

*Share Selection
Methods used in
“Market Analysis”*

*“Identifying shares with the potential
to outperform the market”*

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Share Selection Methods

Part One

The main reason why the sharemarket “works” so well is that nearly every investor has a different opinion on the future of a particular share. For every investor using a share selection method and seeking to buy shares in a particular company, there has to be an equal number of investors using alternative methods who are seeking to sell.

Quite obviously, many investors - and that includes professional fund managers (who, overall, are unable to “beat the market”) - must be using share selection methods that (overall) don't “work” very well.

Some share selection techniques - for example, buying shares trading on high Price/Sales ratios or on high Price/Earnings ratios - work quite poorly. But there are always enough exceptions (at least over the medium term) that some investors will believe that their favourite “growth” share is worth this high valuation. Usually what happens is that the company grows strongly, but the share price had anticipated most of that growth and appreciates at a lower rate than the market average!

So to invest successfully in the sharemarket it is necessary to *firstly* choose a sensible share selection method. One that is based upon both sound investment *theory* and which has been shown to work in *practice* over a reasonably long period of time.

A chimpanzee throwing darts at the share table in a newspaper once outperformed a professional fund manager. However, despite the chimpanzee's advantage (i.e. competing against a fund manager, not against the market average) it is unlikely to be able to repeat this performance over several time periods. The reporting of this share selection method is also probably biased in favour of this one successful result, as no-one has reported on the performance of other animals (e.g. bulls, bears, stags) that play an important role in the stockmarket.

Secondly, no share selection method will work all of the time. If a method works most of the time or only some of the time (and does no harm at other times), then it could still generate significant, above average profits over the longer term. So once you have chosen the “right” method, it is still necessary to apply that technique consistently over a long period of time, allowing its superior profits to steadily accrue.

For example, “growth” investing “worked” in the 1980's while “value” investing has been better in the 1990's. So, if you tried “value” investing in the 1980's, then switched to “growth” investing” in the 1990's, you will probably be rather disillusioned with the sharemarket! However applying *either* method consistently over both decades would have worked out quite well.

Assuming you started investing sometime in the

last twenty years - and not knowing in advance which method would “work” best in the immediate future - the most consistently reliable results would have been achieved by investing 50% of your portfolio in “growth” shares and 50% in “value” shares over both decades.

Diversifying your investments between shares selected by different “successful” methods is just as important as diversifying between shares of different companies, diversifying internationally and diversifying across time.

A successful share selection method is not about making instant riches. It is about adding a few percentage points to your investment returns - year in and year out. But compounding that little extra annual return over a few decades *will* make you very rich!

What are the “Best” Share Selection Methods

A simple - but valid - share selection criteria would be “indexation”. Indexation involves buying and holding the largest company shares which guarantees achieving a return similar to the market indices (and historically that has been better than owning interest bearing investments).

Other advantages of this method are (1) that it is very simple and requires no investment knowledge or ability, (2) it requires little management time or effort, (3) you don't need to buy a computer or pay for information or investment advice and (4) brokerage costs are extremely low (as shares are seldom sold).

An investor can keep all of the advantages of indexation's “buy and hold” strategy and improve long term expected returns by exploiting the “small company effect”. Instead of owning shares in the very biggest companies, buy a well diversified portfolio of “smaller” and medium sized companies - which offer superior growth prospects and are usually more “under-valued” relative to the largest company shares.

Annual returns from this strategy would vary from that of an “index” portfolio, but overall “smaller” company investments should add an average of an extra 1-3% per annum to your investment returns. This is one of the simplest and most reliable ways to boost your long term investment wealth!

Other research has suggested that the “small company effect” is actually caused by “neglect”. That is, shares that sharebrokers do not follow tend to be under-valued relative to widely followed shares. If you can buy shares that are under-valued then your investment returns will be higher (i.e. if you buy lower your immediate dividend yield will be higher, and your long term capital appreciation will also be greater). “Neglected” shares tend to outperform shares that are widely followed by brokers - *regard-*

less of company size.

In practice “neglected” shares and “smaller” company shares are usually very similar - but “neglected” and “out of favour” large company shares will generally be a better investment than the “popular”, widely followed shares of a smaller company.

Shares “neglected” by institutional investors also tend to perform better than companies that are widely owned. No one has shown *why* this is so, but the reason is probably that institutions are *potential buyers* in the former case and *potential sellers* in the latter case. Shares that are widely owned by institutions tend to be “fairly valued”, while shares that institutions have yet to “discover” are probably relatively under-valued.

Once again, low institutional ownership of a company's shares is highly correlated with broker “neglect” *and* “smaller” company size.

On the other hand, companies where directors and management have large shareholdings tend to perform best. When management has a large stake in the company their interests are closely linked to those of the public shareholders and the company is more likely to be run to maximise shareholder wealth.

When management doesn't have a large shareholding in the company, their personal financial interests (i.e. salaries, bonuses and job security) can conflict directly with the interests of shareholders (i.e. cost reductions, sensible risk taking).

Over the years, numerous studies have shown that “under-valued” shares (i.e. those with low Price/Sales ratios, low Price/Earnings ratios and/or high Dividend Yields) outperform the market average, while “over-valued” shares (i.e. with high P/S ratios, high P/E ratios and/or low Dividend Yields) have under-performed the market.

Other studies have shown that “insiders” (i.e. directors and senior management) have an uncanny ability to buy or sell at the right time. Shares where “insiders” have been buyers, tend to outperform the market over the next 12-18 months, while shares where “insiders” have been sellers tend to under-perform.

Unfortunately, NZ company directors do not need to regularly disclose their buying and selling - as is required in the US, UK and Australia.

“Technical Analysis” covers a range of popular share selection methods - but usually these require *subjective* ability and/or the benefit of hindsight.

One of the few “technical” methods that does work well is “Relative Strength”. Shares with high “relative strength” (i.e. that have risen the most) have historically tended to continue to rise at a slower, but still above average rate in the future. Similarly, the “weakest” shares continue to languish and under-perform.

Another important “technical” factor is that shares with high “volatility” will rise the most during a general sharemarket advance and fall the most during a general sharemarket decline. So volatile shares can be the best investment at least half of the time (and during a general sharemarket decline you are best to be out of the market, earning interest in a bank deposit).

Furthermore, as the loss on any single share investment is limited to a maximum of 100% (if it becomes worthless) while *there is no limit to the maximum gain*, a diversified portfolio of high volatility shares can perform well in all but a sharply falling market. As a simple example, if you own two volatile shares and one doubles over a year (i.e. rises 100%) and one halves (i.e. falls 50%) then your average portfolio gain is +25%. (If you expect these shares to either double or halve in value the next year you will need to re-balance your portfolio so you have equal dollar amounts in each.)

Summary

There are many successful methods for selecting the “best” shares to buy and own. Unfortunately, combining all of these methods into a single, comprehensive share selection criteria - and then formulating a portfolio management strategy based upon that selection criteria - is not a simple task and does require a large input of *subjective* analysis.

Next month that will be the subject of the second part of this article.

Share Selection Methods

Part Two

Last month we discussed a number of share selection techniques (i.e. buying and owning “smaller” or “neglected” shares, “under-valued” shares, shares with the highest price “strength”, etc.) that have each been shown to outperform the market average.

Unfortunately, combining several of these techniques into a *comprehensive* share selection criteria is not a simple task.

Furthermore, once you have decided upon using one or more of the share selection techniques, it is also necessary to develop a “Portfolio Management Strategy” - turning your analysis into actual decisions to “buy”, “hold” and “sell” particular shares.

The Problems of Combining Different Share Selection Methods

There are several “problems” in attempting to combine various share selection methods into a comprehensive share selection criteria.

One major difficulty is that criteria can be correlated. Another is that they can be *uncorrelated*.

Examples of the former (i.e. “correlation”) would include the “small company effect”, sharebroker “neglect” and institutional “neglect”. “Smaller” company shares (as a group, over the medium to long term) outperform the market, shares “neglected” by brokers outperform the market *and* shares “neglected” by institutions (i.e. with low levels of institutional ownership) outperform the market. However, combining these criteria (i.e. “smaller” companies, “neglected” by brokers *and* by institutions) does *not* yield higher investment returns.

The reason? Companies that qualify under one of these criteria will often qualify under the other two. So *each* of these three criteria will select a very similar group of companies - and combining similar criteria adds little to the value of these share selection methods.

Similarly, shares with low Price/Sales ratios tend to outperform the market, as do shares with low Price/Earnings ratios, high Dividend Yields or a low Share Price to Net Asset Backing. Again, however, combining several or all of these criteria will make only a small improvement in these selection methods. All of these statistics measure “under-valuation” and a share that is “under-valued” by one criteria will likely be “under-valued” by most of the others. Combining several “valuation” statistics therefore adds little *additional* information.

An example of the “problem” of *uncorrelated* criteria would be high “relative price strength” and criteria for finding “under-valued” shares (i.e. low Price/Sales ratios, high Dividend Yield). For a share to have *high* relative price strength it must have risen strongly over the last 6-12 months (and that “strength” has a tendency to continue into the future). However, having risen strongly, such shares

are never the *most* “under-valued” on the market.

You cannot, therefore, buy shares that rate in the “top 10%” by price “strength” *and* the “top 10%” by “under-valuation”. Few - if any - shares would ever meet both criteria. The rising price necessary to qualify under the first criteria will remove the extreme of “under-valuation” necessary for the second criteria.

Nevertheless, these two techniques can be profitably combined - by *reversing* one of the criteria! For example, a very successful combined criteria would be to buy the “strongest” shares with a Price/Earnings ratio under 20 and a Price/Sales ratio under 1.00 (i.e. the “strongest” shares, *excluding* those that are already too “over-valued”).

Another very successful way to combine these two criteria would be to buy the shares with the lowest Price/Sales ratio but with a positive strength rating (i.e. the most “under-valued” shares, *excluding* “weak” shares that are declining in price).

“Insider” trading (i.e. buying and selling by directors and senior management) can be a very reliable indicator of future share price performance - but *significant* transactions can be rare. (Note: Directors' transactions are not even reported in NZ - but are in Australia.) One director buying or selling \$10,000 worth of shares is not enough to justify a decision for an investor to buy or sell shares in the company. Several directors each investing a few hundred thousand dollars would be very significant - but this may happen only rarely.

So “insider” trading - by itself - does *not* offer enough investment opportunities to develop a useful share selection method (i.e. it will not offer enough investment opportunities to be able to maintain a properly diversified portfolio). However, “insider” trading information may yield the occasional investment opportunity and can be valuable in choosing between shares that look relatively equal under other selection criteria.

In addition, there is little or no research or information on the *relative importance* of the various selection criteria that we have been discussing. A “neglected” share may be more attractive than a “moderately followed” share, and a share trading on a P/S ratio of 0.25 is more attractive than one on a P/S ratio of 0.80. But is a “neglected” share on a P/S ratio of 0.80 more attractive or less attractive than a “moderately followed” share on a P/S ratio of 0.25? We don't know - and to find out would require a major research project following hundreds or thousands of individual shares over three or four decades. Unfortunately, that historical data just isn't available.

Finally, all of the share selection methods we discussed last month can be evaluated *objectively*. That is, you can measure the criteria with a *number* and rank shares from most attractive to least

attractive - and those criteria can be accurately measured and duplicated in the future or by other investors.

Many factors (e.g. the future "growth" potential of a company or an industry, how that growth will be financed, a company's future cash flow and dividend policy and any "competitive advantage" over current - and future - competitors) do need some consideration, but can only be evaluated *subjectively* by an investor or analyst. In other words, there are some companies that we may choose to avoid even if they scored well on the objective criteria - and similarly some companies that we would tend to favour.

Guidelines for Combining Different Share Selection Methods

Combining different share selection methods requires considerable *subjective* decision making. In the absence of empirical research studies, one must subjectively decide upon the "weighting" of the various techniques (i.e. the *relative* importance of each selection method), the formation of various indicators (e.g. should an "insider" statistic measure the net number of buyers and sellers over the last six *or* the last twelve months, and should those transactions be "weighted" to reflect the dollar value of buys and sells?), and set a "level" at which a share becomes attractive enough to qualify as a "buy" (and unattractive enough to warrant a "sell").

However, sharemarket studies have demonstrated two useful facts that can probably be used as *guidelines* for combining *any* share selection methods:

1. Most indicators "work" across their full range - differentiating between the most attractive shares through to the least attractive shares. So in a combined share selection criteria, individual methods can be used to *include* the most attractive shares (i.e. the "strongest" shares, "undervalued" shares, "neglected" shares, shares being bought by "insiders") *or* to *exclude* the least attractive shares (i.e. the "weakest" shares, "overvalued" shares, "widely-followed" shares, shares that "insiders" are selling).
2. The best combinations consist of *unrelated* selection methods. For example, combining "fundamental" methods (i.e. based upon valuation) with "technical" methods (i.e. relative price strength) offers significantly *higher returns and lower risks* than using just one of these selection techniques.

A *comprehensive* share selection criteria should therefore favour "smaller" companies and/or "neglected" shares, which are "undervalued" (the Price/

Sales ratio has, surprisingly, proven to be the most reliable indicator, followed by the Price/Earnings ratio and then the Dividend Yield) and whose prices are in uptrends (i.e. with high relative price "strength").

Similarly it should generally avoid the very largest companies which are widely followed by sharebrokers, trade at high valuations and where the share price is declining.

Formulating "Buy", "Hold" and "Sell" Criteria

It is easy to formulate a "buy" criteria for any share selection method (i.e. buy the "strongest" shares with P/S ratios of less than 1.00), but to manage a "real money" portfolio in "real time" it is just as important to formulate a "hold" criteria and a "sell" criteria.

Some "tests" of share selection methods assume that a portfolio of perhaps ten or fifty of the most attractive shares are purchased on January 1st of each year. The following year - on January 1st - those shares are sold and replaced with the current most attractive.

This theoretical method involves several real life problems. Firstly, the only reason for this "once per year" review is that the portfolio does not have a "sell" criteria and so more frequent reviews could generate excessive trading and brokerage costs. A major problem with a "once per year" review is that it cannot exploit information in a *timely* fashion. If several directors suddenly started selling large quantities of shares in February then a review of whether or not that share should be sold and replaced will not be made for another eleven months.

In the real world, a "hold" criteria and a "sell" criteria are just as important in a share selection method as the "buy" criteria.

For example, in the original work on "relative strength", each week Robert A Levy ranked shares from "strongest" to "weakest" based upon their return over the previous 26 weeks. A simulated portfolio using a "buy" criteria that a share be in the top 5%, and held until it fell out of the top 70% (i.e. the "sell" criteria), yielded returns 2½ times greater than the stockmarket average.

Next Month

To achieve our goal of formulating a comprehensive Share Selection Criteria we shall next month review some of the important research supporting each share selection method. These studies will form the basis for our subjective selection and "weighting" of the various techniques - and to determine appropriate "buy" and "sell" rules for Portfolio Management.

Share Selection Methods

Part Three

A Review of Historical Research into Share Selection Methods.

The “Small Company Effect”

The “Small Company Effect” - that is, the tendency of “smaller” listed companies to outperform the “market” - was first reported in 1978 by Rolf Banz.

Banz collated data on stocks listed on the New York Stock Exchange from 1931 to 1974. In each of those 43 years he divided the stockmarket into five portfolios based upon the market capitalisation of each company (i.e. the first portfolio “owned” the largest 20% of all listed shares, the last portfolio owned the 20% of companies that were the smallest).

Over the 43 years of this test, Banz found that the portfolio that held the largest companies *under-performed* the market by 1.3% per year, while the “smallest” companies *outperformed* the market by 5.5%.

In 1982, Professors Thomas Cook and Michael Rozeff repeated that testing on over 3000 stocks listed on the NYSE, AMEX and “over the counter” markets between 1968 and 1978. They divided shares into ten groups (based upon each company's stockmarket capitalisation) - and discovered similar results: The largest 10% of companies *under-performed* by 4.2% per year, while the 10% of “smallest” shares *outperformed* by 5.4% per year.

James O'Shaughnessy's recent work (for his book “What Works on Wall Street”) found similar results for the 43 year period from 1951-1994. O'Shaughnessy found that “large stocks” (i.e. approximately the largest 10% of companies) and “mid-cap” stocks (i.e. approximately the second largest 10% of companies) *under-performed* by about 2.7% per year while “micro-cap” stocks (i.e. with capitalisations below US\$25 million, or approximately the “smallest” 30% of listed shares) *outperformed* the market by 10.4% per year!

In “Stocks for the Long Run”, Professor Jeremy Siegel writes that the small company effect “is positive in every country where it has been tested and quite significant in most of them”. However he also notes that this effect “waxes and wanes” over time. For example, much of the excess performance of smaller companies in the US occurred between 1975 and 1983 (when these shares “boomed”) and “smaller” shares can involve higher transaction costs (owing to a wider spread between the bid and offer prices quoted).

Investment Implications: Younger investors (who have a long term investment “horizon” and who can afford to take some extra risk) should invest *part* of their portfolio in some of the “smallest” companies listed on the sharemarket. Older investors (seeking to minimise risk) should aim to invest in shares *below* the top 10-20% by size as these offer better

returns than the very largest listed companies.

Sharebroker “Neglect”, Institutional “Neglect”

The first study of “neglected”, or “unpopular”, shares was published in 1964 by Professor Scott Bauman.

Between 1954 and 1961 he constructed a portfolio of 30 “popular” stocks (being the most widely owned stocks from a survey of 80 large mutual funds) and a “less popular” portfolio of stocks held by only one or two of these funds.

Over the eight year period the “popular” portfolio *under-performed* the market by 2.7% while the “less popular” portfolio *outperformed* by 0.9%.

In 1982, Professor Avner Arbell and Paul Strebel published the results of their study of 500 NYSE listed companies for five years from 1972-1976. They divided these shares into three (approximately equal) groups based upon the number of sharebrokers' analysts preparing profit forecasts.

The group of stocks that was most widely researched was found to have *under-performed* the market by 4.6%, while the group of least researched stocks *outperformed* by 6.5%.

This sample was also broken down by company size to see if the “small company effect” was causing these results. That is, to see if the least researched stocks were of “smaller” companies and if the “smaller company effect” was producing these results.

This showed that “neglect” was dominant over the “small company effect” but also that “neglected” and “smaller” companies yielded the highest investment returns (i.e. the “least researched” among the “smallest” 50% of stocks yielded the highest returns).

A year later these Professors published another study of 510 NYSE, AMEX and “over the counter” stocks over a ten-year period from 1971-1980. Returns were measured based upon market capitalisations and institutional ownership (i.e. the stocks were divided into three groups, with the “neglected” stocks held by only one institution or by none).

The most “widely owned” stocks *under-performed* by 5.8% per year and the “neglected” stocks *outperformed* the market by 5.6% per year.

Splitting the results by size showed that “neglect” dominated the “small firm effect” - suggesting that the “small firm effect” may be *caused* by “neglect”.

Investment Implications: All research into stocks “neglected” by sharebrokers and/or “neglected” by institutions shows superior returns for “neglected” shares and inferior returns by “widely followed” and “widely owned” shares.

All investors should therefore seek to own shares that are “neglected” by brokers and have few (or no) institutional shareholders - while avoiding compa-

nies "followed" by many brokers and where many institutions already hold significant shareholdings.

Large Management Shareholdings

We are not aware of any published research that proves that a large shareholding by management is "good" for the company's investment performance.

However, this idea is intuitively attractive. If management have a large stake in the company, then their interests will co-incide with those of the public minority shareholders.

In addition, the very smallest listed companies tend to have large management shareholdings (and the very largest companies have a negligible percentage of their capital held by management). The positive impact of a large management shareholding *may* therefore be the cause of the superior returns earned by "smaller" companies (i.e. the "small company effect").

Investment Implications: While we cannot quantify the importance of a large management shareholding, we would rather invest in a company where the CEO's financial interest is a million dollar (or ten million dollar) shareholding than a company where the CEO's financial interest is limited to a million dollar salary package.

"Under-valued" Shares

One of the first studies of the Price/Earnings ratio and investment returns was published in 1960 by Francis Nicholson. This study covered 100 large stocks in each of four periods of five-years (i.e. twenty years in total). Stocks were ranked by P/E ratio and divided into five portfolios. Overall the highest P/E ratio portfolio (i.e. the most "over-valued") *under-performed* the market by 1.8% per year while the lowest P/E ratio portfolio (i.e. the most "under-valued") *outperformed* by 4.7% per year.

A study published in 1977 by Professor Sanjoy Basu, covering 1400 stocks for fifteen years from 1956-1971, yielded almost identical results with the high P/E ratio portfolio *under-performing* by 2.8% per year and the lowest P/E portfolio *outperforming* by 4.2% per year.

Later work examining these results broken down by company size revealed that (1) high P/E shares *under-performed regardless of company size* and (2) "small" companies with low P/E ratios *outperformed the market very strongly*.

This result is contradicted in the recent study by James O'Shaughnessy (for the 43 year period from 1951-1994 mentioned previously) which found that a portfolio of the fifty highest P/E stocks - selected from the whole market - *underperformed* by 4.0% per year, but that the portfolio of fifty stocks with the lowest P/E ratios *also under-performed* by 1.3%.

The P/E ratio only "worked" successfully when applied to "larger" companies. Here the portfolio of the highest fifty P/E shares *under-performed* by 2.0% while the portfolio of the fifty lowest P/E shares *outperformed* by 1.9%.

O'Shaughnessy's study suggests that the Divi-

dend Yield is also a valuable selection criteria but *only* when applied to the "larger" companies. This is similar to Michael O'Higgins method (published in "Beating The Dow") of buying the ten highest yielding stocks (or alternatively buying the five lowest priced of these ten highest yield stocks) from the Dow Jones Average of 30 stocks of large companies.

A high yield usually indicates a low share price (as a company is "out of favour" or experiencing some "problems"). Large - and financially strong - companies can survive these "problems" (so are good investments), whereas a "smaller" company experiencing "problems" may well fail.

O'Shaughnessy's study suggests that the Price/Sales ratio is the most reliable "fundamental" statistic. His low P/S ratio portfolio selected from the whole market *outperformed* by 3.0% per year, while the high P/S ratio portfolio *under-performed* by an extremely significant 8.3%!!!

Applied to only "larger" stocks, the low P/S ratio portfolio *outperformed* by 2.3% per year, while the high P/S ratio portfolio *under-performed* by 2.1% per year.

Investment Implications: There are some contradictory results relating to "smaller" companies trading at low Price/Earnings ratios and high Dividend Yields, but the Price/Sales ratio appears to be a very useful statistic - for both "larger" and "smaller" companies.

All investors should seek low P/S, low P/E and high Yielding shares, while avoiding high P/S, high P/E and low Yielding shares.

"Insider" Buying and Selling, Share Re-purchases

Buying by "insiders" (i.e. directors and senior management) and Share Re-purchases (i.e. where a company buys back its own shares on the market) are widely considered to be favourable. Knowledgeable "insiders" are the best placed to know what a share is really worth.

An early study by Professor Shannon Pratt and Charles DeVere monitored 52,000 "insider" trades in 800 NYSE stocks in the seven years from 1960 to 1966. A "buy" signal was considered to have occurred when three "insiders" bought shares within one month, while three sellers within a month constituted a "sell" signal.

Stocks with "insider" buying were found to *out-perform* shares with "insider" selling for up to three years after the "insider" transactions. The "buy" group had risen an average of 59.1%, while the "sell" group was up only 27.1%. The buy group steadily *outperformed* the sell group *throughout the first 24 months* after the "insider" signals - with both groups showing approximately similar rates of appreciation during the third year.

There are two main ways a company can re-purchase its shares:

(1) a Tender Offer - where the company offers to buy a fixed number of shares at an above market price. Shareholders can tender their shares to the company, which can scale back acceptances if investors

offer more shares than it is seeking.

(2) an On-Market Buy-back - where the company instructs its broker to buy back its shares on the sharemarket over a period of time.

Early research on share re-purchasing - a 1980 study by Larry Dann of 143 tender offers between 1962 and 1976, and another 1980 study by Theo Vermaelen of 131 tender offers from 1962 to 1977 - indicated shares subject to buy-backs did not perform well. Immediately that a tender was announced, stocks rose (by an average of 15%), but did not continue to outperform the market during the following 60 days.

A study by *Fortune* in 1985 examined 187 buy-backs from 1974 to 1983. From the end of the month of their buy-back through to December 1983 these stocks *outperformed* the market by 9% per year.

Where the shares were re-purchased in a tender offer the stocks *outperformed* by 6% per year (following the completion of the buy-back), while stocks subject to on-market purchases *outperformed* by 10% per year.

Another magazine, *Forbes*, published a study in 1987 which found that 126 companies re-purchasing their own stock (between 1983 and 1986) *outperformed* the market by an average of 24% (i.e. about 8% per year).

In 1990 Professor Josef Lakonishok and Theo Vermaelen published another study that examined 258 repurchases made between 1962 and 1986 by all listed US companies. On average these companies offered to buy back 17% of their capital, at a 22% premium to the market and around 85% of shares tendered by investors were accepted.

As observed in the earlier studies, the stock price immediately jumped (by an average of 14%) following the announcement of the buy-back, then only equalled the "market" over the next three months. However, *from three months through to 24 months after the buy back was announced the stock outperformed the market by 23%* (i.e. about 13% per year).

The study found that the "smaller" the company, the better the performance during this 3-24 months after the re-purchase announcement. Typically, "smaller" companies' shares had been falling sharply for three years prior to the share re-purchase - and their subsequent two year rally dwarfed that of the shares of "larger" companies!

Investment Implications: "Insider" buying and selling by directors is not disclosed in NZ - but this information is available in Australia. Certainly investors should tend to favour Australian shares where several "insiders" have purchased shares during the last year.

Share re-purchases are relatively rare, but can lead to excellent investment returns over the following couple of years - especially among the very "smallest" companies!

Relative Price Strength

In 1967, Robert Levy published a study of Relative Strength Analysis. Each week for the five years from

1960 to 1965 he ranked 200 NYSE shares by the percentage amount that the current price was above or below its average price for the previous 26 weeks (i.e. he compared the current share price to its "26 week moving average").

A strategy of buying shares in the top 10% and selling when they fell out of the top 80% *outperformed* the market by about 9% per year.

Another strategy - buying shares in the top 5% and selling when they fell from the top 70% - *outperformed* by about 15% per year.

Norman Fosback's 1976 book, "Stock Market Logic", included the results of his research into Relative Strength on over 750 AMEX listed stocks over an eight year period from 1963 to 1971. Fosback calculated a "strength rating" - being the percentage change in a stock's 30-week moving average over the previous thirteen weeks (i.e. the 13-week change in the 30-week moving average).

Ranked by their strength rating, and divided into five equal groups, the "strongest" shares *outperformed* by 5.1% per year, while the "weakest" shares *underperformed* by 5.6% per year.

O'Shaughnessy's recent work (which measured relative strength simply as the percentage change in a stock's price over the previous 12 months) confirms the predictive value of Relative Strength.

The "strongest" shares (from the whole market) *outperformed* by only 1.5% per year, but the "weakest" shares *underperformed* by 10.7% per year.

Selecting from only "larger" companies, the "strongest" shares *outperformed* by 5.1% per year while the "weakest" shares *underperformed* by 2.3% per year.

O'Shaughnessy also found that relative strength *significantly* improved results in multi-factor selection methods.

Investment Implications: There is a tendency for share prices to move in "trends". So investors should generally buy into (and, more importantly, hold onto) shares that are rising in price. Similarly investors should generally avoid buying into companies whose share prices are falling rapidly.

Next Month

Next month, in the final of this series on Share Selection Methods, we shall use the information presented above to subjectively formulate a comprehensive Share Selection Criteria.

Although the selection and weighting of the indicators will require subjective judgement, all of the share selection methods we have discussed involve objective numbers that can be calculated using a formula (e.g. the P/S ratio, or a Relative Strength Rating) or by direct observation (e.g. counting up the number of "insiders" buying or selling over the last year).

Securities Research Company maintains computerised databases of all listed NZ companies and all listed Australian companies, so by writing a program to match the comprehensive share selection criteria we shall be able to produce a selection of possible "buy" candidates and a selection of shares that possibly should be sold.

Share Selection Methods

Part Four

Formulating Comprehensive Share Selection Criteria

Today we formulate the comprehensive share selection criteria based upon the individual share selection methods discussed over recent months. This will provide both “buy” selections and “sell” selections that form the basis of a “Portfolio Management Strategy” (i.e. what to “buy”, what to “sell” and what to “hold” in your investment portfolio).

Unfortunately, it is not possible to formulate one single comprehensive criteria. As explained in Part Two, two of the most successful selection methods (i.e. Relative Strength and fundamentally “under-valued” shares) are *uncorrelated*. Simply ranking shares on each criteria and adding the results will cancel out the success of these two criteria. However, (as previously discussed) these selection methods can be profitably combined.

It is therefore necessary to construct several “buy” criteria and several “sell” criteria that combine the individual share selection methods in different ways.

Combined “Buy” Criteria for NZ Shares

For the NZ sharemarket we have decided upon three combined share selection methods (and reversed two of these for a “sell” criteria).

The first “buy” criteria - based upon “**Value**” - selects the shares with the *lowest Price/Sales Ratios* which also have *positive Relative Price Strength* and which pay a dividend.

This combined criteria selects the most “under-valued” shares that are in long term uptrends.

The second “buy” criteria - based upon “**Performance**” - selects the shares with the *greatest Relative Price Strength* which also trade on a *Price/Earnings ratio of less than 20* and a *Price/Sales ratio of less than 1.0*.

These are the shares that are appreciating most rapidly in price - but which have not yet become too “over-valued”.

[Editor's Note: Relative Strength Ratings can be calculated in many ways - all of which measure the rise or fall of a company's share price over the recent past. One method is to simply calculate the percentage price change over the last six months or the last year. As a share price fluctuates this method leads to large changes in its Strength Rating. “Market Analysis” calculates its Strength Ratings by dividing a company's average share price over the last 40-weeks with the similar 40 week average price 13 weeks earlier (i.e. the 13 week change in the 40 week average price). This calculation *approximates* the percentage change over the last nine months, but provides a relatively stable “rating” without the rapid large changes to the Strength Rating.]

Medium and “smaller” company shares, as well as shares that are “neglected” by Brokers, make the

best long term investments. So from both the Low Price/Sales selection and the Strongest shares selection investors should favour companies with low Market Capitalisations and “neglected” by brokers (i.e. followed by zero to five brokers).

Investors seeking maximum long term capital growth should use the “Value” and “Performance” criteria, giving particular attention to “neglected” shares of “smaller” companies.

The third “buy” selection - based upon “**Income**” and financial stability - selects the shares with the *highest Dividend Yield* from amongst the *larger listed companies*. A high Dividend Yield often indicates that a share is “under-valued”, “out-of-favour” or experiencing some problems. “Smaller” companies are excluded from this selection as they may be unable to survive and recover from any problems. “Larger” companies usually have the financial strength to (1) often maintain their dividend rate during a temporary down-turn and (2) to survive until business conditions improve.

While we have excluded companies with a market capitalisation of under NZ\$100 million (i.e. approximately the bottom half of all NZ listed companies), under this “Income” criteria investors should tend to favour the *larger* companies as well as those with a *low Price/Sales ratio*.

This “Income” selection criteria is most suitable for “low-risk” investors and those requiring a current income (i.e. retired investors).

Combined “Sell” Criteria for NZ Shares

Both the “Value” criteria and the “Performance” criteria described above will also select the least attractive shares which will likely *under-perform the sharemarket*.

Investors should therefore generally sell these shares, freeing up investment money that can be more profitably invested elsewhere.

Our first “sell” criteria is for those shares with the *highest Price/Sales ratios* and which also have *negative Relative Price Strength*. These are the most “over-valued” shares which are also in long term downtrends.

The second “sell” criteria is for shares which have the *lowest Relative Price Strength Ratings* excluding those that trade at a *very low Price/Sales ratio* or a *very high Dividend Yield*. That is, these are the shares in long term downtrends, excluding those shares that may already have become too “under-valued”

Under both of these criteria, large companies (i.e. those with the highest market capitalisation) and those which are widely followed by brokers (i.e. followed by 10 or more brokers) are the least attractive and therefore the shares that should be most readily sold.

The “Income” criteria discussed above (i.e. buy the highest yielding, largest companies) will lead to almost a “buy and hold” portfolio with little turnover. A matching (but necessary) “sell” criteria would be somewhat arbitrary, but we would suggest that a share should be sold if it can be replaced by another that offers a 50% higher dividend yield.

Combined “Buy” Criteria for Australian Shares

For the Australian sharemarket there are four combined share selection methods (and three “sell” criteria).

As with NZ, there are “buy” criteria based upon “**Value**” and “**Performance**”. With Australian companies there is data available on buying and selling by directors - and this “Insider” trading is included in the printout of computer selections.

So, in addition to favouring “smaller” companies and “neglected” shares, investors should favour shares where directors have been buying (and perhaps avoid shares where several directors have been selling).

Australia also has an “**Income**” selection, which is identical to the NZ “Income” selection criteria - except that Australian companies are generally bigger

than NZ companies so we have excluded companies with a market capitalisation of under A\$250 million. We have also excluded Property Trusts which have high income yields and tend to dominate this criteria. “Insider” buying and selling is shown - which should help with share selection.

The fourth “buy” selection for the Australian sharemarket is “**Insider Buying**”. This is a selection of the shares with the *greatest number of “insider” buyers* (less “insider” sellers) over the last twelve months, and which have *positive Relative Price Strength* (i.e. are in long term uptrends). As always, “smaller” and “neglected” shares should generally be favoured.

Combined “Sell” Criteria for Australian Shares

As with NZ, the “Value” and “Performance” selection have an opposite “sell” criteria for the most “over-valued” and the worst performing shares.

Of these shares, the least attractive will also be larger companies, shares followed by nine or more brokers and shares where “insiders” have been selling.

The Australian sharemarket also has a third “sell” criteria based upon “Insider Selling”. This is a selection of the shares with the *greatest number of “insider” sellers* (less “insider” buyers) and with *negative Price Strength* (i.e. in downtrends).

Suggested Reading for Further Information

If you want to find out more about the share selection methods described in the article above then I suggest the following books:

“**Stock Market Logic**” by Norman G Fosback, for Price/Earnings ratios, Volatility, and excellent original research on Relative Strength and using “Insider” trading data.

“**Super Stocks**” by Kenneth L Fisher, who “discovered” and popularised the Price/Sales ratio (which has proven to be the most successful valuation method).

“**What Works on Wall Street**” by James P O'Shaughnessy for a study of P/S ratios, P/E ratios, Dividend Yields, Relative Strength and many other factors.

“**The Encyclopedia of Technical Market Indicators**” by Robert W Colby and Thomas A Meyer for an evaluation of technical indicators. Note: the “Relative Strength” tested in this book is not the relative strength (i.e. price strength *relative to the market*) calculated (using different methods) by Fosback and O'Shaughnessy.

“**Beating the Dow**” by Michael O'Higgins which examines simple methods (like buying shares with high Dividend Yields) that work well.

“**Small Stocks, Big Profits**” by Gerald W Perritt which is an excellent book for summarising the important research on the “small company effect”, broker “neglect” and institutional ownership. Unfortunately, now out of print (and I am out of stock).