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**The Relative Performance of Mutual and Proprietary Life Insurance
Companies in the UK: An Exploratory Study**

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The Relative Performance of Mutual and Proprietary Life Insurance Companies in the UK: An Exploratory Study

Abstract

After discussing the main tenets of stakeholder and agency theory, the paper provides an exploratory empirical study of the relative performance of mutual and proprietary life insurance companies in the UK during the period 1995-96. The mutual companies included in the sample performed well relative to the proprietary companies in terms of their overall financial strength, annual surpluses and investment earnings. While the mutuals had slightly higher expense ratios than the proprietary companies, they were relatively more cost efficient and operated with potential economies of scale. There is also evidence that fund managers in mutuals perform at least as well on average as those in proprietary companies.

1. Introduction

The purpose of this paper is to consider the governance structures and relative efficiency of proprietary and mutual companies in the UK life insurance industry. The paper will present the findings of an exploratory empirical study that compares the relative performance of the two organisational forms. While the paper is essentially concerned with the UK life insurance industry, the results may be viewed as generic in nature. Issues of organisational form are of importance in other financial services industries and therefore the findings of this paper will add to the knowledge and understanding of the relationship between organisational form and efficiency in all financial markets.

The ownership and organisational structure of proprietary companies is different to that of mutual companies. Proprietary companies are owned by shareholders and are therefore constrained by the requirement, applicable to all shareholder owned companies, of maximising shareholder wealth. Mutual companies are owned by the fund-holders, the customers of the company. The debate on efficiency in the life insurance industry must therefore be conducted in the context of an understanding of the relative stake-holdings and ownership underpinning both types of companies.

The paper is structured as follows. In section 2, a brief theoretical underpinning is provided. Section 3 reviews previous comparative studies. Section 4 consists of the exploratory empirical study of the performance of mutual and proprietary life insurers in the UK. The paper ends with a brief conclusion in section 5.

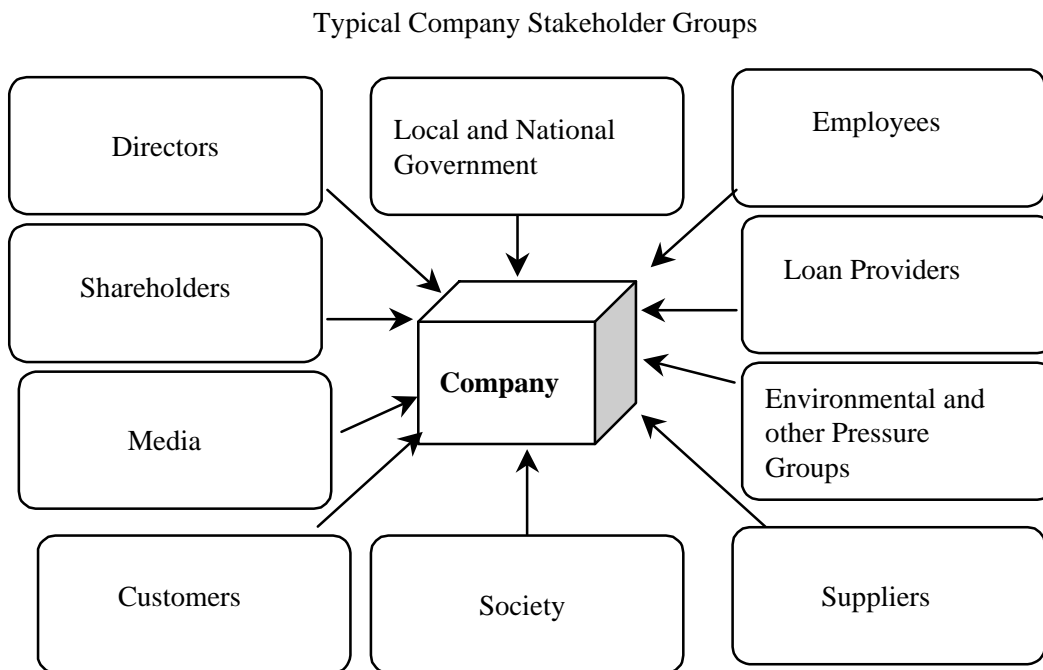
2. Ownership and stakeholder theory

There are several variants of stakeholder theory. However, for the purposes of this paper, a brief review of stakeholder theory as originally developed by the Stanford Research Institute (SRI) in the early 1960s will be given. The theory will then be applied to the life insurance industry.

The basic stakeholder proposition, as presented by Stanford Research Institute (SRI), is quite simply “. . . those groups without whose support the organisation would cease to exist” (SRI, 1963) (Freeman, 1984).

The theory is presented diagrammatically in Figure 1.

Figure 1 Stakeholder theory relationships



From Stanford University

Stakeholder theory does not attempt to place stakeholders in any order of importance. However, under the Anglo-Saxon market economy model,¹ shareholders are perceived as of premier importance and consequently for proprietary companies maximisation of shareholder wealth is the major aim. However, in order to deliver maximisation of shareholder wealth proprietary companies must maintain competitive advantage and therefore must take customers, that is fund-holders, needs into account which is likely to be in the form of providing a satisfactory return. In theory, proprietary companies will maximise shareholder wealth while satisfying fund-holders. In the case of mutual companies customers are also members (owners) and therefore form a dual stakeholder group. The requirements on managers are more clearly focused than for proprietary companies: to maximise returns to fund-holders. For both proprietary companies and mutual companies two aspects of performance are critical; the performance of the fund manager and efficiency, that is operating the company with as low a cost base as possible. In both cases the efficiency of managers, the agents of the shareholders or fund-holders, is core to the performance of the company and the next section goes on to consider aspects of principal/agent theory.

Agency Theory

The key issue for most economists is efficiency. Such a view is most vividly illustrated by the fundamental economic theory of the firm, namely perfect competition.

¹ The Anglo-Saxon model refers to the version of market economics adopted by the Anglophone countries, for example, the UK and the USA.

Given the assumptions of the model, firms are driven to behave in an optimal and singular objective that can be best described as profit maximisation. However, when control of the firm resides in the hands of individuals who are not the owners, then the assumption of profit maximising behaviour and subsequent efficiency has to be addressed.

In this vein, Jensen and Meckling (1976) developed the theoretical framework of agency to pin point the efficiency costs associated with the separation of firm ownership and control. While these costs would appear to be significant, Fama and Jensen (1983) made the case that separation of ownership and control also has its own organisational enhancing efficiency characteristics through a specialisation of roles and responsibilities. While separating firm ownership from firm control may be efficient it unfortunately enables management to subvert the interests and objectives of owners for its own set of goals. In the case of the life insurance industry, where there are both mutual and proprietary companies, the critical issue in relation to the agency problem is whether the degree of corporate control over the agents is greater in proprietary companies than mutual companies due to financial market pressures exerted by shareholders. Some researchers, including Macho-Stadler and Perez-Castrillo (1997), have concluded that in order to maintain the all-important pursuit of efficiency, it is essential to recognise that managers of firms should be directed to undertake activities which are in the best interests of themselves as well the firm's owners, that is goal congruence.

Agency theory purports to offer an efficient solution to this problem by suggesting that agents should be offered incentives to work in the interest of the owners,

or more correctly the principals. If the agents do not act in the interests of the principals then they will be unlikely to earn the offered incentives. As long as the manager or agent finds it preferable to work in pursuit of the principal's interests and receive the incentives on offer, rather than work in pursuit of their own objectives and receive no incentives, then the solution will be efficiency enhancing.

In consequence, observers have taken the insights of agency theory and argued that in order to improve firm efficiency, senior managers should be offered incentive pay. More commonly it was believed that Chief Executive Officers, CEO should have their remuneration linked to the firm's financial performance. However, despite these beliefs only weak empirical support has been found in both the US and UK (Jensen and Murphy, 1990). The results of Jensen and Murphy (1990a) were so weak that they invoked a note of defeat with it being argued that the “. . . results are inconsistent with the implications of formal agency models of optimal contracting” and a suggestion that agency theory should be integrated with other paradigms in order to explain the determination of CEO pay.

Following Macho-Stadler and Perez-Castrillo (1997) it can be shown that the agency problem to be solved can be specified in the following way:

$$\text{Max } \sum_{i=1}^n [ep_i^H + (1-e)p_i^L] (x_i - w(x_i)) \quad (1)$$

$$\text{s.t. } \sum_{i=1}^n [ep_i^H + (1-e)p_i^L] \mu(w(x_i)) - v(e) \geq \underline{U} \quad (2)$$

Where:

e is the agent's effort.

x is the outcome from the agent's effort.

$W(x)$ is the wage paid to the agent conditional on an outcome of x .

$P^{H,L}$ is the probability of the agent's action creating a high or low outcome in x .

\underline{U} is the agent's reservation level of utility

(1) is the principal's utility function

(2) is the participation constraint

An underlying tenet of principal-agent models is the need to maximise both the principal and the agent's utility whilst recognising the opposing nature of both. In consequence, an understanding of the optimal solution to the contractual problem can be gained by analysing the utility functions for both the agent and the principal.

3. Previous comparative studies of mutual and proprietary life insurance companies

There are two main ways of testing whether mutual and proprietary life insurance companies are equally efficient in terms of their cost management and production activities. The first is to estimate a cost or production function for a sample of companies and include a dummy variable (for example, with a value of zero for mutuals and one for proprietary companies) as an explanatory variable in the model. The estimated coefficient of this dummy variable can then be tested for significance and estimates of average cost and other cost efficiency measures can be calculated for the two forms of organisation. The second way is to estimate separate cost or production functions for mutual companies and proprietary companies and then use some cost and error structure tests to investigate whether one form is more efficient than the other.

In a recent study of cost efficiency in the UK life insurance industry (see Hardwick, 1997), an organisational form dummy variable was included among the explanatory variables in a translog multiproduct cost frontier, estimated using data for a sample of 54 companies over the period 1989-93. The study found that the dummy variable did have a significant influence on total cost, and the results further suggested that the mutual companies were more cost efficient than the proprietary companies (although the difference was not statistically significant at the five per cent level).

In an attempt to overcome the main disadvantage of the dummy variable approach (which only allows organisational form to affect the cost structure linearly), Gardner and Grace (1994) estimated separate (hybrid translog) multiproduct cost functions for mutual and proprietary companies, using data for 586 firms operating in the US life insurance market during 1985-91. They found that proprietary and mutual companies do have distinctive cost structures. The results also suggested that on average the mutual companies were more X-efficient than the proprietary companies, although the evidence indicated that the proprietary companies were more scale-efficient than the mutuals.

In more recent studies (see Adams and Hardwick, 1999 and Hardwick and Adams, 1999), organisational form dummy variables were included in investigations into: (a) the determination of the end-of-year 'surplus' reported by UK life insurance companies, and (b) the use of financial derivatives by UK life insurance companies. The results of the first study suggested that mutual companies on average report higher end-of-year surpluses than proprietary companies (with similar premium income size, leverage and output mix). The second study found that mutual companies have a greater

propensity to use derivatives (mainly as hedging instruments) than proprietary companies. However, it was also found that, among those companies that did hold derivatives, the proprietary companies on average had larger holdings than the mutual companies.

Thus, existing evidence suggests that mutual life insurance companies are more cost-efficient than proprietary life insurance companies. The evidence also supports the view that mutuals tend to report higher end-of-year surpluses and are more inclined to hold financial derivatives as part of their risk management activities. Does this mean that mutuals in general perform better than proprietary companies? In the next two sections, we attempt to answer this question by examining a selection of performance indicators for a sample of UK mutual and proprietary life insurers in the period 1995-6.

4. Comparing the performance of mutual and proprietary life insurers

The data

To investigate the relative performance of mutual and proprietary life insurance companies in the UK, data was collected for a sample of 20 mutual companies and 27 proprietary companies over the two years, 1995 and 1996, making 94 data points in all. The accounting statistics used in the study were all collected from the Thesys database, which summarises the returns made by all UK life insurers to the Department of Trade and Industry. Data on organisational form were extracted from the Insurance Post Green Book.

Company size and financial strength

The companies included in the sample varied greatly in size. The overall average size of company was just under £7 billion in terms of assets and just over £630 million in terms of premium income. As shown in Table 1, the mutual companies in the sample are larger on average than the proprietary companies, though the mutuals have greater size dispersion. In fact, the smallest company in the sample is a mutual (Cuna Mutual with assets of just over £3 million), while the largest company in the sample is proprietary (the Prudential with assets of more than £42 billion). The free asset ratio (calculated by

Table 1 Comparing mutual and proprietary companies – size and financial strength of the sample companies

	<i>Mutual companies</i>	<i>Proprietary companies</i>
<i>Premium income size (£000)</i>		
<i>Mean</i>	676,906	597,227
<i>Standard deviation</i>	(920,087)	(759,132)
<i>Asset size (£000)</i>		
<i>Mean</i>	8,080,786	6,190,298
<i>Standard deviation</i>	(10,221,307)	(8,445,656)
<i>Free asset ratio (%)</i>		
<i>Mean</i>	16.5	12.3
<i>Standard deviation</i>	(12.5)	(8.9)

expressing the value of free, or available, assets as a percentage of total admissible assets) is also shown in Table 1. The free asset ratio may be used as a proxy for a company's 'financial strength', as free assets represent the amount of capital available each year to finance new business, develop new products and purchase new technology, etc. Surprisingly, the mutual companies in the sample in 1995-96 exhibited superior financial strength, though the difference between the two mean free asset ratios is not statistically significant at the 5 per cent level ($t = 1.78$).

Product mix

The companies in the sample all produce and sell life insurance policies and the majority also produce and sell pensions and permanent health insurance policies. Most companies also offer a mixture of 'linked' and 'unlinked' business.

To test for similar product mixes for mutual and proprietary companies, we first calculated an index of diversification. To do this, each company's premium income from each of the three main lines of business (*i.e.* life insurance, pensions and permanent health insurance) was expressed as a share (S_j) of total premium income. For each company, the index of diversification (ID) was then calculated as:

$$ID = \sum_{j=1}^3 S_j^2$$

This measure will vary between 1 for the most specialised company and 0.33 for the most diversified. *A priori* one might expect that a proprietary company, with the aim of maximising shareholder value, would be interested in offering a more limited range of products in order to gain efficiencies in administration costs. Mutual companies, which have a stated aim of providing 'service to customers', are likely to be interested in

offering a wider range of products, possibly creating higher expense ratios. The results are shown in Table 2 where the mutual companies are indeed found to be more diversified, although the difference is not statistically significant at the 5 per cent level. The proportion of linked to total new business (measured first in terms of premium income and secondly in terms of the number of contracts) was also calculated. The results show that proprietary companies produce significantly more linked business than mutuals. In fact, in 1995-96, more than half of all new business (60 per cent of new business premium income and 54 per cent of new contracts) was linked. For mutuals, only about a quarter of new business was linked (29 per cent of new business premium income and 24 per cent of new contracts).

End-of-year surplus and investment income

The surplus reported each year by life insurance companies is the actuarial valuation of assets over long-term liabilities and represents the amount available for paying bonuses to policyholders and/or reducing premiums. As shown in Table 3, the average value of the surplus reported by the mutual companies in our sample was significantly greater than that reported by the proprietary companies. More importantly, the surplus to premium ratio was also higher, with the mean surplus equal to almost half of premium income in the case of mutual companies, but less than a quarter in the case of proprietary companies. This difference is highly significant at the 5 per cent level ($t = 5.01$).

Investment income is an important source of revenue for all life insurance companies because the cash inflow from investments can be used, at least in part, to pay

Table 2 Comparing mutual and proprietary companies – product mix

	<i>Mutual companies</i>	<i>Proprietary companies</i>
<i>Index of diversification</i>		
<i>Mean</i>	0.79	0.87
<i>Standard deviation</i>	(0.54)	(0.81)
<i>Linked new business ratio (premiums)</i>		
<i>Mean</i>	0.29	0.60
<i>Standard deviation</i>	(0.30)	(0.32)
<i>Linked new business ratio (contracts)</i>		
<i>Mean</i>	0.24	0.54
<i>Standard deviation</i>	(0.26)	(0.32)

Table 3 Comparing mutual and proprietary companies – end-of-year surplus

	<i>Mutual companies</i>	<i>Proprietary companies</i>
<i>Surplus (£000)</i>		
<i>Mean</i>	252,519	160,240
<i>Standard deviation</i>	(319,220)	(314,675)
 <i>Surplus / premium ratio</i>		
<i>Mean</i>	0.47	0.22
<i>Standard deviation</i>	(0.45)	(0.22)

Table 4 Comparing mutual and proprietary companies – investment income

	<i>Mutual companies</i>	<i>Proprietary companies</i>
<i>Investment income (£000)</i>		
<i>Mean</i>	422,581	289,328
<i>Standard deviation</i>	(580,040)	(388,425)
 <i>Investment income / premium ratio</i>		
<i>Mean</i>	0.71	0.61
<i>Standard deviation</i>	(0.37)	(0.42)

for annual expenditures without resorting to the sale of underlying assets. As shown in Table 4, the mutual companies in our sample outperformed the proprietary companies during the period 1995-96 in this area too. Expressing investment income as a proportion of premium income gives a ratio of 0.71 for mutuals, but only 0.61 for the proprietary companies, though this difference is actually not significant at the 5 per cent level ($t = 1.22$).

Thus, if the end-of-year surplus and annual investment income can be regarded as acceptable performance indicators, there is a reasonable amount of evidence to suggest that in 1995-96 mutual life insurers outperformed proprietary life insurers in these areas.

Expense ratios and the size-efficiency relationship

The comparison of expense ratios shown in Table 5 tends to favour the proprietary companies in the sample. The expense ratios are calculated by expressing total management expenses as a percentage of premium income. While the mutual companies in the sample had a mean expense ratio of 26.5 per cent, the figure for the proprietary companies was only 23.9 per cent, though this difference is not statistically

Table 5 Comparing mutual and proprietary companies – expense ratios

	<i>Mutual companies</i>	<i>Proprietary companies</i>
<i>Expense ratio (%)</i>		
<i>Mean</i>	26.5	23.9
<i>Standard deviation</i>	(16.4)	(11.0)

significant at the 5 per cent level ($t = 0.87$). Proprietary companies may have lower expense ratios partly because of the greater corporate control exerted on managers by shareholders, and partly because of their less diversified product structures.

To investigate the link between expenses and the premium income of life insurance companies, the size-efficiency relationship was estimated separately for the mutual and proprietary companies in the sample using regression analysis. To do this, the natural logarithm of total management expenses ($\ln EXP$) was regressed on the natural logarithm of premium income ($\ln PREM$) and the square of $\ln PREM$, using ordinary least squares. The regression results are shown in Table 6. The estimated equations fit the data well and the results are remarkably similar for the two data sets, although a Chow test does allow us (just) to reject the hypothesis that the two samples are taken from the same population. In other words, we have some evidence that mutual and proprietary life insurance companies have (slightly) different cost structures.

Using the regression estimates to calculate mean average cost for the two groups confirmed that the proprietary companies had lower average costs than the mutuals (as indicated by the expense ratios in Table 5). However, when we used the regression residuals to estimate measures of cost efficiency, the mutual companies were found to be more cost efficient than the proprietary companies. The term ‘cost efficiency’ in this context refers to technical and allocative efficiency, rather than scale efficiency. Consequently, the index of cost efficiency reported in Table 6 is based on the deviation of each firm’s actual cost from the *minimum* cost for that size of firm, as indicated by the estimated cost frontier. The cost efficiency of, say, firm 1 producing an output of y_1 may

Table 6 Comparing mutual and proprietary companies – the size-efficiency relationship

Mutual companies

$$\ln EXP = -0.13 + 1.04 \ln PREM + 0.012 (\ln PREM)^2$$

(-0.10) (4.34) (-1.1)

*Adjusted R*² = 0.94
F statistic = 315.9

Proprietary companies

$$\ln EXP = -1.00 + 1.03 \ln PREM + 0.006 (\ln PREM)^2$$

(-0.55) (3.25) (-0.44)

*Adjusted R*² = 0.95
F statistic = 488.1

Chow Test *F* = 2.74 (*Critical value* = 2.72)

	<i>Mutual companies</i>	<i>Proprietary companies</i>
<i>Index of cost efficiency (%)</i>		
<i>Mean</i>	66.8	62.4
<i>Standard deviation</i>	(30.3)	(23.1)
<i>Fitted average cost</i>		
<i>Mean</i>	0.26	0.22
<i>Standard deviation</i>	(0.14)	(0.04)
<i>Economies of scale</i>		
<i>Mean</i>	0.75	0.88
<i>Standard deviation</i>	(0.05)	(0.02)

be calculated as \hat{C}_1/C_1 , where \hat{C}_1 is the (fitted) minimum cost for a firm producing y_1 and C_1 is the actual cost for firm 1. The mutual companies in the sample were found to be on average 66.8% cost efficient, while the proprietary companies were found to be only 62.4% cost efficient.

Lower average costs for proprietary companies together with greater cost efficiency for mutual companies suggests that the proprietary companies were on average more *scale* efficient. This is confirmed by the estimates of economies of scale reported in Table 6. These results suggest that on average a 10 per cent rise in premium income could be achieved with only a 7.5 per cent rise in expenses for mutual companies, but with an 8.8 per cent rise in expenses for proprietary companies.

Fund performance

While we were unable to obtain figures to compare the performance of fund managers in mutual and proprietary companies, we were able to examine the top performers in a variety of categories, as ranked by Standard and Poor and published in *Money Management* in March 1999. The ‘top ten’ from these league tables are reproduced in Table 7. In the ‘life fund’ tables, 32 separate companies occupy the top ten places in the six categories. Of these, 14 are mutual companies and 18 are proprietary companies, of which four are bancassurers. Thus, although only about a quarter of all life offices are mutuals, 44 per cent of the 32 best-performing fund management teams are mutuals. In the ‘pension fund’ tables, 10 out 35 best performers are mutuals. Clearly, these league tables are not sufficient for us to conclude that mutual companies have better

Table 7 Comparing mutual and proprietary companies – fund managers’ league tables

LIFE FUNDS – TOP TEN

Smaller qualifying group

<i>One year performance</i>	<i>Five year performance</i>	<i>Ten year performance</i>
NFU Mutual	Generali	Generali
Abbey National Life	Abbey National Life	Reliance Mutual
Barclays Life	NFU Mutual	Scottish Widows
Royal London	Royal London	Royal Liver
Zurich Life	Save and Prosper	Zurich Life
Midland Life	Barclays Life	Save and Prosper
Scottish Friendly	Family Assurance	National Provident
Royal Liver	Winterthur Life	Merchant Investors
Hambro Assured	Midland Life	Midland Life
Save and Prosper	Scottish Widows	Scottish Amicable

Larger qualifying group

<i>One year performance</i>	<i>Five year performance</i>	<i>Ten year performance</i>
Friends Provident	Royal and Sun Alliance	Scottish Equitable
Guardian	MGM	Scottish Life
Eagle Star	Scottish Equitable	Clerical/Fidelity
Britannia Life	Norwich Union	AXA
Scottish Life	Royal Scottish	Royal and Sun Alliance
Lloyds TSB	Clerical/Fidelity	Merchant Investors
Royal Scottish	Friends Provident	Prudential
Clerical/Fidelity	Guardian	Standard Life
Royal and Sun Alliance	AXA	Equitable Life
CGU	Legal and General	Friends Provident

PENSION FUNDS – TOP TEN

Smaller qualifying group

<i>One year performance</i>	<i>Five year performance</i>	<i>Ten year performance</i>
Abbey National Life	Royal and Sun Alliance	Royal and Sun Alliance
Barclays Life	Generali	London and Manchester
Swiss Life	Abbey National Life	NFU Mutual
NFU Mutual	NFU Mutual	Colonial Pensions
Alliance and Leicester	Britannia Life	Royal London
Royal London	Medical Sickness	National Mutual Life
Family Assurance	Swiss Life	Britannia Life
Lloyds TSB	Barclays Life	National Provident
Hambro Assured	National Provident	Allied Dunbar
National Mutual	Royal London	Generali

Larger qualifying group

<i>One year performance</i>	<i>Five year performance</i>	<i>Ten year performance</i>
Britannia Life	Professional Life	Legal and General
Royal and Sun Alliance	MGM	Abbey Life
Eagle Star	Friends Provident	Norwich Union
CGU	London and Manchester	Gartmore
National Provident	Royal Scottish	Friends Provident
Friends Provident	AXA	Skandia Linked
Royal Scottish	Legal and General	Merchant Investors
Norwich Union	Norwich Union	CGU
Fleming Life	Mercury	Merchant Investors Linked
Legal and General	Standard Life	Scottish Equitable

fund managers than proprietary companies. But there is certainly no evidence that the fund managers in mutuals under-perform.

5. Conclusion

In the UK life insurance market, about a quarter of all companies are mutual. On average, these mutual companies are of large size, but size is widely dispersed. In our sample, the smallest mutual company had assets of only £3 million in the mid-1990s, while the largest (Standard Life) had assets in excess of £40 billion. We have found that the mutuals included in our sample performed well relative to proprietary companies in terms of their overall financial strength, annual surpluses and investment earnings. While the mutuals had slightly higher expense ratios than the proprietary companies, they were relatively more cost efficient and operated with potential economies of scale. There is also evidence that fund managers in mutuals perform at least as well on average as those in proprietary companies. Overall, we have found no evidence to support the view that agency problems adversely affect the performance of mutual life insurance companies in the UK.

In fact, Murray (1999) has indicated that mutual life offices have a major potential competitive edge over proprietary companies. They are “ideally positioned in that they are owned by their members (*i.e.* policyholders), for the members, with all distributed profits being shared among the members. It is a great message, but has never been capitalised on.” Making a comparison with UK building societies, he points out that “those societies which have stayed loyal to their mutual roots now push that message

hard. . . . Imagine if some of the life offices could repeat the feat!” Whether they are able to “repeat the feat” or not, it would seem that mutual companies are likely to have a successful future in the UK life insurance market.

References

- Adams, M. and P. Hardwick, "Actuarial Surplus Determination in Life Insurance Firms: United Kingdom Evidence" submitted to the *Journal of Risk and Insurance*, March 1999.
- Fama, E.F and Jensen, M.C, "Separation of Ownership and Control", *Journal of Law and Economics*, Vol 26, 1983.
- Freeman, R.E., *Strategic Management: A Stakeholder Approach*, Pitman, 1984
- Gardner, L. and M. Grace, "Efficiency Comparisons Between Mutual and Stock Life Insurance Companies", paper presented to the Geneva Association Conference, Rotterdam, 1994.
- Hardwick, P. "Measuring the Cost Efficiency in the UK Life Insurance Industry", *Applied Financial Economics*, vol 7, 1997.
- Hardwick, P. and M. Adams, "The Determinants of Financial Derivatives Use in the United Kingdom Life Insurance Industry", *Abacus*, vol 35, no 2, 1999.
- Insurance Post Green Book*, 1998.
- Jensen, M.C and Meckling, W., "Theory of the Firm: Managerial Behaviour, Agency Costs and Capital Structure", *Journal of Financial Economics*, Vol 3, 1976, pp 305-360.
- Jensen, M.C. and Murphy, K.J, "Performance Pay and Top Management Incentives", *Journal of Political Economy*, Vol 98 1990.
- Macho-Stadler I and Perez-Castrillo D., *An introduction to the economics of information, incentives and contracts*, Oxford University Press, Oxford, 1997.
- Money Management*, March 1999 (Standard and Poor Tables).
- Murray, D. "Mutual Life Offices: Still Something to Celebrate?" *Money Management*, March 1999.
- .