

Portfolio Diversification Strategy and the Impacts on the Middle East Real Estate Investment Decision

Anas Al Bakri¹

¹ Department of Management and Marketing, College of Business and Economics, Qatar University, Doha, Qatar

Correspondence: Anas Al Bakri, Department of Management and Marketing, College of Business and Economics, Qatar University, P. O. BOX 2713, Doha, Qatar. Tel: 974-4403-5047. E-mail: anasbakri@qu.edu.qa

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Abstract

This paper identified and examined the possible impacts of portfolio diversification strategy on the generated Property Companies' (PCs) stocks returns, and the real estate industry performance and risk in the Middle East Real Estate Industry (MEREI) observed over the time period from Feb. 2008 to Feb. 2012. It is important to mention that there are two components of portfolio risk; the first one is non-systematic risk which can be diversified. The second one is systematic or non-diversifiable risk, which cannot be reduced by portfolio diversification; it is also called the market risk. Also, in order to measure the effectiveness of the portfolio, there are two critical variables must be considered, standard deviation and beta. The standard deviation reflects the unsystematic or company specific risk which can be avoided by diversification. However beta measures the type and degree of relationship between the company and the market, where it is very important for the investor to know how much the stock price will change due to a given change in the market. This paper clarifies the impact of diversification on the portfolio performance by including different companies from different sectors in one portfolio, and measuring both risk and return for this portfolio. This paper also aims to recommend the local and regional real estate industry investors as to how useful the diversification strategy is. The first impact considered in this paper is the independent relationship between the real estate portfolio diversification strategy and the PCs stocks returns generated by the portfolios from single stock to the portfolios of ten stocks. This study explains the second impact in terms of the relationship between the systematic risk (beta) of the PC stock and the degree of its correlation with the local and regional markets. The impact of portfolio diversification strategy on the non-systematic risk (standard deviation) is also being considered in this paper. Hence, by increasing the number of PCs stocks in the portfolio this risk can be eliminated. The final issue that the paper addresses is the advices to the investors that the portfolio diversification is a passive strategy and to secure maximum returns and lowest risk, which it is necessary to actively monitor their real estate portfolio and switch among investments if necessary. This study concluded that the investment from the ninth asset portfolio holds only the systematic risk of 0.005%. At this point the diversifiable risk is zero and the only risk that is relevant is the systematic or non-diversifiable or the company specific risk of 0.005% which cannot be eliminated even if an 11th asset is added to the portfolio. Also the study concluded that it is evident that there is no distinct relationship between expected return and the number of real estate assets held in the portfolio. In other words, the principle of diversification has nothing to do with the returns that the real estate assets in the portfolio generate together. In fact, it is the correlation of the return of these listed property companies with the real estate markets in the Middle East. The study recommended the investors in the Middle East to actively review their Real Estate portfolio and interchange the combinations of the assets in forming the portfolio. This may result earning a positive return from their Real Estate investment. Moreover we advise shareholders to not completely rely on the passive strategy of Real Estate portfolio diversification.

Keyword: portfolio diversification, systematic risk, property companies, property portfolio, real estate

1. Introduction

The simplest means of comparing historical returns and variances involves performance analysis. However, this approach encounters problems due its simple unconditional approach, which fails to explicitly, cater for risks related to returns. Ling and Naranjo (2002) used the widely accredited risk adjustment approach based on single-beta models (CAPM). Although the single-beta method controls systematic sources on return variation while evaluating return performance, a consensus is that the approach has inadequacies while describing systematic risks

on commercial real estate markets (Chan et al., 1990; Karolyi & Sanders, 1999). Therefore, to incorporate measures for both domestic and global property return performance, an approach capable of controlling country specific systematic risk sources is required. The notion of diversification is to spread your capital across a wide variety of asset classes (Lowry, 1996). Since the portfolio contains many assets, it has to be constructed in a diversified way in order to avoid the risk, which may deprive investors from realizing the return that they have expected. It is important to mention that there are two components of portfolio risk; the first one is non-systematic risk which can be diversified. The second one is systematic or non-diversifiable risk, which cannot be reduced by portfolio diversification; it is also called the market risk. Also, in order to measure the effectiveness of the portfolio, there are two critical variables must be considered, SD and β . The SD reflects the unsystematic or firm specific risk which can be avoided by diversification. However β measures the type and degree of relationship between the firm and the market, where it is very important for the investor to know how much the stock price will change due to a given change in the market. This section clarifies the impact of diversification on the portfolio performance by including different markets and LPCs from different property markets in one portfolio, and measuring both risk and return for this portfolio.

1.1 The Objectives of Study

The purpose of this paper is to identify the possible impacts of portfolio diversification strategy in the Middle East real estate industry (MEREI) on the generated property companies' (PCs) stocks returns, real estate industry performance and on the risk of holding this investment. This paper also aims to recommend the local and regional real estate industry investors as to how useful the diversification strategy is. The impact of portfolio diversification strategy on the non-systematic risk (standard deviation) is also being considered in this paper. Hence, by increasing the number of PCs stocks in the portfolio this risk can be eliminated. The final issue that the paper addresses is the advices to the investors that the portfolio diversification is a passive strategy and to secure maximum returns and lowest risk, which it is necessary to actively monitor their real estate portfolio and switch among investments if necessary.

1.2 The Importance of Study

It is important to mention that there are two components of portfolio risk; the first one is non-systematic risk which can be diversified. The second one is systematic or non-diversifiable risk, which cannot be reduced by portfolio diversification; it is also called the market risk. Also, in order to measure the effectiveness of the portfolio, there are two critical variables must be considered, standard deviation and beta. The standard deviation reflects the unsystematic or company specific risk which can be avoided by diversification. However beta measures the type and degree of relationship between the company and the market, where it is very important for the investor to know how much the stock price will change due to a given change in the market. This paper clarifies the impact of diversification on the portfolio performance by including different companies from different sectors in one portfolio, and measuring both risk and return for this portfolio. The first impact considered in this paper is the independent relationship between the real estate portfolio diversification strategy and the PCs stocks returns generated by the portfolios from single stock to the portfolios of ten stocks. This study explains the second impact in terms of the relationship between the systematic risk (beta) of the PC stock and the degree of its correlation with the local and regional markets.

2. Literature and Theoretical Framework

There are widespread perceptions of investors that interest rate changes and market risks are the major influential determinants that affecting the LPCs portfolio performance. According to World Bank (2011), the returns on the LPCs are varied widely across developed and developing countries as recently as 10 years ago. Investors have taken advantage of the easing of restrictions in many industrial countries to diversify their portfolios internationally, enlarging the pool of financial capital potentially available to developing and transition economies. Property investment risks arise due to changing market values of PCs assets, liabilities and equity that cause loss for a PC. Changing in the emerging property markets value may result from unexpected changes in market interest rate, currency prices, and sudden changes in monetary policy (IMF, 2012).

The commercial property markets have continued to flow and the LPC has remained strong. Therefore, investors have been interested in knowing whether LPC returns will be affected by the property markets activity. Therefore, current research attempts to investigate the portfolio performance in the emerging ME markets, which is important information for the risk management strategy of investors. In addition, portfolio diversification can be readily assesses for LPCs. Some previous studies have already investigated the co-integration between the equity PC and the un-securitized property. They also examined the long-term relationship between PC and stock price, and interest rate and inflation (Liow, 2007; Hoesil & Serrana, 2007; Hoesil et al., 2004). Also, they found a very strong positive

contemporaneous causality between PC portfolio diversification returns and new property prices. The relative importance of portfolio flows has been very different across regions. In industrial countries, portfolio inflows have been more important than FDI inflows. On the contrary, for emerging markets, FDI flows have dominated from the second half of the 2000s. Finally, for ME emerging markets, the first half of the 2000s has been the only period in which portfolio flows have dominated FDI flows. In general, FDI has prevailed over portfolio investment in developing countries (IMF, 2012).

2.1 Overall of Economics and Financial Statistics in the ME

The following collected data are from the World Bank, International Monetary Fund (IMF), and the CIA (2011; 2012). These data include: Population; GDP in US dollars; GDP per capita; inflation rate; unemployment rate; trade and government statistics. The following Tables 1 and 2 summarize the financial and economic statistics which related to the Middle Eastern countries compared with developed economies and the world average.

Table 1. Economic statistics for GDP in the Middle East (2012) (Billion US\$)

Country	Population (Million)	GDP PPP Billion	GDP Per Capita US\$	World Ranking GDP Per Capita
Egypt	85.294	537.8	6,000	138
Jordan	6.482	38.67	6,000	144
Kuwait	2.9	165.9	43,800	16
Qatar	2.04	189	102,800	1
KSA	26.939	740	25,700	54
Syria	22.457	167.6	5,100	153
UAE	5.473	271.2	49,000	13

Source: Developed for this study, IMF (2011–2012); Arabian Business (2012).

Table 2. Real GDP growth rate in the Middle East, 2010–2012 (annual percentage change-based on GDP 2000 constant prices)

Country	Real GDP Growth Rate %		
	2012	2011	2010
Egypt	2	1.8	5.1
Jordan	3	2.6	2.3
Kuwait	6.3	8.2	2.5
Qatar	6.3	14.1	16.7
KSA	6	7.1	5.1
Syria	N/A	-2.3	3.4
UAE	4	5.2	1.3

Source: Developed for this study, AMF (2012); CIA (2011–2012); IMF (2012).

In addition, the following Table 3 shows the inflation and unemployment rate in the Middle Eastern countries comparing with advanced economics and the worlds average.

Table 3. Economic statistics for inflation and unemployment rates in the Middle East for 2012 (Indexed to year 2000)

Country	Inflation Rate %	World Ranking	Unemployment Rate %	World Ranking
Egypt	8.5	186	12.5	130
Jordan	4.3	121	12.3	129
Kuwait	3.2	88	2.2	17
Qatar	1.9	26	0.5	2
KSA	4.6	133	10.7	116
Syria	33.7	222	18	155
UAE	1.1	9	2.4	20

Source: Developed for this study. IMF (2012); CIA Factbook (2012); Arabian business (2012.)Data for inflation are end of the period, not annual average data. The index is based on 2000=100. Current Account Balance based upon balance of payment, and Calculated as the sum of the balance of individual countries.

2.2 The Concept of Diversification

Because the global property markets are affected by globalization and specific country / regional factors, means that the overall amounts of risks will vary, the most notable include: transparency and efficiency. Where, each country / region has different on laws and regulations pertaining to the real estate markets. This means that the risks in a number of different markets will depend upon specific market conditions themselves, reflecting these two factors. To protect themselves against these kinds of risks, many investors will often seek to diversify their portfolio. Diversification is: when you are investing a number of different asset classes in real estate, across a variety of countries / regions. The idea is that if a risk occurs in a specific country or region, the other areas that you are diversified in will protect you against the severity of the declines. Hence, the notion of diversification is to *spread your capital across a wide variety of asset classes* (Lowry, 1996). Since the portfolio contains many assets, it has to be constructed in a diversified way in order to avoid the risk, which may deprive investors from realizing the return that they have expected.

2.3 Types of Risks

It is important to mention that there are two components of portfolio risk; the first one is non-systematic risk which can be diversified. The second one is systematic or non diversifiable risk, which cannot be reduced by portfolio diversification; it is also called the market risk. Also, in order to measure the effectiveness of the portfolio, there are two critical variables must be considered, standard deviation and beta. The standard deviation reflects the unsystematic or firm specific risk which can be avoided by diversification. However beta measures the type and degree of relationship between the firm and the market, where it is very important for the investor to know how much the stock price will change due to a given change in the market. This report clarifies the impact of diversification on the portfolio performance by including different companies from different sectors in one portfolio, and measuring both risk and return for this portfolio.

2.4 Capital Asset Pricing Model (CAPM) for Testing Portfolio Performance

Based on Markowitz's work, and in the context of domestic market, Sharpe (1964), Lintner (1965) and Mosin (1966) independently develop one of the most famous financial equilibrium models, the capital asset pricing model, which is referred to as the CAPM. In their model they assume that markets are segmented. The development of this model played a very important role in establishing the foundation of the modern portfolio theory. Errunza et al, (1992) mentioned that CAPM is an equilibrium economic model for valuing stocks by relating risk and expected return. It provides a precise prediction on this relationship (Errunza et al., 1992). The model is graphically represented by the capital market line and Single Index Model which is implied by the following relationship:

$$E(r_i) = r_f + \beta_i [E(r_m) - r_f] \quad (1)$$

Where $E(r_i)$ and $E(r_m)$ denote the expected return on security i and the market portfolio, r_f is the return on risk-free security, and β_i (beta) measures the sensitivity of security i to the market risk factor-the slope of the line-, and it is quantified by:

$$\beta = \frac{\text{cov}(r_m, r_i)}{\text{var}(r_m)} \quad (2)$$

Where $\text{cov}(r_m, r_i)$ is the covariance of returns of the i th asset with the market $\text{var}(r_m)$ is the total risk of the i th asset. This total risk can be partitioned into two parts by using ordinary least squares as follow:

$$\text{var}(R_i) = \beta_i^2 \text{var}(R_m) + \text{var}(e) \quad (3)$$

Where $\beta_i^2 \text{var}(R_m)$ is the market risk (systematic risk) or the un-diversifiable risk, which is the portion of an asset's risk that cannot be eliminated via diversification? This risk indicates how including a particular asset in a diversified portfolio will contribute to the riskiness of the portfolio, in other words this sort of risk relates to general market movements. $\text{Var}(e)$ is the firm-specific risk or (unsystematic risk) that can be diversified or eliminated away (cancel out) by including the security as part of diversifiable portfolio. According to the Cho et al. (1986); Mittoo; Usha (1992), when using CAPM framework, the stock returns follow a SIM and multi-factor model:

$$R_{it}^J = E_{it} + \sum_{k=1}^S \beta_{ik} \delta_{kt} + u_{it} \quad (4)$$

where R_{it} and E_{it} are the actual and expected returns on asset i respectively in period t , δ_{kt} is the k th risk factor, β_{ik} is the sensitivity of asset i to the k th factor, and u_{it} is a normally distributed error term with mean zero. By assuming no arbitrage opportunities the expected returns on asset i becomes:

$$E_{it} = R_{Ft} + \sum_{k=1}^s \lambda_k \beta_{ik} \quad (5)$$

Where R_{Ft} is the risk free rate, and λ_k is the risk premium associated with the k th factor. By substituting (4) into (5), we get:

$$R_{it} = R_{Ft} + \sum_{k=1}^s \lambda_k \beta_{ik} + e_{it} \quad (6)$$

Where $e_{it} = \sum_{k=1}^s \beta_{ik} \delta_{kt} + u_{it}$ is an error term.

Literature has investigated the relationship between macroeconomic variables and stock markets return using APT. The results of these studies suggest the following macroeconomic variables that have effect on stock return: interest rate, expected inflation, unexpected inflation, industrial production, input cost, money supply and exchange rate. According to Depaah et al. (2002), the CAPM is based on the following assumptions:

- 1) Investors care only about mean and variance factors, in other words they function as mean and variance optimizers, their investment decisions based on expected return and the variances of security return.
- 2) Investors are risk averse.
- 3) Assets returns are multivariate normally distributed.
- 4) Investors can borrow and lend at the same riskless rate.
- 5) There exists a free-risk asset.
- 6) Perfectly competitive markets and all information are reflected fully in prices.
- 7) There are no transactions costs and taxes.
- 8) Capital markets are in equilibrium.
- 9) All investors have "one-period" time horizon.

3. The Sample Portfolio

3.1 Companies Representing Real Estate Sector in the Middle East

In order to display the concept of diversification, and how does it influence the portfolio's performance; ten property companies (PCs) portfolio was constructed. All PCs were listed in the different Stock markets in the Middle East (ME) and they were chosen randomly. Data was collected for Four years starting from Feb 2008 until Feb 2012, and the closing prices of the stocks were taken into consideration to calculate the return, the beta and the standard deviation of the portfolio. Moreover, real estate market is being represented in the portfolio but by

different number of PCs. Table 1 presents list of major representing property markets in the Middle East.

Table 4. List of top PCs in the ME

PCs	Code	Sector/ Country
Sorouh Real Estate	SOROUH	Real Estate – KSA
Emaar Properties	EMAR	Real Estate – Dubai
Saudi Real Estate	SRECO	Real Estate – KSA
Kuwait Real Estate	KRE	Real Estate – Kuwait
Qatar Real Estate Investment	QRES	Real Estate – Doha
Al Dar National Real Estate	ADNC	Real Estate – Kuwait
Deyaar Development	DEYR	Real Estate – Dubai
Barwa Real Estate	BRES	Real Estate – Doha
Aldar Properties	ALDR	Real Estate – Abu Dhabi
Dar Al Arkan Real Estate Development	DAAR	Real Estate – KSA

Source: Developed for this Study, Local Stock Exchange markets in ME (2012).

3.2 Brief Description of the Selected PCs

3.2.1 Sorouh Real Estate (SOROUH)

The company is engaged in establishing, developing, owning, managing, investing, leasing, and renovating real estates and buildings; commercial, medical, learning, and residential centers. It also owns hotels, tourist, amusement, and sports resorts, playgrounds, and industrial structures in addition to owning, leasing, and registering patents and copyrights. Establishment: 26/07/2005.

3.2.2 Emaar Properties (EMAAR)

Emaar Properties Co. (EMAAR) is primarily engaged in real estate development, acquisition and management of commercial and residential properties. Based in Dubai, Emaar is part of the Dow Jones Arabia Titans Index. Emaar Properties holds 30% equity in Dubai Bank, a retail and commercial bank, and is the majority shareholder in Amlak Finance, a UAE Islamic home financing company. Emaar's operation covers more than 16 markets, including United Arab Emirates, Saudi Arabia, Jordan, Syria, Egypt, Lebanon, Morocco, Libya, Turkey, India, Pakistan, Indonesia, United States of America, Canada, United Kingdom and France. Establishment 23/06/1997.

3.2.3 Saudi Real Estate (SRECO)

Purchasing, building and development of lands; construction, sale, lease of residential, and commercial buildings, managing real estates and providing contracting services. The company has investments in several companies, namely: Saudia for Al Muaqeliya Commercial Center 25%, Taiba Investment and Real Estate Development 0.7%. Establishment 14/07/1976.

3.2.4 Kuwait Real Estate (KRE)

The company is engaged in various real estate activities including the sale & purchase, leasing & renting of land and buildings, development & construction of buildings, in addition to investing in similar companies and projects. Establishment: 16/05/1972.

3.2.5 Qatar Real Estate Investment (QRES)

Constructing Housing complex projects and lands trading. Establishment: 01/09/1996.

3.2.6 Al Dar National Real Estate (ADNC)

Real estate trading & management, own and manage hotels, tourist resorts, health clubs, shopping malls and residential complexes, holding auctions, investing in “B. O. T.” projects, preparing studies & providing real estate consultations, investment in financial and real estate portfolios, representing and acquiring foreign companies agencies, investment in real estate shares and bonds, real estate maintenance, organize real estate exhibitions. Establishment: 07/03/2000.

3.2.7 Deyaar Development (DEYR)

The company is engaged in providing property development, management, leasing, financing and brokerage services for residential and commercial properties. Establishment: 06/01/2001.

3.2.8 Barwa Real Estate (BRES)

The company is engaged in real estate investment and all related activities. Establishment: 19/01/2006.

3.2.9 Aldar Properties (ALDR)

Al Dar Properties Co. (ALDAR) is engaged in real estate development, management, and investment. Establishment: 21/02/2005.

3.2.10 Dar Al Arkan Real Estate Development (DAAR)

Dar Al arkan Real estate Development Co. is engaged in purchasing and owning real estate and lands; general contracting; construction of commercial buildings and residential; wholesale trading in electric tools, paints and building materials as well as car sales through cash and instalments. Establishment 28/12/1994.

4. The Impact on Return

4.1 Return Defined

The return is the increase in wealth from holding a security over a given period of time. The return of the investor from a security must take into account both the capital appreciation and the dividends declared by the company.

4.2 Return Calculated

This study has considered the difference in daily prices as returns for all ten of the PCs stocks over the period of four years from Feb 2008 to Feb 2012. The weighted average of these returns for all ten portfolios is the average return for the portfolios. Table 5 indicates the average return over the past four years for ten portfolios representing a combination of different companies together.

Table 5. The average return over the past four years for ten portfolios

<i>Portfolios</i>	<i>Number of Assets</i>	<i>Return</i>
Single Asset Portfolio	1	-0.00011
Two Assets Portfolio	2	-0.00048
Three Assets Portfolio	3	-0.00052
Four Assets Portfolio	4	-0.00038
Five Assets Portfolio	5	-0.00032
Six Assets Portfolio	6	-0.00022
Seven Assets Portfolio	7	-0.00014
Eight Assets Portfolio	8	-0.00020
Nine Assets Portfolio	9	-0.00019
Ten Assets Portfolio	10	-0.00018

The following Figure 1 represents the returns vs. number of assets, which constructing by taking number of assets on the X-axis and the actual return earned on the Y-axis.

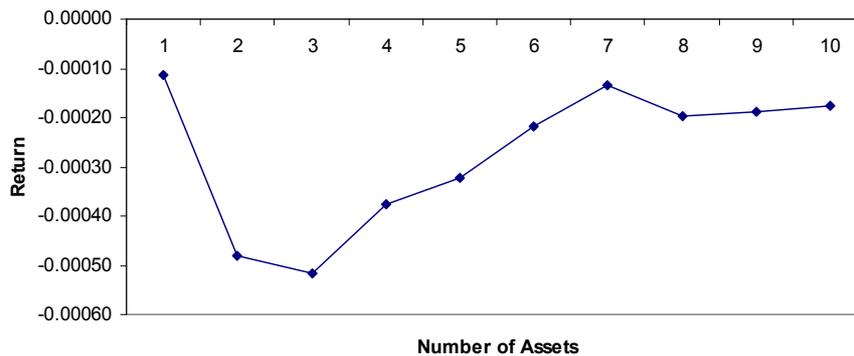


Figure 1. Returns vs number of assets

4.3 Implication

From the above Figure, it can be concluded that there is no significant relationship between number of stocks held in the portfolio and the actual return earned daily over the past four years. By holding a single asset portfolio comprising of the stock of EMAAR earns an average return of negative -1.1 % over the past five years, which means that the stock prices have actually declined and have lost its value by 1 percent over the period of five years. Holding two equally weighted stock in the portfolio comprising of SOROUH and EMAAR in-fact contributes more to the loss, and decreases the return by negative 4.8% over the past four years. Based on the above analysis, it is evident that there is no distinct relationship between expected return and the number of assets held in the portfolio. In other words, the principle of diversification has nothing to do with the returns that the assets in the portfolio generate together. In fact, it is the correlation of the return of these companies with the market. Similarly, if the stock prices of these companies move opposite to the market trend, then the stocks are perfectly negatively correlated with the market.

5. The Impact on Systematic Risk (BETA)

5.1 Beta Defined

It is a factor which is used to measure the volatility of an investment with the market. The benchmark beta is 1 and hence the stocks volatility is measured by comparing beta of a portfolio with the beta of the market. Therefore higher the beta of a portfolio higher would be its volatility. Hence beta is useful in assessing the risk which is associated with stock volatility. Beta for a portfolio is the weighted sum of the betas of all the individual portfolios involved.

5.2 Beta Calculated

The following Table 6 and Figure 2 show the portfolio betas for our ten assets portfolios.

Table 6. Portfolio betas for ten assets portfolios

Portfolios	Number of Assets	Beta (β)
Single Assets Portfolio	1	0.19432
Two Assets Portfolio	2	0.05630
Three Assets Portfolio	3	0.07729
Four Assets Portfolio	4	0.10190
Five Assets Portfolio	5	0.12038
Six Assets Portfolio	6	0.10144
Seven Assets Portfolio	7	0.11108
Eight Assets Portfolio	8	0.09288
Nine Assets Portfolio	9	0.10016
Ten Assets Portfolio	10	0.08793

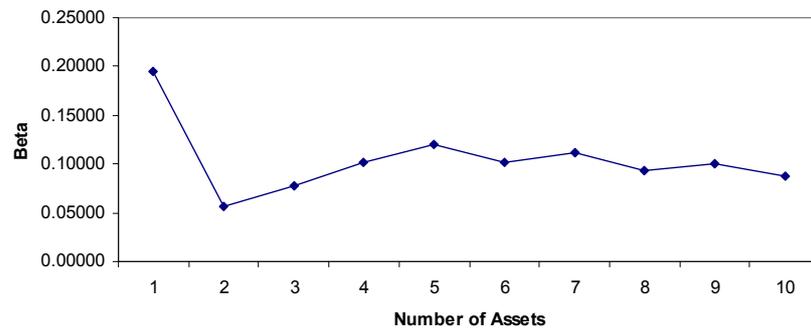


Figure 2. The relationship between systematic risk and number of assets

5.3 Implication

From the figures and the plotted Figure we observe that all of the ten asset portfolios have a lower beta than benchmark beta of 1. Therefore, all these portfolios are less risky. Higher return is coupled with higher risk and thus it can also be interpreted that the portfolios return would be less as it has beta less than the market beta. Based on the figures that calculated, the first asset portfolio which is EMAAR has a beta of 0.19432, this asset has a higher beta because this company has more co-relation with the market and a higher systematic risk, but as we know that systematic risk is a non-diversifiable risk and cannot be eliminated through diversification. By adding one more asset SOROUH to the portfolio, brings the portfolio beta down to 0.05630 from 0.19432. This means that SOROUH has very less correlation with the market and hence collectively it brings the portfolio beta down, which ultimately lowers the risk. Further we can also see that as we keep on increasing the assets in the portfolio, there are fluctuations in the beta (systematic risk) of the portfolio. This is because of the correlation of individual assets of portfolio with the market and the unsystematic risk which non diversifiable in nature, of the portfolio and other reasons governing the fluctuations can be because of the government regulations and policies.

6. The Impact on Non Systematic Risk

6.1 Risk Defined

Risk is the probability that the share price will move adversely when holding any investment. The higher the adverse movement in the prices of the stocks, the higher is said to be the risk of the any given investment in shares and vice-versa. The fact that the return is not certain across all possible states of economies to be boom, stable or recession is also known as risk. The risk is measured by the standard deviation. It is the square root of the weighted square of the differences from the average. The higher the standard deviation, the higher will be the risk and vice-versa. The idea is that risk and return goes hand in hand. The higher the risk the higher will be the return and the lower the risk the lower will be the return. This is because the investor who holds more risk must be rewarded higher than the investor who holds less risk. The risk among investors also depends upon their appetite for the risk. Some investors are risk seeking compared to those who are risk averse. There are also some investors who are risk neutral and for them it does not matter what level of risk they hold and what level of return they get from the investment. The notion of diversification is related to the risk. The higher the number of assets held in the portfolio, the less units of risk an investor hold. This is because the stock in the portfolio with higher risk gets eliminated against the stocks in the portfolio with lower risk, making the portfolio less risky. There are two types of risk that investors are exposed to while holding their investment, the systematic risk and the non-systematic Risk. The non-systematic or the diversifiable risk is associated with the random events or specific factors that are unrelated to the factors affecting the whole market for risky assets. In other words, it is the risk that affects the small number of assets. It is also known as unique or asset specific risk. Examples of such risk involve an announcement of the oil strike by company will affect the company and its suppliers but unlikely to have much of the effect on the world oil market. Diversifiable risk can be reduced to zero through portfolio diversification, whereas non diversifiable or systematic risk is associated with the factors affecting all assets making up the market portfolio of risky asset. In other words, it is a risk that influences a large number of assets. This is also known as market risk. Examples of such risk are increase in inflation which affects the wages and the cost of supplies that the companies buy across all industries. Since any investor can reduce the diversifiable risk to zero by forming a portfolio that achieves the available benefits of diversification, hence non diversifiable risk is the only relevant risk that investors must take into consideration. Only non diversifiable risk held by investors is rewarded in terms of the return.

6.2 Risk Calculated

The risk or the standard deviation for each portfolio was calculated by taking into account the difference in the stock prices over the weighted average return for last four years. The following Table 7 and the Figure 3 present the SD for each portfolio with total risk and number of assets.

Table 7. The standard deviation for each portfolio

Portfolios	Number of Assets	Standard Deviation (σ)
Single Asset Portfolio	1	0.02005
Two Assets Portfolio	2	0.01556
Three Assets Portfolio	3	0.00011
Four Assets Portfolio	4	0.00009
Five Assets Portfolio	5	0.00009
Six Assets Portfolio	6	0.00007
Seven Assets Portfolio	7	0.00006
Eight Assets Portfolio	8	0.00005
Nine Assets Portfolio	9	0.00005
Ten Assets Portfolio	10	0.00005

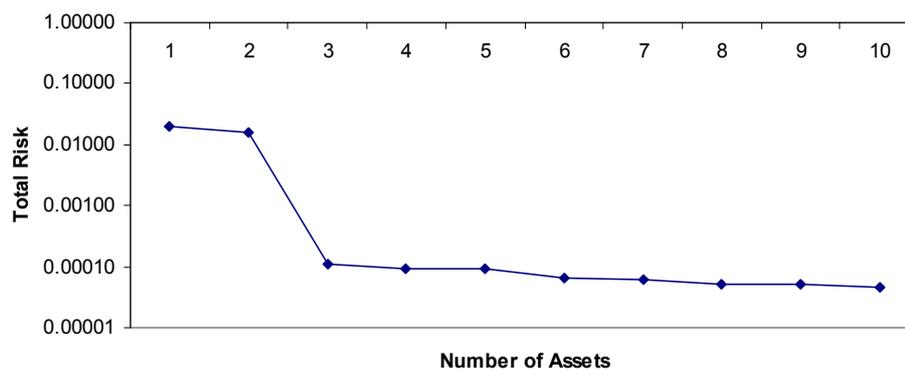


Figure 3. Total risk and number of assets

6.3 Implication

After plotting the number of assets on the X-axis and the total risk on the Y-axis, we get the above Figure. The Figure represents the relationship between number of assets held and the total risk. As the number of assets in the portfolio is increased the total units of risk are actually decreasing. The single Asset portfolio of EMAAR has a risk of 2% but including one more asset in the portfolio decreases the risk to 1.55%. The risk decreases substantially to 0.01% when we increase the assets from two to three in the portfolio. This risk reduction trend continues till we reach the eight assets in the portfolio. However by incorporating the ninth asset in the portfolio, it can be seen that the risk does not reduce any more. It remains the same for the ten asset portfolio too. This indicates that the investment from the ninth asset portfolio holds only the systematic risk of 0.005%. At this point the diversifiable risk is zero and the only risk that is relevant is the systematic or non diversifiable or the company specific risk of 0.005% which cannot be eliminated even if an 11th asset is added to the portfolio.

7. Conclusions and Recommendations

The portfolio diversification potential associated with investing internationally has received increased attention in recent years from both academics and practitioners. Over the last two decades, a global real estate securities market has slowly developed. Compared to private markets, this growing public market provides a vehicle for investors to construct international commercial real estate portfolios without the significant burden of acquiring,

managing, and disposing of direct property investments in far-away countries with unfamiliar legal, political, and market structures. However, little is currently known about the return performance and portfolio diversification potential of the Middle Eastern real estate securities market. After conducting the portfolio analysis for all ten portfolios, it can be concluded that the diversification strategy helps in reducing the non-systematic asset specific risk, but has no impact on the systematic or the market risk. Moreover the return earned on these portfolios is also independent of the diversification strategy. This study concluded that the investment from the ninth asset portfolio holds only the systematic risk of 0.005%. At this point the diversifiable risk is zero and the only risk that is relevant is the systematic or non-diversifiable or the company specific risk of 0.005% which cannot be eliminated even if an 11th asset is added to the portfolio. Also the study concluded that it is evident that there is no distinct relationship between expected return and the number of real estate assets held in the portfolio. In other words, the principle of diversification has nothing to do with the returns that the real estate assets in the portfolio generate together. In fact, it is the correlation of the return of these listed property companies with the real estate markets in the Middle East. The study recommended the investors in the Middle East to actively review their Real Estate portfolio and interchange the combinations of the assets in forming the portfolio. This may result earning a positive return from their Real Estate investment. Moreover we advise shareholders to not completely rely on the passive strategy of Real Estate portfolio diversification. Future work on this subject may seek to do the following:

- 1). Apply a lean methodology that allows building and interpreting an index of the Sharpe and Treynor ratios with a reasonable financial theory interpretation, with the aim of studying the high correlation found in this study and identified for these two ratios. Principal component analysis is suggested to accomplish this task.
- 2). Develop a dynamic principal component analysis in order to build a performance index of stock market performance for emerging economies, and analyze its behavior throughout time.
- 3). Analyze the stability of the parameters (Jensen's alphas and betas) over time.

Basis for any research is data that researcher collected and analyzed them in his research. Obviously, if much more transparent and complete information has been available, the results of the investigation will be more creditable. In this research, I had some limitation of research as follow:

- 1). Due to limited statistical community of PCs listed in the ME Stock Exchange markets, distributions of results to other economic units should be done with caution.
- 2). Did not consider LPCs in the ME Stock Exchange markets and omit which did established less than one year.
- 3). One of the main limitation of the current thesis, the Arab Spring started 2010 until now.

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