

# Does “dividend investing” have value for the South African investor?

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## **Abstract**

A number of portfolio strategies have been proposed, based on the dividend yield of a small number of large companies. It has been suggested that, by following any one of these strategies, a return that is superior to that of the market can be obtained. In this paper, these portfolio strategies are tested for investors on the Johannesburg Stock Exchange. However, not only are strategies based on dividend yield scrutinized, but also comparable strategies based on earnings yield. The average return of various portfolios, selected in accordance with four methods of ranking, are compared. The major finding is that earnings yield is a better ranking method than the dividend yield method.

## **Key words**

*Dividend yield*  
*Earnings yield*  
*Investment strategies*

## **1 Introduction**

By periodically applying a few simple criteria to the small group of 30 top blue chip companies included in the Dow Jones Industrial Average, an individual can achieve better results with less risk than the majority of independent money managers and mutual funds that use complex investment strategies (O'Higgins & Downes 1992:xii). Ranking large companies in terms of their historic dividend yield is one of the most powerful tools available to both the individual and the professional investor (Knowles & Petty 1992:1). Since these statements were made and the term “dividend investing” was coined, a number of researchers have been fascinated by the idea that it could be possible for even a small investor to beat the market by investing in a small number of shares, while spending only a small amount of time per year on his/her share selection (Bauer & Gardner 1999:29).

Dividend yield is a function of a company's dividend policy, which in turn is an indication of management's confidence in the company (Brealey & Myers 2000:445). If management is confident that an increased level of earnings can be maintained, there is a better chance of the dividend being increased than if management did not have this confidence. In spite of Miller & Modigliani's (1961) contention that dividends are not important, Ross, Westerfield & Jordan (2000:539) argue that most companies do indeed pay dividends. Managers attempt to avoid dividend cuts because of the negative effect this may have on the share price of a company. For South African companies, Bhana (1991:1998) found that investors regard dividends to be important.

If the dividend yield of a share is important, the earnings yield may also be. The earnings yield of a share is the inverse of its price/earnings (P/E) ratio, which has been described as the manner in which investors collectively capitalise profits (Ward & Stathoulis 1993:37). The P/E ratio therefore represents the market consensus of the value of the profits of a firm, it is used by investment analysts for share evaluation (De Villiers 1995:27) and encapsulates many things, including what the market thinks about a firm's level of earnings per share (EPS), the quality of its EPS and its future prospects (Firer 1993:47). If the dividend yield is considered to be as a method of ranking shares for inclusion in a portfolio, the earnings yield should perhaps also be considered. Both of these yields per share are provided by the popular press and would be available for a small investor to use in managing his/her own portfolio.

In this study, the performance of four different portfolios, ranked in terms of each of four ranking methods, was investigated. The portfolios are: 1) the top five shares; 2) the second group of five shares; 3) the group of five shares second from the bottom; and 4) the bottom five shares. The ranking methods are in accordance with: 1) dividend yield; 2) dividend reverse procedure; 3) earnings yield; and 4) earnings reverse procedure. A ranking method would be regarded to be successful for identifying good performers if the top five (of 30) ranked shares were to consistently outperform the other portfolios during the following year. This study attempts to find the most successful ranking method.

This study did not attempt to identify the reasons why dividends are paid nor did it attempt to provide an overview of methods by means of which shares can be selected for inclusion in a portfolio. It did, however, attempt to determine which of a number of ranking methods would lead to a better return on a portfolio if the investor on the JSE had focused on one of these ranking methods over the past 20 years.

## **2 Literature survey**

### **2.1 Introduction**

The principles underlying “dividend investing” strategies have recently been explained in *Smart Investor* (1999:52) and by Carr (2000:50). Individual strategies have been briefly described by Coleman (1998) and in more detail by The Motley Fool (1999). The general strategy involves the choice of large companies on the basis of their historic dividend yield. As the name indicates, “dividend investing” focuses on the historic dividend yield of companies as a ranking method for share selection, and specifically on the 30 companies included in the Dow Jones Industrial Average (DJIA). The DJIA is the most familiar of market indices, the one that most financial news networks world-wide commit at least a few seconds to every night when presenting a survey of what has happened on the international financial scene (Gardner & Gardner 1996:71). Individually, the 30 shares that make up the DJIA are among the most widely held, widely analysed, and widely publicised in the world (O’Higgins & Downes 1992:13). They are also among the largest and strongest multinational conglomerates with household names, like Disney, Coca Cola, General Motors, Boeing and McDonalds.

The portfolio is reviewed and updated once a year. Dividends received during any given year are only invested at the next portfolio revision. No capital gains tax is paid and transaction costs are low because discount brokers are used.

### **2.2 The “High Yield 10” strategy**

O’Higgins & Downes (1992:188) were the first to propose a strategy which focused on the 30 companies included in the DJIA. An investor who, between 1972 and 1991, had sorted these 30 companies by dividend yield and included only the 10 highest yielding shares in his/her portfolio each year, would have achieved a superior return (16.6% per annum) versus the DJIA (10.4%). This strategy was called the “High Yield 10” (HY10) and had a lower risk than the DJIA as measured by its standard deviation.

### 2.3 The “Beat the Dow 5” strategy

A second strategy proposed and tested by O'Higgins & Downes (1992:194) was called “Beat the Dow 5” (BTD5) and involved annually investing in only the five lowest priced of the HY10 shares each year. This strategy gave an average return of 19.4% between 1972 and 1991. The rationale behind this strategy is that lower priced shares tend to experience greater price volatility (Bauer & Gardner 1999:20). Because the assumption is made that 10 good candidates for appreciation have been identified (the HY10 shares), an attempt is made to court future volatility, because it is likely to be positive and therefore lead to increased share prices. This is also in line with what Gilbertson *et al.* (1982:28) found for the South African market when they determined that a portfolio of only low value shares would have given an annual average of 29.3% between 1968 and 1979. The comparable figure for the All Share Index was 16.8% and that of the Industrial and Financial Index was 12.6%.

Knowles & Petty (1992:29) coined the term “dividend investing” when they showed that focusing on only the five shares with the highest dividend yield would have given a return of 15.4% between 1957 and 1990. This is more than the 14.2% that investing in the top ten dividend-yielding shares would have earned, as well as the 10.4% of the DJIA.

### 2.4 The “Foolish Four” strategy

The “Foolish Four” strategy (or so-called “2-2-3-4-5” strategy) was proposed by Gardner and Gardner (1996:84) and involved buying only shares ranked numbers two to five of the BTD5 strategy described above. In the share ranked number two, the investor would invest double the value invested in the other shares. For the 25 years up to 1996, this strategy produced an annual average return of 25.5% versus the 21.1% of the top yielding five, the 17.2% of the top yielding 10, and the 11.2% of the DJIA. The development of the Foolish Four is described by The Motley Fool (2000) and related strategies such as the Foolish Two and the Foolish Six are explained by The Motley Fool (1999). In this context, “Foolish” is used as a positive adjective, such as the fool in Elizabethan drama who was usually the only one who could convey the truth (even bad news) to the king without literally losing his head (Bauer & Gardner 1999:viii). The logic behind this approach is to zero in on those companies in the DJIA of which the shares are among the most out of favour with the market, pointing out which of those shares an investor should buy and hold for a specific period.

## **2.5 The “Reverse Procedure 4” strategy**

The “Reverse Procedure 4” or RP4 strategy was suggested by Bauer & Gardner (1999:21) and does away with the somewhat cumbersome “sort by yield and then sort by price” procedure of the BTD5. It does not necessarily include only the 10 shares of the DJIA with the highest yield, but might involve other Dow shares as well. This strategy entails dividing the dividend yield of a share by the square root of its price, and ranking the 30 shares according to this ratio. Shares ranked numbers two to five in accordance with this ranking are the shares that an investor is interested in. The rationale for this ratio is that beta, a measure of volatility relative to the market, is reported to be related to the price of a share, but more strongly to the square root of its price (Bauer & Gardner 1999:22). By dividing dividend yield by the square root of the price, the RP ratio enables an investor to identify low priced shares with high yields that have the most upside potential. Ranking DJIA shares in terms of this measure gives the “best buys” at the top of the list. Related strategies are the RP2 and the RP6 strategies. All RP strategies ignore the number one share.

The common characteristic of all these strategies is that they are based on the premise that a high dividend yield for a large company could be an indication of temporary undervaluation by the market. This common characteristic appears to be best captured by Knowles & Petty (1992:29) who tried to find the ranking method which best identified an above average performing portfolio of shares.

## **2.6 A previous study**

Knowles & Petty (1992:29) used only the dividend yield method when they examined the average annual performance of investing in the top 10, the top five, the bottom 10 and the bottom five of the 30 DJIA shares, if an investor were to annually update his/her portfolio between 1957 and 1990. The top five gave an average annual return of 15.4%, the top 10 gave 14.2%, the bottom 10 gave 8.9%, and the bottom five gave 7.9%. The DJIA gave an average return of 10.4% over the same period. Naturally, the top 10 includes the top five, which means that the performance of these two groups of shares are not independent. This information enables one to determine, independently of the average return of the top five of 15.4% per year, that the second group of five achieved an average of 13.0% per year. Similarly, the average annual performance of the second group of five from the bottom can be calculated as 9.9%, independently of the 7.9% of the bottom five. Note that these four portfolios most likely contained different shares from year to year as the assumption is made that they were updated annually, depending on the ranking in accordance with current dividend yield at the time of the update. Transaction costs of the annual update are ignored, as the

assumption is made that discount brokers with minimal commission structures are used.

### **3 Questions to be answered**

The principles underlying "dividend investing" appear to be that a high dividend yield (dividend/price\*100%) indicates that a share may provide a higher return than the market in the following year. A related question may be asked, namely whether earnings yield (earnings/price\*100%) could not also be used to identify shares that are likely to perform quite well in the following year. These are the first two methods to be tested. The third and fourth methods are the so-called reverse procedures. If satisfactory results have been obtained by combining the dividend yield and the price in the form of the dividend reverse procedure (DRP method) as a method of ranking, could the same not also be done for the earnings yield? The earnings reverse procedure (ERP) is the fourth and last method tested in the first analysis. The first research question can now be asked: Which of these four methods of ranking shares would have lead to the best results if they were used to determine likely performers on the JSE during the past 20 years?

It has been suggested (O'Higgins & Downes, 1992:194) that if the 30 shares included in the DJIA were ranked in accordance with dividend yield, and subsequently the top 10 dividend-yielding shares were ranked in accordance with price, the five least expensive of these would provide a higher return during the following year than the second group of five. What would the conclusion be if this were to be tested for shares listed on the JSE? If shares were ranked by earnings yield and the five least expensive identified, would their performance be better than the performance of the second group of five among the top 10 earnings yield performers? The second research question relates to these methods of ranking: Is it true that the five lower-priced shares of the top 10 dividend- yielding shares perform better than the other five? What would the results be if the same analysis were done for a ranking first by earnings yield and then by price?

### **4 Problem statement**

These two research questions are the major thrust of this article, namely, firstly which ranking method is better at identifying good performers, i.e. dividend yield (DY), earnings yield (EY), dividend reverse procedure (DRP), or the earnings reverse procedure (ERP). The second question relates to whether the group of five least expensive of the top 10 yielding shares (earnings yield or dividend yield) perform better than the other group of five.

## 5 Research methodology

### 5.1 Introduction

The research methodology followed in this study entailed determining the average return on portfolios of shares constructed in accordance with different strategies over the 20-year period from June 1979 to June 1999. Each strategy used a different ranking method to select shares. Because no exact replica of the DJIA have existed in South Africa for the total period of 20 years covered in this study, a decision had to be taken on which companies to include in the study.

### 5.2 Data used in the analysis

Each year, approximately in June, the *Financial Mail* publishes a survey of top companies, which is prepared by the Bureau of Financial Analysis (BFA) of the University of Pretoria. This is based on information available at the end of December of the previous year and includes, among other things, a list of the largest listed South African companies, ranked by the value of their assets. It was decided that this ranking would be used to identify the largest 30 South African companies available for investment in June of each year. This ranking by assets was preferred to a possible ranking by market capitalisation. Market capitalisation is based on share prices which may change from day to day, whereas the total value of a company's assets is not likely to change over the short term.

Some companies were initially on the list of 30 largest companies, but then dropped out during the 20-year period, while others entered the list and then stayed on. Some dropped out, re-entered, and then dropped out again, while others stayed on the list for the whole 20-year period. Usually, however, there were no major changes from one year to the next. It must, however, be pointed out that the composition of the 30 shares included in the study did change from year to year as the new ranking of companies in accordance with the value of their assets was published in May or June of each year. This is in contrast to the composition of the list of 30 companies included in the DJIA, which changed only once close to the end of an 18 year period of time which was studied, when three companies were substituted with three others in April 1991 (Knowles & Petty 1992:13).

Data pertaining to the price, dividend yield and earnings yield at the end of June of each year, from 1979 to 1999, were obtained from the BFA and from JSE prices listed in the *Financial Mail* closest to the end of June of each year. The BFA data was adjusted for share splits to ensure that the prices used were the prices available to investors at the time. Likewise, prices and yields of shares which are not currently listed, and therefore not included in the BFA database, were obtained from the *Financial Mail*. These

prices enabled the researcher to determine the return that an investor would have realised if he/she had bought a share at the end of June, received the dividend in the course of the year (in exceptional cases no dividends were paid) and sold it at the end of June of the following year. This return was calculated for each of the shares of the 30 largest companies for each of the 20 years included in the study. As indicated, the 30 largest companies for consecutive years were not always the same, but most companies maintained their membership of the list for at least a number of years. If a company was delisted during a year, it was ignored for that year and the next largest company on the BFA list was included in the sample.

### **5.3 Ranking methods**

For any specific year, the 30 large companies were ranked in accordance with four different methods. These methods were:

- (1) The dividend yield (DY);
- (2) the dividend reverse procedure (DRP);
- (3) the earnings yield (EY); and
- (4) the earnings reverse procedure (ERP).

For each of these rankings, the performance of the following four portfolios of five shares each were investigated:

- (1) The top five shares (Top5) ;
- (2) the second group of five shares (Sec5), namely shares six to ten;
- (3) the group of five shares second from the bottom (Sebo5), namely shares 21 to 25;
- (4) the bottom group of five shares (Bot5), namely shares 26 to 30.

In a sense, these four groups of five shares each capture the information of the top five, the top 10, the bottom five and the bottom 10 as studied by Knowles & Petty (1992:29). The exception here is that these four groups consist of different shares and therefore a better argument can be made for why their performance should be independent than would have been the case if the previous structure had been followed.

This selection procedure was chosen, for the following reason: If a specific ranking method were effective at identifying good performers, this should be evident by, for that ranking method, the Top5 portfolio performing the best, then the Sec5 portfolio, then the Sebo5 portfolio and with the Bot5 portfolio in the last place.

### **5.4 Statistical procedure**

The appropriate statistical procedure is an analysis of variance (ANOVA) to determine whether the various methods of ranking (DY, DRP, EY or ERP)

lead to significant differences in the average performance. The question regarding whether the position of the portfolio (Top5, Sec5, Sebo5 or Bot5) leads to a significant difference in performance can also be answered. Examining the cross product 'method \* position' would enable a determination of whether a significant interaction exists between these two variables.

## **5.5 Assumptions**

As is usually the case in any scientific project, assumptions had to be made, some of which may be relaxed in subsequent studies. The assumptions were:

- (1) Portfolios are reviewed annually at the end of June;
- (2) no capital gains tax is paid;
- (3) transaction costs (brokerage charges) are ignored; and
- (4) it is possible to buy any number of shares without a penalty for buying so-called "odd" lots, or less than 100 shares, at a time.

Due to the small number of transactions required annually per portfolio and depending on the view taken by the receiver of revenue, the assumption of no tax on capital gains could have been realistic in the past. If this tax had been levied during the period under investigation, it would have decreased the performance of the portfolios, but most probably not the ranking of their performance.

The assumption that any number of shares could be bought without a higher brokerage cost was definitely not true for the small investor during the entire period under investigation, but this restriction would have presented much less of a problem for a portfolio of high value. If, for example, a strategy required the purchase of 33 shares at a specific point in time (a so-called odd-lot on which a higher brokerage cost would have had to be paid), a portfolio manager of a large portfolio could have bought a hundred times as many, or 3300 shares, which is not an odd-lot and would therefore not have attracted a proportionately higher brokerage charge. Brokerage costs were ignored for the purpose of this study as a result of the assumed use of discount brokers with low brokerage charges. This assumption could be relaxed if and when it has been established that some portfolios did indeed perform better than other portfolios as well as better than the market.

An analysis of variance (ANOVA) was also used to determine whether the five high-yielding shares with the lowest prices performed better than the next group of five shares if the 10 highest yielding shares were ranked by price. This analysis was done for both a ranking by dividend yield as well as by earnings yield.

## 6 Empirical results

The mean return and standard deviation of return for each of four groups of shares ranked in accordance with four methods, with annual portfolio updating and measured over 20 years, are provided in Table 1. As defined earlier, Top5 indicates the group of five shares with the highest yield in accordance with, for example, dividend yield. Sec5 indicates the next group of five shares, Sebo5 indicates the group of shares second from the bottom (shares numbered 20 to 25) and Bot5 indicates the bottom group of five shares (shares numbered 26 to 30). The ranking methods investigated are the dividend yield (DY), the reverse procedure (DRP, dividend yield divided by the square root of price), the earnings yield (EY) and the earnings reverse procedure (ERP, earnings yield divided by the square root of price).

**Table 1**  
**The mean return and standard deviation of each of four groups of shares and four methods of ranking.**

	<b>DY</b>	<b>DRP</b>	<b>EY</b>	<b>ERP</b>
Top5: mean	25.2	28.7	43.5	32.3
Std.dev.	37.3	49.0	43.0	47.1
Sec5: mean	24.9	25.0	33.4	33.5
Std.dev.	48.2	38.4	47.8	47.4
Sebo5: mean	20.8	20.0	17.6	16.8
Std.dev.	32.7	30.0	34.8	33.9
Bot5: mean	25.6	23.3	10.8	12.1
Std.dev.	41.6	42.4	35.6	38.0

From Table 1 the means and standard deviations can be examined and compared for the different combinations of ranking method and the position of the groups of shares involved. For the DY as ranking method, there does not seem to be a major difference between the means of the four groups, while the standard deviations also appear to be comparable. For the DRP, the mean of the top five is somewhat higher than that of the other combinations, but the standard deviation is also higher, which indicates a higher risk.

For the EY as method of ranking, the top five have a higher mean than that of the second group of five, and substantially higher than that of the other two groups of shares. The standard deviations of the first two groups are comparable, and somewhat higher than that of the last two groups. For the ERP the first two groups are also comparable in terms of mean and standard deviation. Although the means of the first two groups are more than double that of the last two groups, the standard deviations of the first two groups are also somewhat higher, which indicates a higher risk.

From Table 1 it can be concluded that, although the ERP method of ranking seem capable of recognising groups of shares with a high yield versus those with a low yield, the EY appears to be more capable of recognising this difference between the four groups. For a complete analysis, the next step would require comparison of the coefficient of variation ( $CV = \text{standard deviation}/\text{mean} * 100$ ) and the median return of each combination of shares. The coefficient of variation is important, because it is a measure of the relative risk of a portfolio, giving the units of risk per unit of return. If a data set contains some extreme values, the mean of the data set may be affected, but the median will not be affected as much. The median may therefore be considered to be a better measure of locality when working with data sets that have some extreme values. Table 2 contains the coefficient of variation and the median of each of four groups of shares ranked in accordance with each of four methods.

**Table 2**  
**The coefficient of variation (CV) and median of each of four groups of shares ranked in accordance with four methods of ranking.**

	<b>DY</b>	<b>DRP</b>	<b>EY</b>	<b>ERP</b>
Top5: CV	148	171	99	146
Median	17.0	12.5	26.5	15.0
Sec5: CV	194	154	143	144
median	10.5	16.0	22.0	20.2
Sebo5: CV	158	150	198	203
Median	15.0	11.1	7.2	5.5
Bot5: CV	163	182	331	314
Median	10.5	7.5	0.5	0.0

From the data in Table 2 the coefficient of variation (CV) and the median of each combination of shares can be investigated and compared. As a first comparison with Table 1, it is clear that the median of each combination of shares is lower than its mean, which indicates skewness to the right of the distribution of each respective data set. This indicates that there were some extremely high values in each data set, which also confirms that a comparison of the medians is important.

For dividend yield (DY), the CV of the second five (Sec5) appears to be relatively higher than that of the other combinations, which indicates a high relative risk. Although the median of the top five appears somewhat higher than that of the other groups, it is only slightly higher than that of the second last five. For DRP as method of ranking, the CVs of the top five and the bottom five are slightly higher than the other two combinations, indicating higher relative risk. Surprisingly, the median of the second five is higher than that of the top five, but the difference is not substantial.

The earnings yield (EY), as a method of ranking the CV of the top five, is considerable less than that of the other combinations, which indicates a lower relative risk. The median of the top five is also higher than that of the second five, and substantially higher than that of the two other groups of shares, which is favourable for this method of selecting shares. Noteworthy is that the bottom five shares had a median return of only 0.5, while its CV is substantially higher than that of the top five. For ERP the median of the second five is somewhat higher than that of the top five and substantially higher than that of the second last and the bottom five. The CV of the second five, however, is comparable to that of the top five, indicating a relative low risk comparable to that of the second last five and the bottom five.

The conclusion which can be drawn from Table 2 is that the earnings yield (EY) as a method of ranking seems better able to discriminate between shares that have a high median with low relative risk (the top five) and a combination of shares that have a low median and high relative risk (the bottom five). Although the ERP also appears to be capable of discriminating somewhat, the results are not as substantial as that of the earnings yield.

Table 3 reports the results of an analysis of variance (ANOVA), which was performed to determine whether the method of ranking (MET), the position of the groups of five shares each in accordance with this ranking (POSI) or the interaction of method and position (MET\*POSI) had any significant effect on the differences between returns. The decision variable is the p-value in the last column, which can be compared with, for instance, a significance level of 5% or 10%.

**Table 3**  
**Results of an ANOVA performed to determine the impact of method of ranking (MET), position (POSI) or the interaction (MET\*POSI) on return.**

Source of variation	Degrees of freedom	Anova SS	F-value	p-value
MET	3	332	0.07	0.978
POSI	3	12 859	2.56	0.055
MET*POSI	9	8 561	0.57	0.822
Model	15	21 753	0.87	0.600
Error	304	508 088		
Total	319	529 841		

From Table 3 it is clear that neither the method (MET) nor the interaction (MET\*POSI) contributed significantly to any difference in return, which is evident from their high p-values. In contrast, the p-value of position (POSI) indicates a significance level of 10%. This means that the position of the shares in any ranking (on aggregate) contributed most to an explanation of differences between returns on portfolios.

Because a comparison with a benchmark had to be made, the return on the All Shares Index (ALSI) and the Industrial Index (INDI) were chosen for this purpose. Information on these two indices for the period 1979 to 1999 is provided in Table 4.

**Table 4**

### Information on the ALSI and the INDI for the period 1979 to 1999

	ALSI	INDI
Value June 1979	354.3	313.1
Value June 1999	6998.0	7562.0
Compound average return	16.1%	17.3%
Arithmetic average return	19.1%	19.8%
Average dividend yield	4.3%	3.4%
Average return with dividend yield included	23.4%	23.2%

From Table 4 it is clear that the INDI increased from a lower base in 1979 to a higher value in 1999, which is also evident from its higher compound average return (17.3%) than that of the ALSI (16.1%) over the 20 years. The difference between the arithmetic average rates of return of these two indices (19.1% versus 19.8%) was, however, not as much as the difference between the compound average rates of return. The arithmetic average (mean) is the sum of the annual returns divided by the number of years for which it was calculated. Because the average dividend yield for the ALSI was somewhat higher than that of the INDI, the average return with dividend yield included of the ALSI was also slightly higher than that of the INDI. This return of approximately 23% is the benchmark for a comparison of the values obtained in Table 1, where the arithmetic average (and not compound average) of the return on each portfolio was calculated, including the dividend yield.

If Table 1 is examined again, it is clear that no portfolio of shares in accordance with the DY ranking provided a substantially higher return than that of the market indices. For the DRP as a method of ranking, the returns also appear not to be substantially different. The top five and the second five groups of shares according to the ERP method of ranking seem to have outperformed the market by a wide margin. The EY, however, provides the best results in terms of ranking shares of which the Top5 portfolio provided the highest average return (43.5%) versus that of the other portfolios (Sec5: 33.4%, Sebo5: 17.6%, and Bot5: 10.8%).

The following question to be answered is whether the least expensive five shares of the group of 10 with the highest yield provide a higher return than the other five. If it could be true for the dividend yield, could it not perhaps also be true for the earnings yield? Which of these two methods of selection result in portfolios that have the best return?

For each of the 20 years the 10 shares that had the highest dividend yield (DY) were sorted by price and the return on a portfolio of the five least

expensive shares (numbers 1 to 5 according to this ranking) calculated. The same return was calculated if an investment had been made in shares numbers 6 to 10 of this ranking. This procedure was repeated for the earnings yield (EY). To enable a comparison the mean return, standard deviation, coefficient of variation and the median were calculated for each of these four portfolios. The results are given in Table 5.

**Table 5**

**The mean return, standard deviation, coefficient of variation and median of portfolios of five shares each, when sorted by dividend yield (DY) or earnings yield (EY) and then price, for 20 years' data.**

Portfolio	Mean	Std dev	CV	Median
DY and price: shares no 1 to 5	24.1	47.9	199	6.0
DY and price: shares no 6 to 10	26.3	43.3	165	20.5
Average	25.2			
EY and price: shares no 1 to 5	37.3	48.7	130	17.5
EY and price: shares no 6 to 10	39.6	41.9	106	32.0
Average	38.5			

It can be deduced from Table 5 that ranking shares in accordance with EY was again better able to identify shares with the potential for a higher yield during the following year than the DY (mean return 38.5 versus 25.2). The average return for the top five shares across both methods of ranking, which can be calculated from Table 5, was 30.7 and not substantially

different from the comparable figure of 32.9 for the second group of five shares. What is also interesting, is that shares 6 to 10 of the EY and price ranking had a higher mean and median and lower standard deviation and coefficient of variation than the top five of the same ranking of the dividend yield group.

Another analysis of variance (ANOVA) was done (on the data reported in Table 5) to determine whether the method of ranking or the position of the portfolio had a significant impact on return. As a result of most likely the large variation in returns achieved, neither the method (p-value = 0.20) nor the position (p-value = 0.82) had a significant impact on return. When another ANOVA was performed, where the four portfolios were regarded as independent and the return examined, the difference in mean return was also not significant (p-value = 0.63). In conclusion it can be stated that this analysis failed to prove that the five least expensive high-yielding shares provide a higher return than the five more expensive of the ten high yielding shares.

## **7 Conclusions**

From this study it can be concluded that earnings yield (EY) as a ranking method is better able to identify portfolios of shares that have relative higher returns and lower risk than either the dividend yield (DY) method, the dividend reverse procedure (DRP) method or the earnings reverse procedure (ERP) method. The fact that dividend yield has been found to be less valuable in determining which group of shares is most likely to perform the best during the following year, may be the result of various factors. Differences in dividend policies of large companies in South Africa versus those of the United States of America may be the most important of these factors. Where as large companies in the USA appear to be committed to paying a stable dividend with an upward sloping long-term trend, some large South African companies had an unstable dividend policy during some of the years investigated.

It was noticed that some of the companies, newly added to the list of large companies, suspended their dividends in some years. In a following year their share price could increase significantly (perhaps double or even triple) as they resumed paying dividends when profitability improved. This phenomenon affected the results of this study negatively when the price of shares with zero historical dividend yield increased significantly when the companies resumed the payment of dividends.

## **8 Areas for further research**

Various areas that are in need of further research were identified during this study:

- Is it true that the dividend policies of large South African companies differ from those of large American companies?
- On a strategic level, what are the dividend strategies of large South African companies?
- What would have been the performance of portfolios managed in accordance with strategies such as the High Yield 10, the Beat the Dow 5, the Foolish Four or the Reverse Procedure 4 if these were implemented over the 20 years in question?

In this study a holding period of only one year (12 months) was suggested between consecutive portfolio updates. What would the return on the portfolios have been if holding periods of 18 or 24 months were investigated? The DJIA consists of only 30 shares from which shares were selected for different portfolios. If groups of 20, 30, 40 or 50 shares were to be considered for selection, would the size of the selection group have an impact on the return achieved?

In this study, the list of 30 large companies changed from year to year, although not significantly. This is in contrast to the DJIA shares of which only three were replaced once during the course of an 18-year period studied (Knowles & Petty 1992:13). It could be argued that, once a company had reached the list for the first time as a result of an increase in the value of its assets, its share price could have much more downside potential than upside potential. Such a share could be at the temporary peak of some or other long-term cycle, with a possible decrease in its share price over the next year. What would the results have been if the list of 30 large companies included in the study, chosen at a specific point in time, had been kept the same for the period studied?

Is it possible for the small investor to consistently beat the market, as Koch (1997) suggests? The results of this article may contribute towards the ability of both the individual and the institutional investor to achieve a satisfactory return on investments in large companies, but more research is needed.

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