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Does the Capital Assets Pricing Model (CAPM) Predicts Stock Market Returns in Ghana? Evidence from Selected Stocks on the Ghana Stock Exchange.

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Abstract
This paper examined the applicability of CAPM in explaining the risk-return relation of selected stocks on the Ghanaian stock market for the period of January 2006 to December 2010. The test, using linear regression method, was carried out on the standard CAPM model with constant beta. The results obtained were statistically insignificant. Thus, the null hypothesis (H_o) that there are no statistically significant differences between the actual return and the predicted return series based on the CAPM estimates could not be rejected. The implication is that, the observed differences in the variables in the actual and the predicted returns were likely due to chance or other factors and not likely due to the systematic risk factors as measured by beta of the various stocks under studied.

It was also revealed that all the stocks under studied were either undervalued or overvalued. For instance, CAL, GCB, and SCB stocks were on the average undervalued for the period reviewed. SG-SSB stock was however overvalued on the average for the period reviewed. The conclusion drawn was that the standard CAPM with constant beta could not be used to statistically explain the observed differences in the actual and estimated return series of the selected stocks.
Keywords: Under-priced, Systematic risk, Stock Exchange.

1. Introduction

Stock market plays an important role in stimulating economic growth of a country. It helps to channel fund from individuals or firms without investment opportunities to firms who have them and thus improves the country's economic efficiency. However, stock market is a volatile financial market, in which various factors can affect the return that investors can gain from investing in stocks. The uncertainty of reward from stock market is translated into risks that investors have to bear for investing in stocks. Broadly, risks existing in the stock market can be categorized into unsystematic risk which is as a result of company specific factors and systematic risk which is in consequence of market related factors. According to Markowitz Portfolio Theory (Markowitz, 1959), unsystematic risk can be diversified away through diversification of portfolio and thus the capital markets will not reward investors for bearing this type of risk. Instead, the capital markets will only reward investors for bearing systematic risk that cannot be eliminated through diversification. Since the return from investment in stock market is uncertain, knowing the risk and return nexus in the stock market will be crucial for investors to maximize their return and minimize their risk, and thus ensuring the attractiveness of investing in stock markets. Sharpe (1964) and Lintner (1965) marked the birth of asset pricing theory linking the expected return of an asset to its market risk using the Capital Asset Pricing Model (CAPM). Ross (1976) formulated Arbitrage Pricing Model (APM) as an alternative to CAPM. APM relates expected return of an asset to unidentified risk factors, which can be more than one. The unidentified risk factors could be anything but realistically it is most likely to be macroeconomic variables such as interest rate, inflation rate and so on. There are many other theories developed thereafter, some of them are modification of CAPM and APM. All these theories claim the possibility to estimate return of an investment. However, according to Bruner et al. (1998) and Graham and Harvey (2001), CAPM was found to be the most favored model of practitioners and academics. Dhankar and Singh (2005) also stated that CAPM is widely accepted as an appropriate technique for evaluating financial asset. In this paper, we test the predictability of stock market prices on the Ghana Stock Exchange under the standard CAPM in this paper. We also study the risk- return nexus of selected stocks under the Finance and Insurance sector, the second largest sector in term of market capitalization on the Ghana Stock Exchange, using the standard CAMP as the stock valuation model.

2.0 Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model postulates a simple linear relationship between expected rate of return and systematic risk of a security or portfolio. The model is an extension of Markowitz's portfolio theory. Markowitz (1952) developed a concept of portfolio efficiency in terms of the combination of risky assets that minimizes the risk for a given return or maximizes return for a given risk. Using variance of expected returns as the measure of risk, he shows a locus of efficient portfolios that minimize risk for a given rate of return. The Capital Asset Pricing Model equation shows the relationship between cost of capital and market returns and takes the following form,

$$E_i\left(R_i\right) = R_f + \beta_i\left(E_i\left(R_m\right) - R_f\right)$$

Where:
E_i is the expectation operator;
R_i is the return on equity or portfolio i;
R_f of the risk-free asset;
β_i is a measure of systematic risk on equity or portfolio I;
R_m is the return on the market portfolio.
The equation indicates that the expected rate of return on asset i is equal to the rate of return on the risk-free asset plus a risk premium. This is simply a multiple (β_i) of the difference between the expected rate of the return of the market portfolio and the risk-free rate.

2.1 Empirical Appraisal of the CAPM.

Since its introduction in early 1960s, CAPM has been one of the most challenging topics in financial economics. Almost any manager who wants to undertake a project must justify his decision partly based on CAPM. The reason is that the model provides the means for a firm to calculate the return that its investors demand. This model was the first successful attempt to show how to assess the risk of the cash flows of a potential investment project, to estimate the project's cost of capital and the expected rate of return that investors will demand if they are to invest in the project. The model was developed to explain the differences in the risk premium across assets. According to the theory, these differences are due to differences in the riskiness of the returns on the assets. The model states that the correct measure of the riskiness of an asset is its beta and that the risk premium per unit of riskiness is the same across all assets. Given the risk free rate and the beta of an asset, the CAPM predicts the expected risk premium for an asset.

The theory itself has been criticized for more than 30 years and has created a great academic debate about its usefulness and validity. In general, the empirical testing of CAPM has two broad purposes (Baily et al, 1998): (i) to test whether or not the theories should be rejected (i) to provide information that can aid financial decisions. To accomplish (ii) tests are conducted which could potentially at least reject the model. The model passes the test if it is not possible to reject the hypothesis that it is true.

Methods of statistical analysis need to be applied in order to draw reliable conclusions on whether the model is supported by the data. To accomplish (ii) the empirical work uses the theory as a vehicle for organizing and interpreting the data without seeking ways of rejecting the theory. This kind of approach is found in the area of portfolio decision-making, in particular with regards to the selection of assets to the bought or sold. For example, investors are advised to buy or sell assets that according to CAPM are underpriced or overpriced. In this case empirical analysis is needed to evaluate the assets, assess their riskiness, analyze them, and place them into their respective categories. A second illustration of the latter methodology appears in corporate finance where the estimated beta coefficients are used in assessing the riskiness of different investment projects. It is then possible to calculate "hurdle rates" that projects must satisfy if they are to be undertaken.

3.0. Empirical Methodology

This paper concerns selected stocks traded on the Ghanaian stock market classified under the Financial and Insurance sector covering the period of 1st January, 2006 to 31st December, 2010. In terms of number, this sector has the highest number of stocks (i.e.12 companies) out of 37 listed stocks or 32.4%. And in terms of market capitalization, it has the second largest of GH¢ 4337.04million, representing 22% of the total market capitalization. Bartholdy and Peare (2005), observe that estimation for thinly traded stocks requires a different procedure that involves much more complexities. Thus, in such studies, only frequently traded stocks are used. The frequently traded stocks refer to stocks that are traded on more than 95% of the days in the estimation period. Four (4) major stocks under the selected sector fell into such category and thus formed the basis of our analysis. The market portfolio referred to under CAPM is the portfolio which by definition consists of all assets in the market (Sharpe, 1964). Admittedly, this is a limitation of CAPM. In this paper, three types of data were used: the monthly closing stock prices of the individual stocks, GSE All-share Index and the monthly Treasury bill rate (TBR) that represents the risk-free rate.

3.1 Source of Data

This study used Secondary data. The data for the individual stock and the All-Share-Index were obtained from the Ghana Stock Exchange database. The TBR was compiled from various issues of the Monthly Statistical Bulletin published by the Central Bank (Bank of Ghana).

3.2 Model: Standard CAPM model with constant Beta

We carried out the test using the standard CAPM model with constant beta for the period under review. This model assumes that beta is stable over time. Following Elsas et al. (2003) and Bartholdy and Peare (2005), testing the significant of the model involved three stages: firstly, the estimation of the systematic risk beta (β) of each of the stock in the sample in relation to proxy market; secondly, the estimation of market risk premium of the model with regards to the proxy market; and lastly, to test whether the model can explain the relationship between individual stock return and systematic risk, beta.

3.2.1 Estimation of Systematic Risk, Beta

Generally the larger the number of observation, the better is the estimate. However, earlier researchers including Bartholdy and Peare (2005) tested the performance under varying data series such as monthly data for 5 years, weekly data for 2 years, and daily data for 1 year for estimating beta and recommended using monthly data for 5 years or more. For this study, the estimation of beta for each stock was therefore based on monthly data for 5years. Firstly, the daily closing stock prices of the selected stocks were collected and averaged to estimate the monthly closing stock prices. The monthly returns were calculated based on the monthly closing prices estimated. The periodic returns for GSE All-share index and all the individual stocks in the sample were calculated using Equation (2) as follow:

$$r_t = \left(\frac{p_t - p_{t-1}}{p_{t-1}} \right) \times 100\% \qquad (2)$$

Where r_t is the return of period t, p_t is the closing price/value of period t and pt_{-1} is the closing price/value of period t-1. For each of the stocks in the sample, an estimate of the beta will be done by running an Ordinary Simple Regression (OSR) using the regression equation (3) as below:

$$r_{it} = \alpha_i + \beta_{ik} r_{kt} + \varepsilon_{it} \qquad (3)$$

$$r_{it} - r_{ft} = \alpha_i + \beta_{ik} \left(r_{kt} - r_{ft} \right) + \varepsilon_{it} \qquad (4)$$

where r_{it} is the periodic return of asset i at period t, r_{kt} is the periodic return at period t on the Index k which is used as a proxy for the market portfolio, β_{ik} is the co-efficient of regression representing systematic risk of asset i relative to the Index k, r_{ft} is the annual risk free rate, ε_{it} is an error term and α_i is the intercept of the regression equation.

Equation (3) is based on raw return of the stock whereas Equation (4) is based on the excess return. Even though equation four could have been used, Bartholdy and Peare (2005) showed that the results obtained using any of the two equations are not significantly different.

3.2.2 Estimation of Market Risk Premium of the Model

The market risk premiums of the model would be deduced from the relation (R_m- R_f). Where; R_m is the average market return for the year and $R_{f,}$ is the average risk –free rate of return for the same period. The market return will be estimated from the monthly closing stock market prices of the All-share Index. The All-share-index was used as the proxy for the entire market and the market return were as equation (2). The risk-free rate is the yield on government Treasury-Bill; which is relatively deemed to be risk free. Thus the monthly yields on the government T-bill were collected and the average risk- free rate deduced from it.

3.2.3 Testing the Significant of the Model

According to Elsas et al. (2003) and Bartholdy and Peare (2005), for any model to be of use, the model should produce a market risk premium that is significantly different from zero. The coefficient of determination, estimated as the mean R^2, will determine the percentage of the excess return of the individual stock dependent upon beta for the model. To test the estimated market risk premium, to be significantly difference from zero, the one-sample t-test was employed to test the hypothesis;

H_0: that the mean of market risk premium is equal to zero was tested against

H_1: that the mean of market risk premium is significantly different from zero.

4.0: Empirical Results and Discussion

Table4.1.1: CAL BANK's actual stock returns alongside predicted returns from 2006-2010.

YEAR	MARKET RETURN (R_m%)	RISK-FREE RATE (R_f%)	MARKET RISK PREMIUM(R_m-R_f)	Beta	EXPECTED RETURN (R^{Λ} %)	ACTUAL RETURN (%)
2006	3.68	10.44	-6.76	0.54	6.79	16.36
2007	27.95	9.95	18	0.54	19.67	79.24
2008	51.93	17.42	34.51	054	36.06	41.06
2009	-53.88	25.44	-78.44	0.54	-17.39	-100.23
2010	38.21	13.74	24.47	0.54	27.00	46.30

Source: Author's construct: GSE Data Base.

Table 4.2: Percentage difference in stock returns showing over-/under-priced stocks from 2006-2010 (CAL BANK)

YEAR	EXPECTED RETURN (R^{Λ} %)	ACTUAL RETURN (R%)	(R - R^{Λ})%	PERCENTAGE (%) Difference	REMARKS
2006	6.79	16.36	9.57	140.9	UNDER PRICED
2007	19.67	79.24	59.57	302.8	UNDER PRICED
2008	36.06	41.06	5	13.9	UNDER PRICED
2009	-17.39	-100.23	-82.84	-(476.0)	OVER PRICED
2010	27.00	46.30	19.3	71.5	UNDER PRICED

Source: Authors' construct: GSE Data Base

From the above tables 4.1 and 4.2, it could be observed that there are differences in the actual returns series and the estimated return series based on predictions using the CAMP. Cal Bank's actual returns have been undervalued with the exception of 2009 where, it was overvalued. In 2006, the actual return from the stock was 16.36% whiles the model predicted a return of 6.79, given the stock's beta of 0.54. Thus the actual return on the stock was 140.9% higher than predicted. Similarly, the actual returns exceeded the predicted returns by 302.8%, 13.9%, and 71.5% in 2007, 2008 and 2010 respectively. In 2007, whiles the model predicted a return of 19.67%, the actual return was 79.24. The actual return in 2008 was 41.06 whiles CAPM predicted a return of 36.06%. The trend was not different in 2010; the model predicted a return of 27.0% whiles the actual return was 46.3%. Investors who held common stocks of Cal bank, in the years discussed above had a bargain since the stocks were undervalued in those years. Thus given the level of risk they took on the stock, they were more than compensated and thus paid cheaper prices for the stocks. In 2009 however, the general downturn in the stock market affected most stocks and for that matter there were expected losses for most stocks as it actually happened. For Cal bank, the expected loss on its common stock return as predicted by the model was 17.39% given its beta co-efficient of 0.54. The entire market fell by 53.88% with a beta coefficient of 1. Cal bank's stock being defensive was theoretically expected to fall less than the market and as predicted by the model, the expected loss was -17.39%. The actual loss however was 100.23% which clear indicates that the stock was overvalued in 2009. Thus, investors lost 476% more than the expected loss.

Table 4.3 GCB's Actual Returns alongside Predicted Returns from 2006-2010.

YEAR	MARKET RETURN (R_m%)	RISK-FREE RATE (R_f%)	MARKET RISK PREMIUM(R_m-R_f)	Beta	EXPECTED RETURN ($R^{\wedge}$%)	ACTUAL RETURN (R%)
2006	3.68	10.44	-6.76	.40	7.74	61.82
2007	27.95	9.95	18	.40	17.15	21.99
2008	51.93	17.42	34.51	.40	31.22	16.83
2009	-53.88	25.44	-78.44	.40	-6.29	-21.97
2010	38.21	13.74	24.47	.40	23.53	132.53

Source: Authors' construct; GSE Data Base

Table 4.4 Percentage difference in stock returns showing over- /under-priced stock from 2006-2010 (GCB)

YEAR	EXPECTED RETURN ($R^{\wedge}$%)	ACTUAL RETURN (R%)	(R - $R^{\wedge}$)%	PERCENTAGE (%) Difference	REMARKS
2006	7.74	61.82	54.08	698.7	UNDER PRICED
2007	17.15	21.99	4.84	28.2	UNDERPRICED
2008	31.22	16.83	-14.39	-85.5	OVER PRICED
2009	-6.29	-21.97	-15.68	-249.3	OVER PRICED
2010	23.53	132.53	109	463.2	UNDER PRICED

Source: Author's construct: GSE Data Base

From tables: 4.3and 4.4, it could be observed that GCB's actual stock returns compared with the predicted returns has been a mixed one. It was underpriced in 2006, 2007; overpriced in 2008 and 2009 and again underpriced in 2010. From all situations, it is clear that there is indeed a major difference between value of the actual returns and the estimated returns based on estimates using the Capital Asset Pricing Model. In 2006, the actual return was 61.82% as against a predicted of 7.74%. This represented an under-pricing of an overwhelming 698.7%. Similarly, GCB's stock was under-priced in 2007. Whiles the model predicted a return of 17.15%, the actual return from the stock was 21.99%. Thus the stock paid 28.2% more than predicted. This was however not as astronomical as in 2006. The trend changed in 2008 and 2009; where GCB's stock was overpriced. The model predicted a return of 31.22% and a loss of 6.29% in 2008 and 2009 respectively whiles the actual return and the actual loss were 16.83% and 21.97% in 2008 and 2009 respectively. These also represented overpricing of 85% and 249.3% in 2008and 2009 respectively. Moreover, there was an under-pricing of a hooping 463.2% in 2010. Thus whiles the predicted return was 23.53%, the actual return on the stock was 132.53%. Investors therefore had a bargain in all the years which the stocks were under-priced. On the order hand investors paid more than necessary for the stocks they held in years where the stocks were deemed to have been overpriced based on estimates using the CAPM.

Table 4.5: SCB's Actual Returns alongside Predicted Returns from 2006- 2010.

YEAR	MARKET RETURN (R_m%)	RISK-FREE RATE (R_f%)	MARKET RISK PREMIUM(R_m-R_f)	Beta	EXPECTED RETURN ($R^{\wedge}$%)	ACTUAL RETURN (%)
2006	3.68	10.44	-6.76	0.23	8.90	15.02
2007	27.95	9.95	18	0.23	14.09	50.21
2008	51.93	17.42	34.51	0.23	25.36	44.36
2009	-53.88	25.44	-78.44	0.23	7.40	-22.45
2010	38.21	13.74	24.47	0.23	19.37	42.84

Source: Author's construct: GSE Data Base

Table 4.6:Percentage difference in stock return showing under-/over-priced Stock from 2006-2010(SCB).

YEAR	EXPECTED RETURN ($R^{\wedge}$ %)	ACTUAL RETURN (R%)	(R - $R^{\wedge}$)%	PERCENTAGE (%) Difference	REMARKS
2006	8.90	15.02	6.12	68.8	UNDER PRICED
2007	14.09	50.21	36.12	256.4	UNDER PRICED
2008	25.36	44.36	19	74.92	UNDER PRICED
2009	7.40	-22.45	-29.85	-(403.4)	OVER PRICED
2010	19.37	42.84	23.47	121.2	UNDER PRICED

Source: Authors' construct: GSE Data Base.

Not much can be said in the case of SCB as the actual returns and the predicted returns followed a similar pattern of under- pricing and over -pricing as shown in Tables 4.5 and 4.6 above. Again it is observed that there is actual difference in value of the actual return series and the estimated return series based on estimates using the CAPM. The stock was under-priced in all the years under studied with the exception of 2009 where it was overpriced based on the CAMP estimates. The estimated returns were; 8.9%, 14.09%, 25.36% and 19.37% for 2006, 2007, 2008 and 2010 respectively whiles the actual returns for the respective years were 15.02%, 50.21%, 44.36% and 42.84%. This represented under-pricing of 68.8%, 256.4% 74.92% and 121.2% for 2006, 2007, 2008, and 2010 respectively. In 2009, however, the stock was over-priced. Whiles the model predicted a return of 7.4, the actual results was a loss of 22.45%. Given the fact that SCB's stock was the most defensive among the stocks studied with a beta coefficient of 0.23, CAMP predicted that it should have been affected the least by the general downturn of the GSE bourse in 2009. Thus a positive return was needed to compensate investors in 2009 as predicted by the model. The lost realized on the stock in 2009 therefore clearly indicates that the stock was overpriced and investors paid more than they should have actually paid for the stocks they held in 2009.

Table 4.7: SG-SSB Actual return alongside predicted return from 2006-2010

YEAR	MARKET RETURN (R_m%)	RISK-FREE RATE (R_f%)	MARKET RISK PREMIUM(R_m-R_f)	Beta	EXPECTED RETURN ($R^{\wedge}$ %)	ACTUAL RETURN (%)
2006	3.68	10.44	-6.76	1.08	3.14	16.86
2007	27.95	9.95	18	1.08	29.39	65.42
2008	51.93	17.42	34.51	1.08	54.69	11.14
2009	-53.88	25.44	-78.44	1.08	-60.23	-78.50
2010	38.21	13.74	24.47	1.08	40.17	34.57

Source: Authors' construct: GSE Data Base

Table 4.8: **Percentage difference in stock returns showing over- /under-priced stock from 2006-2010.**

YEAR	EXPECTED RETURN ($R^{\wedge}$ %)	ACTUAL RETURN (R%)	(R - $R^{\wedge}$)%	PERCENTAGE (%) Difference	REMARKS
2006	3.14	16.86	13.72	436.9	UNDER PRICED
2007	29.39	65.42	36.03	122.6	UNDER PRICED
2008	54.69	11.14	-43.55	-(390.9)	OVER PRICED
2009	-60.23	-78.50	-18.27	-(30.3)	OVER PRICED
2010	40.17	34.57	-5.6	-(13.9)	OVER PRICED

Source: Authors' construct: GSE Data Base

All boats rise with the tide, but the same cannot be said of the stock market. Regardless of the trend, some stocks make huge gains whiles others experience losses (Brigham and Ehrhardt, 2009). From tables: 4.7 and 4.8 it is observed that SG-SSB's stock actual returns compared with the predicted returns has been a mixed one. It was underpriced for the first two years under studied, that is, 2006, 2007; and overpriced for the remaining three years of the study; 2008 2009 and 2010. From all situations, it was clear that there were indeed major differences between value of the actual returns and the estimated returns based on estimates using the Capital Asset Pricing Model. In 2006, the actual return was 16.86% as against a predicted of 3.14%. This represented an under-pricing of an overwhelming 436.9%. Similarly, SG-SSB stock was under-priced in 2007. Whiles the model predicted a return of 29.39%, the actual return from the stock was 65.42%. Thus the stock paid 122.6% more than predicted. This was however not as astronomical as in 2006. The trend changed in 2008, 2009 and 2010, where, SG-SSB's stock was overpriced. The model predicted a return of 54.69% and a loss of 60.23% in 2008 and 2009 respectively whiles the actual return and the actual loss were 11.14% and 78.50% in 2008 and 2009 respectively. These also represented overpricing of 390.9% and 30.3% in 2008 and 2009 respectively. Similarly, there was marginal over pricing of 13.9% in 2010. Thus whiles the predicted return was 40.17%, the actual return on the stock was 34.57%. Investors therefore had a bargain in all the years which the stocks were under-priced. On the order hand investors paid more than necessary for the stocks they held in years where the stocks were deemed to have been overpriced based on estimates using the CAPM. According to Frimpong and Oteng (2007), the Ghana stock Exchange is weakly inefficient. The results from their study using the Random Walk (RW) and GARCH models unanimously rejected the presence of random walks in the Databank Stock Index (DSI) daily market returns. The implication according to Frimpong and Oteng (2007) is that one should expect a sizeable amount of stocks on the GSE to be either under-priced or overpriced (i.e. under-/over-valued). The findings of this paper are in consonance with what Frimpong and Oteng did earlier in 2007. None of the stocks in this study was correctly priced according to estimates based on the CAPM. It is therefore not a waste of time for interested experts to analyze the GSE stocks by looking for those that are undervalued. Thus, there is a chance for a hardworking analyst to consistently outperform the market averages.

4.2 Statistical Significance of the Estimates Based on CAPM.

A measure for the degree of confidence we have in a relationship is statistical significance. Most researchers are willing to declare that a relationship is statistically significant if the chances of observing the relationship in the sample are less than 5%,(i.e. a p-value <0.05) assuming no other factors are affecting the data set. This Statistical model was based only on the factor (beta) included in the model and by its artificial nature automatically exclude all other factors. In other words, a relationship is considered to be statistically significant if it appears less frequently than 95% of the relationships among the selected variables we would expect to see just by chance. Below are summaries of the various test that were conducted in the study

Table 4.9: Summary of Statistics (Beta Co-efficient)

BANK	Beta	R-Square	St. DV.	Std. Error	t-stats	Sig
CAL	0.538	.128	.106621513	.185	2.915	.005
GCB	0.387	.012	.250207915	.461	.840	0.404
SCB	0.229	.124	.046020424	.080	2.865	.006
SG-SSB	1.079	.268	.147722637	.234	4.605.003	0.000

Source: Authors' Construct, GSE Database.

From table 4.9 above, Cal Bank has a beta co-efficient of 0.54 and a coefficient of variation (R^2) of .128. Thus 12.8% of the share's total variability of returns is explained by systematic factors as measured by beta. GCB has a beta coefficient of 0.4 and R^2 of 0.012. For GCB, only 1.2% of the total variability of the returns is explained by systematic factors (beta). The beta value for SCB is 0.23 and has R^2 value of 0.124. Thus, 12.4% of the observed variations in SCB' stock is attributable to systematic factors. For SG-SSB, the beta co-efficient is 1.08 and has an R^2 value of 0.268. Thus SG-SSB has the highest R^2 value with 26.8% of the share's total variability of returns explained by systematic factors as measured by beta. In general, the higher the value of R^2, the stronger the case for a unifactor model like CAPM, rather than multifactor models such as arbitrage pricing theory. Statistically, all the beta coefficient estimations are statistically significant with the exception of GCB which is statistically insignificant.

Table 4.5.2: Summary statistics: Risk-Premium (One–sample t-test).

	N	Mean	Std. Deviation	t-stats	sig	CI
risk premium	5	-1.644	45.549	-.326	0.761	-63.200, 49.912

According to Elsas et al. (2003) and Bartholdy and Peare (2005), for any model to be of use, the model should produce a market risk premium that is significantly different from zero. To test the estimated market risk premium, to be significantly difference from zero, we employ the one-sample t-test. The results as summarized in table 4.5.2 shows a mean risk premium of -1.644 and a standard deviation of 45.549. Given the variability of the sample, the risk premium could have been as low as -63.2%, and as high as 49.91% at 95% confidence interval. Notwithstanding the observed variations, the risk-premium is statistically insignificant as indicated by the P-value of 0.761. This also means that the null hypothesis (H_0) that the mean of the market risk premium is equal to zero cannot be rejected. Thus, the excess return of the stock is not dependent on the systematic market risk, beta.

5: Conclusion

Since the birth of CAPM in the 1960's as a model that allows investors to predict the expected return from investing in the stock market, numerous empirical studies had been carried out to analyze the applicability of CAPM in different stock markets. Some empirical findings supported the model conditionally or unconditionally which among others, include; Fama and MacBeth (1973), Jagannathan and Wang (1996). However, there are also abundant empirical evidences against CAPM, claiming there are other factors affecting return in the stock market rather than systematic market risk. Some of these studies include Banz (1981), Fama and French (1992), and Dhankar and Singh (2005). To date, there is no one model that can claim to have the absolute ability to predict the expected stock return. As such, it was the intention of this study to empirically examine the applicability of standard CAPM with constant beta in the Ghanaian stock market. This study was concerned with the individual stock return of 4 frequently traded stocks of the Finance and insurance sector on the Ghana Stock Market. It was discovered that the standard CAPM with constant beta is not the model that can be used to justify the relationship between excess returns and beta, thus, the null hypothesis (H_0) that there is no statistically significant difference between the actual return and the predicted return series based on the CAPM estimates could not be rejected. The implication is that, the observed differences in the variables in the actual and the predicted returns are statistically insignificant and likely due to chance or other factors and not due to the systematic risk factors as measured by beta of the various stocks under review. The findings are in agreement with Abu et al. (2008), who worked on four different CAPM models on selected stocks on the Malaysian Stock Market, and concluded that the standard CAPM model with constant beta was statistically insignificant. It is however expected that investors would take advantage of the information provided by this study to make capital gains and avoid capital loses when the market becomes efficient. Moreover, Frimpong and Oteng (2007) observed that Ghanaians left on their own are themselves not making any significant effort to exploit the predominant opportunities on the young Ghanaian stock market. They observed ignorance, conservatism, and /or indifference on corporate financial matters as the possible reasons associated with their observation. In addition to the above this study also observed lack of accurate and timely flow of information, typical of inefficient markets as suggested by Frimpong and Oteng (2007) to be one of the possible reasons. These problems are so high to defy the usefulness of theoretical postulations such as the implications of the findings of this paper.

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