

An Interpretative Model about the Insider Trading in Financial Market

by

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Abstract. This paper investigates the determinants of insider trading to describe the potential financial effects of this phenomenon. In particular, we will study the effect of some variables linked to the insider trading process (volumes, the origin of the subject that works for the company, the nature of an insider in a hedge fund and other variables). Finally, this paper, after having defined the variables that are capable of influencing the insider trading' profit, will suggest a method of econometric calculation using an "FE" panel that shall consist of 17250 observations.

Key words: Insider trading, Hedge Funds, Returns, Panel

JEL classification: C0, D8, G14, K4.

1 Introduction: the reasons for the economic literature

Insider trading is the abuse of inside information and it's based on the purchase or sale of financial instruments entered into by entities called insider. They are in possession, because of their qualities or activities of relevant information and are able to influence the public value, once disclosed, of the securities trading. The insider abuse can also be achieved through the provision of such information to a third party, said *tippee* that benefits in its investment activities.

In this contest Mannie (1996) argues that the conduct is deemed to have beneficial effects mainly on the system statement. In particular, the phenomenon is a simple and effective solution to the problems generated by the separation of ownership and control in large enterprises. So, due to the loss of control on the actual management of the company by owners in favor of a management that does not it engages in its capital, the main danger is the failure to coincidence between the interests of management and those of shareholders. On this account the Chicago School' authors argue that insider trading can produce essentially two positive effects: on the one hand it generates a greater coincidence of interests between managers and shareholders which should ensure a more efficient management and better allocation of resources; secondly, speculation

on listed securities by insiders should move the prices of these securities more quickly to a level that also considers the information to which they have exclusive access, thereby improving the signal function of market prices and, consequently, once again, the allocation of resources.

Because of the various positive effects the Insider Trading proposed by this theory, it has been the subject of much criticism. In the first place it was observed that the Insider Trading in the definition indicated by Manne, would not be aimed at rewarding the efficient administration of the company, but the mere possession of confidential information, whether favorable or unfavorable prospects of society, with the result that encourage managers to manipulate the spread information on the company in such a way as to produce the maximum reaction in the listing of securities. Secondly, in case they were omitted or diffuse information incorrect by Insiders would be necessary to assess the negative effects of loss of market efficiency as the decrease in liquidity and the increase transaction costs. In this regard already Haft (1982) made a thorough analysis of the effects that insider trading would be a possible deregulation. According to this author, in relation to the quality of the decisions taken at the enterprise' summit there will be different scenarios depending on whether the directors compete or decide to cooperate with each other and split the profits from speculation on

securities of the company. For both cases, the companies listed represent a negative situation: in the first case the mistrust that characterizes the relationship between the directors irreparably weakens the cohesion between the members of the Board, provided essential for the production of high-quality decisions; alternately in the second case, the directors could opt for a greater collaboration to get the best information, speculate and then resign.

In favor of the economic role played by the Insider Trading there are some authors as Grossman (1986) who considers the Insider Trading instrument to finance low-cost research activities and business development. In other words, they argue that companies have an interest in exploiting their internal information through the cooperation of Insiders to fund with the profits obtained free of charge, costly research, profitable only in long period. This argument is subject to two main criticisms: first, significant costly research cannot depend on funding and not can be planned and, secondly, it is contradictory to assume that the firm updates by the activity of certain insiders, the information on its expansion strategies, when its specific interest is to protect it from the competition, and not give them knowledge either directly or indirectly.

Unlike opinions of the Chicago School, a second group of economists, while recognizing the economic agents to the risk of loss due to Business Insider, highlights the ability of the same and without the need to protect themselves of specific legislation. These authors, in their turn, assume two distinct positions: some argue that the issue of sufficiency of the remedies applicable by individual operators involved can only be resolved with reference to cases of species; others espouse the thesis of self-help and support that a public intervention in this field is redundant or even harmful. Compared to the state legislation, in particular, self-discipline plays a useful complementary role by bridging any gaps or establishing interpretive criteria acts to eliminate or, however, circumscribe possible doubts.

Now, however, it is necessary to expose those theories, the authors believe that the Insider

Trading an essentially negative phenomenon. In particular, it can manifest its influence against the market, investors and society. With regard to the market, the economists belonging to this category argue that insider trading may hinder rather than accelerate the dissemination of information as the insider has an incentive to delay their disclosure in order to make the most of the situation of information asymmetry that makes it a privileged and that, therefore, the condition for efficient operation market coincides with the absence of delays harmful to the information (M. Manove, 1989; J. Laffont, 1990). In particular, they argue that the presence of Insider Trading undermines the reliability of the market and it puts a strain on the ability to attract investors avoiding leakage to different forms of investment. In relation to the latter, Manove (1989) verified that in a market in which insider trading is a common practice, potential investors decide to tackle the problem of adverse selection on the calculation of expected returns by setting levels of investment lower than those that would establish in conditions of symmetric information. With regard to the effects on liquidity, Insider Trading has controversial aspect. As the Insider operating with privileged information is willing to trade it at competitive prices and apparently profitable, its business will allow an easier settlement of securities for the benefit of those who need to dispose of those values. Furthermore, in accordance with the portfolio theory and the Capital Asset Pricing Model the immediate liquidation of certain securities will enable those who have demobilized their values become more easily counterparts in relation to securities other than those treated by insider, and so on, thereby increasing the overall liquidity of the entire market and, simultaneously, the volume of negotiations. In addition to this positive effect, however, it is necessary to clarify that investors whom became aware about having an unfavorable contract with the Insider, may fear its presence, resulting in the medium term, through the choices of less risky investments, a contraction of liquidity. Is not, therefore, simply to determine a priori and through predetermined

criteria which of the two effects criteria, generated by insider trading on liquidity, will prevail.

It can only be noted that if one part a higher uncertainty and, therefore, a greater degree of price volatility results in higher profits for the Insider, the other feeds to a greater extent the so-called *escape effect* to various forms of investment. A second theory, called the theory of harm to investors, supports the need for public regulation on the basis of Insider Trading recognition of the existence of information asymmetries between the different operators on the market.

The unlawful conduct considered damaged in the first place, individual investors which, representing the counterpart of insider transactions carried out, would buy or sell securities at prices that do not reflect their value intrinsic. In a broader sense, we can say that victim's do not Insider would only counterparts, but all those who have made operations of opposite sign and contemporary to the one he made. The idea behind this argument is that the investment in the financial markets should be a *fair game* and that compliance with its rules should be guaranteed by the State. In this context, the intervention by the public is to ensure the equality of the starting conditions for all market players namely the so-called market egalitarianism.

2 The empirical studies on insider trading

A. J. Keown e J. M. Pinkerton (1981) analyzed the impact that the insider trading has on the price movement of the securities, analyzing 194 companies acquired, before of a determinate announcement. In particular, the paper provides empirical evidence of excess return obtained by investing in companies subject to takeover, before the first public announcement of the transaction. The authors analyze the impact of insider trading on the movement in the share price of companies in the sample, prior to the date of the announcement. According to Keown and Pinkerton a useful comparison is that between the abnormal returns of the pre-announcement listed companies and unlisted

companies, in order to determine whether the regulation of markets is a deterrent to the development of the phenomenon under consideration.

A. J. Keown, J. M. Pinkerton, P. J. Bolster, (1992) set themselves the objective of examining trading volume around the first public announcement of an impending merger. In particular, they analyzed whether the announcements of mergers are preceded by a dramatic increase in the volume before the initial rumors in the market about the event. In addition, the selected sample is divided into two groups: the shares traded on the New York and American Stock Exchanges, and those traded on the OTC market. In this way they obtained the relative level of volume before the initial announcement of the merger that are traded on the regulated market than those traded on the OTC market, which should be subject to less stringent rules.

Fabio C. Bagliano, Carlo A. Favero, Giovanna Nicodano (2001) studied, instead, the volumes and the prices of the securities when there is insider trading in the market of Milan, using files, not available to the public, suspected cases of insider trading. The first objective was to obtain estimates of abnormal returns. These can be used by the courts in order to decide on punishment of the accused and on the relevance of insider trading. The abnormal returns on the day they provided in the studies of the ad also a measure of how pervasive insider trading in a market. The second objective was to determine whether insider trading changes the distribution of volumes in a way that it can be used by supervisors to discover the presence of such phenomenon through statistical methods.

Michael R. King, (2009) had as objective to study the dynamics of prices and volumes before announcement of a takeover and focused on Canadian companies during the period between the mid-eighties and the beginning of the twenty-first century. The increase in abnormal turnover begins some time before the announcement and accompanies the last 5 days prior to the announcement abnormal returns, given the presence of more informed traders. The sudden increase in the volume before the

announcement of takeover indicates the use of private information. This study confirms the importance of abnormal volumes to begin an investigation into insider trading. The results of abnormal turnover and abnormal returns were associated with insider illegal trading cases prosecuted in the U.S.; proceedings of insider trading are very common in the case of mergers and acquisitions. However, the fact that the title of a society experience abnormal turnover and abnormal returns does not mean that there is necessarily illegal activity. Check for the presence of abnormal turnover before a public announcement can be considered as the determinant that triggers an investigation for insider trading.

Alex Frino, Stephen Satchell, Brad Wong, Hui Zheng (2009) analyzed, instead, a model of choice of the size of insider trading volumes. This model recognizes that the insiders satisfy both the earnings expected that the costs associated with their crime and choose the volume from negotiate in such a way as to maximize the expected utility of wealth associated with the exchange. In this work, the focus is on the behavior of insiders trying to develop a model that is able to identify the factors that affect the intensity of the phenomenon of illegal insider trading. Understanding the factors that influence the quantity traded by insiders could help improve the detection mechanisms of the phenomenon. The contribution of these economists consisted in showing that the insiders tend to “hide in the crowd”, that is to hide among the other actors on a specific title.

3. An interpretative model for insider trading

Unlike the others contributions we will try to describe and to analyze a potential financial effects of insider trading: we will study the effect of some variables linked to the insider trading process (volumes, the origin of the subject than the company which trades, the nature of hedge fund insider and other variables), second, we will seek to determine whether, and to what extent, the application of

a restrictive legislation has effective to combat insider trading in some European countries.

About the first model it is necessary to seek and find the data and information on cases of insider dealing who have registered and that were identified by the various Authorities. This analysis was however hampered by the fact that all data are confidential or, at the maximum, may be disclosed publicly just those that are most significant. Therefore, collected data are interpreted, in the model, as from a single source although derived from different researches: Datastream, SEC, AMF e FSA. The time series considered is 2000-2013 where it is extremely important to establish as this period includes within two financial crises (2001-2007) and this time interval refers to date where phenomenon is significant.

Over the years concerned they have been recorded 656 cases of insider trading and market manipulation and, as a consequence, also acceptability by supervisory authorities/stock exchange regulators.

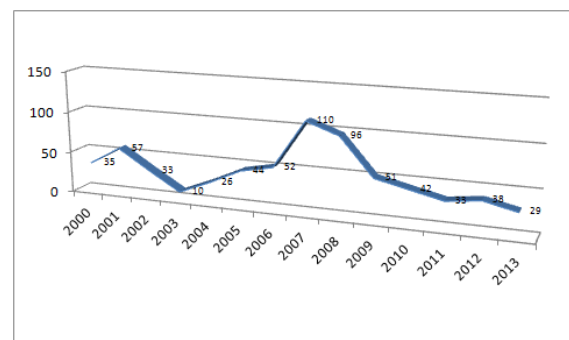


Figure 1. Insider trading in the years

Source: our processing of mixed data: Datastream, SEC, AMF e FSA, 2013.

The values shown in the Fig.1 represent a very sample about the phenomenon of insider trading from a global and historical point of the view based on our observations mixed data.

Let's analyze with more accuracy cases in which there were insider trading evidence as regards the countries considered in the survey. We analyzed nine countries and extrapolated data in percent, as illustrated in Figure 2.

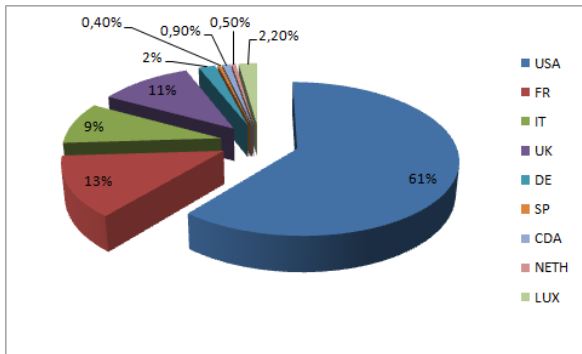


Figure 2. Insider Trading (Countries)

Source: our processing of mixed data: Datastream, SEC, AMF e FSA, 2013.

As can be seen from the graph above the country in which there was the greatest number of insider trading events it's USA, and with significant distance France, UK, Italy etc... These data are in line with the expectations. USA, in fact, is the country with largest dimension of the phenomenon but, but also what recorded more attention to insider trading. We put now our attention to the insider trading announcements companies listed on regulated markets, in financial, banking and insurance companies and which are operating illegally on a large scale. As illustrated in Figure 3 markets in which insider trading have acted more has been that USA, specifically the NASDAQ.

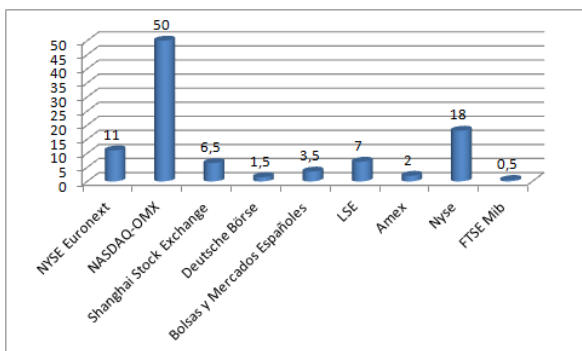


Figure 3. Insider trading in Financial Markets

Source: our processing of mixed data: Datastream, SEC, AMF e FSA, 2013.

We ask us why NASDAQ is the market with mayor presence about insider trading. The answer to this is clear: the widest diversity and competition of the market makers of the NASDAQ compared the other bags, reduces the spread offered by market mekers. The variety of

intermediaries allows operators informed of their hide more information easily, distributing orders between them. Insiders trade' preference on this market than others is also documented by studies done previously, from which it appears that the other specialist markets are more easily able to identify informed traders. Looking at the profits of insiders divided by the market as soon as it is confirmed seen. Market in which insiders have gotten a total profit was NASDAQ, followed by Euronext that peaked in 2008.

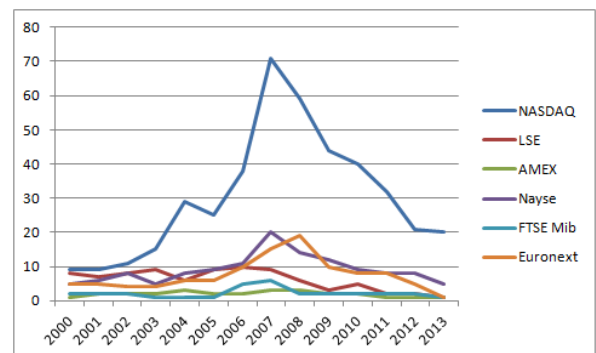


Figure 4. Insider Trading: profits gained (mln \$).

Source: our processing of mixed data: Datastream, SEC, AMF e FSA, 2013.

As shown in the Fig.4 which compares markets where operate insider trading, NASDAQ is to where there are the largest profits; after we can see increased profits recorded there were in the United States and, in particular, in the period from the 2007-2008: it should also be stressed that there is a correlation between this phenomenon and financial crisis.

Lastly, we pay attention to the different origins of insider trading. Firstly, those that have more confidential information can function in two ways: can be limited to communicate them to others and to negotiate buying and thus to receive a fair economic return, or they can implement themselves the collusive behavior on the market which will ensure major efficiency gains, but also avoidance of losses. In the first case person who works for a private firm is guilty of criminal offence of tipping or tuytage; person making this communication may be internal to the company itself, or can be, for example, an individual of a

bank that is witnessing a society an extraordinary transaction such as an acquisition or merger. Insider trading will receive, obviously, a reward for having allowed the person who actually operated on the market, making a profit.

At first glance one might think that the majority coming from by society on which negotiate, while our analysis show many different situations in particular concerning geographic origins of insider trading.

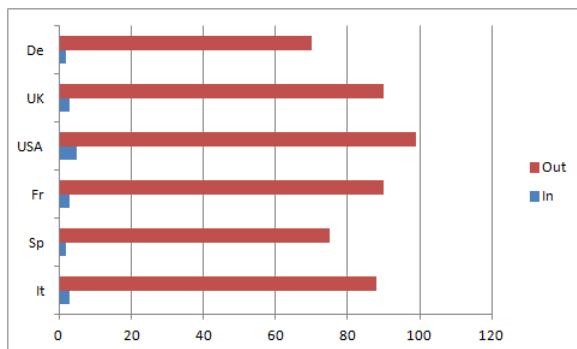


Figure 5. Geographic origins: insider trading In or Out
Source: our processing of mixed data: Datastream, SEC, AMF e FSA, 2013.

We can still easily find out in Fig.5 as in all countries there is significant presence of insider trading of the type *Out* compared with *In*. One possible explanation for this phenomenon can be given that the quantities insider exchange. Individuals within the company will exchange less because they will have more difficulty to “hide in the crowd” of investors, in addition, for the authority supervision, it will be easier to establish a link between the person who has negotiated and possession of confidential information.

Econometric Model¹

Starting from previous investigations now we will demonstrate, through an econometric model, what were the variables which could influence the insider trading’ profit. In particular we will be implementing a panel model with time series effect. The study aims to establish what influences revenues for insider trading considering as dependent variable (in

log) the profit. After we consider n_i independent variables for 10 years and considering 5 Country: USA, France, Italy, Spain, UK. In particular, we think the following elements should be analyzed: a) amount of shares traded daily, based on the information received by insider trading (STR) and one would expect to see a positive sign -a higher volume, profits should grow; b) after we will also consider the provenance of every insider trading. Normally for that situation various forms of dummy are used. We chose, however, don’t use parametrical dummy because in a model that we are proposing for them it would be many “dropped” variables in our panel. So, we have identified a number of insider trading per country obtaining several quantitative value (Geo); c) the third is a very important variable for our model. It including the role of insider trading in Hedge Fund, considering they as a leading player in insider trading’ profits. This analysis was very difficult to apply in the model because we extrapolated from the data of Hedge Funds ones where there have been cases of insider trading (HF); the final independent variable used is that of time. It is expressed as the number of days between the first and the last trading, i.e. represents the number of days on which the trader has traded. For this variable, we expect a positive coefficient, as the number of days on which the insider trades will also increase its profits (Time).

Table 1 describes main results of our model developed with STATA.

Most important results that we have achieved are: to the increase of one percentage point increase in the volume profits (STR) of 31%; the second variable (GEO) shows a positive sign and significant. The result is that it is relevant to an assessment of the case: to be a party related to society in which insider trading is working through the negotiation of its securities is relevant.

The third independent variable shows a positive sign of the coefficient, although it is significant (HF). The value of coefficient is very high, 2.90, and this result is very important and explains how the hedge fund cannot be compared to the

¹ The variables were taken from: SEC-reports; Datastream; FSA-research. 2013

individual investor, and how it can get big profits from illegal operations.

Table 1. STATA results.

Fixed-effects (within) regression		Number of obs = 17250	
Group variable: number			
R-sq: within = 0.9861		Obs per group: min = 288	
between = 0.3027		avg = 25	
overall = 0.5218		max = 320	
corr(u_i, Xb) = -0.6862		F(4,346) = 6156.49	Prob > F = 0.0000

	l_profits	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
l_STR		.3125978	.0143267	21.82	0.000	.2844194 .3407762
l_Geo		.8806445	.0173615	50.72	0.000	.8464971 .9147919
l_HF		2.904465	.1824498	15.92	0.000	2.545615 3.263315
l_Time		-.0854668	.0078029	-10.95	0.000	-.1008139 -.0701196
_cons		-6.141703	.6334136	-9.70	0.000	-7.387529 -4.895878

sigma_u		.73074778
sigma_e		.09366516
rho		.98383618 (fraction of variance due to u_i)

F test that all u_i=0:	F(24, 346) = 13.28	Prob > F = 0.0000
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The time variable has a negative coefficient. Its coefficient indicates that as the time that elapses between the first insider trading and the day of the profits decrease of 8%. If you look at the regression as a whole is a known R^2 equal to 0.98. This means that the independent variables explain 98% of the state of profits. The F-statistic also has a p-value of 0.00; this means that the variables, taken together, show a statistical significance at all levels and are able to explain the dependent variable.

4 Conclusion

Insider trading is defined as the activity of any person who, by virtue of his or her work/job, profession or duties, has access to certain information of a precise nature that could be relevant to monetary policy operations, foreign exchange operations with the ECB's foreign reserves and the management of the ECB's foreign reserve assets before it becomes public and takes advantage of that information with full knowledge of the facts by acquiring or disposing of, either for his or her own account or for the account of a third part, either directly or indirectly, assets (including transferable securities) or rights (including rights under

derivatives contracts) to which that information is closely related. However, some scholars argue it can be considered legal, because it brings quickly to price discovery of the securities, without damaging any investor in the long period. This thought is not, however, shared by the majority of economists, and certainly not by supervisors who have made the fight to this crime one of their priorities.

The analysis that we have conducted has shown that the insider is able to achieve gains "Playing" ahead of the other traders, who are unaware of the information inside of which he is holding. The analysis then revealed many interesting elements and sometimes unexpected. First observation and comparison of the market showed that NASDAQ is financial center where there was the greatest concentration of insiders. The explanation of this phenomenon must be sought in the different structure of the various financial markets and resulting in different probabilities of insiders to be discovered. A second result is that the majority of individuals who have made insider

Trading, including those identified from outside of the company whose securities were exchanged. Finally, we verified with the econometric model as the role and presence of hedge funds is highly significant. This result makes it very clear that the hedge funds cannot be compared to the individual investor, and how it can get big profits from illegal operations.

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