EXHIBIT 9

(Part 2 of 3)

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$$CAAR_{T_1,T_2} = \frac{1}{N}\sum_{j=1}^{N}\sum_{t=T_1}^{T_2} A_{jt}\,. \qquad (4)$$

Where N is the number of securities included in the analysis.

We also compute the precision weighted cumulative average abnormal return (PWCAAR) is calculated with a standard abnormal return, following Patell (1976) as:

$$PWCAAR_{T_1,T_2} = \sum_{j=1}^{N}\sum_{t=T_1}^{T_2} w_j A_{jt}\;, \qquad (5)$$

where

$$w_j = \frac{\left(\sum_{t=T_1}^{T_2} s_{A_{jt}}^2\right)^{-\frac{1}{2}}}{\sum_{i=1}^{N}\left(\sum_{t=T_1}^{T_2} s_{A_{it}}^2\right)^{-\frac{1}{2}}}. \qquad (6)$$

$$s_{A_{jt}}^2 = s_{A_j}^2\left[1+\frac{1}{D_j}+\frac{\left(R_{mt}-\overline{R_m}\right)^2}{\sum_{k=T_{Db}}^{T_{De}}\left(R_{mk}-\overline{R_m}\right)^2}\right]. \qquad (7)$$

$$s_{A_j}^2 = \frac{\sum_{k=T_{Db}}^{T_{De}} A_{jk}^2}{D_j-2}. \qquad (8)$$

R_{mt} is the observed return on the market index on day t, s the mean market over the estimation period and D_j is the number of non-missing trading day returns in the D-day interval T_{D_b} through T_{D_e} used to estimate the parameters for firm j. K is equal to T_{D_b}.

The event study results provide mean cumulative abnormal returns for the different event windows that we specified. We compute the abnormal returns for 9 different event windows. Each window is somewhere within 5 days prior to the event and

5 days after the event. As mentioned previously, we expect hedge funds managers to take action prior or at the issuing date. We also analyze the stock price behaviour after the bond issuing date.

4.2 Long Term Horizon Studies

Long horizon tests are conducted using two approaches. The first uses the Jaffe (1974) and Mandelker (1974) calendar time tests. We also implement the Lyon, Barber, and Tsai (1999) buy-and-hold methodology. Here, the mean returns are determined as in the same as for Jaffe (1974) and Mandelker (1974). The average compounded abnormal return for an interval of two or more months with beginning month T_1 and ending with T_2 is as follows:

$$\mathrm{ACAR}_{T_1,T_2} = \frac{1}{N}\sum_{j=1}^{N}\left[\prod_{t=T_1}^{T_2}(1+R_{jt})-1\right]-\left[\left(1+\hat{\gamma}_0\right)^{(T2-T1+1)}-1\right]-\hat{\beta}_j\left[\prod_{t=T_1}^{T_2}(1+\gamma_{1t})-1\right]. \quad (9)$$

The t test is determined as:

$$t(MMAR)=\frac{MMAR}{\sigma(MAR_t)/\sqrt{T}}, \quad (10)$$

where T is the total number of calendar months

and $MMAR$ is the grand mean monthly abnormal return, defined as:

$$MMAR=\frac{1}{T}\sum_{t=1}^{T} MAR_t, \quad (11)$$

where MAR_t is the mean abnormal return across firms at time t.

4.3 Cross-Sectional Tests of Abnormal Returns

A cross-sectional regression is performed to identify the determinants of the abnormal returns on announcement and issue dates of convertible bonds. The OLS regression is as follows:

$$AR_{ij} = \alpha_0 + \alpha_1 \ln(\text{Total Market Value}) + \alpha_2 \text{ Hot} + \alpha_3 \text{ Price to Book Ratio} + \alpha_4 \ln(\text{Outstanding Amount of the Issues}) + \varepsilon_{ij}. \quad (12)$$

Where, AR_{ij}, is the abnormal returns observed in the event windows (-1, 0) and (-2, +2) for each company. The size of the company is represented by the variable, Total Market Value. The Hot variable is a dummy variable who takes a value of one if the issue is in the period 2000-2001 and zero if otherwise.

4.4 Trading Strategy Simulation

We also perform a test using an empirical simulation, which recreates a zero investment trading strategy purportedly used by hedge funds managers with convertible bonds, which is commonly called a convertible bond arbitrage. By buying convertible bonds and simultaneously selling short the underlying stock, the positions are immune to some of the market fluctuations. The strategy consists of going long of 1000 $ on each convertible that is available in the market on their issue date. At the same time on each firm, a short sale of 1000 $ is done on the firm's stock. This simulated portfolio consists of all the 229 firms included in the sample. Returns are calculated from issue date. Therefore, returns are not calculated chronologically since issues are spread all over the period of 1993 through 2001. Returns at time *t* from the issue date consists of all the long and short positions in the strategy at time *t*. The returns of positions are determined on a day to day basis. The summation of all the long, *L*, and short, *S*, positions on a particular day represents the returns of the overall portfolio. Profits are calculated as follows:

$$P_t = \sum_{j=1}^{N} \left(L_{jt} - S_{jt} \right). \qquad (13)$$

The return on stocks in the strategy includes the variation in stock prices and the dividends payments as well. The returns on convertible bonds consist in the variation of the market prices to which we add the daily accrued interest, and the coupon payments. Since the returns are computed on a daily basis, reinvestment of dividends and coupons are not included in the portfolio returns. This is a buy and hold strategy. Returns are presented from issue dates plus X number of months. We carry out the simulation for up to 36 months following the first trading date when data are available to do so.

The analyses include the round trip transactions costs related to the 458 transactions made under the strategy using a ceiling commission of 1.5%. Taxes could have an impact on for investors since tax rates on returns on coupons differ from rates on capital gains for arbitrageurs using convertibles in this trading strategy. As an additional test, we will also explore limited arbitrage where the arbitrageur may only be able to take a limited short position. In particular we use the short sale constraint whereby the investor must have 150% of the value of shorted assets in his portfolio. In our simulation, investors would have to borrow an additional $500 to cover the $1000 dollars short sale and invest the 500 $ at the risk free rate. This technicality would influence the returns of the strategy by the difference between the borrowing and the lending rate on the amount of 500 $ for each short sale, while the position is open.

The monthly standard deviation within the portfolio at time t is defined as:

$$\sigma_p = \left[\sum_{j=1}^{N} \left(P_{jt} - \overline{P_{jt}} \right)^2 \right]^{\frac{1}{2}}. \qquad (14)$$

The test at time t was calculated as fallowed:

$$t = \frac{\mu_p}{\left(\sigma_p / \sqrt{n}\right)}, \qquad (15)$$

where , n, is the number of convertible bonds at time t in the portfolio and , μ_p, represents the average returns of each position of a convertible bond and stock in the portfolio.

A regression of the simulated strategy's returns over the risk premium was also done to determine the alpha and beta of such a global strategy. We first perform an ordinary least square (OLS) and therefore equal weight is assigned to every observation. It does not account for the variability in the dependent variables. The test followed CAPM assumptions where the return of assets during a period is explained by the market risk exposure, beta, and the risk free rate during the same period. The regression matched positions of each pair of firm's of convertible bond and stock and was regressed on the associate market risk. Therefore, the overall regression contains all the 229 positions. We present a monthly regression on of the simulated strategy given the assumed long holding period of hedge fund arbitrageurs in such strategies. The market return in the test is the S&P 500 and the risk free rate is represented by the 90 day t-bill. Returns of the portfolio follow the same assumptions as before, where transactions costs of 1.5% are included in the returns and reinvestments of both dividends and coupons are not included in the returns. Outliers where the Student tests of residuals was below –2 and over + 2 were dropped from the regression.[8]

The regression is as followed:

$$Ri_{jt} - Rf_{jt} = \alpha_0 + \beta_1 * (Rm_{jt} - Rf_{jt}) + \varepsilon_{jt}, \qquad (16)$$

[8] This led to the decline of 41 observations from the overall 4117 observations to generate the regression.

where, Ri_{jt}, is the monthly returns of positions, j, at time , t, α_0, is the alpha of the portfolio on a monthly basis, β_1, is the monthly beta of the portfolio, Rm, is the monthly returns of the S&P 500, Rf, is the monthly returns of the one month T-Bill, and ε_{jt}, represents the error terms associated with position , j, at time , t.

5. RESULTS

5.1 Announcement Date Effects

Table I shows the announcement date event study results. With the exception of the (0, +5) period, all windows show strong significance at 0.1% under the z test, even if the number of firms under study is reduced for this test. Indeed, due to difficulty to find clear announcement dates and the fact that some convertible bonds were re-sales of older bonds, only 85 bonds were kept to perform these tests.

It is thus evident that the announcements of new convertible issues represent negative events. In the (–1, 0) interval, the firms experience a significant decline in share price of about 3%. These results are quite consistent with those reported by Dann and Mikkelson (1984) and Davidson, Glascock and Schwartz (1995) who find significant negative abnormal returns surrounding announcement dates, for earlier historical periods. Furthermore, it may suggest that potential dilution effects may be outweighing tax/agency effects for convertible bond issuer.

5.2 Issue Dates Results

In an efficient market, the effects of a new issue of convertibles should be concentrated at the announcement date. However, to the extent that there is short selling pressure from hedge funds arbitrageurs, some negative abnormal returns might be expected on the issue date as well. Table II shows that indeed, this seems to be the case, although the absolute magnitude of the issue effect is somewhat less than half the announcement day effects.

For the period following the issuing date, we also find negative mean cumulative abnormal returns, but they were not significant. Indeed, the negative reactions are not significant on the day after the issue. This can show that the impact is only concentrated on the few days surrounding a convertible issue. Furthermore, it suggests that the significant losses surrounding the issue dates are offset by an increase in stock prices following the event. A possible explanation is that the selling pressure from hedge funds managers dissipates quickly. From this perspective, the gains from such short sale would be for only few days surrounding the issue date. Therefore, it will be interesting to see if an investor can take advantage of the event by shorting the firm's stock and buying the firm's convertible bond on the issue date. Testing whether this strategy can effectively provide a near "free lunch" is the purpose of the last section of tests.

5.3 Long Horizon Holding Period Results

Tables III and IV present abnormal returns for long-term horizons. The results in Table III are presented on a monthly basis, starting a month prior to the issue date up to 36 months after. The number, *N*, showed that most of the events have a year or less of data, where the number of firms on month 12 is 139. This number falls to 62 by month 24 and 37 by month 36. Most of the abnormal returns before month 24 are significant. However, the calendar time t-test shows statistically significant at a level of 5% only for months 0, 8, 9 and 18. Panel A of Table III reveals that almost every month has negative mean abnormal returns until the second half of the third year where they become positive. During the third year, the mean cumulative abnormal returns show a very little variation.

Indeed, by the end of month 36, the number of positive positions is greater than negative ones with a ratio of 21 to 16 and this month presents also a positive mean abnormal return of 3.53%.

Panel B of Table III shows that the 12, 24 and 36 month event windows from either month 0 or 1 are all significant at a level of 0.1% under the calendar t-test. The month prior and the windows (–1, 0) and (–10, +10) are significant at 10%. Over the interval of one month prior to the issue dates and the month of the issue dates, stocks fell abnormally by –3.89%. Furthermore, it is interesting to note that negative mean cumulative abnormal returns tend to persist through time.[9] Indeed, event windows, including 36 months after issue dates, have the more negative CAAR with –43.33% for the window starting on month 0 and –44.92% with the one starting one month before issue dates. The total of firms in the calculation of the event study is 216. The ratio of negative versus positive positions increases in favour of negative as time passes. Another interesting fact is that the CAAR do not move much between months 24 and 36. This means that average abnormal returns during the 3rd year following the issue dates remain stable.

Table IV provides the Lyon, Barber and Tsai (1999) buy-and-hold portfolio results. These results are qualitative similar, but somewhat less significant than the Jaffe (1974) and Mandelker (1974) approach.

5.4 Cross-Sectional Tests of Abnormal Returns

The results of the cross-sectional tests are presented in Table V. For the (-1, 0) window, we note that Total Market Value, the Price to Book Ratio and the Outstanding Amount of the Issues variables are all significant. The coefficient of the Outstanding Amount of

[9] This may be due in part by the greater likelihood of conversion as time passes.

the Issues is negative and indicates that bigger convertible bond issues would lead to more negative abnormal returns on the announcement date. A possible explanation could be that if the conversion of these big issues occurs, it would have a major impact on firms' capital structure. Furthermore, the Price to Book ratio is also negative and reveals that growth firms are more likely to be negatively affected by the announcement of convertible bonds issue. The positive coefficient of Total Market Value reveals that larger firms experience less negative abnormal returns. Again, one can argue that the risk associated with an eventual conversion are smaller on big firms compare to ones on smaller firms. The Total Market Value variable is also positive and significant for the period (-2, +2) for the announcement regression and for the period (-1, 0) on the issue regression. The Hot dummy variable is significant for the announcement window of (-2, +2) and its negative sign suggests that during the period of 2000-2001, firms experienced more negative abnormal returns surrounding the announcement of a convertible bond issue.

For the issue regression, only the Hot and the Total Market Value have explanatory power for the window (-1, 0). Their impact is similar for both the announcement and the issue regressions. None of the determinants seems to explain the abnormal returns in the (-2, +2) window of the issue event study. These tests also suggest that the effects of convertible bond issue are more ambiguous than the ones of convertible bond announcement. Furthermore, we try to include coupon rate in the determinants but it has no significant explanatory power in all windows for both the announcement and the issue abnormal returns.

5.4 Trading Strategy Simulation

Table VI shows the results of the strategy of going long on a firm's convertible bond at the issue and, at the same time, going short on the firm's stock for the same amount, \$1000 . The first column represents the period of time after issue dates. The second column represents the total gains of the long and short positions undertaken in the strategy. The cumulative total gains are not presented since the number of positions tends to diminish as time passes. Therefore, the month x represents the total gains after x months from issue date only for the positions that I have the data to compute returns. Therefore, positions with only few months of data, for example issues at the end of 2001, are not included for the calculation of longer term returns. The t test showed the level of significance of the returns of the portfolio. The last three columns represent the number of positive and negative positions on each firm and the total number of firm included in the month under study. It is evident that the strategy's returns are always positive after the second month. It is quite surprising to find the first two months of the simulation to be negative since early in the paper we saw with the event studies that firm's stock surrounding the issue date shown significant negative abnormal return. The results suggest that is a temporary run-up in the stock price after the event. This run-up offsets the effect of the issue of a convertible bond, which shows that the effect lasts only for few days. Furthermore, these negative returns may be due in part to the transaction costs associated with implementing such a strategy. However, the returns for the first two months are not significant and show that there is a lot of volatility and instability in the portfolio positions. However, by three month after the issue dates, returns become significant for 15 months in a row with the exception of month 4. Returns are positive and strongly significant at a level of 1% surrounding one year after the issue dates. Indeed, the gain realized on our zero investment after 12 months is \$ 29 131 .

However, around the second year after the issue date there is a drop in both gains in dollars and level of significance of these gains. This could be attributed to two negative outliers that drastically drive down the total profit and substantially increase the standard error of the portfolio. The proportion of positive and negative positions remains relatively constant around the second year and is consistent with this conjecture. The proportion of positive versus negative positions from month 1 to month 36 tends to increase in favour of positive positions. By month 28, the situation reverted mainly due to the drop of one outlier and the adjustments of the other one. Therefore, the total gains after 3 years from the issue date is 55 181 $ and is significant at 1% even if there are only 42 pairs of convertible bond and stock positions remaining in the sample. The few available long term data clearly show the clustering effect that happened in convertible bond markets in the early 2000's where firms turned to convertible bonds to finance projects. A possible explanation for this phenomenon rely in the decrease in the stock market and therefore stock issues. The few available long term data could also be caused by the sample selection where converted and default bonds were not included. Further, if we include a differential cost of borrowing of 1 % per year in the analysis, the cost would be 630 $ for 36 months after the issue dates. This represents the results of 1% multiplied by 500 $, then by 3 years and finally by the 42 positions used in the 36 month strategy. These costs will only reduce the returns of the 36 months from 55 181 $ to 54 551 $, which is quite negligible.

Table VII shows returns in different years to get a clearer chronological view of the returns over time. For these returns, they were not compiled only from the issue dates but from the 1st January of each year as well. For example, the returns for 1999 are the returns of bonds issue prior to 1999 but calculated from taking positions on the 1st

January 1999 and also the returns of new issues during the same year. The returns are then calculated in the same way as the portfolio simulation shown before. Table VIII shows, here again, a clustering effect toward the years 2000 and 2001. The concentration of convertible bond issues happened at the same time that the gains from our zero investment strategy become more positive. This is consistent with theory that firms tend to issue securities when financial conditions are favourable. This could explain the increase in the number of stocks issues in the late 90's with the bull market and the decrease of such issues with the bear market of the early 2000's. These issues were in part replaced by the increase in the number of issues of convertible bonds.

Table VII begins the simulation in 1998 in the period just prior to the onset of the bear market . All years under study showed positive returns with a major increase in 2000 and 2001. In fact, only these two years show significant returns. This could be attributed to the high number of convertible bonds for these two years in our sample. Table IX shows that the zero investment strategy tend to give positive returns especially in bear markets with returns of $ 20 324 and $ 36 249 for years 2000 and 2001. The years 1998 and 1999 show small insignificant positive returns, where the low degree of significance could also be due to the small number of convertible bonds available in our sample, thus 65 or less.

In Table VIII, we show the results of another passive strategy, that of investing only $1000 in the S&P 500 without shorting anything else at the same time. The investments are made at the same time as the strategy previously undertaken. This means a $1000 long position is taken in the S&P 500 at each issue date of a convertible bond. The same thing is done with 3 months T-Bills and 30 years Treasury Bills also. These strategies are not zero investment strategies like the one tested in this paper. These strategies required an investment of \$ 1000 at 229 different times, thus \$229 000 in total for each of the passive strategies. Therefore, these strategies mainly give a good overview of the markets behaviour during the period under study. We can see again in the Table VIII the clustering effect in the early 2000's. Indeed, most of the issues of convertible bonds were during this period of the bear equity market. This could also explain why it takes more than a year after the issue dates for a passive strategy in the S&P 500 to show positive returns. As the length of time extends, all passive strategies exhibit positive returns, especially the one on the S&P 500. Both T-Bills showed total returns increasing at a slow rate. Indeed, the longer term T-bills give higher gains in dollars than the 3 months since the level of risk is also higher. The use of a passive S&P 500 strategy accounts for higher returns, higher variability and of course a higher exposure to risk than the other passive ones in the T-Bills. The simulation strategy showed really good results compared to these strategies since the gains on the simulated portfolio are from a zero investment compared to \$229 000 for the other strategies.

Table IX presents the returns of the same strategy of going long \$1000 in convertible bonds on issue dates and going short 1000\$ of the firm's stock. The difference with the computation of these returns is that every position is closed as of 31st December 2001 since our data sample ends on that day. This means issue dates that happened late in the year 2001 have only few months of activities. These positions are closed only few months after the issue date. Therefore, the gain or loss that results from these closing positions remains stable in the portfolio after their closing date. For example, if payoffs for positions closing after 3 months result in a gain X, this gain X will still be included in the overall gains in month 4. This means that as time passes from the issue date, the portfolio experiences fewer variations in returns and becomes more stable since only the remaining live positions explain the monthly variation of total gains. The first column of Table IX corresponds to the number of months after the issue date. The total profit in dollars and the monthly variations in the total profit, calculated as stated above, are presented in the next two columns. The *t* test for each month was computed as follows: $t = \frac{\mu_i}{\sigma_i / \sqrt{N}}$. The table also presents the number of positive and negative positions closed or not in the portfolio. The last column gives the number of live pairs of convertible bond and stock positions for each month.

Table IX gives interesting results since each month after 9 months from issue date is significant at 1% level except for month 25, which is significant at 5%. Furthermore, of the 29 months that show significant gains, only 5 of them present a monthly significant decrease in total gains. Indeed, total gains continue to increase even during the 3rd year where only a few of the positions, 68, are still opened during the months following the 24th month. Total gains during the 3rd year jump from $23 329 to $ 38 126 $against positive variations of $19 872 and $3 457 for the first and second year respectively. However, the gains for this strategy in the first 8 months are not significant at the 5% level. Under this strategy, the general trend for the total gains is upward and is positive over the 36 months period that follows issue dates. The ratio of the positive over negative pair of positions also confirms this trend toward positive positions. This ratio over the entire period changes from 1.18 to 2.70 at the end in favour of positive trades. The Sharpe ratio and Jensen's alpha of this strategy also indicates abnormal performance.

Specifically, the Jensen alpha, using an S&P 500 benchmark, indicates abnormal performance of 4.5% per annum. The Sharpe Ratio for the strategy is 4.62.[10]

It should be noted that since a convertible issue's delta is usually less than one, the strategies that we report here typically involve net shorting all underlying stocks. This in part could why the strategy does well during bear market conditions, although our conclusions on abnormal returns also hold using observations that include events before the onset of the bear market. The convertible arbitrage strategy is usually "delta neutral." The strategy can still be "zero investment" as the fund can be borrowed from prime brokers. To be sure, there are variations of delta neutral strategies, i.e., "bull" or "bear" hedging strategies. The extreme bear would hedge a convertible with all its underlying stocks (as defined by the conversion ratio). We have also performed the simulations using alternative hedge ratios including a delta hedge as well as using only half the proceeds of the short sale and borrowing the remainder at the risk free rate (taking into account the performance bond constraint on short sales, which may not be a constraint for an actual hedge fund or professional investor); We have also performed all of the simulations as well as with a hedge that just invests just half of the proceeds of the short ale in the

[10] The corresponding Sharpe ratio for the market portfolio (S&P 500) is –1.48. The strategy has an overall beta of -0.2265. Under CAPM, this means that the returns of the strategy will tend to change by 0.2265 in the opposite direction to the market. This also means the strategy has a market risk and an increase in the market will more likely have a negative effect on such a strategy. The recent drop in the market could easily explain the significant positive returns of this zero investment strategy. This could be interpreted that the premium for the call option decreases less in down market than the market itself. The phenomenon on call prices is well documented and it is relevant to say that when a call becomes far out of the money, a decrease in the underlying asset would have a small effect on the price. This could explain how, as the market continues to drop, the call portion of the convertible bond decreases slowly. Another explanation is that the bond part of the price of the convertible bond increases more during the period than the fall in the call price of the convertible bond. Indeed, the recent period of down markets was paired with a decrease in interest rates, which have a direct positive impact on all bond prices. Therefore, the strategy will perform better especially in period of down markets and falling interest rates. Furthermore, the use of convertible bonds by firms to finance projects seems to increase during such periods. Therefore, managers tend to issue financial assets which will give them the most advantages as possible. As shown earlier, in the recent years convertible bonds became very attractive to both investors and firms.