Britain’s National Association of Pension Funds has revealed patterns of investment behaviour by UK institutions which provide a defence against accusations that they take a short-term view of shareholdings in major companies. ROGER SELF explains.

Geoff Lindey, chairman of the investment committee of the National Association of Pension Funds (NAPF), has little time for those who accuse institutional investors of “short-termism”. When it is pointed out that between 1983 and 1987 the average period during which a pension fund held a share declined from seven years to two and a half years, he counters that both numbers are incorrect – the result of “an elementary arithmetic error”. Since Lindey is a mathematical science graduate and is a fully qualified actuary, his rebuttal must be seriously considered.

A FALSE IMAGE
Addressing a recent Pensions Management Institute conference, Lindey returned to his theme, stating that, far from being short-termist, pension funds were “patient investors” and as such should become more fully involved in corporate governance matters.

Huw Jones, a director of Prudential Portfolio Managers and chairman of the investment committee of the Association of British Insurers (ABI), suggests that recurrent complaints about investor “short-termism” arise in part from the role of the capital markets in any economy not being understood by critics, adding that many studies of the UK economy have concluded there is no shortage of capital for worthwhile investment by companies. Jones agrees with the NAPF that the institutional investors have a vested interest in promoting high standards of corporate governance.

ACTIVITY RATES
If the concept of corporate governance by institutional shareholders is to be taken seriously, they must dispel their image as short-term investors. In order to do so, statistics must be presented detailing how long institutional shareholders hold on to their shares. Yet how does one measure the average holding period for a portfolio of shares?

The conventional approach is to establish the amount of total dealing (ie, turnover) in excess of the net investment of new money over a stated period. Since this turnover figure includes both sales and purchases, it is divided by two to give a figure for the fund’s activity. The activity figure is then expressed as a percentage of the average capital employed (ie, the mean fund value).

$$\text{Activity rate} = \frac{1}{2} \left( \frac{\text{purchases} + \text{sales} - \text{net investment}}{\text{Mean fund value}} \right) \times 100$$

Once the activity rate has been calculated, then, under the conventional definition, the average holding period can be calculated as the reciprocal of the activity rate. So if the activity rate over the year is 20% (ie, 20/100) then the average holding period is five years (ie, 100/20).

Looking at the statistics presented in the table, we can see the immediate effect of the halving of stamp duty in 1984 with a near-doubling of activity rates. Making use of our conventional measure of holding periods, pension funds have over the decade 1985-94 held on to their shares in UK quoted companies on average for 3.64 years. This may seem an unduly short...
time, especially in historical terms – for example, the average holding period of UK equities by UK pension funds in 1969 was 10 years and in 1965 some 20 years. Yet 3.64 years seems positively loyal when compared to holding periods for overseas equities. UK pension funds currently hold them for an average of only 1.67 years.

**NAPF QUESTIONS**

However, the NAPF does not accept this conventional method of calculating holding periods, Geoff Lindey led the attack last November against charges of excessive “churning” of pension funds. He took as an example the fact that “in 1987, if one ignores cashflows, that half of the average sales and purchases of UK equities of pension funds amounted to 40% of their investment in such securities”. He added that to “some commentators” this would appear that the average holding was indeed 2.5 years – historically a very short period to hold shares. Yet, he maintained, this was not the case.

Lindey explained that in 1987 roughly 10% of the UK equities of pension funds were formally indexed and so were effectively in portfolios permanently. In addition, somewhere between 50% and 60% of the remainder formed a “core” holding. What happened in 1987 was that the periphery of the portfolio, say 30%, was actively dealt.

According to the NAPF’s argument: A pension fund’s UK equity portfolio over the year has a mean value of £100m. The portfolio is managed with the result that in the year 80% of the portfolio has a 10% activity rate and 20% has a 160% activity rate. The conventional calculation proceeds as follows:

- if the activity rate on £80m of UK equities (80% of the portfolio) is 10%, the activity relates to £8m;
- similarly, if the activity rate on £20m of UK equities (20% of the fund) is 160%, the activity relates to £32m;
- total activity relates to £40m, or 40% of the mean value of the whole portfolio. An activity rate of 40% implies an average holding period of 2.5 years.

The NAPF argues that such an approach does not allow for the fact that 80% of the portfolio is being held for 10 years. The NAPF would prefer the average holding period in the above example to be calculated as follows:

- 80% of the portfolio has an activity rate of 10%, giving an average holding period of 10 years;
- 20% of the portfolio has an activity rate of 160%, giving an average holding period of five-eighths of a year;
- the two holding periods are then multiplied by the same percentage as the percentage of the portfolio to which they relate and then added together. That is:

\[
\text{Average holding period} = 8 \times \frac{7}{2} \text{ years.}
\]

In other words, an average holding period can disguise the fact that the bulk of the portfolio is being held for longer than the average period. If institutions are trading at the margin, buying and selling only parts of their holdings, but rarely totally divesting, then the average length of time they remain as shareholders will be substantially longer than inferred by looking at fund activity data. It was for this reason that Professor Paul Marsh of the London Business School has described the use of activity rates to infer average holding periods as “at best a crude approximation, and at worst, misleading”.

**Table 1: Pension funds holdings of UK equities**

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity rate % p.a.</th>
<th>Holding period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>11.5</td>
<td>8.70</td>
</tr>
<tr>
<td>1982</td>
<td>14.5</td>
<td>6.90</td>
</tr>
<tr>
<td>1983</td>
<td>14.5</td>
<td>6.90</td>
</tr>
<tr>
<td>1984</td>
<td>25.5</td>
<td>3.92</td>
</tr>
<tr>
<td>1985</td>
<td>27</td>
<td>3.70</td>
</tr>
<tr>
<td>1986</td>
<td>28</td>
<td>3.57</td>
</tr>
<tr>
<td>1987</td>
<td>40</td>
<td>2.50</td>
</tr>
<tr>
<td>1988</td>
<td>29</td>
<td>3.45</td>
</tr>
<tr>
<td>1989</td>
<td>38.5</td>
<td>2.60</td>
</tr>
<tr>
<td>1990</td>
<td>21</td>
<td>4.76</td>
</tr>
<tr>
<td>1991</td>
<td>21</td>
<td>4.76</td>
</tr>
<tr>
<td>1992</td>
<td>29.5</td>
<td>3.39</td>
</tr>
<tr>
<td>1993</td>
<td>29.5</td>
<td>3.39</td>
</tr>
<tr>
<td>1994</td>
<td>23.5</td>
<td>4.26</td>
</tr>
</tbody>
</table>

Derived from data supplied by the WM Company
Table 2: Holding period mathematics and myths

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive</td>
<td>Active</td>
<td>Passive</td>
</tr>
<tr>
<td>Proportion invested</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Activity rate</td>
<td>30%</td>
<td>0%</td>
</tr>
<tr>
<td>Holding period (yrs)</td>
<td>3.33</td>
<td>0</td>
</tr>
</tbody>
</table>

Arithmetic mean activity rate 30%
Harmonic mean activity rate 30%
Average holding period 3.33 years

The problem is that this alternative method of calculating the average holding period gives an arbitrarily high weighting in the average to that part of the portfolio that is turned over least. Taking another example, suppose 10% of a portfolio had a 1% activity rate. Using the alternative calculation, the average holding period of that fund's whole portfolio could not be less than 10 years no matter what the degree of churning of the remaining 90% of the portfolio.

Dr Nigel Meade, of the Management School, Imperial College, explains that the problem lies in taking averages of activity rates. Instead of taking the arithmetic mean (which is what most people think of as an average), he points out that we should use the harmonic mean — this is the reciprocal of the arithmetic mean of the reciprocals. For example, if we take the example already discussed, the harmonic mean activity rate is

\[
\frac{100}{80 (1/10) + 20 (1/160)} = 12.31\%
\]

This is equivalent to an average holding period of 8.125 years.

In order to show how misleading taking the arithmetic mean of activity rates can be, Meade devised three scenarios with an average (arithmetic mean) activity rate of 30%, which is typical of the values quoted for 1985-94 (Table 2).

The activity rate is useful when describing a single investment, where all the money is moved together as in Scenario 1. Then, a 30% activity rate implies a 3.3-year holding period. As can be seen in Scenarios 2 and 3, averaging activity rates (using the arithmetic mean) does not lead to the average holding period (which the harmonic mean does).

In both these scenarios, 90% or more of the funds are invested for 10 years, while the rest of the money is actively traded. In Scenario 3, however, it is reinvested every 2 1/2 weeks.

In other words, Meade agrees that the NAPF approach is correct. He adds: "You can make either approach produce silly answers by using extreme examples. To make the measure of the holding period less sensitive, one can use the halfway mark, the median, rather than the arithmetic mean. Half of the shares have been held longer than the median holding period, half have been held for less time."

EXAMINING SHARE REGISTERS

Interpretation of activity rates therefore hinges on whether institutions actively trade substantial portions of their underlying holdings during the course of a year, or whether trading takes place at the margins of holdings. Research published by the Investor Relations Society attempts to lift the veil on this aspect of institutional behaviour by examining share registers.1

Using a base sample of 200 institutional holdings, taken from 10 major UK companies (nine of which are in the FT-SE 100), the number of times substantially all of a shareholding was divested was recorded. Assuming the number of total divestments to be constant over time, it is possible to infer the average length of time institutions remained shareholders. This can be worked out by calculating how many years it will take for half the sample to divest their holdings if the current divestment rate continues.

The data for this part of the study were screened for blatant cases of stock-lending, which because they involve registered changes in ownership, are recorded on company share registers. Clear cases of stock-lending were taken to be when an institutional shareholding disappears from a register only to re-appear in similar size the following month.
Out of the 200 institutional shareholdings, the annual divestment rate was 6%—i.e., 12 holdings. Assuming a constant divestment rate, this represents an average holding period of 8.33 years. It is this figure that has given ammunition to the NAPF in its defence against the charge of short-termism.

TRADING AT THE MARGIN
The research also looked at the standard deviation of institutional holdings during the course of a year. This was then expressed as an overall percentage of their average mean holding. In this way, it is possible to state the amount by which institutional holdings varied against their mean during the course of a year, a low percentage indicating little trading activity and a higher figure indicating more active trading.

The research found that while individual fund trading levels varied significantly, on average the institutional shareholdings varied with an average standard deviation of 22%. Making some simplifying assumptions, very broadly speaking, this means two-thirds of the time, in any given year, one would not expect an institutional shareholding to change by more than 22% of its mean.

And 95% of the time one would not expect to see it change by more than 44%. Once liquidity-inspired trading and stock-lending are taken into account, the underlying volatility of shareholdings was probably even less than this.

Interestingly, the research showed that smaller institutional shareholdings were generally more volatile than larger holdings. There were substantial variations in the level of institutional trading activity being reported on different company registers. Differences were also apparent between the various classes of fund, with pension and life funds appearing to take a "longer-term view" and trading less than investment and unit trusts.

The patterns of institutional investor behaviour that emerged from the analysis can be explained intuitively. Institutions will often trade on the basis of new information, liquidity requirements, style or other factors. However, institutions, particularly the large life and pension funds, are subject to real constraints on their trading, including transactional inefficiency, and tax and trust considerations.

Alastair MacDougall, research and consultancy coordinator at the WM Company, commented that his company agreed with the view that pension funds have a considerable portion of their UK equities in strategic "core" holdings, but that these holdings were actively managed as managers take profits or add to their positions. In WM's opinion, such activity was not indicative of "short-termism" but occurred as a result of mis-pricing in the market.

As the NAPF has suggested, the research results could indicate that it is wrong to categorise institutions as short-term shareholders. On most registers there would appear to be a core of large, relatively stable institutional shareholders who infrequently divest their holdings.

The trading that is undertaken by institutions would appear, more often than not, to be conducted at the margins of their holdings.

NOTE

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