

EXHIBIT 9

(Part 1 of 3)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In re:

**BERNARD L. MADOFF
INVESTMENT SECURITIES
LLC,**

Debtor,

**IRVING H. PICARD, Trustee for
the Liquidation of Bernard L.
Madoff Investment Securities LLC,**

Plaintiff,

v.

SAUL B. KATZ, et al.,

Defendants.

Adv. Pro. No. 08-01789 (BRL)

SIPA LIQUIDATION

**(Substantively Consolidated)
Adv. Pro. No. 10-5287 (BRL)**

11-CV-03605 (JSR) (HBP)

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Part II of III

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EXHIBIT

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1-11-12*

**NEW EVIDENCE ON THE MARKET IMPACT OF CONVERTIBLE
BOND ISSUES IN THE U. S.**

by

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January 2004

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**NEW EVIDENCE ON THE MARKET IMPACT OF CONVERTIBLE
BOND ISSUES**

ABSTRACT

This study provides new evidence on the market impact of new issues of convertible bonds of U.S. listed firms. We examine on the market reaction surrounding the announcement dates and the issue dates of convertible bonds. The evidence suggests that firms experience negative abnormal returns around the announcement of new issues of convertible bonds. Abnormal returns are found to be a function of firm market value, price-to-book ratio, issue size, as well as the state of the overall market. Simulations using convertible arbitrage strategies suggests that investors could take advantage of these negative abnormal returns by going long on the firm's convertible bond and short on the firm's stock at the issue date.

NEW EVIDENCE ON THE MARKET IMPACT OF CONVERTIBLE BOND ISSUES

1. INTRODUCTION

From the onset of the equity bear market of the early 2000's, convertible bonds, which are bonds that can be converted into a firm's stock at a specified price during a given period, have become more popular financing instruments through time. Indeed, they have been touted as a cheap source of funds in periods of low interest rates and struggling equity market. However, to the extent that they are priced by no-arbitrage, in an efficient market, no source of funding should be particularly advantageous to either issuers or to investors. New issues of convertible bonds represent approximately the same proportion of the United States corporate bond market as the high-yield sector, amounting for an estimated \$92 Billion in 2002, or about 14.4% of all new corporate bond issues in the U.S. in 2002¹.

Several advantages have been cited in recent arguments for increased convertible financing. New issues can be consummated rapidly since they tend to be marketed via conference calls rather than road shows. Furthermore, the execution of these bonds has limited risk. Convertible bonds can also be flexible tools for balance sheet management since coupons and conversion price can be tailored to the issuer's needs. Additional features can even be added to the asset in order to meet issuer's needs as well as investors' needs. Supposedly, the option features will permit the firm to enjoy lower

¹ The Bond Market Association, U.S. Market Outlet, January 2002.

interest costs relative to straight debt. However, accountants and rating agencies treat convertible bonds as debt.²

Investors may also benefit from the asset characteristics of the convertible, for risk reduction purposes, as they may provide investors with the protection of a bond combined with some of the upside potentials of a stock. However, to the extent that stock and bond markets movements are synchronized, diversification benefits may be limited. The main risks of convertible bonds are in the reduction of the firm's credit rating, as its debt ratio rises in the short term, which could affect equity prices directly, as well as indirectly, to the extent that conversion leads to significant dilution of the firms' stock³.

This paper serves two purposes. First, we re-examine the market impact of new convertible issues using recent data. Secondly, we implement a new test of market efficiency, through simulation of a hedge fund strategy that has been touted in the popular press. For example, in Business Week (November 16th 1998), it is suggested that a company's convertible bond tends to rise at two-thirds the rate of its common stock price. However, it is also suggested that when a stock sags, the average convertible suffers only

²Knutson (1971) looks at the accounting implications of convertible bond costs and their impact on the financial statements of firms. He suggests that managers should be aware of how costly convertible securities are likely to be. Further, caution should be taken by both managers and investors when analyzing the effect of convertible securities could have on firms' statements. Knutson found that, on average convertibles securities are more costly than indicated in the firm's financial statements. The understatement of the real cost of convertibles is, on average, 55 % for debt convertibles. This explains the undervaluation of costs in financial statements. These misrepresentation caused by convertible securities tend to overstate earning per share. Further, he found that in many cases the "fully-diluted earnings per share more closely approximates real earnings per share that does primary." This means the real cost of convertibles is clearly higher than the nominal interest on face value of the securities and managers and investor should give a special attention to the real costs of these securities. The strong analogy for some issues with executive stock options suggests that our results may be of interest to the latter literature as well.

³Recent examples of convertible bond issues show a boom in zero-coupon bonds as well as in short-dated puts. Firms choose to issue bonds featuring a short-dated put structure in order to make the bonds more attractive for investors. The structure has been used in many large issues recently. For instance, Calpine Corp., Tyco International Corp., ComCast Corp., Cox Communications Inc, and many others have included it in their convertible bonds issues. In fact, the record sales of \$4.5 billion in convertible bonds by Ford in January 2002 clearly shows that interest in short-dated put structures is rising. It is likely to continue to be popular for a certain period of time.

half the damage. Accordingly, it is argued that profits could be made by combining a long position on the convertible bond and a short position on the stock.

In this paper, we examine an implementable zero investment strategy purportedly used by many hedge funds manager to take advantage of prices variations that follow

convertible issues. This strategy under study will consist of a long position in the firm's convertible bond and a short position in the same firm's stock. The strategy has a zero initial investment since the amount of the short sale equals the amount of the long position in the convertible bonds. We test the extent to which this strategy earned

abnormal returns for investors over the period under study as a means of assessing whether or not the conversion factor in convertible bonds is correctly priced. Indeed, if the strategy showed no significant positive returns, one can argue that there are no free lunches in the market for such a strategy using convertible bonds and firms' stocks⁴. To the extent that such a trading strategy is profitable, it provides evidence against market efficiency in the sense of return predictability (Fama (1991)).

This paper is structured as follows. The next section provides a brief review of the extant literature. Section three describes the data collection. Section four explains the

⁴ Funds using convertible arbitrage have purported to show great returns from their strategies in the last decade. The Convertible Arbitrage Index of Credit Suisse First Boston/Tremont claims to have beaten the S&P500 since its inception in December 1993. Since inception the convertible index has a cumulative return of 150.04 % with an average yearly return of 10.62% as of February 2003. During the same period, the cumulative returns of the S&P 500 were 74.65% and its average yearly returns were 6.33%. The difference got larger in the bear market of the last 3 years. Indeed, the yearly average of the convertible index during the 3 years was 13.84% versus -14.93% for the S&P 500. Furthermore, investments in such an index provided good diversification for investors. The Convertible Index has very low coefficients of correlation with other majors' index such as 0.13 with the S&P 500. A beta of 0.04 also shows the diversification benefits that an investor could gain by including such an index in his portfolio. The benchmark used to calculate the beta was the S&P 500. The beta was calculated on a monthly basis and also on the same period beginning on January 1994 and ending on February 2003. The Index monthly Sharpe ratio of 1.27 also proved the strength of the returns. Again, during the same period, the S&P 500 Sharpe ratio was only 0.12. The Sharpe ratios were calculated by Credit Suisse First Boston/Tremont Index LLC and the rolling 90 day T-bill rate was used.

methodology used in the empirical tests, results, follow in section five. A summary and conclusion are found in section six.

2. LITERATURE REVIEW

The choice made by firms to use convertible bonds may in part be explained by the theory of capital structure. Early studies, such as Myers and Majluf's (1984) "pecking order" theory, have focused on pure debt or equity issues, ignoring hybrid securities like convertibles. Myers and Majluf's (1984) introduced a pecking order theory that incorporates the information asymmetry between investors and firm's management. In most situations, a firm's manager will know both the present value of an investment opportunity as well as the value of the firm in the absence of the investment; investors do not have this information. Myers and Majluf assume that capital markets show semi-strong form efficient and are perfect. Even if firms tend to issue debt securities before stock related securities, sometimes when managers feel their stock are overpriced, they prefer to issue stocks and take advantage of new investors. Under this assumption, manager should issue stocks when they are overvalued and issue debt when investors undervalue the firm. Asquith and Mullins (1986) provide empirical support for this, when they show that announcement of new equity issues are followed on average by a 3% abnormal drop in stock returns. This contrasts with Modigliani and Miller (1961) where a firm's capital structure is deemed irrelevant to determine its total value.

Myers and Majluf (1984) further note that a firm will issue different kinds of securities depending on the managers' expectations of the value of projects undertaken. Specifically, firms are expected to issue stocks when a bad state of the world is expected to happen and will issue debt when a good state is most likely to occur. If the project will

have a beneficial impact on the firm's value, the manager will not want to share the profits with new investors and therefore will tend to finance by internal sources or by debt. However, if the project has the possibility of increasing the risk of the firm and/or decreasing the firm's value, the manager will want to share this downside risk with new investors and will issue stocks. They explain that the profit per share in good states will be higher if the firm uses debt instead of stocks. This is mainly due the tax shield provided by the debt components and the dilution effects included in stock issues. This risk sharing phenomenon associated with stock issues serves as a signal to the market. This is one of the reasons why stock issues announcement are generally followed by decrease in firms' stock price. This signalling process also explains why investors usually react favourably when firms announce new debt issues. Indeed, Masulis (1983) found that events increasing firm's leverage are generally associated with positive abnormal returns and events decreasing firm leverage are usually associated with negative abnormal returns.

Myers (1984) further notes that firms choose to avoid having to finance real investment by issuing common stock or other risky securities, since they do not want to run the risk of having to finance positive NPV projects when the potential new stock issue price is too low. Hence, firms are expected to cover new investments opportunities with the maximum reasonable debt level that is considered safe for the firm. In doing so, firms avoid costs associated with financial distress and maintain a portion available as a reserve to borrow more if unexpected positive NPV opportunities are presented to the firm. Myers' last conclusion relates to situation where firms do not have any additional internal cash flows or are unable to issue safe debt; the pecking order theory will prevail. This

means that firms will tend to issue less risky securities first. Therefore, firms will prefer to issue convertible debt instead of common stock.

However, the signal sent by new issues of securities can become mixed when firms begin to finance positive NPV projects using new equity for many different reasons that are not anticipated in the traditional theories of capital structure. Indeed, a recent study by Baker and Wurgler (2002) shows that firms try to time the market and will issue stocks when their market values are high relative to past market values and book price and will repurchase stocks when they are low. Baker and Wurgler show that several mixed signals were sent to the market in the late 90's where many firms financed their positive NPV projects with stocks to take advantage of the bull equity market.

To date there have been relatively few studies on the impact of convertible bond issues. The theoretical literature typically postulates ambiguous effects of new convertible issues on stock price in reflection of the trade off of tax and agency benefits against a dilution effect that occurs when the bonds are converted into stocks. The usual finding is that such issues represent bad news to shareholders. Empirical studies have generally shown that the tax and agency benefits are indeed outweighed by the stock conversion dilution effect. Dann and Mikkelson (1984), for example, found negative abnormal stock returns of -2.31%, on the announcement day of a new convertible bond issue.

Furthermore, they find that the abnormal returns are less negative when the new convertible bonds have an important impact on the increase in leverage compared to those that have a small impact on firm leverage. On average, convertible debt usually increases financial leverage.

Kim (1990) shows that the signals sent by convertible debt issues are mainly related to the conversion ratio and the market reactions to the new issues can be positive

or negative. The reactions depend mainly on the expected time that the convertible debt is likely to become at-the-money. Kim demonstrated that the convertible debt would send the same positive signal to the market as a straight bond issue if the conversion ratio is large and therefore the time to become at-the-money is also large. Furthermore, a lower conversion ratio and a short expected time to become at the money will send a similar signal to that of a stock issue.

Stein (1992) provides an alternative argument for a firm's use of convertible debt. The main idea of his theory is that firms will issue different securities depending on the nature of these firms. He separates firms into three types: good, medium and bad. The good and bad firms are less likely to issue convertible bonds. A good firm has many incentives to issue straight debt, the alternative would be sell under priced securities with no compensating advantage. Bad firms will not issue convertible bonds due to the high probability of having an overhanging position that would limit both future debt and equity issues. Convertible bonds are more appropriate to serve medium firms. Indeed, these companies need equity in their capital structure but want to send positive signals to the market. Medium firms see advantages to correctly use convertible bonds in good states since if negative earnings occur, they will not have an optimal level of debt and its future issues of equity and debt would be compromised. Therefore, Stein put more emphasis on financial distress and expected earnings to evaluate the choice of convertible debt issues.

To explain the use of convertible debt, Stein also mentioned that the expected rate of growth is a determinant variable that will also have an impact on the stock price. Indeed, the expected rate of growth will impact the probability that the bond become at-the-money. Stein also stated that the market can anticipate the amount of time before the bond is converted. It can be done by setting the conversion price equal to the stock price

in the formula: $E(S_T) = S_0 e^{\mu T}$. In this function, S_0 , is the current price of the stock, μ , represents the drift or the growth rate of the stock and T , represents time. Therefore, investors can determine the conversion time, T , that it will take for the bond to become at-the-money. In sum, Stein (1992) differs from Kim (1990) by adding market expectations to the model. Indeed, Stein's hypotheses are similar to the ones by Kim (1990) where in good states, firms will issue convertible debt with high relative conversion price and high expected time to conversion. On the opposite, firms will use shorter expected time to conversion and lower conversion price when bad states are expected by managers.

In the same vein, Davidson, Glascock and Schwartz (1995) note that the average expected time for a convertible security to become at-the-money is between one, and one and a half years. They find that the lower the expected time to become at-the-money, the more negative are the abnormal returns on the firm's stock. However, they expect firms to experience negative abnormal returns surrounding the announcement date even if the expected time to become at-the-money is longer than one and a half year. They found an average significant negative abnormal return of -1.4% from the day prior until to the day of the announcement of the issue is made. Their findings confirm Kim's (1990) argument that low conversion prices send more negative signals to the market and high conversion prices send more positive signals. Growth is shown to be significant as expected by Kim (1990) and Stein (1992) but only in one of the two samples tested by Davidson, Glascock and Schwartz (1995).

Previous studies of new security issues typically look at *announcement dates* for capital structure changes. There are only few studies that analyze the impact of the convertible bond on the *issue date*. The issue date is relevant for the hedge funds who

purportedly profit by taking a short position in the underlying stock surrounding the issue date. They ostensibly use the proceeds of the short sell to buy convertible bonds. The profitability of the strategy will depend, in part, on the extent of the negative abnormal returns around the issue date. The impact of hedge funds on firm's finance cannot be ignored since they bought for nearly 70% of all convertible bond new issues in 2001 on financial markets as mentioned in the Evans (2002). This phenomenon also has an impact on firm's stock value since many of their investment strategies on convertible bonds involve the use of short selling of stocks. This is why an overview of the arbitrage hedge funds industry and convertible bond characteristics are needed to fully understand the subject⁵.

3. DATA SELECTION

Firms in this study were selected if their stocks trade on either the New York Stock Exchange (NYSE), the American Exchange (AMEX), or the over-the-counter (NASDAQ) market. As a first step, we identified all the offerings of convertible bonds during the period beginning January 1993 and ending December 2001 as reported from

⁵ The market of hedge funds that invest in these bonds using arbitrage strategies is increasing at a very rapid rate. The overall value of convertible hedge funds has grown from \$10 billion in mid 2001 to over \$25 billion by the end of 2002. Hedge funds are major participants in the convertible bond market. Indeed, hedge funds accounted for almost 70%, or about \$15.5 billion, of this market in 2002. The proportion of the market they occupy has doubled since 1994. This trend should not be a problem unless we get into scenarios where everybody wants to sell and the only buyers are other hedge funds that are looking to get out as well. Obviously there would be major liquidity problems in such a case. On the other hand, leverage in convertible arbitrage was low and no particular problems occurred surrounding September 11th 2001. Thus, it seems that hedge funds provide liquidity in the market by trading a lot. Moreover, they provide liquidity to other institutions by taking over their convertible bond positions when the underlying stock price begins to rise. In such cases, the convertible bond starts to track the stock's performance, making the security less appealing to institutions preferring to own the stock outright rather than the bond. Convertible arbitrage funds have showed good returns in recent years. For example, these funds had the second best performing strategy in the industry in 2001, with a performance of 14.6%. They had a net of \$2.1 billion in new assets in the third quarter of 2001 alone, due mainly to the record level of new convertible issues of \$ 104 US billion.

DataStream until DataStream ceased providing historical series that include dead/bankrupt issues in 2002. We then updated using the Bloomberg list on July 1st 2002. Hence, the results should be relatively free of survival bias. Most of the convertible bonds issues completed during the period will be included in the sample, since our sample includes bonds that were still traded as on July 1st 2002 on Bloomberg data set. However, converted and matured bonds are not included in our study. Eighteen bonds have to be dropped from the sample since they did not have enough data to compute one month of bond returns mainly because they were issued late in 2001. The daily returns, including dividends, of firms' common stocks were obtained from CRSP and Bloomberg. The final sample consisted of 229 convertible issues.⁶

The first part of the analysis is to compute the returns for the sample of convertible bonds issues as well as for the underlying stock. The announcement date is the date the issue first appears in the press, from Bloomberg. The issue date corresponds to the first day the bond is traded. Bond data were obtained from Bloomberg on a daily basis. Accrued interest was added to these prices to compute daily returns. All the categories of convertible bonds were included in our sample and for liquidity purposes, the outstanding amount of the bonds has to be more than \$100 million. There were no upper limits on the outstanding amount. The sample included both coupon and zero coupon bonds.

The issues in the sample were completed between January 1993 and December 2001. The issues under study contains both bull and bear equity market periods. However, events are clustered in the latter part of the sample, which consists of a period

⁶ The sample of issues is available from the authors on request.

characterized by a general decrease in stock prices and by a less favourable economic environment.

4. METHODOLOGY

4.1 Event Studies

The first step of our analysis, for both the announcement dates and the issue dates, is to compute the abnormal returns on firm's stock for our sample of convertible bond issues. In theory, the effect of a convertible bond announcement on the stock price is ambiguous. First, the issue may be good news for the firm's shareholders since the company is issuing more debt. However, the impact may be negative due to the possible dilution effect that would occur if the bonds were to be converted into stocks. Looking at the announcement date, we will be able to test whether the effects documented in previous literature are sustained using more recent data. Furthermore, we will also look at the effect surrounding the issue dates of these convertible bonds. For the purpose of our study, the convertible bonds' issue dates correspond to the first trading day. This allows analyzing stock price reactions surrounding the issuance of a convertible bond. Assuming that many investors, such as hedge funds managers, take a long position in convertible bonds at the issuing date, we expect negative abnormal returns for the stock surrounding this date. This is primarily because hedge funds take a short position in the underlying stock and then use the proceeds to buy the convertible bonds. In the next section of this paper we will study the returns of such a zero investment strategy. Abnormal returns are computed using the standard market model approach. We assume that security returns follow the single factor market model:

$$R_{jt} = \alpha_1 + \beta_j R_{mt} + \varepsilon_{jt} . \quad (1)$$

Where R_{jt} is the rate of return of the common stock of the j^{th} firm on day t ; R_{mt} is the rate of return of the market index on day t ; ε_{jt} is a random variable; β_j measures the sensitivity of R_{jt} to the market index. Accordingly, the abnormal return of j^{th} firm's stock on day t is defined as:

$$A_{jt} = R_{jt} - (a_j + b_j R_{mt}) . \quad (2)$$

Where the coefficients a_j and b_j are the ordinary least squares estimates from the regression above. The market returns are calculated using an estimation period that has 250 days (1 year) in length. The estimation period is the same for both the announcement and issue event studies and ends 40 days before the announcement date. The results that we report use the Equally Weighted Index from the CRSP database as the benchmark.⁷ This index is relevant for our purpose because the dataset includes firms from different industries and listed on NYSE, AMEX or NASDAQ.

First, the average abnormal returns are the sample mean of the abnormal return calculated as:

$$AAR_t = \frac{\sum_{j=1}^N A_{jt}}{N} , \quad (3)$$

where t is defined in days relative to the event date.

The mean cumulative abnormal returns or the cumulative average abnormal return (CAAR) is calculated as:

⁷ We also conduct the tests using the Value Weighted Index. The results are very similar and are available from the authors on request.