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Naive Diversification and Risk Reduction in Saudi Stock Market (SSM)[1]

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Abstract. The main purpose of this paper is to examine the impact of naïve diversification on risk in the Saudi Stock Market (SSM). In particular, the paper tested two hypotheses; first, as the number of stocks in a portfolio increases, risk is reduced; second, benefits of diversification on SSM increase at a decreasing rate.

The study used stock data from SSM which covers the time period 2003-2009. It simulated 239 portfolios from SSM and reported their standard deviations as the portfolio size increases. The paper also used several empirical testing methods including regression, correlation, and t-tests of paired samples to further examine the results from the simulation results.

The empirical findings suggested that a portfolio's size of 12 stocks would be sufficient to reduce around 84% of unsystematic risk. It also showed that benefits of diversification increase at a decreasing rate.

The results of the study are consistent with other studies of the literature which suggested that there is a positive significant relationship between portfolio size and risk reduction. However, it contrasts with other studies which suggested that the number of stocks is much higher than ten.

The study recommends a further examination of the volatility of the stock market during the last few years and the role of investors' behavior in the remarkable volatility of the market.

I. Introduction

Harry Markowitz developed the basic portfolio theory in 1952. Markowitz derived the expected rate of return for a portfolio, and derived a measure of the expected risk, namely the variance or the standard deviation of a portfolio. The variance formula shows the importance of diversification in reducing the total risk and shows how to effectively diversify.

Diversification is the strategy of holding more than one asset (stock) in a portfolio of securities, for the purpose of reducing risk. As a result, declines in total returns of some stocks may be offset by increases in total returns of other stocks. While it is impossible to eliminate risk completely, diversification can decrease the overall volatility of the portfolio.

One of the most important characteristics of the Saudi Stock Market (SSM) is the dominance of individual investors and the weak existence of institutional investors. Individual trading accounts for almost 98 percent of the total market capitalization which clearly indicates that individuals control most of the trading activity.[2] The dominance of individuals makes SSM subject to arbitrary decisions, and exposes it continuously to sharp fluctuations. This, in turn, raises the risk level for most investors and shows the importance of diversification to reduce risk.

The main purpose of this paper is to study the impact of diversification on risk in the Saudi Stock Market (SSM) through the formulation and simulation of portfolios of different sizes from stocks listed in the SSM. More specifically, we intend to test the following two hypotheses:

H_1: As the number of stocks in a portfolio increases, risk is reduced.

H_2: Benefits of diversification on SSM increase at a decreasing rate.

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[2] "Saudi Financial Market - Forecast for 2009", Saudi Economic Magazine (Electronic Version), December 2008, taken from http://abdulhamid.net

This paper is organized as follows. Section II provides a literature review of the topic of portfolio size and naive diversification. Section III explains the methodology of the paper. Section IV presents the data used. Section V presents the empirical findings using simulation and statistical tests, and Section VI provides a summary along with conclusions of the paper.

II. Literature Review

The optimal portfolio size and its impact on risk and return has been the focus of great attention in recent years starting with Evans and Archer (1968). Financial literature demonstrates on an empirical basis the naive diversification effects of pure stock portfolios while increasing the number of included assets.

Two classic studies on the topic of portfolio size and diversification, which define the "minimum" portfolio size to be adequately diversified, are Evans and Archer (E. & A., 1968) and Fisher and Lorie (F&L, 1970). The word "minimum" is used in the sense that diversification beyond this size has little economic value in terms of risk reduction and may contain significant costs in terms of transaction fees and monitoring activity.

E&A computed the mean of the standard deviations for 60 equally weighted portfolios at each size level ranging from 1 to 40 securities. They then regressed the mean portfolio standard deviations against the inverse of the number of securities in the portfolio and obtained the following estimate:

$$Y = 0.1191 + 0.08625/N$$

Where

0.1191 = constant
Y = mean portfolio standard deviation.
N = number of securities in the portfolio.

E&A concluded that a ten-security portfolio provided adequate diversification. For one and 10 security portfolios, the mean standard deviations using their equation would be ٠.20535 and ٠.127725. The reported standard deviation for the portfolio containing all the securities in the population (the market portfolio) was 0.1166. Thus, E&A implied that a reasonably diversified portfolio size provides a reduction in unsystematic risk of 87.5 percent ((٠.20535 - ٠.127725)/(٠.20535 - ٠.1166) = ٠.875).

F&L measured risk by examining various measures of dispersion for wealth ratios over various time periods for portfolios of sizes 1, 2, 8, 16, 32, and 128 securities. For our purposes, their most significant result was probably the observation that holding eight stocks achieves approximately 80 percent reduction in dispersion (the reductions range from 65 to 91 percent). This 80 percent is quite close to the 87.5 percent reduction in unsystematic risk indicated by E&A's study.

Elton and Gruber (1977) gave similar empirical evidence to that of F&L. They showed that there is a reduction of diversifiable risk of 84% and 88%, respectively, if stock portfolio size increases to only 8 stocks. However, both papers determined further diversification effects while increasing the portfolio size beyond 8 stocks.

Much of the literature on portfolio size examines what happens to the standard deviation function in the E&A study if various conditions are placed on the types of stocks in the portfolio.

Wagner and Lau (1971), showed that far fewer stocks are necessary to achieve a specific level of diversification when the portfolio consists of stocks rated highly by the Standard & Poor Stock Guide than those rated poorly.

In one of the most cited studies, Solnik (1974) showed that more efficient diversification is possible when one considers foreign securities, particularly if one hedges for exchange-rate risk. The greater efficiency in diversification was demonstrated by the result that E&A's standard deviation curve declined at a faster rate and to a lower level when foreign securities were added to the stock population.

Klemkosky and Martin (1975) showed that diversification can be more readily achieved with low-beta stocks than with high-beta stocks. Martin and Klemkosky (1976) showed that diversification can be more readily achieved when stock classifications are considered. Their stock classifications included growth stocks, cyclical stocks, stable stocks, and oil stocks.

In a follow-up study to E&A, Upson, Jessup, and Matsumoto (1975), looked at the standard deviation of the standard deviations, and concluded that portfolio managers should diversify among more than 16 stocks, and that diversifying among even 30 or more stocks can be worthwhile in terms of risk reduction.

Statman (1987), argued that a well-diversified portfolio must include at least 30 to 40 stocks. Statman's analysis was based on the assumption that all investors have the opportunity to buy no-load index funds, and thus the cost of adding assets combined with the risk reduction benefits of adding these assets must be compared to the cost and risk of

portfolios that combine the risk-free asset with an index fund.

A variation of Statman's study by Shanker (1989), showed that the conclusions about portfolio size are dependent on the size of the benchmark portfolio used for comparison and the assumed size of transaction fees. Smaller benchmark portfolios suggest smaller optimal portfolio sizes, and smaller transaction fees imply larger optimal portfolios.

A follow-up study by Murphy (1991) questioned the validity of the numbers used by Statman, and concluded that portfolios of the size suggested by E&A and F&L may in fact provide the minimum necessary degree of diversification.

Woerheide and Persson (1993), examined five different measures of diversification that have been used in the industrial organization literature on concentration. They evaluated the ability of these measures to provide meaningful information about the degree of diversification of an unevenly distributed stock portfolio. Their results were generally supportive of results presented by E&A and F&L.

Recent research supported the efficiency of an inclusion of more than 10 securities. An analysis of share price data between 1955 and 1984 by Poon, Taylor and Ward (1992) showed a further 23.86 percent risk reduction while increasing the portfolio size from 10 to 25 stocks. Hellevik and Hermann (1999) investigated naive risk diversification of securities traded at the German stock exchange between 1974 and 1994. They illustrated in nearly all cases a risk diversification of 80% if the portfolio reaches a size between 9 and 19 securities. Chiang (2008), examined the impact of diversification on the Chinese Stock Exchange using regression and other statistical methods. He showed that portfolios of size of 12-20 stocks would reduce about 75% of unsystematic portfolio risk.

Other studies by Tole (1982), Newbold and Poon (1993), and De Vassal (2001) contradicted the usual assumption that a portfolio size of maximum 25 stocks would be sufficiently diversified. While using stocks from the Russel 1000 index to simulate portfolios, De Vassal gave no certain recommendations about the optimal portfolio size but he determined a portfolio size of up to 100 securities as useful.

All of the above studies were empirical. There were some theoretical studies that have shed light on the topic of portfolio size and diversification, Goldsmith (1976) showed that not only do transaction fees limit the size of the number of securities in a portfolio, but they will also cause the optimal number of securities to hold in a portfolio a function of an investor's initial wealth. Conine and Tamarkin (1981) showed that investor preference for positive skewness combined with other assumptions of perfect capital market may severely restrict the number of securities held by an individual even without transaction fees. The authors initially showed that the connection between increasing portfolio size and portfolio-risk takes the form of a rapidly decreasing asymptotic function. They disproved any economic justification of increasing portfolio size beyond ten securities. Portfolios were built by a random security selection and a mean portfolio return calculation taken from a database of 470 stocks.

Statman (1987), Kanniainen and Keyschnigg (2000), and Cumming (2001) examined the management complexity of portfolios. They supposed that the threshold of optimal portfolio size occurs when a further increase would lead to a higher increase in marginal costs than in marginal benefits. They determined factors influencing the portfolio size but did not recommend optimal portfolio sizes.

It is obvious from the above review that all studies concurred on the benefits of diversification but they differed on the number of stocks necessary to completely diversify. The number of stocks ranges from 8 to 100. The majority of the above studies also concurred on the fact that diversification benefits increase at a decreasing rate. Although a small number of studies examined *international* diversification in emerging markets (e.g. Lagoarde-Segot, and Lucey, (2007), Dunis and Gary (2005), very few studies, if any, examined naïve diversification in those markets which makes this study among the first to examine this important issue.

III. Methodology

The daily total return on a firm's common stock is computed as the capital gains yield = ((ending price of the stock - beginning price of the stock)/ beginning price of the stock). In calculating the rate of return for each stock, we assume that dividends are reinvested in the stock and that any distribution of dividends is reflected in the stock price. Therefore, the daily rates of return are calculated as follows:

$$r_i = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where

r_i is the rate of return of stock i at time t

P_t is the ending price of stock i at time t

P_{t-1} is the beginning price of stock i at time t-1

The average rate of return for any stock over the study period assuming equally weighted portfolios is calculated as follows:

$$R_i = \frac{\sum_{i=1}^{n} r_{i,t}}{n}$$

Where

R_i is the average rate of return of stock i
$r_{i,t}$ is the daily rate of return of stock i at time t
n is the number of holding periods of stock i

The risk of an individual stock as measured by the variance is calculated as follows:

$$\sigma_i^2 = \frac{(r_{i,t} - R_{i,t})^2}{n-1}$$

Where

σ_i^2 is the variance of stock i
$r_{i,t}$ is the daily rate of return of stock i at time t
R_i is the average rate of return of stock i
n is the number of holding periods of stock i

The risk of the portfolio rather than the risk of an individual stock is our main concern. This task is even more difficult than for an individual stock. This is measured by calculating the covariance between any two securities like i and j as follows:

$$\text{cov}(r_i, r_j) = \frac{[(r_{i,t} - R_{i,t})(r_{j,t} - R_{j,t})]}{n-1}$$

Where

$r_{i,t}$ is the daily rate of return of stock i at time t
$r_{j,t}$ is the daily rate of return of stock j at time t
R is the average rate of return of stocks i, j
n is the number of holding periods of stock i

Once we calculate the covariance, the variance of a portfolio of two stocks is then calculated as follows:

$$\sigma_p^2 = \frac{1}{n}\sigma_i^2 + \frac{n-1}{n}\sigma_{ij}$$

Where

σ_p^2 is the portfolio variance
σ_i^2 is the average variance for all stocks in the portfolio
σ_{ij} is the average covariance between securities i and j in the portfolio

According to Elton and Gruber (1995), this last expression gives a realistic explanation to what happens when we diversify. As the number of stocks in the portfolio (n) increases, the contribution of the variance of the individual stock to that of the portfolio goes to zero. But as the number of stocks increases, the contribution of the covariance term approaches the average variance. This means that as we add stocks to the portfolio, the average variance declines until it approaches the average covariance, which implies that the risk of an individual stock can be diversified away; i.e. diversification affects only non-systematic risk while systematic risk is unaffected.

IV. The Data Set

The sampling procedure starts with all 146 Saudi companies as of January 2003. The price data of each company are collected from the common stock database provided by the website WWW.SaudiMeta.com. Firms with inactive trading records or incomplete price data for the period from January 2003 to December 2009 were excluded, which leaves us with 68 firms for the study. The sample stocks represent the main sectors of the Saudi economy. The number of firms in each representative sector is listed in Table 1.

Table 1. The number of companies in the study sample by Sector

Sector	Number of companies listed in SSE	Number of companies in the sample
Agriculture& food industries	15	9
Building & construction	14	8
Banks & financial services	11	7
Cement	9	4
Energy & utilities	2	1
Hotels	2	0
Insurance	31	12
Industrial investment	13	6
Investment companies	7	3
Media	3	0
Petrochemical industries	14	7
Real estate development	8	4
Retail trade	9	5
Telecommunication & information technology	4	1
Transportation sector	4	1
Total	**146**	**68**

V. Results

Empirical tests and findings of the paper are presented in four main categories: Normality tests, simulation tests, regression analysis, and t-tests.

A. Normality tests

In order to examine the impact of the portfolio's size on the variation of the rate of return, a primary statistical analysis was conducted on the data. Daily arithmetic mean rates of return, and the standard deviations of the 68 stocks included in the study were calculated. The results are summarized in appendix (1). It is worthy to notice that the standard deviations are low. This could be due to the limit orders in stock trading or due to the thin trading of certain stocks.

Descriptive statistics were also calculated for the stock returns in the sample. The results are summarized in Table 2. The table shows the parameters that describe the distribution of the stock returns. Since the sample size is greater than 30, we expect the distribution to be normal. Table 2 shows that the daily mean stock standard deviation is 0.033. If converted to an annual basis (through multiplying it by the square root of 250) this comes up to 52 percent. This is consistent with historical evidence which suggests that the average annual standard deviation of return for a single, randomly chosen stock is about 50 percent.

The value of kurtosis (3.57) indicates that the distribution is approximately normal (the coefficient associated with a normal distribution, is around 3). The higher the kurtosis coefficient is above the "normal level", the more likely that future returns will be either extremely large or extremely small. A positive value of kurtosis is called leptokurtic, i.e. it has excess kurtosis greater than zero. Such distribution has higher peaks around the mean compared to normal distributions, which leads to thick tails on both sides. These peaks result from the data being highly concentrated around the mean, due to lower variations within observations.

Table 2 also shows that skewness is approximately zero (0.001), which indicates that the distribution of stock returns in the sample is normal.

The evidence regarding kurtosis and skewness is not consistent with other evidence in this area. Most research about the distribution of stock returns has shown that returns are not normally distributed. They tend to exhibit both skewness (either positive or negative) and kurtosis. rather than following the balanced normal distribution (which has a skewness of zero).

Table 2. Descriptive statistics of stock returns

Mean	0.001038
Median	0
Variance	0.001154
Standard Deviation	0.033173
Kurtosis	3.563843
Skewness	0.001008
Range	0.001861

B. Simulation results

To determine the impact of diversification on risk reduction, a simulation procedure similar to that of Elton and Gruber's (1977, 1995) is applied. Portfolios ranging in size from one to sixty eight stocks are generated. Portfolios of sizes (1,2,4,6,8,10,12,14,16,18,20,24,28,32,36,40,48, and 68) stocks are generated. Twenty five portfolios are simulated for each portfolio size of 1 to ten stocks. Eight portfolios are simulated for each portfolio size of twelve to forty eight stocks, and one portfolio of size 68 stocks. Therefore, the total number of portfolios simulated is 239 portfolios.

For portfolios of size ten stocks or less, it was necessary to increase the number of simulated portfolios to get appropriate results and make sure that sample parameters represent closely population parameters. However, for portfolios of more than ten stocks, it was enough to simulate eight portfolios to get accurate results since the sample size is relatively small.

The daily standard deviation of each simulated portfolio was calculated using Microsoft Excel spreadsheet.[3] Then, the average standard deviation of each portfolio size was also calculated and converted to an annual figure (through multiplying it by the square root of 250). The results are reported in Table 3.

The figures in Table 3 are revealing. The third column of the table shows the standard deviation of each portfolio size as a percentage of a single-stock portfolio's standard deviation. The figures of this column show that 25% of a portfolio's standard deviation is eliminated as the portfolio's size increases from one stock to two stocks, 45% of a portfolio's standard deviation is eliminated as the portfolio's size increases from two to four stocks, 61% of the standard deviation is eliminated by holding ten stocks, and 66% of the standard deviation is eliminated by holding 14 stocks. As the number of stocks in the portfolio increases, the standard

[3] Several websites provide an explanation of how to calculate the portfolio standard deviation using Microsoft Excel. Some of these websites are listed in the references.

deviation decreases but at a decreasing rate. After 14 stocks, the decrease is only 1% for each additional portfolio size. These figures indicate that by holding a portfolio of 14 stocks, most of the risk is eliminated.

Table 3. Mean Annual Standard Deviations (MASD) of portfolio returns in a sample of 68 Saudi Stocks

Number of stocks in the portfolio	Mean Annual Standard Deviations (%)	Portfolio ASD as a percentage of single portfolios MASD (%)	Percentage of risk reduction to total risk
1	52.45	100	0
2	39.20	75	33
4	28.73	55	60
6	24.35	46	72
8	22.22	42	77
10	20.50	39	81
12	19.22	37	84
14	18.08	34	88
16	17.07	33	89
18	16.71	32	91
20	16.17	31	92
24	15.64	30	93
28	15.27	29	95
32	14.90	28	96
40	13.89	27	97
48	13.49	26	99
68	12.45	24	100

The fourth column shows the same conclusion in a different manner. In this column, the percentage risk reduction is measured relative to the total risk reduction. For example, the second figure (33%) is calculated as ((100-75)/75). The figures show that 33% of total risk is eliminated by holding two stocks, 60% of total risk is eliminated by holding four stocks, 77% of total risk is eliminated by holding eight stocks, and 89% of total risk is eliminated by holding 14 stocks. After 14 stocks, the decrease is only 1% for each additional portfolio size. Again, most of the benefits of diversification are captured by holding a portfolio of 14 stocks.

The main conclusions of Table 3 are that there is a negative and significant relationship between the portfolio size and risk, and that the benefits of diversification increase at a decreasing rate.

C. Regression analysis

As we have seen in Table 3, risk tends to decline as the number of securities in the portfolio increases. However, the hypothesized relationship between the two variables cannot be tested using these results only. Also, the number of stocks needed to form a well-diversified portfolio cannot be tested using the results in Table (3) alone. Therefore, regression, correlation, and T-tests are used to test these two hypotheses.

Regression model

The hypothesized relationship between the number of securities and risk is tested using the following simple regression model :

$$Y_i = A + B_i\left(\frac{1}{X_i}\right)$$

Where

Y_i = the computed mean standard deviation of portfolio i

X_i = the size of portfolio i

A and B are the parameters of the model.

The equation above which describes a rectangular hyperbola, produced an extremely good fit as measured by an R squared value of (0.95), which is significant at the 5% level. The regression results are summarized in Table 4.

Table 4. Regression results of Equation (1)

Intercept	0.15
X	0.41 (t-stat=17.44)
R^2	0.9500
Adjusted R^2	0.9469
Standard Error	0.0232

The results in Table 4 show clearly the existence of positive significant relationship between the number of stocks in a portfolio and risk. The Pearson correlation coefficient between the portfolio's size and the mean standard deviation of the portfolio was also calculated and found to be (-0.66438) which suggests a negative correspondence between portfolio size and risk.

T-tests

In order to gain further insight into the reduction of risk as the number of stocks in the portfolio increases, a t-test of the paired samples for means is used in order to see whether there is a significant reduction in the mean portfolio standard deviations as the sample size increases. The results of the successive tests are shown in Table 5.

The results listed in Table 5 show that there is a significant reduction in the mean standard deviation as the number of stocks in the sample increases from

one to twelve stocks. This indicates that most of the nonsystematic portfolio risk, as defined by modern portfolio theory, can be eliminated with a sample size of twelve stocks. Any increase in the portfolio size beyond 12 stocks adds to the benefits of diversification in terms of risk reduction but might be unnecessary and should be weighed against the cost of adding more stocks, which includes broker's fees and other costs involved. Based on these results, we cannot reject the first or the second null hypotheses of the study.

Table 5. T-tests of the Paired Portfolio Mean Standard Deviations

Paired Portfolios	T-Statistic
1-2	6.6585*
2-4	5.5124*
4-6	4.2784*
6-8	3.4023*
8-10	2.5368*
10-12	2.0593*
12-14	1.5286
14-16	1.6809
16-18	0.8772
18-20	0.4848
20-24	1.0573
24-28	1.0560
28-32	1.3694
32-36	1.5474
36-40	0.9926
40-48	0.7635

* Significant at the 5% level

These results are consistent with results found in early studies; for example, Chiang (2008), Hellevik and Hermann (1999), Murphy (1991), Conine and Tamarkin (1981), Elton and Gruber (1977), and Jacob (1974). However, these results stand in contrast to those of Upson, Jessup, and Matsumoto (1975), Statman (1987), Tole (1982), Newbold and Poon (1993), and De Vassal (2001). These studies recommended a portfolio size of 25 to 100 stocks for a significant reduction in unsystematic risk.

VI. Summary and Conclusions

This paper tested the familiar portfolio theory principle regarding the impact of diversification on unsystematic risk on the Saudi Stock Market (SSM). In particular, the paper tested two hypotheses; First, as the number of stocks in a portfolio increases, risk is reduced; Second, benefits of diversification on SSM increase at a decreasing rate.

The study used stock data from SSM which covers the time period 2003-2009. It simulated 239 portfolios from SSM and reported their standard deviations as the portfolio size increases. In order to see whether there is a significant reduction in the mean portfolio standard deviations as the sample size increases, the paper used several empirical testing methods including regression, correlation, and t-tests of paired samples to further examine the results from the simulation results.

The empirical findings suggested that a portfolio's size of 12 stocks would be sufficient to reduce around 84% of unsystematic risk. Adding more stocks to the portfolio reduces risk but marginally, and hence the benefits of adding more stocks should be weighed against the cost involved in adding more stocks. It also showed that benefits of diversification increase at a decreasing rate.

The results of the study are consistent with other studies of the literature which suggested that there is a positive significant relationship between portfolio size and risk reduction. However, the study concurs with some previous studies which indicated that the number of stocks that form a well-diversified portfolio is around ten, and contrasts with other studies which suggest that the number of stocks is much higher than ten.

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Appendices

Appendix 1. Mean Daily Returns and Standard Deviations of Stocks in the Sample

Stock Code	Mean Return	Standard Deviation
1	0.000418	0.021384
2	0.001078	0.028170
3	0.000406	0.023441
4	0.000242	0.024867
5	0.000662	0.024572
6	0.000561	0.022945
7	0.000777	0.023655
8	0.000451	0.020384
9	0.001026	0.024116
10	0.001276	0.027802
11	0.001386	0.029344
12	0.001839	0.037417
13	0.001583	0.033482
14	0.001157	0.027182
15	0.001484	0.032280
16	0.000787	0.032415
17	0.000463	0.030415
18	0.000457	0.028428
19	0.001355	0.042138
20	0.001250	0.036725
21	0.001678	0.041069
22	0.001201	0.040329
23	0.001055	0.037861
24	0.001189	0.032390
25	0.000588	0.034071
26	0.001827	0.040138
27	0.001449	0.039371
28	0.001389	0.040763
29	0.001550	0.038803
30	0.001341	0.038849
31	0.001861	0.040568
32	0.000789	0.034780
33	0.000879	0.032931

Contd.

Stock Code	Mean Return	Standard Deviation
34	0.000336	0.023989
35	0.000409	0.023608
36	0.000283	0.023416
37	0.000395	0.028587
38	0.000376	0.022542
39	0.000353	0.023220
40	0.000331	0.022436
41	0.000302	0.025016
42	0.001142	0.037447
43	0.000966	0.033905
44	0.000885	0.032358
45	0.000533	0.032391
46	0.001229	0.037102
47	0.001408	0.041239
48	0.001094	0.034666
49	0.001012	0.032017
50	0.000328	0.029466
51	0.001155	0.039758
52	0.001792	0.045757
53	0.001355	0.040154
54	0.000777	0.034584
55	0.002054	0.048580
56	0.001799	0.043154
57	0.000815	0.039262
58	0.000957	0.023997
59	0.000503	0.028234
60	0.001298	0.034411
61	0.001513	0.040171
62	0.001630	0.040029
63	0.001480	0.040836
64	0.002103	0.045694
65	0.001776	0.043590
66	0.001639	0.039828
67	0.001371	0.037972
68	0.000305	0.021661

التنويع الساذج والحد من المخاطر في السوق المالي السعودي

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الكلمات المفتاحية: التنويع، المخاطرة، المحفظة الاستثمارية، السوق المالي السعودي

ملخص البحث. تهدف هذه الورقة بشكل رئيسي الى دراسة أثر التنويع الساذج على المخاطرة في السوق المالي السعودي. وقد تم التركيز على اختبار فرضيتين وهما: أولا، أن زيادة عدد الأسهم في المحفظة الاستثمارية يؤدي الى تقليل المخاطرة، وثانيا، أن منافع التنويع تتزايد بمعدل متناقص.

استخدمت الدراسة قاعدة بيانات للفترة من يناير ٢٠٠٣ الى ديسمبر ٢٠٠٩ لبناء ٢٣٩ محفظة استثمارية افتراضية، ذات أحجام مختلفة من الأسهم المدرجة في السوق المالي السعودي. وتم حساب الانحراف المعياري لهذه المحافظ كلما زاد حجم المحفظة. كما استخدمت الورقة عدة طرق احصائية أخرى بما في ذلك الانحدار الخطي، والارتباط ، واختبار (t) للعينات المزدوجة لمزيد من دراسة نتائج المحاكاة.

تبين نتائج الدراسة أن الحد الأدنى من الأسهم في محفظة استثمارية هو ١٢ سهما، وأن هذا العدد سيكون كافيا للحد من حوالي ٨٤ ٪ من المخاطر غير المنتظمة في السوق المالي السعودي، كما تبين أن فوائد التنويع تتزايد بمعدل متناقص مع الزيادة في حجم المحفظة الاستثمارية.

تتفق نتائج هذه الدراسة مع دراسات أخرى سابقة في وجود علاقة إيجابية ذات دلالة إحصائية بين حجم المحفظة والحد من المخاطر. ولكنها تتناقض مع بعض الدراسات الأخرى التي تشير إلى أن عدد الأسهم أعلى بكثير من عشرة أسهم. ومع أن مبدا التنويع كان موضوع البحث والتحليل في العديد من الدراسات التطبيقية، فان معظم هذه الدراسات ركز على الأسواق المالية العالمية في الدول الصناعية المتقدمة، ولم يتعرض لدراسة التنويع في الأسواق المالية الناشئة، ولذلك تأتي هذه الدراسة لتمثل محاولة في هذا الاتجاه.

توصي الدراسة بإجراء المزيد من البحث في أسباب التذبذب الملحوظ في سوق الأسهم السعودي خلال السنوات القليلة الماضية، ودور سلوك المستثمرين في ذلك.