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RESULTS & DISCUSSION

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COMPARING MEAN RETURNS AND DETERMINING EXCHANGE RATE EFFECT IN INTERNATIONAL EQUITY INVESTMENT

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ABSTRACT

The "Goods market approach theory" suggests that individual investors will receive a similar expected return whether they invest in their domestic stock market or a foreign stock market. This is linked to the proposition that countries whose stock markets appreciate faster than the international average will experience exchange rate movements that the foreign investor counteracts any gain. Here, returns to a UK investor are simulated for a ten year investment window covering the period of 2002 to 2011. Returns are compared according to strategies of investing in the UK market or in each of the six overseas markets. There was no difference of statistical significance in returns between the sterling investment into the UK market and into the markets of the USA, Germany and Japan. However, significantly higher returns would have been obtained for the UK investor into the Australian market and the two emerging markets considered here, China and Mexico.

KEYWORDS

returns, exchange rate, equity, investment, stock markets.

INTRODUCTION

Over the years a number of studies, both academic and experiential, have been carried out to ascertain the link between returns and exchange rate. This research differs because it takes a simulated investment approach, whereas most previous studies concentrated on determining the statistical relationship between these two variables using regression and other models, for example Katechos (2011), Fletcher & Marshall, (2005), Errunza (1978) and Lessard (1976).

The exchange rate impact on stock returns for an international investor could be explained from two viewpoints. First impact is on the individual investor's personal gain. Supposing a return is earned from international equity investment, what would become of the value of the money after conversion back to the investor's home currency? This important factor is the basis of this research. For most foreign companies their domestic currency is usually the functional. Therefore, when a return is earned by either share sales or dividend there might be a need to convert the money into the investor's home currency. For example, when a United Kingdom based investor receive a dividend of 1000 Yen from a Japanese firm and the yen value appreciates, the investor will receive more money when converted into pounds. Similarly, fewer pounds will be received if the Yen depreciates against the pound.

Secondly, exchange rate effect on stock values and subsequently on investors return could be viewed from a broader economic perspective. For the purpose of this research I am going to concentrate on one approach that was prominently documented in the work of Dornbusch and Fischer (1980) which he referred to as the "the goods market approach". This explains that domestic equity prices should react either favourably or unfavourably according to increasing or decreasing domestic money. According to Oben et al (2006) the goods market theory suggest that this relationship basis runs from exchange rate to the share market prices. They hypothesize that fluctuation in foreign exchange influences profitability of multinational firms which is reflected in their equity prices.

However, I believe that whether exchange rate changes can significantly impact on equity prices depends on international balance of trade. The impact depends on whether the companies in a particular country are more of exporters than importers. Take an instance of import-base country; in a situation where the currency is appreciating this will inspire the equity market indices, while at the same time this currency appreciation will discourage the equity market for an export-oriented country.

EMPIRICAL STRATEGY

This research tests the null hypothesis of mean returns being equal between the investor's home country and a number of foreign countries considered in this study and also simulates investment strategies to compare monetary gains between domestic and international investment.

EXISTING LITERATURE

According to Madura and Nosari, (1984) international equity portfolio ventures vary from domestic equity investment in many respects, but arguably the main distinction is the effect of fluctuations in currency. Worzala and Sirmans (2003) in their paper concluded that roughly all the studies conducted on potential gains from international portfolio diversification, concluded that diversification benefits are achievable but most of the time the gains are reduced if exchange rate is incorporated into the analysis. Moreover, Eun and resnick (1988) argued that erratic exchange rates could possibly reduce the potential gains from international diversification by making investment in foreign stocks riskier than domestic stocks. This goes further to show that exchange rate uncertainty, which is largely a non-diversifiable element, can affect the performance of international portfolios. A fall in the value of the investor's domestic currency will add to any monetary gain of stock investment in foreign markets, but a domestic currency that is going up can have a negative impact on returns in foreign investments (Gagnon, 1993). Similarly, Huchet-Bourdon and Korinek (2011) proposed that a typical justification of the negative relationship between exchange rate volatility and international stock trade stems from transactions costs. The associated cost of converting one currency into another and the risk connected with likely changes in exchange rates have a negative effect on stock returns. Ma and Kao (1990) explained that the rate of return required of an equity investment in any foreign country should reflect both the domestic required rate of return and likely changes in the worth of the money in which the investment is denominated. This shows that international equity investment is intrinsically influenced by foreign exchange rate changes, which is primarily as a result of gains or losses arising from the completion of investment transactions stated in foreign currency terms.

Furthermore, Jochen (2010) in a paper prepared to review the benefits to international investors from hedging the currency exposure of international investments in equity portfolios, concluded by demonstrating the importance of currency risk hedging for international investors to benefit from the gains of international investment in stocks. The exchange rate fluctuations can result in irregular gains and losses when the returns of a stock investment are changed from the foreign currency into the home currency of the investor. Campbell et al (2007) in their research paper where they studied the connection of foreign exchange rates with stock returns over a thirty year period concluded that there is strong evidence to suggest that international stock investors can minimize their potential equity risk from exchange rate fluctuations by hedging against their exposure. Glen and Jorion (1993) in a study examining the benefits of currency hedging in the context of international stock portfolio concluded that hedging against foreign exchange fluctuations considerably improves the performance of portfolio both in return and risk variables. The fact that the above cited literary works acknowledged and advocated for hedging shows that exchange rate is a real concern in international equity investments.

DATA SOURCES

This research is conducted using historical data covering a ten year period on stock portfolio returns and exchange rates for the following countries: United Kingdom, United States of America, Japan, China, Mexico and Germany. The time series data consist of 8 national stock portfolio monthly returns. The stock portfolio for five countries (Australia, China, Germany, Japan and Mexico) is made up of well diversified share indices provided by Morgan Stanley MSCI ACWI index, all the share prices are in local currency except for China were it was provided in Hong Kong Dollar by the index. The S & P 500 is used as the stock market indices for United States of America and the FTSE All Share index for the United Kingdom. Same method was used by Burger and Maurer (1997). The monthly data for the spot exchange rate was obtained from the University of British Columbia's Sauder School of Business, a service provided by Professor Werner Antweiler for academic research and teaching, where the pound as the base currency is exchanged into the currencies of the countries used in the research.

DATA ANALYSIS

Simple bi-directional test was conducted to test the goods market approach theory. The research reported here focused, from the perspective of an investor resident in the UK, and the returns to stock market investment is sterling termed according to whether it is placed in the markets of the UK, the US, Germany, Japan, Australia, Mexico or China. The first three overseas markets included in the study for reasons of their scale and the last two as representative of emerging markets. The data covered calendar years 2002 to 2011. The following tests were conducted:

(i) Tendency for a stock market index of a country and the value of a country's currency to move in opposite directions, as goods market approach predicts.

(ii) Simulated investments where the UK investor places £1m into each market for ten years, repatriating funds into sterling at the end of the period in the case of foreign investment. Returns are compared between the UK and each of the foreign stock markets.

EMPIRICAL ANALYSIS AND RESULTS

A UK resident investor will place a £1,000,000 over the period of ten years (2002-2011) in the domestic market and in each of the foreign market. The strategy was to invest at the beginning of the period, sell at conclusion and repatriate the gain to pound sterling. The repatriated gain will be compared to the gain in the domestic market to ascertain, for this limited ten year long term investment, whether the sterling gain is similar to sterling gain in the overseas market

RESULT AND DISCUSSION

Table 1 assess the prediction from the goods market approach theory in the literature that changes in a domestic stock price index be in the opposite direction to the changes in the exchange rate measured here against the sterling. The table shows the value of each country's index at the beginning of the experiment which is 01/01/2002 and the index value at the end of the experiment 31/12/2011. The difference between these two values was the index change between the two periods which was expressed as a percentage under each country. Similarly exchange rate values for each country at the beginning and end of the experiment are shown and the difference between the two values is also reported. For the United Kingdom stock market index change is shown as the investor was located in the United Kingdom and the pound was the base currency in the exercise.

TABLE 1: GOODS MARKET APPROACH THEORY TEST

COUNTRY	UNITED KINGDOM	UNITED STATES	GERMANY	AUSTRALIA	JAPAN	MEXICO	CHINA
INDEX AT THE START OF EXPIREMENT	2496.02	1130.20	190.85	699.75	611.79	7548.75	15.25
INDEX AT THE END OF EXPIREMENT	2857.88	1257.60	125.86	822.60	446.19	34901.20	52.92
INDEX CHANGE	361.86	127.40	-64.99	122.85	-165.60	27352.46	37.66
PERCENTAGE CHANGE	14.49747999	11.27234118	-34.05379065	17.5562701	-27.0678154	362.3444559	246.921917
		USD INTO GBP	MARK INTO GBP	AUSD INTO GBP	YEN INTO GBP	PESO INTO GBP	HKD INTO GBP
EXCHANGE RATE AT THE START		1.41	3.17	2.79	132.66	13.12	7.80
EXCHANGE RATE AT THE END		1.55	2.32	1.52	77.80	21.45	7.78
CHANGE IN EXCHANGE RATE		0.13	-0.86	-1.27	-54.86	8.33	-0.02
PERCENTAGE CHANGE		9.38870808	-26.97497005	-45.51810685	-41.3508216	63.46593507	-0.2795266

A simple test is whether currency exchange rates against the sterling and stock market index tend to move in the opposite direction, they did in the USA market where the index percentage change over the period is a positive figure and the corresponding change in exchange rate of dollars into pound was a negative value. Secondly, for the German market the theory did not hold as the two percentages change of index and exchange rate are both negative values meaning that they moved in the same direction as against the prediction of the theory. Thirdly, the theory is accepted in the Australian market where the percentage in the stock market index and the percentage change in the exchange rates moved in opposite direction. The theory did not hold in the Japanese market as the two percentages changes of the index and that of exchange rates moved in the same direction. For the Mexican market the theory was rejected as the percentage changes of the index and exchange rate moved in the same direction. Lastly, the Chinese market accepts the theory as the percentage change in the index is a positive value and the percentage change in the exchange rate is negative value. It must be noted that the index percentage change for Mexico and China have experienced huge dramatic rise this might be due to the research experiment covering a limited 120 months, the result might have been different if it is outside the research's specified investment window of ten years. The broad conclusion derived from this table is that for the US, Australia and China the suggestion of the theory that there should a negative correlation between movements in local stock prices and the movement in exchange rate is accepted. However, for Germany, Mexico and Japan the prediction of the theory was rejected. This result could, however, be attributed to the time frame of ten years covered in the study.

TEST FOR MEANS EQUALITY BETWEEN UNITED KINGDOM AND UNITED STATES INVESTMENT STRATEGIES

Table 2 presents the first test of the null hypothesis that mean return for the United Kingdom market is equal to the mean return for the United States market. The test has 120 observations which correspond to the number of months in the investment period of ten years. The aim of this test here is to determine, over the ten year investment period, if the return means of the two alternative investment strategies in the two countries are statistically and significantly different. If the theory holds, investors could be advised that it does not matter whether they choose the home or an international stock market. However, if the theory is rejected then it does significantly matter which investment strategy the domestic investor chooses. I tested whether mean monthly return percentage in pound sterling is equal to the mean monthly return in US dollars.

TABLE 2: UNITED KINGDOM AND UNITED STATES MEAN RETURN TEST

NULL HYPOTHESIS MEAN MONTHLY RETURN UNITED KINGDOM EQUALS MEAN MONTHLY RETURN USA			
z-Test: Two Sample for Means			
	FTSE ALL SHARE UK	S & P 500 USA	
Mean	0.201332377	0.182948401	
Known Variance	19.30733	21.13629	
Observations	120	120	
Hypothesized Mean Difference	0		
z	0.031666865		
P(Z<=z) one-tail	0.48736886		
z Critical one-tail	1.644853627		
P(Z<=z) two-tail	0.97473772		
z Critical two-tail	1.959963985		

Table 2 shows that the mean return for the United Kingdom market during the ten year investment period (120 observations) is 0.201 while the mean return of the United States market during the same investment period is 0.183. The z critical two-tail value is 1.960. In order to accept the hypothesis, the z value must be in the region of -1.960 and 1.960. Similarly, to reject the hypothesis the z value must fall outside the acceptance region. In this case the z value is 0.032 which is in the acceptance region. The test establishes that based on mean returns there was no significant difference in returns whether the investor placed funds in the UK or in the USA. Looking at the variance in the two stock markets, although the simple measured mean return was higher in the home market than the US market, however, the difference did not prove statistically significant.

INVESTMENT NET GAIN COMPARISON UNITED STATES AND UNITED KINGDOM

Table 3 is the pair wise comparison of the investment gains for the two alternative investments between United Kingdom and United States. It presents an investment simulation by a United Kingdom based investor, over the period of ten years, in the domestic market and in the foreign market. This test shows what would have been earned from each strategy. The table shows the picture for long term investor who placed money in the United Kingdom or United States markets for ten years (2002-2011). The United States strategy was to invest at the beginning of the period, sell at the conclusion of the period and repatriate the gain to pound sterling as appropriate. The gain is for £1m investment in stocks.

TABLE 3: INVESTMENT GAIN COMPARISON TABLE UNITED KINGDOM AND UNITED STATES

PAIRWISE COMPARISON: UNITED STATES AND UNITED KINGDOM	
UNITED STATES	
DATE OF INITIAL INVESTMENT	01/01/2002
INVESTMENT DURATION	120 MONTHS
INVESTED AMOUNT JAN 2002 IN POUNDS	£ 1,000,000.00
INVESTED AMOUNT JAN 2002 IN DOLLARS	$1,413,400.00
MONTHLY AVERAGE RETURN (120 M0NTHS)	0.219538081
INVESTMENT RETURN FOR 10 YEARS IN DOLL	$310,295.12
INVESTMENT VALUE IN DOLLARS (DECEMBER	$1,723,695.12
INVESTMENT VALUE IN POUNDS (DECEMBER	£1,114,866.52
NET INVESTMENT GAIN IN POUNDS	**£114,866.52**
UNITED KINGDOM	
AMOUNT AVAILABLE FOR INVESTMENT	£1,000,000.00
DATE OF INITIAL INVESTMENT	01/01/2002
MONTHLY AVERAGE RETURN (120 MONTHS)	0.241598853
INVESTMENT RETURN	£241,598.85
INVESTMENT VALUE DECEMBER 2011	£1,241,598.85
INVESTMENT GAIN	**£241,598.85**

The initial amount available for investment in the domestic investor's home currency is £1m this amount was converted into US dollars at the prevailing exchange rate on the date of the investment which translated as $1,413,400 (1/01/2002). The return for the 120 months of the investment duration is 0.220 percent. At this rate of return the investment would have earned $310,295. By the end of the investment period the investment value would have been $1,723,695 (31/12/2011). This amount would be the equivalent of £1,114,866 in the investor's home currency. By subtracting this value from the amount invested at the beginning of the experiment (£1,114,866-£1,000,000) the net gain would have been £114,866. On the other hand, the domestic investment's return for the 120 months is 0.242 percent; this domestic investment's rate of return would have earned the investor £241,598. The domestic investment would have yield slightly better return than its USA counterpart and this may be due to the domestic rate of return being higher and USD into Pounds exchange rate remaining fairly stable over the 120 months with the percentage change at 9% and the domestic investment offering better return.

TEST FOR MEANS EQUALITY BETWEEN UNITED KINGDOM AND JAPAN INVESTMENT STRATEGIES

Table 4 presents the test of the null hypothesis that mean return for the United Kingdom market is equal to the mean return for the Japan market. The test seeks to determine, over the ten year investment period, in the monthly returns for the two alternative investment strategies in the two countries are significantly different. If the theory holds, investors could be advised that it does not matter whether they chose the home or an international stock market. However, if the theory is rejected then it did significantly matter which investment strategy the domestic investor chooses. I tested whether mean monthly return in pound sterling was equal to the mean monthly return in Japanese Yen. The test has 120 observations which correspond to the number of months in the investment period of ten years (2002-2011).

TABLE 4: UNITED KINGDOM AND JAPAN MEAN RETURN TEST

NULL HYPOTHESIS MEAN MONTHLY RETURN UK EQUALS MEAN MONTHLY RETURN JAPAN		
z-Test: Two Sample for Means		
	FTSE ALL SHARE INDEX	*JAPAN MSCI INDEX*
Mean	0.201332377	-0.174035544
Known Variance	19.30733	27.40806
Observations	120	120
Hypothesized Mean Difference	0	
z	0.601613799	
P(Z<=z) one-tail	0.273715621	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.547431242	
z Critical two-tail	1.959963985	

This test seeks to determine if the two countries mean return is significantly different and that the assumed investor is deciding whether to invest in the domestic market or in the Japanese international market. For the 120 observations, which equals the number of the months in the ten year investment period the mean return for the United Kingdom market is 0.201 while the mean return of Japan is -0.174. The z critical two-tail value is 1.960, for the hypothesis to be accepted the z value must be in the region of -1.960 and +1.960. Similarly, to reject the hypothesis the z value must fall outside the acceptance region of the numbers -1.960 and +1.960. For this test the z value is 0.602 which falls in the acceptance region. According to this test the mean returns are not statistically different and as such it makes little or no difference whether to invest in the UK or in the Japan market means calculation. Given the volatility in each stock market, although the simple measured mean return was higher in London than the Tokyo markets, the difference did not prove statistically significant.

INVESTMENT NET GAIN COMPARISON JAPAN AND UNITED KINGDOM

Table 5 compares the gains of the two investments between United Kingdom and Japan. This strategy was to invest at the beginning of the period (2002), sell at the conclusion of the period (2011) and repatriate the gain to pound sterling as appropriate. The gain is for £1,000,000 million investment in stocks. The table presents an investment simulation by a United Kingdom based investor, over the period of ten years, in the domestic market and in the foreign market. This test shows what would have been earned in each of the countries. The table shows the picture for long term investor who placed money in the United Kingdom or Japan markets for ten years (2002-2011).

TABLE 5: INVESTMENT NET GAIN COMPARISON TABLE JAPAN AND UNITED KINGDOM

PAIRWISE COMPARISON: JAPAN AND UNITED KINGDOM	
JAPAN	
DATE OF INITIAL INVESTMENT	01/01/2002
INVESTMENT DURATION	120 MONTHS
INVESTED AMOUNT JAN 2002 IN POUNDS	£1,000,000.00
INVESTED AMOUNT JAN 2002 IN YEN	¥132,660,000.00
MONTHLY AVERAGE RETURN (120 MONTHS)	-0.208842653
INVESTMENT RETURN FOR 10 YEARS IN YEN	-¥27,705,066.31
INVESTMENT VALUE IN YEN (DECEMBER 2011)	¥104,954,933.69
INVESTMENT VALUE IN POUNDS (DECEMBER 2011)	£1,348,965.78
NET INVESTMENT GAIN IN POUNDS	**£348,965.78**
UNITED KINGDOM	
AMOUNT AVAILABLE FOR INVESTMENT	£1,000,000.00
DATE OF INITIAL INVESTMENT	01/01/2002
MONTHLY AVERAGE RETURN (120 MONTHS)	0.241598853
INVESTMENT RETURN	£241,598.85
INVESTMENT VALUE DECEMBER 2011	£1,241,598.85
INVESTMENT GAIN	**£241,598.85**

In the table the initial amount available for investment in the foreign currency was 132,660,000 million Yen, this is the equivalent of £1,000,000 at the exchange rate value on the investment date (2002). The Japanese market return for the 120 months of the investment duration is -0.209. This negative return would have seen the UK based investor suffer a loss of 27,705,066 million Yen. The loss would reduce the Yen value of the investment over the investment's 120 months' period to 104,954,934 million Yen (2011). However, even though the international investment would have resulted in a loss, the UK investor would have still made a gain of £348,965.78 over the investment period. The loss suffered due to negative rate return was compensated by the investor's domestic currency of pound sterling appreciating against the Japanese Yen. Alternatively, the domestic investment's total monthly return for the 120 months of 0.242 would have resulted in investment gain of £241,598. Although not significantly different the Japan investment would have offered slightly more return than the domestic investment. Therefore, in terms of reduced gains from the simulated strategies, it mattered very much over the ten year period whether or not the investor placed funds overseas. On the other hand, the tables show that the monthly return in each of the markets compared to the United Kingdom market displayed very high variance, suggesting that, while the investor in the experiment could have received substantial gain, these were gained in the presence of significant risk.

TEST FOR THE REMAINING COUNTRIES

The procedure followed for the remaining countries were similar to those reported in the United States and Japan. Results are displayed in Tables 6 to 13. The principal findings in these countries were that:

(a) Mean returns were significantly different between the UK and the US, Germany and Japan.
(b) However, there was a significant difference between the UK and Australia, Mexico and China
(c) The ten year gains were close as between UK strategy and that of investing in US, Germany and Japan
(d) But in the case of the two emerging markets of Mexico and China much greater gain has accrued to the investor placing funds abroad rather than the home market. Similarly, there was wide gap in gain between the UK strategy and that of Australia.

TABLE 6: UNITED KINGDOM AND GERMANY MEAN RETURN TEST

NULL HYPOTHESIS MEAN MONTHLY RETURN UK EQUALS MEAN MONTHLY RETURN GERMANY		
z-Test: Two Sample for Means		
	FTSE ALL SHARE UK	*GERMANY MSCI INDEX*
Mean	0.201332377	-0.216709181
Known Variance	19.30733	30.01656
Observations	120	120
Hypothesized Mean Difference	0	
z	0.652050783	
P(Z<=z) one-tail	0.257184206	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.514368413	
z Critical two-tail	1.959963985	

TABLE 7: INVESTMENT NET GAIN COMPARISON TABLE GERMANY AND UNITED KINGDOM

PAIRWISE COMPARISON: GERMANY AND UNITED KINGDOM	
GERMANY	
DATE OF INITIAL INVESTMENT	01/01/2002
INVESTMENT DURATION	120 MONTHS
INVESTED AMOUN T JAN 2002 IN POUNDS	£1,000,000.00
INVESTED AMOUN T JAN 2002 IN MARKS	3,172,200.00 €
MONTHLY AVERAGE RETURN (120 MONTHS)	-0.260051017
INVESTMENT RETURN FOR 10 YEARS IN MARKS	-824,933.84 €
INVESTMENT VALUE IN MARK (DECEMBER 2011)	2,347,266.16 €
INVESTMENT VALUE IN POUNDS (DECEMBER 2011)	£1,013,281.31
NET INVESTMENT GAIN IN POUNDS	**£13,281.31**
UNITED KINGDOM	
AMOUNT AVAILABLE FOR INVESTMENT	£1,000,000.00
DATE OF INITIAL INVESTMENT	01/01/2002
MONTHLY AVERAGE RETURN (120 MONTHS)	0.241598853
INVESTMENT RETURN	£241,598.85
INVESTMENT VALUE DECEMBER 2011	£1,241,598.85
INVESTMENT GAIN	**£241,598.85**

TABLE 8: UNITED KINGDOM AND AUSTRALIA MEAN RETURN TEST

NULL HYPOTHESIS MEAN MONTHLY RETURN UK EQUALS MEAN MONTHLY RETURN AUSTRALIA		
z-Test: Two Sample for Means		
	FTSE ALL SHARE UK	*AUSTRALIA MSCI INDEX*
Mean	0.201332377	0.220346527
Known Variance	19.30733	14.83248
Observations	120	120
Hypothesized Mean Difference	0	
z	-0.03564815	
P(Z<=z) one-tail	0.485781457	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.971562915	
z Critical two-tail	1.959963985	

TABLE 9: INVESTMENT NET GAIN COMPARISON TABLE AUSTRALIA AND UNITED KINGDOM

PAIRWISE COMPARISON: AUSTRALIA AND UNITED KINGDOM	
AUSTRALIA	
DATE OF INITIAL INVESTMENT	01/01/2002
INVESTMENT DURATION	120 MONTHS
INVESTED AMOUN T JAN 2002 IN POUNDS	£1,000,000.00
INVESTED AMOUN T JAN 2002 IN AUSD	$2,789,000.00
MONTHLY AVERAGE RETURN (120 M0NTHS)	0.264415833
INVESTMENT RETURN FOR 10 YEARS IN AUSD	$737,455.76
INVESTMENT VALUE IN AUSD (DECEMBER 2011)	$3,526,455.76
INVESTMENT VALUE IN POUND(DECEMBER 2011)	£2,320,800.10
NET INVESTMENT GAIN IN POUNDS	**£1,320,800.10**
UNITED KINGDOM	
AMOUNT AVAILABLE FOR INVESTMENT	£1,000,000.00
DATE OF INITIAL INVESTMENT	01/01/2002
MONTHLY AVERAGE RETURN (120 MONTHS)	0.241598853
INVESTMENT RETURN	£241,598.85
INVESTMENT VALUE DECEMBER 2011	£1,241,598.85
INVESTMENT GAIN	**£241,598.85**

TABLE 10: UNITED KINGDOM AND MEXICO MEAN RETURN TEST

NULL HYPOTHESIS MEAN MONTHLY RETURN UK EQUALS MEAN MONTHLY RETURN MEXICO

z-Test: Two Sample for Means

	FTSE ALL SHARE UK	*MEXICO MSCI INDEX*
Mean	0.201332377	1.770395855
Known Variance	19.30733	44.83375
Observations	120	120
Hypothesized Mean Difference	0	
z	-2.146164479	
P(Z<=z) one-tail	0.015929929	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.031859858	
z Critical two-tail	1.959963985	

TABLE 11: INVESTMENT NET GAIN COMPARISON TABLE MEXICO AND UNITED KINGDOM

PAIRWISE COMPARISON: MEXICO AND UNITED KINGDOM	
MEXICO	
DATE OF INITIAL INVESTMENT	01/01/2002
INVESTMENT DURATION	120 MONTHS
INVESTED AMOUNT JANUARY 2002 IN POUNDS	£1,000,000.00
INVESTED AMOUNT JANUARY 2002 IN PESO	$13,122,000.00
MONTHLY AVERAGE RETURN (120 MONTHS)	2.124475026
INVESTMENT RETURN FOR 10 YEARS IN PESO	$27,877,361.29
INVESTMENT VALUE IN PESO (DECEMBER 2011)	$40,999,361.29
INVESTMENT VALUE IN POUND (DECEMBER 2011)	£1,911,392.13
INVESTMENT GAIN IN POUNDS	**£911,392.13**
UNITED KINGDOM	
AMOUNT AVAILABLE FOR INVESTMENT	£1,000,000.00
DATE OF INITIAL INVESTMENT	01/01/2002
MONTHLY AVERAGE RETURN (120 MONTHS)	0.241598853
INVESTMENT RETURN	£241,598.85
INVESTMENT VALUE DECEMBER 2011	£1,241,598.85
INVESTMENT GAIN	**£241,598.85**

TABLE 12: UNITED KINGDOM AND CHINA MEAN RETURN TEST

NULL HYPOTHESIS MEAN MONTHLY RETURN UK EQUALS MEAN MONTHLY RETURN CHINA		
z-Test: Two Sample for Means		
	FTSE ALL SHARE UK	*CHINA MSCI INDEX*
Mean	0.201332377	1.292177383
Known Variance	19.30733	65.83682
Observations	120	120
Hypothesized Mean Difference	0	
z	-1.295019367	
P(Z<=z) one-tail	0.097656774	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.195313549	
z Critical two-tail	1.959963985	

TABLE 13: INVESTMENT NET GAIN COMPARISON TABLE CHINA AND UNITED KINGDOM

PAIRWISE COMPARISON: CHINA AND UNITED KINGDOM	
CHINA	
DATE OF INITIAL INVESTMENT	01/01/2002
INVESTMENT DURATION	120 MONTHS
INVESTED AMOUNT JANUARY 2002 IN POUNDS	£ 1,000,000
INVESTED AMOUNT JANUARY 2002 IN HKD	HK$7,798,900
MONTHLY AVAERAGE RETURN (120 MONTHS)	1.55
INVESTMENT RETURN FOR 10 YEARS IN HKD	HK$12,093,075
INVESTMENT VALUE IN HKD (DECEMBER 2011)	HK$19,891,975
INVESTMENT VALUE IN POUNDS (DECEMBER 2011)	£ 2,557,762.49
INVESTMENT GAIN IN POUNDS	**£ 1,557,762.49**
UNITED KINGDOM	
AMOUNT AVAILABLE FOR INVESTMENT	£1,000,000.00
DATE OF INITIAL INVESTMENT	01/01/2002
MONTHLY AVERAGE RETURN (120 MONTHS)	0.241598853
INVESTMENT RETURN	£241,598.85
INVESTMENT VALUE DECEMBER 2011	£1,241,598.85
INVESTMENT GAIN	**£241,598.85**

CONCLUDING REMARK

This research paper has investigated the effect of exchange rates on returns from international investment from a view point of an individual investor. Similarly it determines which stock investment strategy, between domestic and international offered more monetary gain to a stock portfolio holder. The research investigated returns to alternative strategies of investing into the UK stock market or into each of the five overseas markets for the duration of the period 2002 to 2011. No strong tendency was detected for it to matter much whether a UK investor had placed fund into London or into markets in other developed economies. However, substantially superior returns were available in the two emerging markets of China and Mexico. Exposure to these two emerging markets would have considerably benefitted the UK investor over the period. Considering international strategies is therefore important but, the deterrent is risk, month to month volatility was exceptionally high in both the indices for emerging markets and the high return would have been at the cost of greater risk.

LIMITATIONS OF THE STUDY

This research cannot by itself claim to be a comprehensive guide to investors in choosing an investment strategy between domestic and foreign stock. This is due to lack of enough time to handle data and capability to include many countries. Another limitation is the investment time frame being ten years; the result could have been different outside the ten year window covered.

RECOMMENDATIONS FOR FURTHER RESEARCH

I believe there is a significant benefit to be derived from this research area in general and in this topic in particular, therefore there is need for this research to be expanded to cover more countries and investment windows.

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