	−1.794	−0.938	8.606	2.900	8.702
−15	1.145	1.408	8.379	2.837	9.116	2.311	1.103	11.385	2.900	11.512
−14	0.779	1.692	11.209	3.252	12.196	0.321	0.321	14.484	2.833	14.645
−13	1.484	1.857	15.524	3.835	16.890	−0.143	−0.126	17.440	2.750	17.635
−12	−0.185	−0.505	19.653	4.312	21.382	0.681	0.785	21.077	2.729	21.312
−11	−0.228	−0.335	23.554	4.637	25.627	−0.572	−0.757	24.142	2.733	24.412
−10	−0.999	−2.942	26.457	4.741	28.785	−0.043	−0.153	27.164	2.767	27.468
−9	−0.596	−1.517	28.763	4.750	31.294	1.182	1.541	31.369	2.945	31.719
−8	0.473	1.027	31.543	4.843	34.318	0.137	0.127	35.710	3.107	36.108
−7	1.029	0.696	35.350	4.816	38.461	0.812	0.817	40.862	3.309	41.318
−6	0.835	1.177	39.994	4.990	43.513	−0.129	−0.113	45.886	3.455	46.398
−5	−0.075	−0.130	44.562	5.182	48.483	0.703	1.520	51.613	3.655	52.189
−4	−0.833	−1.887	48.297	5.265	52.547	1.668	1.728	59.007	3.910	59.666
−3	1.680	2.646	53.713	5.484	58.440	−1.148	−1.170	65.254	4.030	65.982
−2	0.592	0.984	59.721	5.794	64.976	2.028	1.896	73.528	4.292	74.349
−1	1.261	2.735	66.990	6.158	72.884	−1.146	−2.153	80.657	4.484	81.558
0	4.463	3.464	78.721	6.755	85.649	1.694	1.449	89.480	4.752	90.479
1	1.459	0.605	91.912	7.194	100.000	0.593	0.876	98.896	5.039	100.000
2	0.547	0.722	105.649	7.596	114.946	3.385	1.509	111.697	5.491	112.944
3	−0.796	−1.235	118.591	7.937	129.027	6.500	1.387	130.998	5.905	132.461
4	−0.423	−0.996	131.110	8.267	142.647	0.177	0.411	150.477	6.280	152.156
5	0.911	2.050	144.541	8.646	157.259	−0.928	−2.022	169.027	6.611	170.914
6	0.739	1.310	158.710	9.036	172.675	−0.174	−0.370	187.403	6.920	189.495
7	0.402	0.572	173.281	9.438	188.529	−0.705	−0.588	205.074	7.219	207.363
8	0.092	0.132	187.944	9.826	204.483	0.377	0.574	223.123	7.514	225.613
9	0.422	0.884	203.030	10.201	220.895	−0.158	−0.361	241.013	7.795	243.703
10	1.052	2.387	219.167	10.582	238.453	0.676	2.193	259.579	8.096	262.477
11	0.810	2.308	236.115	10.990	256.892	−0.406	−0.983	277.740	8.380	280.841
12	−0.903	−1.593	252.160	11.344	274.349	0.016	0.024	295.917	8.656	299.220
13	0.265	0.341	268.469	11.721	292.094	−1.486	−0.712	312.607	8.965	316.097
14	−0.257	−0.492	284.522	12.074	309.559	0.203	0.407	329.501	9.281	333.179
15	0.630	1.533	301.205	12.447	327.710	−0.021	−0.077	346.374	9.586	350.240
16	0.071	0.156	317.959	12.812	345.938	0.340	0.398	363.587	9.868	367.645
17	−0.310	−0.527	334.403	13.158	363.829	0.074	0.244	380.874	10.145	385.125
18	0.152	0.348	350.999	13.506	381.885	0.666	0.712	398.827	10.397	403.279
19	0.713	0.871	368.308	13.880	400.717	0.688	1.143	417.467	10.642	422.127
20	0.372	0.889	385.989	14.256	419.954	0.048	0.075	436.155	10.884	441.024

[a]Percentage values.

Table A.2. *Z*-Statistic for log-volume and percent significantly different from mean volume for takeovers and block transactions (1998–2000).

Trading day	*Z*-Statistic for the whole sample[a]	Percentage of firms with abnormal volumes
−20	1.49	6.7
−19	1.48	13.3
−18	1.10	13.3
−17	1.17	13.3
−16	0.85	10.0
−15	1.88	13.3
−14	1.74	6.7
−13	2.52	6.7
−12	2.62	20.0
−11	2.82	13.3
−10	1.02	6.7
−9	1.69	6.7
−8	1.89	6.7
−7	1.53	13.3
−6	2.85	26.7
−5	1.51	13.3
−4	2.29	6.7
−3	3.29	13.3
−2	4.44	20.0
−1	6.00	26.7
0	7.95	53.3
1	8.09	53.3
2	7.34	46.7
3	5.92	26.7
4	6.34	53.3
5	4.54	26.7
6	5.36	33.3
7	5.11	26.7
8	5.19	26.7
9	4.53	13.3
10	3.93	20.0
11	4.37	20.0
12	5.09	26.7
13	5.63	26.7
14	5.08	40.0
15	4.14	26.7
16	3.73	20.0
17	4.82	33.3
18	5.64	33.3
19	4.75	33.3
20	4.05	20.0

[a]For each firm, the *z*-statistic is computed as the ratio of the net log-volume at the indicated date net of the mean log volume in the pre-event period (−171, −21) and the standard deviation of the mean log volume. The z-statistic for the whole sample is computed as the sum of the firms' z-statistics in the sample divided by the square root of the number of firms.

Acknowledgment

The author wishes to thank A. Macchiati for useful suggestions to a preliminary version of the paper; moreover, the work has benefited from comments by Prof. A. P. Kyle. Any opinions expressed here are those of the author and not necessarily those of Consob.

Notes

1. An interesting insight on the opinion of Italian financial operators in the 1970s and 1980s regarding the pervasiveness and harmlessness of insider trading is provided by the interviews collected in Tamburini (2001).
2. In particular, the Insider Trading Sanction Act (1984) amended previous legislation by providing for up to three times the insiders' illegal profits in civil penalties and raising the maximum fine for the criminal violation from $10,000 to $100,000. Moreover, the Insider Trading and Securities Fraud Enforcement Act (1988) further increased criminal penalties (the maximum jail sentence was increased to ten years and the maximum fine to $1 million) and enabled contemporaneous traders who lose to insiders a right of action to recover their losses.
3. These arguments, often employed by convicted insiders to justify their trades, are usually not very convincing, especially when the timing of the alleged insider trading is taken into account.
4. Bagliano et al. (2001), for example, construct an indicator for both the United States and Italy based on the ratio of the proportions of price run-ups due respectively to press speculation and insider trading. They find that the indicator for the United States is roughly one fifth of that for Italy and suggest that this might be the result of the stricter US legislation.
5. In Italy, Consob discloses cases of alleged illegal insider trading.
6. The *Event Study* methodology is concerned with the valuation of firms and the changes in firm value resulting from corporate events, such as changes in capital structure. It is based on the efficient market hypothesis, according to which the impact on a firm's value of decisions relating to the firm itself can be measured by the change (abnormal return) in the stock price around the time the decisions become public knowledge (the event date); statistical tests are employed to check the significance of abnormal stock returns around event dates. On methodological grounds, it is necessary to identify the event, the date of the first public announcement, the benchmark model for stock return behaviour against which abnormal returns can be measured. Usually, the benchmark model is the market model.
7. Measuring abnormal returns and the run-up in stock prices in relation to the formal announcement would have biased the index of prebid market activity due to illegal information based trading.
8. In the denominator of the run-up index, day $+1$ is used as a benchmark because by the close of the day after an announcement all investors will have had the opportunity to trade on the basis of the information made public.
9. The latter evidence differs from the empirical findings of Bagliano et al. (2001), who, for a different sample and for alleged insider trading cases, report abnormal returns on announcement dates and on insider trading days equal in absolute value on average respectively to about 10% and 2%.
10. These considerations are consistent with the Beckerian approach (Becker, 1968), according to which individuals rationally choose whether to commit a crime by comparing the expected benefits (in our case, profits from informed trades) with the expected losses, which might be defined as a function of the probability of detection and the expected sanction. This view can be criticised because it neglects the influence that factors other than economic variables may exert on individuals' behaviour. Social norms, for instance, have often been indicated as altering the optimal trade-off between the probability of detection and the severity of the punishment and thus nullifying the deterrent effect of solutions not providing for harsh penalties (such as imprisonment). Such penalties would affect the social perception of criminal behaviour and thus shape social norms through a stigma effect, contributing to prevention of the crime itself (Kahan, 1997); fairness considerations, however, may adjust such a view towards a less dramatic departure from the Beckerian approach. This line of reasoning will not be pursued further here since it would drive us too far from our aim, which is simply to point out

the main weaknesses of Italian legislation as well as solutions that are consistent with the current approach to insider trading.

11. Self-regulation may be successful in reducing insiders' transactions before the disclosure of material information. A recent study for the United States reported that 78% of 403 firms listed on the NYSE and AMEX had established monitoring and authorisation procedures for their insiders' transactions, as well as blackout periods during which purchases and sales are banned (Bettis et al., 2000). The data on insiders' transactions show that they decreased significantly during blackout periods and thus that such codes are effective and have a positive effect on stocks' liquidity.
12. In the United States, for example, such a prohibition exists under rule s17 of the 1933 Securities Act, and rule 14e-3, enacted by the SEC pursuant to s14 of the 1934 Securities and Exchanges Act. In the United Kingdom, similar rules are laid down in the City Code of Takeovers and Mergers issued by the Takeover Panel and in the Model Code issued by the FSA.
13. This approach is pursued by the proposed Market Abuse Directive presented by the Commission of the European Communities.

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