CHAPTER 4

RESEARCH FINDINGS

4.1 INTRODUCTION

Generally bond prices are less volatile than stock prices and hence are less risky (Sharpe, Alexander and Bailey, 1995). In a study reported by these authors, the annual returns on Treasury Bills, long-term US Government bonds, long-term corporate bonds and common stocks in the United States from 1926 to 1993 found their returns to be increasing in the following order: Treasury Bills, long-term Government bonds, corporate bonds, and common stocks. The standard deviation of returns follow a similar pattern with Treasury Bills offering the lowest level of risk and common stocks offering the highest. All well functioning capital markets must show such a relationship, otherwise arbitrageurs will take advantage of mispricings and earn riskless profits, driving the markets into equilibrium in the process.

4.2 RETURNS ON MALAYSIAN GOVERNMENT SECURITIES, NON-CONVERTIBLE BONDS, CONVERTIBLE BONDS, ALL BONDS AND KUALA LUMPUR STOCK EXCHANGE COMPOSITE INDEX

Table 4.1 shows the quarterly returns on MGS, A non-convertible bonds portfolio, a convertible bonds portfolio, an all-bonds portfolio and the KLSE Composite Index from 1987 Q_1 (first quarter, all Q's followed by a number, n, subscript will be used to refer to the nth quarter) to 1995 Q_3. During the period from 1988, Q_3 to 1990 Q_2, there was no issue of non-convertible bonds listed for a whole quarter and hence no return is calculated.

The first column shows the quarterly yield to maturity on long-term MGS. It has a highest value of 2.11% in 1990 Q4 and 1991 Q1 and a lowest value of 1.61% in 1994 Q3 and Q4. The range of fluctuation of returns is about 0.5%. The mean returns during the period is 1.92% and the standard deviation is 0.17%. The latter measure reflects the low level of risk involved. The coefficient of variation (amount of risk per unit of return) is 0.089.

The second column shows the quarterly returns on investing in non-convertible private debt securities. The

highest return of 12.95% was obtained in 1990 Q_4 while the lowest return of - 7.33% was obtained in 1990 Q_3. The range of returns is 20.28%. The average quarterly returns on these bonds is 3.37% and the standard deviation is 3.48%. The coefficient of variation of 1.03 shows that on average investors have to asssume 1.03 units of risk in order to obtain 1 (one) unit of return.

TABLE 4.1

RETURNS ON MALAYSIAN GOVERNMENT SECURITIES
CONVERTIBLE BONDS, NON-CONVERTIBLE BONDS, ALL BONDS
AND KUALA LUMPUR STOCK EXCHANGE COMPOSITE INDEX

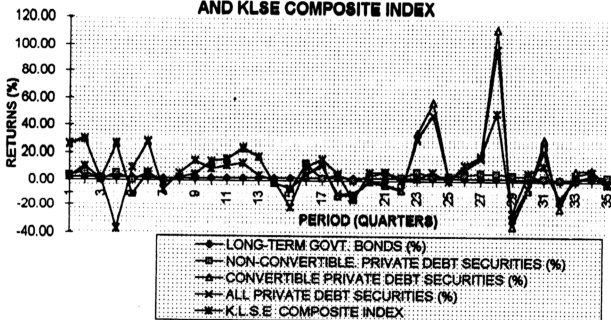|		LONG-TERM GOVT.BONDS (%)	NON-CONVERTIBLE PRIVATE DEBT SECURITIES (%)	CONVERTIBLE PRIVATE DEBT SECURITIES (%)	ALL PRIVATE DEBT SECURITIES (%)	K.L.S.E. COMPOSITE INDEX (%)
1987	Q1	2.10	3.61	2.14	2.18	25.66
	Q2	1.96	6.09	10.49	10.31	29.26
	Q3	1.80	0.00	0.89	0.89	1.31
	Q4	1.77	5.00	26.18	26.06	-37.12
1988	Q1	1.77	0.00	-11.47	-11.42	9.54
	Q2	1.78	5.00	5.90	5.89	27.56
	Q3	1.69	-	-2.16	-2.16	-7.18
	Q4	1.69	-	2.43	2.43	5.49
1989	Q1	1.69	-	4.64	4.64	14.64
	Q2	1.78	-	14.29	14.29	8.75
	Q3	1.78	-	16.93	16.93	11.36
	Q4	1.78	-	23.61	23.61	13.33
1990	Q1	1.78	-	17.57	17.57	3.79
	Q2	1.78	-	-2.12	-2.12	0.18
	Q3	1.80	-7.33	-5.91	-5.97	-21.48
	Q4	2.11	12.95	4.03	4.49	10.20
1991	Q1	2.11	1.42	12.77	11.21	16.04
	Q2	2.08	4.31	-12.47	-10.35	8.39
	Q3	2.08	-0.17	-11.66	-10.62	-15.52
	Q4	2.09	3.45	-0.86	-0.60	6.41
1992	Q1	2.10	6.47	-3.90	-2.99	6.65
	Q2	2.10	2.22	-8.34	-6.94	-0.15
	Q3	2.10	6.67	34.35	30.11	1.68
	Q4	2.10	3.64	57.64	48.03	6.92
1993	Q1	2.10	3.44	2.17	2.31	-0.11
	Q2	2.08	4.27	9.24	8.51	12.11
	Q3	2.04	5.88	18.20	16.69	18.40
	Q4	1.95	5.71	112.27	98.01	49.36
1994	Q1	1.82	4.16	-34.22	-29.16	-25.30
	Q2	1.61	3.80	-7.75	-5.24	6.18
	Q3	1.61	1.82	29.79	22.11	11.68
	Q4	1.66	0.61	-21.99	-16.40	-14.03
1995	Q1	1.74	0.26	7.93	6.23	1.32
	Q2	1.75	4.69	8.92	7.87	4.32
	Q3	1.75	3.11	-2.12	-0.72	-2.53

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The third column shows the quarterly returns obtainable during this period by investing in a portolio of convertible private debt securities. The highest return of112.27% was in 1993 Q_4 and the lowest return of - 34.22% was in 1994 Q_1. The range of returns is 146.49%. The average quarterly returns is 8.47% and the standard deviation is 24.67%. The coefficient of variation is 2.91, meaning that on average investor assume 2.91 units risk to obtain 1 (one) unit of return.

The fourth column shows the quarterly returns on a portfolio of all private debt securities, both convertible or non-convertible, during this period. The highest return of 98.01% was obtained in 1993 Q_4 while the lowest of -29.16 was in 1994 Q_1. The range of the returns distribution is 127.17%. The average quarterly returns during the period is 7.82% and the standard deviation of the returns distribution is 21.37%. The coefficient of variation is 2.73 which implies that investors assume this amount of risk in order to obtain 1 (one) unit of return by investing in these securities.

The final column shows the returns on the KLSE Composite Index during the study period. It has a highest return of 49.36% in 1993 Q$_4$ and a lowest return of - 25.3% in 1994 Q$_1$. The range of returns is 74.66%. The average quarterly return is 5.26% and the standard deviation is 15.99%. The coefficient of variation is 3.04, which is the amount of risk investors assume in order to obtain 1 (one) unit of return by investing in shares.

A comparison of returns on all these securities is done by Figure 4.1. The returns are measured on the vertical axis whirlst the quarters (numbered from 1 to 35) are on the horizontal axis.

FIGURE 4.1: QUARTERLY RETURNS ON MGS, NON-CONVERTIBLE BONDS, CONVERTIBLE BONDS, ALL-BONDS AND KLSE COMPOSITE INDEX

The figure shows the returns on long-term MGS to be almost stationary while the returns on all the other securities fluctuate between negative and positive values. The all-bonds portfolio and the convertible bonds portfolio assume the highest (positive) returns and lowest (negative) returns. This finding is quite consistent with the fact that high returns can only be achieved by assuming high risk.

4.3 RETURNS ON MGS, NON-CONVERTIBLE BONDS AND KUALA LUMPUR
     STOCK EXCHANGE COMPOSITE INDEX

Table 4.2 shows the returns on long-term MGS, non-convertible private debt securities and the KLSE Composite Index. When the period 1988 Q_3 to 1990 Q_2 is omitted from the study, MGS have an average quarterly return of 1.92%, non-convertible private debt securities an average of 3.37% and KLSE Composite Index an average of 4.95%. Their standard deviations are 0.17% for MGS, 3.48% for non-convertible bonds and 17.84 for KLSE Composite Index.

TABLE 4.2

QUARTERLY RETURNS ON MGS, NON CONVERTIBLE BONDS
AND KLSE COMPOSITE INDEX

|		LONG-TERMS GOVT. BONDS (%)	NON-CONVERTIBLE PRIVATE DEBT SECURITIES (5)	KLSE COMPOSITE INDEX	EXCESS AB NORMAL RETURNS NON-CONVERTIBLE BOND OVER MGS	EXCESS AB NORMAL RETURNS (%) KLSE OVER MGS	EXCESS RETURNS KLSE OVER NON-CONVERTIBLE BONDS
1987	Q1	2.10	3.61	25.66	1.51	23.56	22.05
	Q2	1.96	6.09	29.26	4.13	27.30	23.17
	Q3	1.80	0.00	1.31	-1.80	-0.49	1.31
	Q4	1.77	5.00	-37.12	3.23	-38.89	-42.12
1988	Q1	1.77	0.00	9.54	-1.77	7.77	9.54
	Q2	1.78	5.00	27.56	3.22	25.78	22.56
1990	Q3	1.80	-7.33	-21.48	-9.13	-23.28	-14.15
	Q4	2.11	12.95	10.20	10.84	8.09	-2.75
1991	Q1	2.11	1.42	16.04	-0.69	13.93	14.62
	Q2	2.08	4.31	5.39	2.23	3.31	1.08
	Q3	2.08	-0.17	-15.52	-2.25	-17.60	-15.35
	Q4	2.09	3.45	6.41	1.36	4.32	2.96
1992	Q1	2.10	6.47	6.65	4.37	4.55	0.18
	Q2	2.10	2.22	-0.15	0.12	-2.25	-2.37
	Q3	2.10	6.67	1.68	4.57	-0.42	-4.99
	Q4	2.10	3.64	6.92	1.54	4.82	3.28
1993	Q1	2.10	3.44	-0.11	1.34	-2.21	-3.55
	Q2	2.08	4.27	12.11	2.18	10.03	7.85
	Q3	2.04	5.88	18.40	3.84	16.36	12.52
	Q4	1.95	5.71	49.36	3.76	47.41	43.65
1994	Q1	1.82	4.18	-25.30	2.36	-27.12	-29.48
	Q2	1.61	3.80	6.18	2.19	4.57	2.38
	Q3	1.61	1.82	11.68	0.20	10.07	9.87
	Q4	1.66	0.61	-14.03	-1.05	-15.69	-14.64
1995	Q1	1.74	0.26	1.32	-1.48	-0.42	1.06
	Q2	1.75	4.59	4.32	2.84	2.57	-0.27
	Q3	1.75	3.11	-2.53	1.36	-4.28	-5.64

Note: During the period 1988 Q3 to 1990 Q2, there was no
        issue of non-convertible private debt securities
        outstanding for a whole quarter.   Therefore no
        returns were calculated for this period

The fourth and fifth columns show the excess abnormal returns of non-convertible private debt securities over MGS and KLSE Composite Index over MGS respectively. The excess abnormal return is simply the returns on these securities over and above the yield on long-term MGS. Both have, on average, positive average excess abnormal returns. On average investors are compensated for risk taking. However the excess abnormal returns of these securities also assume negative values, implying that their quarterly returns sometimes fall below MGS yields. This is illustrated by figure 4.2.

FIGURE 4.2: EXCESS ABNORMAL RETURNS OF STOCKS AND NON-CONVERTIBLE BONDS
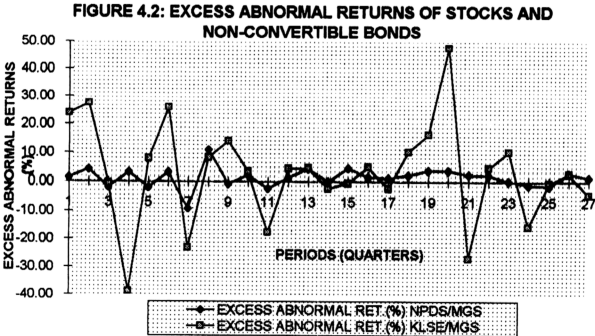
From the figure, it can be observed that the excess abnormal returns of stocks are more volatile than the excess abnormal returns of non-convertible bonds. While the excess abnormal returns on non-convertible bonds fluctuates within a few percentage points from the horizontal axis (which represents the MGS returns), those on stocks to assume higher negative and positive values.

Figure 4.3 shows the excess returns of stocks over bonds. Even though the excess returns assume both positive and negative values, most of the time it is positive. The distinguish feature about the relationship is that when average returns are compared with their standard deviations, common stocks appear to be far too volatile and hence risky for the returns they offer. Bonds therefore are attractive in the sense that the risk level is relatively lower than that of stocks. Malaysian bonds, therefore, are an attractive investment for risk-averse investors.

FIGURE 4.3:EXCESS RETURNS OF STOCKS (KLSE CI) OVER NON-CONVERTIBLE BONDS
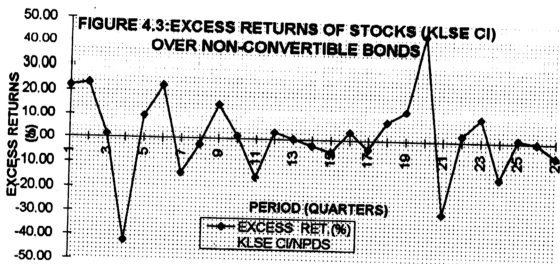
4.2.1.　INVESTMENT STRATEGIES INVOLVING STOCKS AND NON-CONVERTIBLE BONDS

Table 4.3 shows summary of the returns and standard deviations of MGS, non-convertible bonds and stocks over the study period.

TABLE 4.3

SUMMARY OF MGS YIELDS, NON-CONVERTIBLE BONDS'

AND KLSE COMPOSITE INDEX RETURNS

	MGS	NON-CONVERTIBLE BONDS	KLSE COMPOSITE INDEX
AVERAGE RETURNS (%)	1.92	3.37	4.95
STANDARD DEVIATION (%)	0.17	3.48	17.84
COEFFICIENT OF VARIATIION	0.09	1.03	3.60
CORRELATION BETWEEN STOCKS AND NON-CONVERTIBLE BONDS	0.36		

Bonds and stocks are different kinds of securities with different features. Making investment decisions between them should not be based on some simple one-dimensional comparison. This decision, often referred to as the asset allocation decision, should involve investing in both stocks and bonds (Sharpe et al). Since the correlation of returns between bonds and stocks is only 0.36, the Markowitz principle advises that gains can be obtained through diversification.

Table 4.4 shows the returns than can be earned by an investor that invests a proportion of his investment funds in both stocks and bonds.

Table 4.4 RISK AND RETURNS OF INVESTING IN NON-CONVERTIBLE BONDS AND STOCKS

Proportion in stocks	Proportion in bonds	Returns (%)	Risk (%) (standard deviation)
1	0	4.95	17.04
.90	.10	4.79	16.18
.75	.25	4.56	13.71
.60	.40	4.32	11.27
.50	.50	4.16	9.67
.40	.60	4.00	8.12
.25	.75	3.77	5.91
.10	.90	3.53	4.12
0	1	3.37	3.48

From the table it can be seen that investing in both bonds and stocks can significantly reduce risks while leaving returns relatively unaffected for the investor who had originally been investing all his funds in stocks. For example, for an investor previously investing in only stocks, reallocating 50% of funds reduces risk by 46% while returns fall by only 16%. The coefficient of variation of the new portfolio is 2.32 as opposed to 3.6 for stocks only. Considerable benefits can be reaped by such an investment strategy.

Figure 4.4 shows the risk-returns trade-off of such a strategy.

FIGURE 4.4:RISK-RETURNS OF STOCKS AND NON-CONVERTIBLES
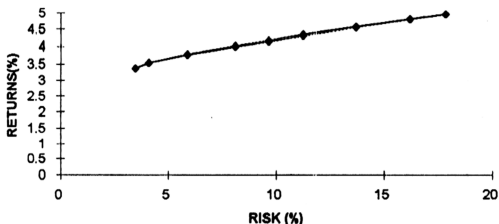
4.4 RETURNS ON MALAYSIAN GOVERNMENT SECURITIES, CONVERTIBLE BONDS AND KUALA LUMPUR STOCK EXCHANGE COMPOSITE INDEX

Table 4.5 shows the returns and excess abnormal returns of MGS, convertible bonds and KLSE Composite Index for the study period. The first, second, third and fifth columns have already been explained under Section 4.2. The fourth column shows the excess abnormal returns of convertible bonds over MGS. The mean quarterly returns of this excess return is 6.58% over the study period. This translates into an annual return of 26.24%. It is much higher than the excess abnormal returns on KLSE Composite Index.

TABLE 4.5

QUARTERLY RETURNS ON MGS, CONVERTIBLE BONDS AND KLSE COMPOSITE INDEX

|	LONG-TERM GOVERNMENT BONDS (%)	CONVERTIBLE PRIVATE DEBT SECURITIES (%)	KLSE COMPOSITE INDEX	EXCESS ABNORMAL RETURNS (%) CONVERTIBLES OVER MGS	EXCESS ABNORMAL RETURNS (%) KLSE CI OVER MGS	EXCESS RETURNS (%) KLSE CI OVER CONVERTIBLES
1987 Q1	2.10	2.14	25.66	0.04	23.56	23.52
Q2	1.96	10.49	29.26	8.53	27.30	18.77
Q3	1.80	0.89	1.31	-0.91	-0.49	0.42
Q4	1.77	26.18	-37.12	24.41	-38.89	-63.30
1988 Q1	1.77	-11.47	9.54	-13.24	7.77	21.01
Q2	1.78	5.90	27.56	4.12	25.78	21.66
Q3	1.69	-2.16	-7.18	-3.85	-8.87	-5.02
Q4	1.69	2.43	5.49	0.73	3.80	3.07
1989 Q1	1.69	4.64	14.64	2.95	12.95	10.00
Q2	1.78	14.29	8.75	12.51	6.97	-5.54
Q3	1.78	15.93	11.36	14.15	9.58	-4.57
Q4	1.78	23.61	13.33	21.83	11.55	-10.28
1990 Q1	1.78	17.57	3.79	15.79	2.01	-13.78
Q2	1.78	-2.12	0.18	-3.90	-1.60	2.30
Q3	1.80	-5.91	-21.48	-7.71	-23.28	-15.57
Q4	2.11	4.03	10.20	1.92	8.09	6.17
Q1	2.11	12.77	16.04	10.66	13.93	3.27
Q2	2.08	-12.47	5.39	-14.55	3.31	17.86
1991 Q3	2.08	-11.66	-15.52	-13.74	-17.60	-3.86
Q4	2.09	-0.86	6.41	-2.95	4.32	7.27
1992 Q1	2.10	-3.90	6.65	-6.00	4.55	10.55
Q2	2.10	-8.34	-0.15	-10.44	-2.25	8.19
Q3	2.10	34.35	1.68	32.25	-0.42	-32.67
Q4	2.10	57.64	6.92	55.54	4.82	-50.72
1993 Q1	2.10	2.17	-0.11	0.07	-2.21	-2.28
Q2	2.08	9.24	12.11	7.16	10.03	2.87
Q3	2.04	18.20	18.40	16.16	16.36	0.20
Q4	1.95	112.27	49.36	110.32	47.41	-62.91
1994 Q1	1.82	-34.22	-25.30	-36.04	-27.12	8.92
Q2	1.61	-7.75	6.18	-9.36	4.57	13.93
Q3	1.61	29.79	11.68	28.18	10.07	-18.11
Q4	1.66	-21.99	-14.03	-23.65	-15.69	7.96
1995 Q1	1.74	7.93	1.32	6.19	-0.42	-6.61
Q2	1.75	8.92	4.32	7.17	2.57	-4.60
Q3	1.75	-2.12	-2.53	-3.87	-4.28	-0.41

Figure 4.5 is a comparison of the excess abnormal returns of convertible bonds and KLSE Composite Index. The excess returns on MGS are the horizontal axis (they are zero) while the excess returns on convertibles and KLSE Composite Index assume both negative and positive values. Even though both have on average positive excess abnormal returns, the excess returns on convertibles are more volatile and hence more risky. It also offers higher returns.

FIGURE 4.5: EXCESS ABNORMAL RETURNS OF STOCKS(KLSE CI)AND CONVERTIBLE BONDS

EXCESS ABNORMAL RETURNS (%) vs PERIOD (QUAERTERS)

- CONVERTIBLE PRIVATE DEBT SECURITIES (%)
- K.L.S.E COMPOSITE INDEX
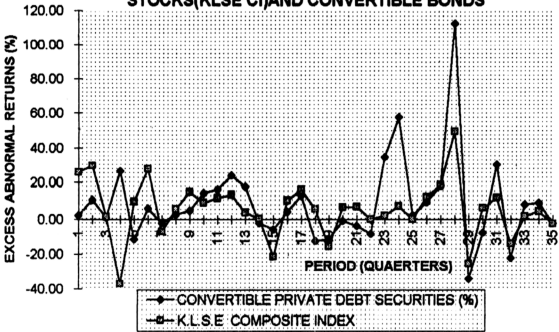
The reason for the higher returns and variablility of convertibles over stocks (when it should be the other way round) is that a bull or bear in a few of the convertible bonds with strong weightage in portfolio tends to have more effect on the bond portfolio than the stock index, since the latter is more fully diversified. The ability of individual securities to affect the portfolio is therefore stronger for bonds than for stocks (that is what it actually)

Figure 4.6 shows the excess returns of KLSE Composite Index over convertible bonds. The average excess returns is negative, meaning that convertible bonds on average offer higher returns than common stocks.

FIGURE 4.6: EXCESS RETURNS OF STOCKS OVER CONVERTIBLE BONDS
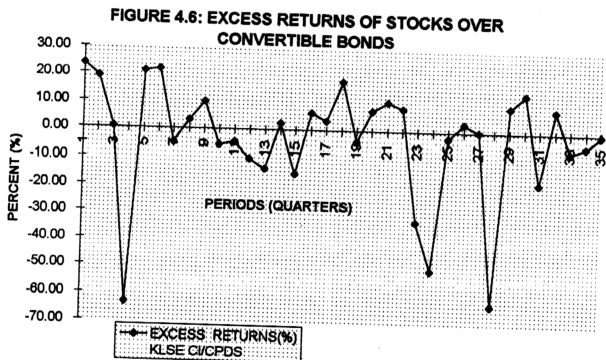
4.4.1   INVESTMENT STRATEGIES INVOLVING STOCKS AND NON-
         CONVERTIBLE BONDS

        Table 4.6 shows a summary of the returns on MGS,
convertible bonds and common s
tocks.

Table 4.6: SUMMARY OF MGS YIELDS, CONVERTIBLE BOND RETURNS
           AND KLSE COMPOSITE INDEX RETURNS

	MGS	CONVERTIBLE BONDS	KLSE COMPOSITE INDEX
AVERAGE RETURNS (%)	1.88	8.47	5.26
STANDARD DEVIATION (%)	0.17	24.67	15.99
COEFFICIENT OF VARIATIION	0.09	2.91	3.03
CORRELATION BETWEEN STOCKS AND CONVERTIBLE BONDS	0.97		

        Table 4.6 also shows that the correlation between
returns on convertible bonds and stocks is 0.97, meaning
that no meaningful gains can be obtained through
diversification.   Comparing the coefficient of variation
between the two categories of securities shows that
comparatively, both offer returns commensurate with the risk
involved, that is, no underpricing is involved.

4.5 RETURNS ON MALAYSIAN GOVERNMENT SECURITIES ALL-BONDS
     AND KUALA LUMPUR STOCK EXCHANGE COMPOSITE INDEX

Table 4.7 shows the yield on MGS, an all-bonds portfolio (both convertible and non-convertible bonds) and KLSE Composite Index from 1987 Q_1 to 1995 Q_3.

During this period, the average quarterly yield to maturity on long-term MGS in 1.88 with a standard deviation of 0.17%.   The coefficient of variation is 0.09.   The difference of 0.04% between MGS returns in Tables 4.2 and 4.5 and 4.7 is due to some quarters left out in Table 4.2. During these quarters the average return on MGS was 1.75%. A similar explanation is advanced for the difference in KLSE CI returns and standard deviations.   From the table, MGS offer the lowest returns followed by stocks and bonds offering the highest.   Their standard deviations follow a similar pattern.

Figure 4.7 also shows the excess abnormal returns of stocks and bonds over MGS. As expected both offer positive returns over and above the MGS. Investors are compensated for assuming more risk in these markets.

TABLE 4.7 QUARTERLY RETURNS ON MGS, ALL-BONDS AND KLSE COMPOSITE INDEX

		LONG-TERM GOVERNMENT BONDS (%)	CONVERTIBLE PRIVATE DEBT SECURITIES (%)	KLSE COMPOSITE INDEX	EXCESS ABNORMAL RETURNS (%) CONVERTIBLES OVER MGS	EXCESS ABNORMAL RETURNS (%) KLSE CI OVER MGS	EXCESS RETURNS (%) KLSE CI OVER CONVERTIBLES
1987	Q1	2.10	2.18	25.66	0.08	23.56	23.48
	Q2	1.96	10.31	29.26	8.35	27.30	18.95
	Q3	1.80	0.89	1.31	-0.91	-0.49	0.42
	Q4	1.77	26.06	-37.12	24.29	-38.89	-63.18
1988	Q1	1.77	-11.42	9.54	-13.19	7.77	20.96
	Q2	1.78	5.89	27.56	4.11	25.78	21.67
	Q3	1.69	-2.16	-7.18	-3.85	-8.87	-5.02
	Q4	1.69	2.43	5.49	0.73	3.80	3.07
1989	Q1	1.69	4.64	14.64	2.95	12.95	10.00
	Q2	1.78	14.29	8.75	12.51	6.97	-5.54
	Q3	1.78	15.93	11.36	14.15	9.58	-4.57
	Q4	1.78	23.61	13.33	21.83	11.55	-10.28
1990	Q1	1.78	17.57	3.79	15.79	2.01	-13.78
	Q2	1.78	-2.12	0.18	-3.90	-1.60	2.30
	Q3	1.80	-5.97	-21.48	-7.77	-23.28	-15.51
	Q4	2.11	4.49	10.20	2.38	8.09	5.71
1991	Q1	2.11	11.21	16.04	9.10	13.93	4.83
	Q2	2.08	-10.35	5.39	-12.43	3.31	15.74
	Q3	2.08	-10.62	-15.52	-12.70	-17.60	-4.90
	Q4	2.09	-0.50	6.41	-2.59	4.32	6.91
1992	Q1	2.10	-2.99	6.65	-5.09	4.55	6.94
	Q2	2.10	-6.94	-0.15	-9.04	-2.25	6.79
	Q3	2.10	30.11	1.68	28.01	-0.42	-28.43
	Q4	2.10	48.03	6.92	45.93	4.82	-41.11
1993	Q1	2.10	2.31	-0.11	0.21	-2.21	-2.42
	Q2	2.08	8.51	12.11	6.43	10.03	3.60
	Q3	2.04	16.69	18.40	14.65	16.36	1.71
	Q4	1.95	98.01	49.36	96.06	47.41	-48.65
1994	Q1	1.82	-29.16	-25.30	-30.98	-27.12	3.86
	Q2	1.61	-5.24	6.18	-6.85	4.57	11.42
	Q3	1.61	22.11	11.68	20.50	10.07	-10.43
	Q4	1.66	-16.40	-14.03	-18.06	-15.69	2.37
1995	Q1	1.74	5.23	1.32	3.49	-0.42	-3.91
	Q2	1.75	7.67	4.32	5.92	2.57	-3.35
	Q3	1.75	-0.72	-2.53	-2.47	-4.28	-1.81

FIGURE 4.7: EXCESS ABNORMAL RETURNS OF STOCKS (KLSE CI) AND ALL-BONDS
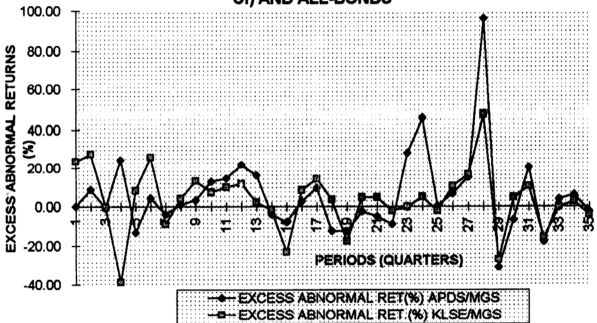
A striking feature of this figure is that the returns on bonds are more vilatile than returns on stocks. In fact from table 4.7, it can be seen that bonds offer higher returns and are more risky - an occurrence which is in consistent with finance theory. However, there exist a plansible explanation for this. The KLSE has experienced some volatile returns during the period and since convertible bonds constititute a large proportion of the bond portfolio than their corresponding stocks in the KLSE Composite Index, a bull or bear in a few of these stock have more pronounced effects in the bond market. In 1993 Q3, the return on bonds was 98.1% and return on stock about 49.36%.

Of the 98% return, the 87% is contributed by just four convertible bonds. Also in 1992 Q4 the return on the bond portfolio was 48% compared to about 7% on the stock index. Again only one convertible stock contributed 60% of the 48%. The point is further buttressed by the fact that the correlation between stock market returns and the bond portfolio is 0.51 (compared to 0.36 for the non-convertible bonds and KLSE CI).

Figure 4.8 makes the relationship more explicit. Even though the **excess returns of stocks over bonds are positive** than negative, the times when the excess returns are negative are more pronounced. The average excess returns of stocks over bonds is - 2.56% and has a standard deviation of 18.52%.

FIGURE 4.8: EXCESS RETURNS OF STOCKS (KLSE CI) OVER ALL-BONDS

PERIODS (QUARTERS)

EXCESS RETURNS (%)

— EXCESS RETURNS(%) KLSE CI OVER PDS
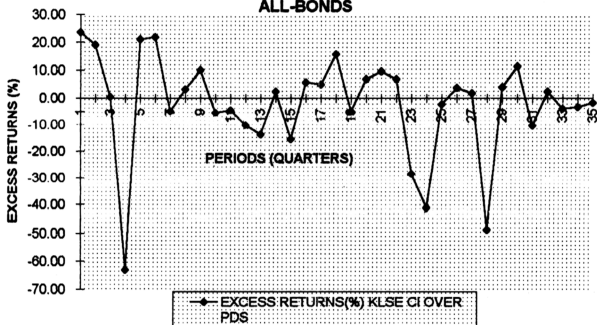
4.5.1   INVESTMENT STRATEGIES INVOLVING BONDS AND STOCKS

Convertible bonds carry an equity option and the prices of these bonds are more vulnerable to movements in the stock market than the prices of non-convertible bonds. The inclusion of convertible bonds into the bond market portfolio has increased the correlation with the KLSE Composite Index to 0.51 from 0.36. Table 4.8 shows this

TABLE 4.8 SUMMARY OF MGS YIELDS ALL BONDS (CONVERTIBLE AND
NON-CONVERTIBLE BOND) AND KLSE COMPOSITE INDEX
RETURNS

	MGS	ALL BONDS	KLSE COMPOSITE INDEX
AVERAGE RETURNS (%)	1.88	7.82	5.26
STANDARD DEVIATIONS (%)	0.17	21.37	15.99
COEFFICIENT OF VARIATION	0.09	2.73	3.04
Correlation between bonds and KLSE Composite Index	0.51		

Even with this high correlation, investment performance
can be improved by investing in both. Table 4.4 shows
returns and risk for investment strategies involving stocks
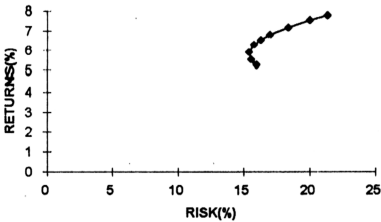and convertible and non convertible bonds.

Table 4.9 RISK AND RETURNS OF INVESTING IN BONDS
(CONVERTIBLE AND NON-CONVERTIBLE) AND STOCKS

Proportion in bonds	Proportion in stocks	Returns %	Risk% (standard deviation)
1	0	7.82	21.37
.90	.10	7.56	20.01
.75	.25	7.18	18.39
.60	.40	6.80	17.00
.50	.50	6.54	16.28
.40	.60	6.28	15.76
.25	.75	5.90	15.40
.10	.90	5.52	15.56
0	1	5.26	15.96

For an investor previously investing only in bonds, asset allocation in stocks and bonds can lead to superior investment performance. Investment performance can improved by investing 50% of funds in bonds and 50% in stocks. By following such an investment strategy, expected quarterly returns falls by 15% while risk falls by 24%. This presents an opportunity to reduce risk more significantly than the reduction in returns.

Figure 4.9 shows risk-return of investing in stocks and bonds.

FIGURE 4.9: RISK-RETURNS OF STOCKS AND ALL-BONDS

4.6   RETURNS ON CONVERTIBLE AND NON-CONVERTIBLE BONDS

Table 4.10 show the returns on MGS, convertible and non-convertible bonds. Both types of bonds offer positive excess abnormal returns over and above MGS. However, the excess abnormal returns of convertible bonds are higher and more volatile

TABLE 4.10: QUARTELY RETURNS ON MGS, CONVERTIBLE AND NON-CONVERTIBLE BONDS.

		LONG-TERM GOVERNMENT BONDS (%)	CONVERTIBLE PRIVATE DEBT SECURITIES (%)	NON-CONVERTIBLE PRIVATE DEBT SECURITIES	EXCESS ABNORMAL RETURNS (%) CONVERTIBLES OVER MGS	EXCESS ABNORMAL RETURNS NON CONVERTIBLE OVER MGS	EXCESS RETURNS (%) NON-CONVERTIBLES OVER CONVERTIBLE
1987	Q1	2.10	2.14	3.61	0.04	1.51	1.47
	Q2	1.96	10.49	6.09	8.53	4.13	-4.40
	Q3	1.80	0.89	0.00	-0.91	-1.80	-0.89
	Q4	1.77	26.18	5.00	24.41	-3.23	-21.18
1988	Q1	1.77	-11.47	0.00	-13.24	-1.77	11.47
	Q2	1.78	5.90	5.00	4.12	3.22	-0.90
1990	Q3	1.80	-5.91	-7.33	-7.71	-9.13	-1.42
	Q4	2.11	4.03	12.95	1.92	10.84	8.92
1991	Q1	2.11	12.77	-1.42	10.66	0.69	-11.35
	Q2	2.08	-12.47	4.31	-14.55	2.23	16.78
	Q3	2.08	-11.66	-0.17	-13.74	-2.25	11.49
	Q4	2.09	-0.86	3.45	-2.95	1.36	4.31
1992	Q1	2.10	-3.90	6.47	-6.00	4.37	10.37
	Q2	2.10	-8.34	2.22	-10.44	0.12	10.56
	Q3	2.10	34.35	6.67	32.25	4.57	-27.68
	Q4	2.10	57.64	3.64	55.54	1.54	-54.00
1993	Q1	2.10	2.17	3.44	0.07	1.34	1.27
	Q2	2.08	9.24	4.27	7.16	2.18	-4.98
	Q3	2.04	18.20	5.88	16.16	3.84	-12.32
	Q4	1.95	112.27	5.71	110.32	3.76	-106.56
1994	Q1	1.82	-34.22	4.18	-36.04	2.36	38.40
	Q2	1.61	-7.75	3.80	-9.36	2.19	11.55
	Q3	1.61	29.79	1.82	28.18	0.20	-27.97
	Q4	1.66	-21.99	0.61	-23.65	-1.05	22.6
1995	Q1	1.74	7.93	0.26	6.19	-1.48	-7.67
	Q2	1.75	8.92	4.59	7.17	2.84	-4.33
	Q3	1.75	-2.12	3.11	-3.87	1.36	5.23

Figure 4.10 graphs the excess abnormal returns on convertible and non-convertible bonds. The volatility of excess returns of convertibles in easily notice while the excess returns on non-convertible bonds is more steady,

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moving within a few percentage points from the horizontal axis.

FIGURE 4.10: EXCESS ABNORMAL RETURNS OF CONVERTIBLE AND NON-CONVERTIBLE BONDS
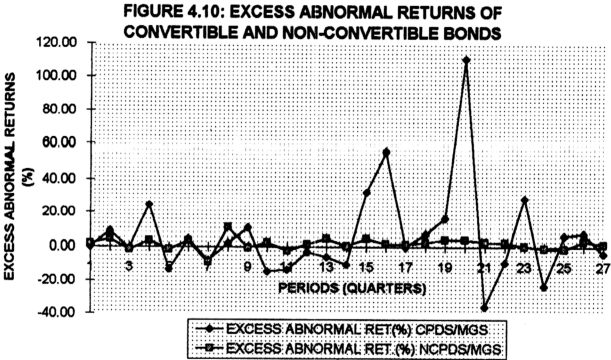
Figure 4.11 shows the excess returns of non-convertible bonds over convertible bonds. Most often, the excess return is negative, meaning convertible bonds offer higher returns than non-convertible bonds. When the returns on these bonds are compared with their standard deviation to obtain the coefficient of variation, non-convertible bonds offer high returns for the risk lebel involved.

FIGURE 4.11:EXCESS RETURNS OF NON-CONVERTIBLE BONDS OVER CONVERTIBLE BONDS
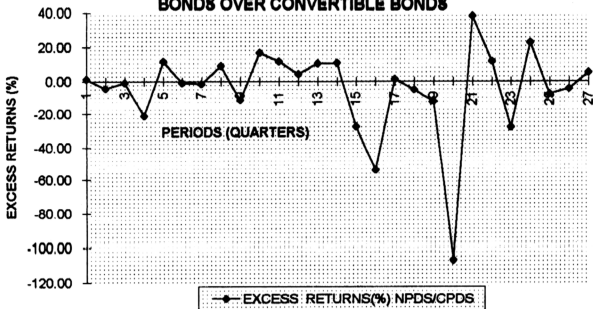
4.6.1   INVESTMENT STRATEGIES INVOLVING CONVERTIBLE AND NON-CONVERTIBLE BONDS

Table 4.11 shows a summary of the retuns on MGS, convertible and non-convertible bonds over the study period.

TABLE 4.11 SUMMARY OF RETURNS ON MGS, CONVERTIBLE AND NON-
CONVERTIBLE BONDS

	MGS	CONVERTIBLE BOND	NON-CONVERTIBLE BONDS
AVERAGE RETURNS (%)	1.92	8.23	3.37
STANDARD DEVIATIONS (%)	0.17	27.74	3.48
COEFFICIENT OF VARIATION	0.09	3.37	1.03
Correlation between Convertible and non-convertible bonds' returns	0.25		

Since the correlation between the returns of the two
types of bonds is low, 0.25, substantial risk reduction or
returns increment opportunities exist.

Table 4.12 shows the risk and return levels of
investing a proportion of ufnds in convertible bonds and the
rest in convertible bonds.

TABLE 4.12   RISK-RETURNS OF INVESTING IN CONVERTIBLE AND
              NON-CONVERTIBLE BONDS

Proportion in convertible bonds	Proportion in non-convertible bonds	Returns	Risk
1	0	8.23	27.74
.9	.10	7.74	25.05
.75	.25	7.05	21.04
.60	.40	6.29	17.05
.50	.50	5.80	14.40
.40	.60	5.31	11.79
.25	.75	4.59	8.00
.10	.90	3.90	4.67
0	1	3.37	3.48

An investor previously investing in convertible bonds only can substantially reduce risk (by as much as 48%) while return only falls by 30% by investing 50% of funds in convertible bonds and the rest in non-convertible bonds.

Figure 4.12 graphs Table 4.12 on the risk-return axis. The figure shows that risk can be reduce while return relatively unaffected by diversifying funds into convertible and non-convertible bonds.

FIGURE 4.12 :RISK-RETURNS OF CONVERTIBLE AND NON-CONVERTIBLE BONDS