An Investigation of the Efficiency of Portfolio Investors' Behavior

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Abstract

This study examines whether a contrarian investment strategy, implying simultaneously buying previous shares, which had the lowest performance (losers) for a specified period and selling shares that have increased yields (winners) over the same period, works in the Athens Stock Exchange (ASE). The study is based on monthly data from a sample of 156 shares of companies listed on the Athens Stock Exchange for the 01/01/2000-01/06/2009 period. The empirical results differ seriously from period to period. Overall, research results do not lead to a conclusion while in certain cases show contradictory conclusions depending on the period under examination. It is also proved that the achievement of irregular yields, by adopting a contrarian investment strategy, is possible in a period when the Index show loses rather than profits.

Keywords: Investment Performance, Portfolio Strategies, Contrarian Strategy, Market Overreaction, Investors Behavior, Stock Market Risks, Seasonality

JEL Classifications : G12, G14, G18

1. Introduction

The contemporary portfolio theory suggests that in the framework of more efficient market the only parameter that affects the long-term yields of securities is the systematic risk. For this reason, an investor can expect higher than the average yields only if assumes a larger risk. However, the research that has been carried out so far, regarding the efficiency of a number of investment strategies contradicts, conflicts with the above principle. The results suggest that it is possible extra yields to be derived from the application of strategies that are based on historical data. Among the strategies that have been proposed are the contrarian strategies, which consist of portfolios, created in a way contrary to common practices.

2. Past Literature

De Bondt and Thaler (1985, 1987) seemed to argue that overreaction to past information is nothing else than a general expectation of the behavioral theory of decision making of Kahneman and Tversky (1982), according to which the expected value is chosen in such a way as the outcome to coincide with impressions. De Bondt and Thaler (1985) examined whether past winners tend to become future losers and reversely. The results of the tests were compatible with the assumption of over-reaction. The overreaction effect is stronger for the losers' shares rather than the winners' shares. Most of excess yields are realized in January and overreaction appears mostly in the 2nd and 3rd year of the period examined. In addition, De Bondt and Thaler (1987) surveyed the existence of overreaction in stock markets. They showed that overreaction is caused by the inefficient market reaction in relation to the information on companies' profits and that excess yields, particularly in January, are inversely related to the yields during the period of investors' portfolios building.

Fama and French (1992) explained the effect of reverse yields through the size of companies and showed that yields are systematically higher for small rather than large capitalization companies. Chan (1988) explained that overreaction is related to contrarian strategies if a stable systematic risk exists. Zarowin (1989) proved that the strong negative correlation between the size and share yield of a company explains the reverse yields and no the overreaction of investors in relation to profits. Jegadeesh (1990) researched shorter-term prices reverses. Results showed that contrarian strategies that choose shares based on the last week or month yields lead to excessively higher yields. Nevertheless, when the strategies reflect extensive transactions and are based on short-term price movements, their success might reflect the short-term price pressure or the liquidity shortage rather than the market overreaction. In addition, Lo and MacKinay (1990) reported that a large part of excess yields found by Jegadeesh and Lehmann (1990) is due more to the lag in the reaction of prices from common factors than to the market overreaction.

They, also, argued that that the yields of large shares lead the smaller ones and presented evidence that contradicts the assumption that overreaction is the only source of contrarian profits. Kryzanowski and Zhang (1992) examined the hypothesis of overreaction by using monthly yields of the Toronto Stock Exchange for the 1950 – 1988 periods. They found statistically significant systematic behavior for the coming and the two years for winners and losers and statistically insignificant inverse behaviour for period over 10 years.

Kaul and Conrad (1993) explained the concept that overreaction is a calculation bias. They argued that the calculation of non-canonical yields, by accumulating yields for a certain period, leads to upward trends due to calculation errors. The balancing of losers and winners each month is conceptually an adverse measure and proposed a strategy 'buy and hold' for long periods as the correct contrarian strategy. Lakonishok, Shleifer and Vishny (1994) suggested that the excess yields of contrarian strategies are due to exploiting the errors of investors rather than the increased risk they contain. They argued that the assumption that investors' overreaction, where their expectations for the future development are led by the results of previous periods in relation to growth, are indicated by certain Indices, like Book to Market Ratio (B/M) and Earnings to Price Ratio (E/P). The contrarian shares are characterized by high B/M and E/P indices proving that their higher yields are due to favorable investors' behavior and not to their related higher risk.

Bouwer, Van der Put and Veld (1997) examined the markets of 4 European countries (French, Germany, Holland and UK). They showed that the adoption of contrarian strategies for the variables E/P (earnings/prices), CF/P (cash flows/prices), B/M (book value/market value) and dividend yield lead to excess non-canonical yields (particularly the CF/P index). They, also, found that excess yields cannot be attributed only to the changes in systematic risk, confirming Hamao and Lakonishok's (1991) and Lakonishok, Schleifer and Vishny's (1994) results for Japan and USA, respectively. Chang, McLeavy and Rhee (1995) showed that significant yield could be achieved in the short term by using because of contrarian strategy. Jegadeesh and Titman (1995) examined the contribution of overreaction and time lag of prices in contrarian profits. They assumed that share prices overreact to certain information, like profits announcement and react with a delay to common factors.

Campbell and Limmack (1997) examined the London Stock Exchange Market for the 1979 – 1990 periods. They found that during the 12 coming months after the portfolio creation, the winners had excess yields supporting the winners-losers effect. They, also, found that very small companies had reversed yields during the coming 12 months, a result that does not hold for very small companies of winners. Conrad, Gultekin and Kaul (1997) showed that the profits of NASDAQ are caused by the difference between the selling-buying prices, while the profits for NYSE (for the majority of companies) are explained by the bid-ask spread. Bacmann (1998) examined the French market and argued that profits are related to the investors' overreaction to certain information following the contrarian strategy.

Yang (1998) studied the share's yields in the Taiwan Stock Exchange for the 1976 – 1995 periods and found that contrarian strategies are not as dynamic as in other stock markets. Baytas and Cakici (1999) found that yields of the contrarian strategies were significant in seven industrialized countries, except the USA market. Mun, Vasconelos and Kish (1999) proved following diagnostic tests that in the French and German Stock Markets the overreaction theory holds and excess yields are realized, diminishing over time in portfolios of winners become losers and reversely. They also stated the correlation between excess yields and time risk is low. Thaler (1999), following the questioning of his study with De Bondt (1985 – 1987) argued that exist two types of investors: the rational investors and the quasi-rational investors.

Dahlquist and Broussard (2000) examined the profits of contrarian strategies by using the holding period returns (HPR). They found that statistically significant is the contrarian strategy of winners' portfolio and only for one year assessment period.

Levis and Liodakis (2001) examined the excess yield of contrarian strategy through the expectations errors and found that the analysts' bias for future profits brings about the expectations errors rather than naive conclusions of past profits and growth rates.

Lee, Chan, Faff, Kalev and Kalev (2003) studied the Australian market by using weekly data. They concluded that short-term profits could be achieved from contrarian strategies. However, these profits cannot be explained by errors in risk, seasonal and volume assessments.

Galariotis (2004) found that contrarian strategies cause short-term profits in the Athens Stock Exchange (ASE), which are the result of investors' overreaction to information. In addition, Antoniou, Galariotis and Spyrou (2005) showed that there is autocorrelation to share yields, leading to significant short-term yields from contrarian strategies that are present even after the market adjustments to market irregularities. Consistent with the findings in the USA market, the yields of contrarian strategies tend to slow if one moves from small to larger markets and take into consideration the markets irregularities.

Kim (2009) evaluated the usefulness of the contrarian investment strategy across national stock markets of 18 developed countries. He found extremely slow mean reversion rates, which provide strong evidence against the usefulness of the contrarian strategy.

Wang et al. (2009) examined the intraday performance of contrarian strategies using data from 438 listed stocks on the Taiwan Stock Exchange in 2004. The results indicated significantly positive abnormal returns for the contrarian strategies. The intraday analysis also indicated that the abnormal returns earned by the contrarian strategies are higher in the opening and the closing intervals than in the middle of the trading day. Finally, they found that price reversals occur for both prior losers and prior winners, with prior winners experiencing larger price reversals than prior losers when the holding period becomes longer.

Lin and Swanson (2010) investigated the effects of price limits on investment performance of contrarian trading strategies in Taiwan's stock market over the period 1997 to 2006. They found that all contrarian strategies in intraday limit-hit stocks lead to superior returns relative to the benchmark index return and the findings support the overreaction effect. Also, there is evidence of delayed overreaction reflected by price continuations for the overnight period and price reversals for the subsequent trading day. Dissanaike and Lim (2010) found out that simple cash flow-to-price measures appear to do almost, as well as, the more sophisticated alternatives.

Giamouridis and Montagu (2011) showed that sophisticated valuation models are superior – although not universally – relative to simple valuation models in many respects. Therefore, sophisticated models have interesting attributes and, in general, should be considered as an additional if not primary perspective on equity valuation and portfolio management. Pan and Chen (2011) studied the effects of momentum and contrarian trading strategies in the China's stock market over 17 - year from 1994 to 2010.

Ramiah et al, (2011) investigated the profitability of contrarian investment strategies for equities listed on the Hong Kong Stock Exchange, as well as, the relationship between stock returns and past trading volume for these equities. They reported significantly higher contrarian profits for the period investigated and that this was a persistent feature stock for cross-listed companies.

3. *Research Methodology*

The scope of the current study is to examine the factors related to irregular yields in the Athens Stocks Exchange (ASE) for the 01/01/2000-01/06/2009 period. The research is based on monthly data of a sample of 156 shares traded in the ASE. The data were gathered from Datastream databank, where the share prices are adjusted to new issues, split of shares, reserve capitalization and dividends' distribution.

It should be noted that the 2000-2002 period has been characterized by strong stock exchange reactions, reduction of transaction acitivity in ASE, as well as, an institutional overhaul and activity in primary and secondary equity market. The total value of ASE companies was reduced as the Greek economy entered a period of recession after a decade of high growth rates. The change of real economic variables followed a reversal of investors' expectations, which were optimistic or overoptimistic in the past.

The yield of an investment in listed shares consists of two components: the income yield form the dividends collection and the surplus value between the difference in the price of buying and selling the share or in the current price of stock security. Consequently, the share yield for certain period is calculated as the sum of the percentage change in its price and the percentage change in dividends' yield during the examination period.

Assuming that the dividends are reinvested, the formula of the monthly continuously compounded yields is:

$R_{AT}=\ln[(P_{AT}+D_{AT})/P_{AT-1}]$,

where R_{AT} the monthly yield of share A in month T in logarithm

P_{AT} the price of share A at the end of month T

D_{AT} the payment of the dividend (if there is one) of share A during month T,
taking into account the date of dividend stripping

P_{AT-1} the price of share A at the end of month T-1.

In order to examine whether contrarian strategies are related to excess profits in ASE, a process of building portfolios is carried out. Then, the yields of contrarian choices are assessed and the related conclusions are reached. The period under examination is divided into three sub periods to overcome the problems of trading, seasonality, etc. by using monthly yields. In particularly, the sub periods are 2000–2002 during which a significant fall in ASE is observed, 2003 – 2007 during which ASE recovers and 2008 - 2009 when the downturn seems to resume. Then, the samples of shares are arranged according to their yields in ascending and descending order. It should be noted that the analysis assumes that open sales are not carried out and that the buy is prior to the selling of shares (long position).

4. Research Results

The 2000-2009 under examination period is divided into three sub periods: the January 2000- January 2002 period when a significant fall of ASE was observed, the January 2003- January 2007 period, when the ASE experienced a significant increase and a return of index to profits and the third one between January 2008-June 2009 period when the downturn was present. Subsequently, the yields of the past 6 months are compared, following the year or the three years' yields for each portfolio in every sub period under examination (De Bondt and Thaler, 1985).

4.1 Forming contrarian portfolios

In order to form a portfolio, it is necessary to decide on the exact shares and their weighting. The selection of best and worse shares (from a total of potential shares) and their weighting was based on the historical yields of each share under examination. The potential for investment shares were 136 from the ASE's general index, while the period of portfolio's formation (01/01/2000-01/06/2009) contained 4315 corresponding yields. Then, the 10 best share yields were selected for each sub period under consideration (each share participating equally by 10%) to form the X1 Winner portfolio. Correspondingly, the Loser portfolio was formed including the 10 worse share yields. The number of portfolios of Winners and Losers, formed based on their annual, 6-month, and three-year yields, are presented in Table 1.

4.2 Results of contrarian strategies during the upward phase of the market

The results show that the winners' yields are larger than those of the losers, for the year 2003 compared with years 2004, 2005, 2006, 2007 (except 2005), a period that the market experienced an upward phase. Nevertheless, the yields of Losers portfolios, as well as, those of the winners are negative and could be excluded from the study results (Table 2).

Table 3 presents the results of the comparison of 2004 portfolio with those of 2005, 2006 and 2007. Figure 1shows that the losers' yields over exceed the winners for the 2004-2007 period. The comparison of 2005 portfolios with those of 2006 and 2007 are presented in Table 4. Figure 2 shows that Winners exceed the Losers' yields and as a result, the application of contrarian strategies cannot considered effective for the period 2005-2007. Then, the 2006 portfolios are compared to those of 2007 (Table 4a).

The results according to the above table show that the Losers' yields over exceed the Winners for the period 2006-2007. However, the yields of both Losers and Winners portfolios are negative and could be excluded from the results of this study. According to the findings of the 2003-2007 period, based on the annual yields of portfolios, not enough evidence appears to support the existence of the effectiveness of contrarian strategies since from the 5 portfolios only 3 (60%) showed excess yields (Losers) while from the remaining 2 (40%) showed excess yields the Winners portfolios.

For the same period, the 6 months yields portfolios are compared showing the following results:

Comparing the yields of the 7th semester 01/01/2003 – 01/06/2003 (Table 5) with the 2nd of the same year and next year, it is noticed that losers' yields over exceed those of Winners only in the first six months. However, because both portfolios show negative yields, the results can be excluded from the final ones.

The results of the yields of the 8th semester 01/06/2003 – 01/12/2003 compared to the first and second of next year (Table 6) prove that the yields of Winners over exceed those of Losers for both semesters. However, because both portfolios show negative yields the results can be excluded from the result.

The results of the yields of the 9nth semester 01/01/2004 – 01/06/2004 compared with the second of the same and next year (Table 7) show excess yields for Losers rather than of Winners only for the second semester.

Comparing the yields of the 10nth semester 01/06/2004 – 01/12/2004 with the first and second of the next year (Table 8), it is noticed that the Losers yields over exceed those of Winners for both the semesters.

The results of comparing the yields of the 11th semester 01/01/2005 – 01/06/2005 with the second one of the same and next year (Table 9) show that the Winners yields over exceed those of Losers for both semesters.
The results of the yields of the 12th semester 01/06/2005 – 01/12/2005 compared with the first and second of the next year (Table 10) prove that Winners yields over exceed those of Losers for both semesters. However, the yields are negative for both portfolios and for this reason could be excluded from the conclusions.

Comparing the yields of 13th semester 01/01/2006 – 01/06/2006 with the second of same and next year (Table 11) results show that the Losers yields over exceed Winners only for the 1st semester.

Comparing the yields of the 14th semester 01/06/2006 – 01/12/2006 with the first and second of next year (Table 12), it is proved that the Losers yields over exceed those of Winners only for the second semester. But they are negative for both portfolios and thus could be omitted from the final conclusion.

The yields of the 15th semester 01/01/2007 – 01/06/2007 compared with the second of same and 1st of the next year (Table 13) show that the Losers yields over exceed those of Winners for both semesters. These results can be omitted from the final conclusions, since the yields are negative for both portfolios.

Comparing the yields of 16th semester with the first and 2nd of next year (Table 14), it is noticed that the Losers yields over exceed those of Winners for the 1st semester. The yields are negative for both portfolios and thus could be omitted from the conclusions.

The findings of the (semi year) 6months yields for the upward phase of ASE are vague, since from the 12 semesters that could be included to the final result, 7 (58%) showed excess yields in the winners portfolios and the rest 5 (42%) showed excess yields in the losers portfolios.

4.3 Results of contrarian strategies during the downward phase of the market

It is also examined whether the contrarian strategies apply in the downward phase of ASE in the 2000-2003 periods. For, 6 portfolios were created, 2 for each year, while each Winners portfolio consists of 10 shares (10% weights for each share – equal weighted) with the best share yields and three portfolios (10% weights for each share – equal weighted) with the 10 worst share yields (Losers) of the year (Table 15).
The yields of Losers portfolios in year 2000 compared to 2001 and 2002 are larger than the yields of Winner, which means that contrarian strategies hold (Figure 3). The yields of year 2001 compared to 2002 for both Losers and Winners portfolios are negative and are not included in the conclusions of the study (Table 16). The above results show that the adoption of contrarian strategies in a period of a downward trend in ASE could lead to excess irregular yields.

Then, the portfolios yields created according to their semi- annual yields are created.

The yields of 1s semester 01/01/2000 – 01/06/2000 compared to 2nd of same year and the 1st of next are (Table 17) show that the losers yields over exceed of those of Winners for both semesters.

The yields of the 2nd semester 01/06/2000 – 01/12/2000 compared to the first and second of next year (Table 18) show that Losers yields over exceed those of Winners for both semesters.

The yields of the 3rd semester 01/01/2001 – 01/06/20001 compared to the second of same year and first of next year are (Table 19) show that Winners yields over exceed those of Losers for both semesters.

The comparison between the yields of 4th semester 01/06/2001 – 01/12/2001 and the 1st and 2nd of next year (Table 20) show that the losers yields over exceed those of Winners in the 1st semester only. However, the yields are negative for both portfolios so these findings could be omitted from the final conclusions.

Comparing the yields of the 5th semester 01/01/2002 – 01/06/2002 with the second of same year and the first of next year (Table 21) it is shown that the Winners yields over exceed those of Losers for both semesters.

Comparing the yields of 6th semester 01/06/2002 – 01/12/2002 with 1st and 2nd of next year (Table 22) it is shown that the losers yields over exceed those of Winners for both semesters.

Comparing the yields 17th semester 01/01/2008 – 01/06/2008 with the 2nd of same year and 1st of next year (Table 23) it is shown that the Winners yields over exceed those of losers for both semesters.

Comparing the yields 18th semester 01/06/2008 – 01/12/2008 with the 1st of next year (Table 24) it is shown that the Losers yields over exceed those of Winners.

The above analysis, based on comparisons of Winners and Losers portfolios created according to their semi-annual yields in the period 01/01/2000 – 01/6/2002, leads to no specific clear conclusions. In the downward phase of ASE from the 9 semesters that could be included in the final conclusions, 5 (55,6%) showed excess yields in the winners portfolios while the rest 4 (44,5) showed excess yields in the loser portfolios.

Finally, comparing the portfolios, created according to their   three year yields of   2000-2002 and 2003-2005 (Table 25), show that the Winners yields are better than those of Losers are.

5. *Conclusions*

The scope of this study was to examine whether the application of contrarian strategies could lead to excess yields or if the fact of overreaction holds for the ASE. It also, examined the extent to which the contrarian investment strategy could be affected from the phases of the economy and the stock market in which it is applied and the constraints of its effectiveness. The study was based on the methodology of De Bondt and Thaler (1985) for contrarian strategies in a list of shares from January 2000 till June 2009.

The empirical results do not lead to a conclusion while in certain cases show contradictory conclusions depending on the period under examination. The contrarian strategy adopted in 2000-2002 period based on the annual yields of portfolios led to excess yields, since the winers and losers yields tended to reverse in the future. This happened because the investors overestimated the winners' shares and overestimated the losers. Their overreaction to new information led to reversion of yields: the larger the overreaction the larger the difference caused from the reversion of yields.

The study offers some evidence for the reversion of yields for the annual portfolios of losers for the 2000-2002 periods. There is no evidence that a long term overreaction appears (significant positive yields during the a period of 30-36 months) in ASE which is contrary to the findings of De Bondt and Thaler (1985) and Jegadeesh and Titman (1995) demonstrating that contrarian profits are larger in the long run.

It could be concluded that the achievement of irregular yields, by adopting a contrarian investment strategy, is possible in a period when the Index show looses rather than profits. Therefore, the effectiveness of a contrarian investment strategy is affected not only by the methodology and the portfolios models but also by the stock market in question. It is easy to prove the achievement of profits by adopting a contrarian investment strategy on theoretical level but difficult on real environment.

Finally, two research restrictions should be noted:

(a) When the portfolios are created based on a single variable, as the past then the repercussion of this variable might be overestimated. Future improvements should include a distinction of overreaction from the other specific characteristics.
(b) Despite the fact that the sample used include the total of bank shares, the driving force of ASE and a large part of commercial companies with remarkable development, the question remains whether the result of this study applies to the ASE as a total. Therefore, further research is needed.

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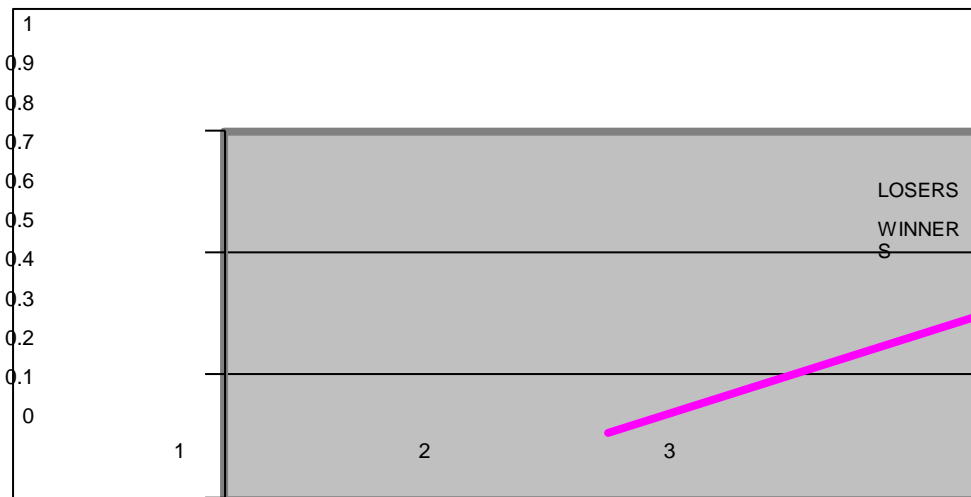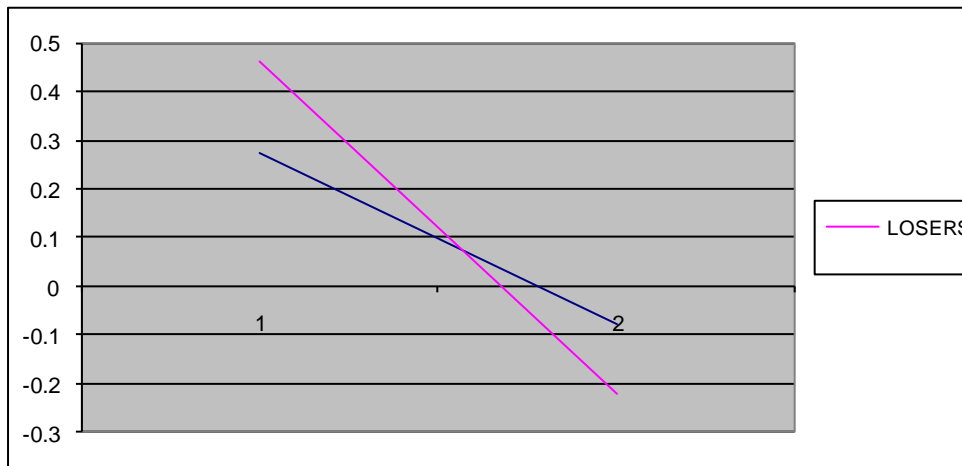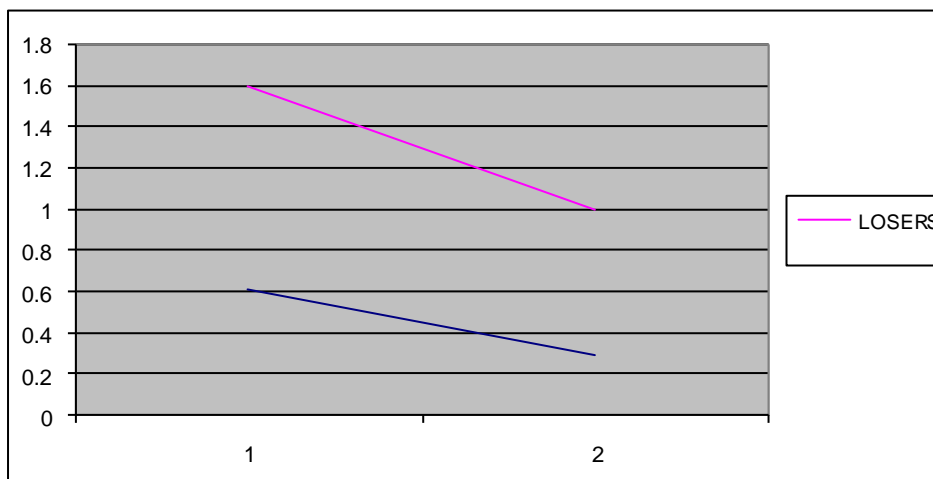
Figure 1

Figure 2

Figure 3

Table 1

Years	Portfolio Yields	
	Winners	Losers
2000	-0,36549	-1,48432
2001	0,244463	-0,49203
2002	-0,06882	-0,77831
2003	0,583607	-0,17906
2004	0,212013	-0,81741
2005	0,33346	-0,18578
2006	0,610033	-0,26584
2007	0,518627	-0,32992
2008	-0,48513	-1,40326
01/2000-06/2000	-0,32216	-0,60514
06/2000-12/2000	0,036043	-1,05081
01/2001-06/2001	0,127874	-0,36584
06/2001-12/2001	0,228076	-0,28739
01/2002-06/2002	0,00731	-0,38034
06/2002-12/2002	0,165401	-0,5432
01/2003-06/2003	0,408943	-0,13033
06/2003-12/2003	0,30258	-0,21512
01/2004-06/2004	0,162273	-0,40007
06/2004-12/2004	0,220515	-0,59138
01/2005-06/2005	0,137605	-0,24533
06/2005-12/2005	0,344483	-0,05936
01/2006-06/2006	0,258604	-0,28438
06/2006-12/2006	0,392576	-0,06159
01/2007-06/2007	0,474306	-0,19459
06/2007-12/2007	0,180174	-0,27082
01/2008-06/2008	0,030428	-0,3965
06/2008-12/2008	-0,36101	-1,21485
01/2009-06/2009	0,583763	-0,13888
2000-2002	-0,96863	-2,41636
2003-2005	0,929987	-0,88228
2003-2007	1,4336433	-0,64418

Table 2

Years	WINNER	LOSER	Difference W	Difference L
2003	0,583607	-0,17906		
2004	0,212013	-0,81741	-0,37159	-0,63835
2005	0,33346	-0,18578	-0,25015	-0,00672
2006	0,610033	-0,26584	0,026426	-0,08678
2007	0,518627	-0,32992	-0,06498	-0,15086

Table 3

Years	WINNER	LOSER	Difference W	Difference L
2004	0,212013	-0,81741		
2005	0,33346	-0,18578	0,121447	0,631629
2006	0,610033	-0,26584	0,39802	0,55157
2007	0,518627	-0,32992	0,306614	0,487487

Table 4

Years	WINNER	LOSER	Difference W	Difference L
2005	0,33346	-0,18578		
2006	0,610033	-0,26584	0,276573	-0,08006
2007	0,518627	-0,32992	0,185167	-0,14414

Table 4a

Years	WINNER	LOSER	Difference W	Difference L
2006	0,610033	-0,26584		
2007	0,518627	-0,32992	-0,09141	-0,06408

Table 5

Year	WINNER	LOSER	Difference W	DifferenceL
01/2003-06/2003	0,408943	-0,13033		
06/2003-12/2003	0,30258	-0,21512	-0,10636	-0,0848
01/2004-06/2004	0,162273	-0,40007	-0,24667	-0,26975

Table 6

Year	WINNER	LOSER	DifferenceW	Difference L
06/2003-12/2003	0,30258	-0,21512		
01/2004-06/2004	0,162273	-0,40007	-0,14031	-0,18495
06/2004-12/2004	0,220515	-0,59138	-0,08207	-0,37625

Table 7

Year	WINNER	LOSER	Difference W	DifferenceL
01/2004-06/2004	0,162273	-0,40007		
06/2004-12/2004	0,220515	-0,59138	0,058242	-0,1913
01/2005-06/2005	0,137605	-0,24533	-0,02467	0,154739

Table 8

Year	WINNER	LOSER	Difference W	Difference L
06/2004-12/2004	0,220515	-0,59138		
01/2005-06/2005	0,137605	-0,24533	-0,08291	0,346043
06/2005-12/2005	0,344483	-0,05936	0,123968	0,532013

Table 9

Year	WINNER	LOSER	Difference W	Difference L
01/2005-06/2005	0,137605	-0,24533		
06/2005-12/2005	0,344483	-0,05936	0,206878	0,18597
01/2006-06/2006	0,258604	-0,28438	0,120999	-0,03905

Table 10

Year	WINNER	LOSER	Difference W	Difference L
06/2005-12/2005	0,344483	-0,05936		
01/2006-06/2006	0,258604	-0,28438	-0,08588	-0,22502
06/2006-12/2006	0,392576	-0,06159	0,048093	-0,00223

Table 11

Year	WINNER	LOSER	Difference W	Difference L
01/2006-06/2006	0,258604	-0,28438		
06/2006-12/2006	0,392576	-0,06159	0,133972	0,222793
01/2007-06/2007	0,474306	-0,19459	0,215702	0,089795

Table 12

Year	WINNER	LOSER	Difference W	Difference L
06/2006-12/2006	0,392576	-0,06159		
01/2007-06/2007	0,474306	-0,19459	0,08173	-0,133
06/2007-12/2007	0,180174	-0,27082	-0,2124	-0,20924

Table 13

Year	WINNER	LOSER	Difference W	Difference L
01/2007-06/2007	0,474306	-0,19459		
06/2007-12/2007	0,180174	-0,27082	-0,29413	-0,07624
01/2008-06/2008	0,030428	-0,3965	-0,44388	-0,20191

Table 14

Year	WINNER	LOSER	Difference W	Difference L
06/2007-12/2007	0,180174	-0,27082		
01/2008-06/2008	0,030428	-0,3965	-0,14975	-0,12568
06/2008-12/2008	-0,36101	-1,21485	-0,54118	-0,94403

Table 15

Year	WINNER	LOSER	Difference W	Difference L
2000	-0,36549	-1,48432		
2001	0,244463	-0,49203	0,609953	0,99229
2002	-0,06882	-0,77831	0,29667	0,706011

Table 16

Year	WINNER	LOSER	Difference W	Difference L
2001	0,244463	-0,49203		
2002	-0,06882	-0,77831	-0,31328	-0,28628

Table 17

Year	WINNER	LOSER	Difference W	Difference L
01/2000-06/2000	-0,32216	-0,60514		
06/2000-12/2000	0,036043	-1,05081	0,358201	-0,44567
01/2001-06/2001	0,127874	-0,36584	0,450031	0,239298

Table 18

Year	WINNER	LOSER	Difference W	Difference L
06/2000-12/2000	0,036043	-1,05081		
01/2001-06/2001	0,127874	-0,36584	0,091831	0,684966
06/2001-12/2001	0,228076	-0,28739	0,192033	0,76342

Table 19

Year	WINNER	LOSER	Difference W	Difference L
01/2001-06/2001	0,127874	-0,36584		
06/2001-12/2001	0,228076	-0,28739	0,100202	0,078454
01/2002-06/2002	0,00731	-0,38034	-0,12056	-0,0145

Table 20

Year	WINNER	LOSER	Difference W	Difference L
06/2001-12/2001	0,228076	-0,28739		
01/2002-06/2002	0,00731	-0,38034	-0,22077	-0,09295
06/2002-12/2002	0,165401	-0,5432	-0,06267	-0,25581

Table 21

Year	WINNER	LOSER	Difference W	Difference L
01/2002-06/2002	0,00731	-0,38034		
06/2002-12/2002	0,165401	-0,5432	0,158091	-0,16286
01/2003-06/2003	0,408943	-0,13033	0,401633	0,250012

Table 22

Year	WINNER	LOSER	Difference W	Difference L
06/2002-12/2002	0,165401	-0,5432		
01/2003-06/2003	0,408943	-0,13033	0,243542	0,412869
06/2003-12/2003	0,30258	-0,21512	0,137179	0,328072

Table 23

Year	WINNER	LOSER	Difference W	Difference L
01/2008-06/2008	0,030428	-0,3965		
06/2008-12/2008	-0,36101	-1,21485	-0,39143	-0,81835
01/2009-06/2009	0,583763	-0,13888	0,553335	0,257622

Table 24

Year	WINNER	LOSER	Difference W	Difference L
06/2008-12/2008	-0,36101	-1,21485		
01/2009-06/2009	0,583763	-0,13888	0,944768	1,075972

Table 25

Year	WINNER	LOSER	Difference W	Difference L
2000-2002	-0,968631	-2,41636		
2003-2005	0,9299872	-0,88228	1,898618	1,534072