Did life and pensions “disclosure” work as expected?

Peter Andrews  
UK Financial Services Authority

April 2009
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Did life and pensions “disclosure” work as expected?

Peter Andrews
FSA Occasional Paper

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Biographical note

Peter Andrews is Head of the Economics of Financial Regulation Department in the Strategy and Risk Division of the FSA.

Timing

This paper was prepared in 2004. Minor updates have added to facilitate its publication in 2009.

Acknowledgements

I am grateful to an anonymous referee, participants in a seminar at the Central Planning Bureau of the Netherlands, John Cubbin, Chris O’Brien and colleagues and former colleagues at the FSA including Isaac Alfon, Maria Jose Barbero, Patricia Bascunana Ambros, Paolo Cadoni, Malcolm Cook, Stuart Hicks, Kevin James, Chris Pullan, Grazia Rapisarda, Qun Harris, Kai Kohlberger, Andrew Sykes, Dan Waters and, especially, Isabel Argimon for challenging and encouraging me throughout this work. All errors and omissions are the sole responsibility of the author.
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Abstract

Regulations introduced under the Financial Services Act 1986 required that consumers be given standardised information about the price of life and pensions investment products. This was deemed by the Office of Fair Trading to be anti-competitive. Consequently, new regulations required product-specific price information to be disclosed from 1995.

A cost-benefit analysis of the proposed new disclosures held that they would cause consumers to shop around more, leading to substantial benefits. But the regulators did not subsequently gather hard evidence about whether consumers did shop around more.

A literature review showed that little academic work has been done directly on this topic. Various papers give insights into how consumers might have reacted to product-specific price disclosure but no clear indication of whether a material change in consumer behaviour should be expected.\(^1\)

It is argued that material, additional shopping around by consumers would affect some firms’ cost functions. The ratio of sales to meetings between consumers and firms which provide products would fall. This would be reflected in an increase in the ratio of business acquisition expenses to new business for firms which themselves deal directly with consumers or which deal with consumers through tied agents. (Together, these firms are referred to here as operating in the tied sales channel.)

Some other firms sell their products through Independent Financial Advisers (IFAs). It is argued that any additional shopping around by consumers would increase costs more in the tied sales channel than in the IFA sales channel. IFAs already shopped around on behalf of their customers. They might even find it easier to do so in the presence of the new disclosures. (This might in turn reduce their demands on firms operating in the IFA

\(^{1}\) This continues to be an important topic from a policy perspective since disclosure remains an important part of the FSA’s regime of retail regulation. Indeed the FSA continues to favour disclosure in the form of the ‘Reduction in Yield’ (RIY) that is assessed here, whereas the standard set in the relevant European directive is the (easily manipulable) ‘Total Expense Ratio’.
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sales channel. Any such effect might be small but it would in principle be reflected in a
decrease in the ratio of business acquisition expenses to new business of these firms.)

It is emphasised that the variable of interest is the change in acquisition expenses in the
tied sales channel relative to the change in acquisition expenses in the IFA sales channel.
One might expect factors other than shopping around also to be changing the outright
level of expenses in all firms (even after controlling for changes in the types and levels of
new business written) but this is not the focus of the research reported here.

A panel of data was taken from Synthesys Life. This covered the period 1993 (before
disclosure) to 1995 (after disclosure). Regression analysis showed that, after
disclosure, expenses incurred on acquiring non-pensions business increased in the tied
sales channel relative to the IFA sales channel. This was not the case for pensions
business, which may be due to firms’ reactions to pensions mis-selling.

Explanations for the econometric results, other than increased shopping around, were
sought but not found. If anything, market developments may have masked the effect
of increased shopping around on the expenses of firms in the tied sales channel.

It is concluded that after disclosure some consumers did indeed shop around more, at
least in the period covered by the data. Given the state of competition in the relevant
market, this suggests that the disclosure regime which, substantially, continues to be
operated by the FSA, produced benefits. One argument for benefits is that consumers
who shop around are likely to increase the efficiency of their consumption. Another
argument for benefits is that, in response to shopping around, firms are likely to seek
to improve their offerings. This could be by setting prices closer to marginal cost,
thereby improving allocative efficiency. Equally, it could be by improving quality for a
given price. In both cases, firms are more likely in consequence to seek to improve the
efficiency of their production. The evidence adduced here, however, is indirect: due to
data constraints, inferences about demand-side behaviour have been drawn from
supply-side statistics.
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1. Introduction

‘You can lead a horse to water but you cannot make it drink.’ Or can you? This is an investigation into whether consumers of life and pensions investment products passively received the new, product-specific information that from 1 January 1995 regulators required to be supplied or whether they acted upon it by shopping around.²

Reliable data about the number of sales staff employed by firms supplying life and pensions products at the relevant times are not available. Reliable data on the number of suppliers visited by individual consumers are also not available. It will therefore be necessary to draw inferences about any increase in shopping around from changes in suppliers’ ratios of expenses to new business.

This topic begs some immediate questions. In particular, what is the point of investigating it now? Why is the result not obvious? (If information is useful, consumers will use it. If information is not useful, consumers will ignore it.) We will start by addressing these questions.

Why investigate this question now?

The justification for investigating this topic now is threefold. First, the financial regulators have collected no hard evidence about the effects of disclosure on consumer behaviour. To be sure, this is not to say that the regulators have failed to collect any evidence about disclosure. In fact, they have undertaken a major annual survey of the prices charged by firms for specific products since product

² As is typical of investigations of this kind, aspects of data selection, model development, running the models and interpreting the results were not straightforward. This paper includes lengthy descriptions of the difficulties that arose, to avoid giving any impression of absolute certainty about the results. Such certainty would not be justified.
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Specific price disclosure was introduced. See Personal Investment Authority Limited (1996 et seq). They have also undertaken extensive and significant market research, in the form of consumer surveys, about information supplied in the course of sales of investment products. See Financial Services Authority (FSA) (2000A; 2003A; 2003B). But none of this formally tests whether consumers actually changed their behaviour in response to the introduction of product specific price disclosure. Thus Hamilton and Gillies (2003 – but writing after publication of the FSA papers mentioned above) conclude that ‘what research there is into consumer decision making in financial services is indeterminate, and fails therefore to provide a ready model on which to redesign disclosure regimes’.  

Secondly, there appears to be no academic research directly on this topic.

Thirdly, the issue of disclosure in the markets for retail investment is highly topical. The FSA has consulted more than once on reforms to its regime of disclosure requirements. But, as Hamilton and Gillies (2003) observe, the FSA is struggling with information problems of its own: ‘The FSA speculate that this [the fall in prices of certain products since the introduction of the disclosure regime] may not be the result of any marked increase in shopping around by consumers, but a response by suppliers to the potential for consumers to shop around’. See FSA 2000B.

Is the information that is now required to be disclosed useful in principle? If so, why not simply assume that consumers will act on it?

First, the new information supplied under the regulatory disclosure reform of 1995 is certainly, in principle, useful. Until 1994 regulations made under the Financial Services Act 1986 required firms to give prospective customers standardized

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3 The FSA has now made a rigorous study of the effects of its disclosure (and wider) regime in the area of mortgages: see Monteiro, N; Zaidi, R (2007).
4 It continues to be topical in 2009, in light of the FSA’s policy of maintaining disclosure of Reduction in Yield – the disclosure tested in this paper – in addition to the European Union’s standard disclosure of Total Expense Ratio.
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information about the cost of life and pensions products. Thus, illustrations showing the effects of charges on expected investment returns all used market average charges rather than actual charges. This created the astonishing situation in which, at the point of product choice, consumers could not distinguish between high-cost and low-cost offerings, if they relied on the information required by the regulator. In this important sense, the reforms addressed regulatory failure not market failure. In fact, the previous regulations appear to qualify as a form of consumer deception under the approach of Beales (1981). They were certainly a disincentive to price competition, so the Office of Fair Trading reported adversely on them. See OFT 1992; 1993A and 1993B.

Eventually, the Chancellor of the Exchequer ordered the Securities and Investments Board (SIB) to change the rules. The SIB’s new rules required product-specific price disclosures that enabled consumers to distinguish between high-cost and low-cost offerings. They also required disclosure of the ‘key features’ of products, to facilitate comparisons of products’ quality and their suitability for an individual consumer’s aims and circumstances. As the PIA’s 1998 Disclosure Report says:

‘An important requirement of the disclosure regimes is that information should be provided in a way which enables investors to compare products and product providers.’

Since the information supplied from 1 January 1995 could be useful in consumer decision-making, why should we not simply assume that consumers act upon it? As Stigler (1982) observed: ‘Man is eternally a utility-maximizer…in his church, in his scientific work, in short, everywhere’ and this approach – the neoclassical utility maximization model – underpins most of the work so far undertaken in

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5 The provision of information mandated by the regulator may well have been a disincentive to consumers seeking their own information or believing additional information volunteered by firms.  
6 The rules were proposed in SIB (1993) but have not changed materially since they were introduced and can now most easily be seen in the FSA’s Handbook of Rules and Guidance, Conduct of Business (COB) 6. This is available at www.fsa.gov.uk or in Reed Elsevier’s Books on Screen.
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microeconomics. But there are a number of reasons to question whether consumers do behave as homo economicus in the field of investment.

First, there is evidence specific to UK consumers and the disclosures under review here. FSA (2000A) says: ‘The research [i.e. survey of consumers] provides only limited evidence on the incidence of shopping around. Nevertheless, it does suggest that, typically, consumers do not shop around...’.

Secondly, there is evidence about excessive optimism in investment decisions. Investors may put a very heavy weight on periods of past investment performance when returns were high. Given the volatility of stock returns, there are periods in which they were so high that they can make consideration of product charges, products and suppliers seem trivial. This prompted the Task Force on Past Performance to consider whether use of past performance data in promotional material should be banned: see FSA (2001). Certainly, the quoting of statistics by doctors has powerful effects on their patients, as shown in empirical research by Gurmankin (2004). See also De Bondt (1998), Loewenstein (2001), who proposes decision making based on ‘risks as feelings’ rather than ‘expectation-based calculus’ and Tuckett (2002), who provides evidence of the powerful and seemingly irrational psychological forces that affect investment decisions.

There is also the wider assault of behavioural economics on the neoclassical model. For example, Jolls (1998) argues that empirical evidence gives much reason to doubt the assumptions of neoclassical economics. Rather, people display bounded rationality, bounded self-interest and bounded willpower. These concepts are applied to finance and savings by Mullainathan (2000) and to employee pension arrangements by Sunstein (2003). A series of papers by Choi, Laibson, Madrian and Metrick from 2002 onwards provides disquieting and relevant evidence about how
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consumers make decisions in relation to pensions. This literature is not mentioned to make a case for behavioural economics – important though it is for financial regulators – but to flag another reason why it is unsafe just to assume that consumers will make rational use of information supplied.

Thirdly, there is evidence about low levels of financial literacy in the UK. It is hard to imagine the people described in Schagen (1996) utilising the information about the price of investing that regulation requires them to have (the so-called ‘reduction in yield’) to assess the impact of product charges on net investment performance.

Fourthly, there is information economics. As Rothschild (1976) powerfully argues:

‘Economic theorists traditionally ban discussions of information to footnotes. Serious consideration of costs of communication, imperfect knowledge, and... would, it is believed, complicate without informing. This paper, which analyzes competitive markets in which the characteristics of the commodities exchanged are not fully known to at least one of the parties to the transaction, suggests that this comforting myth is false. Some of the most important conclusions of economic theory are not robust to considerations of imperfect information.’

The FSA’s consumer research suggests that most consumers of investment products are indeed struggling with severe information problems. See, for example, The Financial Services Authority (2000A) and (2003B).

Fifthly, investment products are credence goods whose sale is typically intermediated by experts (people regarded by consumers as enjoying informational and other advantages). The nature of the goods allows experts to exploit their position to push consumers towards choices that reflect the experts’ not the

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7 Choi, Laibson and Madrian (2006) show the results of experiments on decision making in selection of mutual funds. It turned out that even the segment of the United States population with the highest SAT scores appears to behave irrationally in making these choices, even when the information needed for rational decisions is supplied.
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consumers’ interest. Charles River Associates (2004) finds limited evidence of such behaviour (‘commission bias’) in the market for UK retail investment products. The evidence is a comparison of the outcomes of commission-remunerated sales with fee-remunerated sales and assumes no bias in the latter. That assumption may be unsafe. Fee-remunerated advisers may reason that selling a high-risk product increases their chances of repeat business. Therefore bias may be greater than the paper suggests. The finding of bias is consistent with other work on credence goods (Dulleck (2001) and Bartels (2004)) and with work on the influence of experts (Reinstein (2003)). Wolinsky (1995) models the situation in which information asymmetry arises from sellers also being experts who give advice to consumers. He finds that, even if competition is intense, the information asymmetry is reflected in prices that include a mark-up over costs.

We conclude that doubts about whether consumers would utilise the disclosures mandated by the financial regulators in 1995 are sufficient to justify this research. This paper proceeds as follows. Section 2 describes the relevant market, the regulations, the previous literature and the research hypothesis. Section 3 describes the data and methodology. Section 4 provides the results; Section 5 discusses them. Section 6 concludes.

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8 One should not pass on without noting Lilico’s (2004) warning that ‘casual quasi-economic commentary sometimes resorts to irrationality to ‘explain’ odd behaviours far too easily – since any behaviour can count as irrational, a mere declaration of irrationality cannot count as an explanation of anything’.

9 New work by Inderst (2008) shows that there is an especially high risk of mis-selling when agents are required to prospect for customers and advise on suitability. This is the case of tied agents in the life and pensions market.
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2. Background

The market – product types and agent types

The product and agent types in the market relevant to this study are strongly influenced by regulation. They are important for sample selection and certain other aspects of the study and will be explained below.

Products. Broadly, the Financial Services Act 1986 gave the SIB powers to make regulations about investment business carried on in the UK. One category of investment business is ‘life assurance’: life companies typically bundle their investment products with life assurance. The 1995 disclosure requirements affected these life assurance investments and pensions. Life assurance investments include with profits bonds, endowments and whole of life policies.

The markets for pensions and life assurance investments are both retail and wholesale. The wholesale side includes employers’ staff pension schemes and reinsurance. Neither of these concerns us here because their regulation differs from that of the retail market whose effects we seek to examine.

On the retail side, product providers (i.e. the ‘life companies’) market their products to consumers through a variety of channels. These channels are described below as the interface between consumers and product providers is central to this study.

Intermediaries (channels). Historically, the channel known as ‘industrial branch’ was important. This involved door-to-door salesmen collecting small premiums on a weekly basis. In the 1990’s, this channel was declining rapidly. Even in 1993 it was minor. Table 14 in ABI (2001) shows total new premiums in the industrial branch channel as £152 million, whereas total new individual long-term business was £19,000 million.
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This channel will therefore be ignored here. The direct marketing/telesales channel (sales by postal offer, telephone, internet and so on) has been growing but was still minor in 1995. It then provided just 2.7% of total individual regular premiums. See Table 37 in ABI (2001). Thus this channel too is ignored.

In 1995, the overwhelming majority of life company investment products, by number and value, were distributed in three ways (see ABI and Money Management, 1996):

- by independent financial advisers (IFAs);
- by direct sales forces (DSFs - salesmen employed by the product providers themselves); and
- by tied agents (see below) of the product providers.

Tied agents are not directly employed by the product provider but the product provider takes responsibility as principal for their tied agents’ compliance with regulation under a legal arrangement known as the ‘appointed representative’ regime. While product providers do contract with individual tied agents, this is inefficient from a transaction costs perspective. Thus in practice most tied agents are the sales forces of substantial firms that are not themselves providers of life or pensions products. A classic example was Halifax, when its sales force distributed the products of Standard Life.

Since tied agents can only sell the products of their principal and their compliance with regulation is the responsibility of their principal, they are not distinguished from direct sales forces in this paper. Together they are referred to here as the tied sales channel. In 1995, a very high proportion of their sales were, like those of IFAs, carried out in meetings with consumers.
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The services offered by IFAs differ from those of the tied sales channel. Regulation (‘polarisation’) requires *intermediaries* to be IFAs and offer a whole of market search and recommend the ‘best’ product to their customer or to be ‘tied’ and restrict themselves to offering a ‘suitable’ product of their employer or principal. Regulation bars intermediaries from acting sometimes as IFAs and sometimes as tied agents or DSFs: ‘status’ is fixed. Regulation also bars intermediaries from offering a partial search of the market. See Books on Screen or the FSA’s Handbook.

Manufacturers. The product providers themselves are not ‘polarized’. They may each market their products through IFAs, DSFs and tied agents in any combination. They are of two main types: mutual companies and stock companies. Many mutual companies use the IFA sales channel and are focused largely on life and pensions business. Some of the largest stock companies in the life and pensions business are part of bancassurance groups or composite insurance offices (i.e. offices that are involved in both life and general insurance business). See Financial Adviser (1995-1999).

Consumers. NERA (1994) reports industry sources as classifying consumers into three groups:

- those who recognise a need for financial advice and/or life assurance products, approach a distributor themselves, and make their purchases;
- those who recognise a need for financial advice and/or life assurance products and are already prepared to buy when approached by a distributor, possibly in the context of buying another financial product, for example, a mortgage; and
- those who do not recognise a latent need for life assurance until it is pointed out to them, and to whom the products have to be actively sold.

NERA reports industry sources as claiming that consumers fall into these groups in the ratios 5:35:60, ‘from which stems the common view that life assurance is sold
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rather than bought’. NERA mentions that its own survey of relevant consumers found ‘that the proportions in the first two categories may be somewhat higher’.

The market – definition, structure and the nature of competition

The state of competition in the market for retail life and pensions business is relevant to the formulation of the research hypothesis and important for interpreting and explaining our results.

Market definition. A broad market definition is preferred. Retail pensions and other life assurance investment products are treated together, as are the different channels through which they are sold. The reasons for this are explained in Appendix 1.

Structure. The structure of the market is considered to be competitive. See Appendix 1.

The nature of competition. Although the market is not structurally monopolistic, conduct within it is often said to be uncompetitive. We therefore undertook a literature review and analysis, to check that there are no insurmountable barriers to consumers shopping around and to seek insights that may be helpful in designing – or interpreting the results of – this study.

The results of this work are set out in Appendix 1. Briefly, while there did not seem to be any insurmountable barriers to consumers shopping around, so price disclosure could in principle lead to consumer behaviour that would cause firms to change prices, price competition was historically weak. This may be because firms obtained a degree of market power through differentiating their products in a fragmented market (one having a low Herfindahl-Hirschman Index) in which there were non-trivial search and switching costs facing consumers who, in many cases,
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were boundedly rational. Moreover, in these circumstances, one might expect firms to have been competing, wastefully, for the market. Disclosure, by reducing search costs, could then increase competition, thereby benefiting consumers.

To sum up, there appear to have been market and/or regulatory failures in the sense that it was in principle possible for the introduction of different regulation (mandatory, product-specific disclosures) to yield welfare gains. Indeed, market data suggest that from the point when the Office of Fair Trading published its report to the Chancellor in 1992 firms rationally anticipated shopping around under the product-specific disclosure regime. From this point onwards, all firms (big and small) appear to have cut total costs by more than can be explained by changes in business composition. The significant market share of the firms which operated in both the tied and IFA sales channels, and the possibility of consumers substituting between the channels, make it unsurprising that all firms sought to cut costs.

The nature and expected effects of the SIB’s 1995 disclosure requirements

This summary is based on NERA (1994).

- The disclosure requirements applied on a voluntary basis from 1 July 1994 and compulsorily from 1 January 1995. Money Management (1996) reports that very few firms adopted the requirements before 1995.
- Any illustrations (of ‘what you might get back’) had to be based on an office’s own charges and expenses rather than on standard figures. Such illustrations are central to the sales process.
- Illustrations of surrender values for the first five years, some further surrender values and the maturity value had to be provided in writing whenever a product was recommended and before any proposal was signed.
- Client-specific disclosure of commission in cash had to be given in writing whenever a product was recommended and before any proposal was signed.
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The expected effects of these disclosure requirements are set out in NERA (1994). NERA estimated that the annualised costs of the new regime would be in the region of £48 million per year. NERA seems not to have identified the possible transaction costs of increased shopping around. NERA’s economic analysis and surveys of firms and consumers indicated that the benefits might be expected to be ten times as large as the costs. There were two key arguments. One was that competition in the market had been muted by price and product opacity. The other was that increased shopping around by consumers would bring forward the price reductions and consequent efficiency gains that would otherwise have materialised slowly due to pressure from new entrants. The expectation of increased shopping around was justified by the consumer research and by the disclosure requirements revealing:

- that a cheaper product was expected to return more money than a costly one;
- whether an adviser might be subject to commission bias.

The disclosure was also expected to cause a reduction in sales. Sales did fall after disclosure was introduced, although this also coincided with the pensions mis-selling scandal and a recession.

Previous literature on the effects of disclosure

Aside from NERA (1994), there is not much literature that directly addresses UK retail investment markets. But inferences can be drawn from studies of other markets and general models.

Rothschild (1976) uses the market for insurance to develop a model to show that even a small amount of imperfect information could have a significant effect on competitive markets. While this is encouraging with respect to the possible impacts
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of disclosure, the paper concludes by noting that it may tell us nothing about the real world.

Disclosure mandated by regulators should reduce the costs to consumers of information gathering. On this, Salop (1977) develops a model, which is restricted to gathering information about price, and starts from the proposition that costly information-gathering means that equilibrium will not occur at the perfectly competitive price. He finds that prices may settle at the monopoly price or be permanently dispersed between the perfectly competitive and monopolistically competitive prices. In the latter case, the ‘final spread of prices depends on the magnitude of information costs’ (and the degree of scale economies). This too suggests that the 1995 disclosure reforms might change market behaviour.

Campbell (1980) starts with ‘the usual formulation of expected utility [under which] household choices are assumed to be consistent with von Neumann-Morgenstern preference axioms’ and then analyses households’ optimal reactions to labour income uncertainty in the presence of insurance. He finds that households’ demand for insurance increases if risk aversion increases, intensity for bequests increases or the insurance firm is perceived as charging less. He speculates that life insurance advertisements may seek to bring about these conditions and thereby increase demand. It would seem to follow that regulatory information that revealed the true level of prices could similarly increase or reduce demand.

Beales (1981) analyses the impact of information on markets to derive insights into the efficient regulation of consumer information. The disclosure rules being analysed here meet many of Beales’ criteria for regulation likely to produce welfare benefits:

- they removed a regulatory information restraint;
- they are specific not identical between firms or even products; and
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- they address a market failure (the absence of standardized price information).

Babbel (1985) examines whole life insurance sold in the United States from 1953 to 1979 and, encouragingly, finds that new purchases of the product are negatively related to changes in the price. He notes that this is consistent with economic theory but not with the view of the insurance (trade) literature that products are ‘sold not bought’. But he also mentions that further work is required because, for example, the data were highly aggregated and much changed over the two decades of the sample. He notes that, despite the strong negative price elasticity uncovered in the paper and an explicit check for switching between suppliers, ‘no evidence was found of consumers shifting from high to low cost insurance carriers’. Babbel’s market, however, lacked price disclosure mandated by regulators.

Personal Investment Authority (1996) includes an assessment of UK life disclosure. Since the ‘self regulating organisations’ (the PIA and its predecessor LAUTRO) collected no benchmark data prior to the 1995 disclosure requirements, the assessment relies on data from Money Management. It shows that:

- the projected ‘effect of deductions’ at maturity on a 25-year unit-linked personal pension plan with a gross monthly premium of £200 fell from £46,564 to £45,063 between 1 July 1994 and 1 July 1995;
- the projected ‘effect of deductions’ on transfer after five years of a 25-year unit-linked personal pension plan with a gross monthly premium of £200 fell from £2,826 to £2,576 between 1 July 1994 and 1 July 1995.

The average price fall of about 3% and 10% respectively were largely accounted for by a sharp fall in the price of the most expensive products, which are typically sold by firms in the tied sales channel. Roughly the top sixth by price of the products in the sample showed large price cuts. Most of the other products in the sample
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showed quite small price cuts. Interestingly, the lowest sixth of the products by price showed a marked increase in price. This is presumably not a sign of active collusion, as price dispersion remained significant.

Money Management (1997) suggests that low business levels in 1994 and 1995 were partly due to disclosure, which is possibly evidence of shopping around caused by disclosure: ‘In 1994 and 1995 the industry was beset by the demons of the recession, pensions mis-selling and the return of hard disclosure.’

The SIB was reorganised into the Financial Services Authority (FSA). The FSA undertook an (unpublished) event study of what happened to insurance companies’ equity prices when the market heard of the SIB’s disclosure proposals. It showed an abnormal price fall in the relevant stocks but this does not reveal whether the market expected product prices to fall or firms’ costs to rise more than prices could rise or both of these. Thus it tells us nothing about whether the market expected disclosure to, say, drive down prices through encouraging new entrants or through consumers shopping around.

James (2000) mentions in passing that a fall in the ratio of firms’ costs to funds under management that occurred when product-specific disclosure was introduced might reflect an efficiency gain caused by disclosure. This is what one would expect if disclosure succeeded in making consumers more price-conscious. But funds under management reflect investment performance, currency fluctuations and the difference between changes in the value of policy claims and cancellations and changes in the value of new business. Shopping around is almost certainly not the main driver of any of those variables. Thus we prefer not to infer much about shopping around from the ratio of firms’ costs to funds under management.

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before and after disclosure were found to be not significantly different from those predicted by the formula, possibly implying that disclosure did not cause efficiency gains and that firms did not face higher costs from consumers shopping around. Equally, it could be that disclosure did cause efficiency gains but that these were cancelled out by the costs of consumers shopping around more. The paper shows that costs in 1994 and 1995 were above trend which could indicate shopping around. But the formula seeks to explain life offices’ entire costs not just the acquisition costs that shopping around affects. Thus it reflects cost changes occurring anywhere in the business. Also, the formula has no mechanism for dealing with fixed costs, which are non-trivial. This may explain the results for 1994 and 1995, when business volumes were low. Thus we prefer not to infer much about shopping around from this paper.

Waterson (2001) compares switching between suppliers in personal banking and motor insurance. He attributes the much greater prevalence of switching in motor insurance to the amount of time and effort needed to switch current accounts. This is despite the existence of reliable websites (e.g. the British Bankers’ Association’s) that offer comparative information on banking charges. This suggests that life disclosure might have small effects since shopping around for life products requires significant effort (partly due to sales processes demanded by regulation). Waterson does note, however, that the comparative information about bank charges ‘is not provided in a very user-friendly manner’.

Burkart (2002) uses data on the price of 25 year unit-linked personal pensions and the volumes of them sold in the UK from 1998 to 2000 to estimate demand and supply functions. The result is that, despite the popular view that insurance is sold not bought, demand for unit-linked personal pensions is not independent of price. This is significant for the present study since the data used refer to a period after the introduction of price disclosure. Burkart also notes, however, that:
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- demand had a price elasticity of less than 1, which in the case of ‘real’ goods would be regarded as inelastic – but is that an appropriate comparison for a credence financial product?
- the elasticity that he found was in a period of very high price dispersion, which might have motivated ‘otherwise price-insensitive consumers’ – but is there an unambiguous link between price dispersion and price elasticity?\(^{10}\)

Thus Burkart concludes – entirely reasonably – that it may be that consumers of unit-linked personal pensions do not shop around enough.

Ward (2002) and Hay (2003) both mention that changes in regulation seem not to have major effects on life companies’ costs. Ward may be referring to the cost of the training and competence regime. Hay does not give details of the regulations for which he tested. These results are unsurprising, if one considers only compliance costs. Europe Economics (2003) found that the TOTAL incremental compliance costs of the FSA’s regime were only in the order of 1.6% of other operating costs.

Charles River Associates’ (2004) investigation of possible commission bias by IFAs included plotting the ratio between commissions and premiums and commission and product providers’ total expenses from 1985 to 2003, using data from Synthesys. A striking result was that the latter ratio was at its lowest in 1995 – when the effect of regulatory disclosure may have been at its strongest. This result is not simply attributable to the combined effect of fixed costs and the low volume of sales in 1995 relative to 1993 and 1994: the volume of sales was much lower in the early years in the sample than it was in 1995. The analysis also shows that the ratio of commission to premiums fell sharply in 1995. While this proves nothing about

\(^{10}\) Reinganum (1979) demonstrates that cost dispersion may persist in the presence of imperfect information and her model provides a rationale for the existence of price dispersion in equilibrium. In this context, Burkart points out that ‘The theoretical literature suggests that price dispersion is not equivalent to demand inelasticity with respect to prices – and that an elastic demand may even be an essential ingredient for generating price dispersion’. 
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disclosure, it possibly suggests that even firms using the IFA sales channel were adversely affected by shopping around and forced IFAs to share the pain.

The literature suggests a number of reasons to be optimistic that disclosure – lowering the cost to consumers of becoming informed about prices – may lead to a more competitive market, for example as a result of shopping around. One reason is that the wide price dispersion in the relevant market before disclosure is likely to have been affected by the provision of additional information. Another reason is that the literature provides theoretical and empirical evidence that the notion that investment products are sold not bought is not the whole truth. But hard evidence about shopping around in the specific field of credence investment products in the UK is very limited. The research proposed here is therefore considered to address an important gap in the literature.

The research hypothesis

NERA (1994) suggested that pressure for product price reductions would arise from consumers using product-specific price disclosure to ‘shop around’. Past literature and the nature of competition in the relevant market lend some support to this. We will therefore assess whether there was a change in demand-side behaviour.

The implications of ‘shopping around’ appear to differ between the IFA and tied sales channels. IFAs are required by regulation to undertake a ‘whole of market’ search and therefore ‘shop around’ on behalf of their customers. Thus IFAs’ customers might have shopped around little more following product-specific disclosure.11

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11 This does not necessarily mean that the IFA channel was immune from any competitive pressures unleashed by the new disclosure requirements. Product specific price disclosure could lead to additional consumer switching between channels. Product providers using the IFA channel might therefore have been obliged to respond to any price cuts by tied-channel firms facing increased shopping around.
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Advisers in the tied sales channel are required by regulation to offer the products of just one provider (or ‘marketing group’). Thus a consumer receiving product-specific prices from a tied adviser could only use the information in a price comparison by shopping around. Moreover, previous regulations made shopping around on price rather pointless (since all firms had to quote industry average prices). Thus tied advisers’ customers might have shopped around much more following product-specific disclosure.

New business is responsible for a high proportion of life companies’ costs and an important driver of them is the ‘conversion rate’ – the ratio of sales to consumer meetings. If tied sales channel consumers did shop around more, one would expect this ratio to fall and non-commission costs to rise. The tied sales channel is thought to have had more than 100,000 salesmen in 1995. Even under modest assumptions about their wages, just a 10% increase in their number (to deal with increased shopping around) would have cost tied sales channel firms more than four times NERA’s estimate of disclosure costs for these firms. Alternatively, the same number of staff might have sold much less business. One therefore expects, after disclosure, an increase in the ratio of costs to outputs of firms using the tied sales channel relative to the cost/output ratio of firms using the IFA sales channel. This is the main hypothesis to be tested.

One would also expect a decrease in the ratio of new contracts to salesmen in the tied sales channel relative to the IFA sales channel. Reliable data to test this have not been found.

A possible difficulty is that the market for pensions may have been distorted in 1995 by the shock of the pensions mis-selling scandal. This is understood to have made firms very risk-averse in their processes for selling pensions, especially

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12 IFAs ‘shopped around’ for consumers with respect to product features and past performance. Many or most consumers find it difficult to shop around effectively with respect to those criteria.
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transfer business. Thus selling costs are expected to have risen for this business, which in practice had to be undertaken by IFAs. This could mask the effect – the increase in the ratio of costs to outputs of firms using the tied sales channel relative to the cost/output ratio of firms using the IFA sales channel – that this research seeks to establish.

A possible objection to the approach described above is that shopping around would cause consumers to defect from the tied sales channel to the IFA sales channel. This would result in lower costs in the tied sales channel and higher costs in the IFA sales channel. This would undermine the test proposed if the lowering of costs in the tied sales channel somehow lowered the cost per unit of output or if the increase in costs in the IFA sales channel somehow increased the cost per unit of output. Neither seems likely. First, it is understood that some important costs in the life and pensions industry do not react immediately to volumes of sales. Secondly, as explained elsewhere in this paper, there are economies of scale in the relevant firms. So one would expect shifts in business from the tied to the IFA sales channel to reinforce the effect for which we are testing in this paper.

The failure of compliance costs to show up as significant variables in the Ward (2002) and Hay (2003) is not considered a reason to seek a different main hypothesis. The effect of disclosure may be far larger than ‘compliance costs’ such as systems costs, reporting costs, monitoring costs and training costs. In most financial institutions, such costs are small relative to the cost of premises, capital, advertising, marketing and the wages of staff primarily engaged in non-regulatory activities. The cost of disclosure could, if it prompted shopping around, take the form of a material increase in the size of the sales and administration staff for a given level of business (because of a decline in the ‘conversion’ rate of meetings into sales). Since this would lead to a non-trivial change in business acquisition costs and business acquisition costs are a significant proportion of firms’ total costs, it may be detectable even though other regulatory costs are not.
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A very important advantage of the hypothesis is that it allows a ‘comparative’ approach to the testing. Most factors that influence costs and business are common to the tied and IFA sales channels and therefore do not need to be controlled for explicitly under the approach proposed here.

3. Method

This section covers identification, selection and cleaning of relevant data, some characteristics of the sample and application of ratio and econometric techniques to the data.

Identification and cleaning of relevant data

By far the largest and richest database on life companies’ costs is Synthesys Life. This contains information about all authorized life companies in the UK. It is based on the annual returns that such companies are required to make to the FSA as regulator. In the mid-1990s about 355 companies made returns.

For each company, the database includes a vast array of annual data. New and existing business, assets and other financial conditions are analysed exhaustively. For a single firm, a printed set of returns amounts to several hundred pages of forms. The questions to address in data selection were:

- Which years should be included in the sample?
- Which firms should be included in the sample?
- Which lines of data should be included in the sample?

Which years? The disclosure regulations were compulsory from 1 January 1995. Firms were permitted to comply with the regulations from 1 July 1994 and a few
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firms did so. These included Equitable Life, which then wrote 7.47% of new business (Money Management, 1995). There was also extensive publicity about the new regulations in 1994. In 1993, however, the new disclosure regulations had not been determined and business levels were not subject to major disturbances: Money Management 1996, in analysing business in 1993, notes only a tailing off in the high level of personal pensions business that started with the legislative changes of the late 1980s. Therefore:

- 1993 was chosen as the base year for the study;
- 1995 was chosen as the year in which the full effects of product-specific price disclosure might be found. Since repeat purchases by individual consumers are relatively rare in the life and pensions market and, given the credence nature of the products, may not be greatly influenced by experience from any earlier purchases, it was not expected that shopping around would become more popular in 1996 or later years.
- 1994 was of course included as the year between 1993 and 1995. It was expected to show characteristics between the pre-disclosure equilibrium of 1993 and the post-disclosure equilibrium of 1995.

There were further reasons for excluding years after 1995:

- the industry started to consolidate, so results might have been distorted by survivorship bias, major one-off costs or economies of scale achieved in the new conglomerates;
- the feasibility of this research depends on the absence of changes in cost drivers, other than disclosure, that (a) materially affected firms using one sales channel but not the other and (b) cannot readily be controlled for;
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- it is not certain that this condition was met after 1995. For example, one would expect firms in competitive markets that were facing higher costs as a result of increased shopping around to innovate to reduce their costs.\(^{13}\)

Specific reasons why this condition might not have been met after 1995 include:

- many product providers started to switch to the IFA sales channel after 1995, incurring significant closure and start-up costs which may have distorted the cost data for either channel in the relevant years and whose size is unknown;
- some consumers switch between the tied and IFA sales channels\(^ {14}\) and disclosure might have increased this: many consumers wish to invest amounts that are acceptable to providers in both channels.\(^ {15}\) So one would expect product providers using, and after disclosure facing higher costs in, the tied sales channel to try to realise all possible efficiency gains. O’Brien’s (2002) results may mean that they did but the amount saved is unknown.

Which firms? For 1993-1995 Synthesys includes 355 firms. We wished to include in the sample all firms whose data are relevant to testing the research hypothesis and therefore sought information about all firms in the database. We consulted The A to Z of Life Offices, which is a series of articles on individual firms that ran for long periods, twice, in Money Management in the 1990’s. In addition, life company websites were

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\(^ {13}\) In 2008, as part of its development of the Operating Performance Review, the FSA requisitioned work from 1776 consulting (Kevin James) that examines the cost functions of life companies over several years. This work is almost complete and is expected to be published. It seeks to identify whether these companies have tended to reduce their costs in response to pro-competitive regulatory initiatives such as disclosure of Reduction in Yield. Preliminary results suggest that substantial such reductions have taken place over time, and that there was a significant shift around 1995: cost changes in years affected by pro-competitive regulations do seem to be different to cost changes in other years.

\(^ {14}\) For example, those who know an IFA usually also have a relationship with a major tied-channel firm such as a bancassurer.

\(^ {15}\) The overlap is not complete. Before the introduction of product-specific disclosure, the tied-channel had a cost advantage over the IFA channel (for example, due to not needing to undertake a whole-of-market search). Since IFAs’ remuneration is usually a percentage of the premium paid and IFAs faced a higher fixed cost per transaction, they did not compete for transactions of low value that DSFs could profitably undertake.
searched and discussions held with industry experts. This resulted in the following categories of firms being excluded from the sample:

- firms doing only or largely intra-group business (because their acquisition costs are tiny);
- firms doing only or largely non-UK business (because their acquisition costs are wholly or largely unaffected by the change in regulation that we are investigating);
- firms doing only or largely reinsurance business (because their acquisition costs are wholly or largely unaffected by the change in regulation that we are investigating);
- firms doing no or only tiny amounts of new business (because they either have no acquisition costs or benefit from subsidies from related companies or, given the level of fixed costs, are operating unsustainably);
- firms selling exclusively to affinity groups (whose business acquisition methods and consequently cost levels are markedly different from those operating in the open market that is the subject of this research);
- bancassurers (because their business acquisition methods and consequently cost levels are markedly different from those of other firms. Business opportunities are identified from deposits or other transactions and investment advice offered during other contacts with the relevant customers. Own estimates from Synthesys for the period 1993-1995 show that the ratio of gross expenses to total new premiums for tied sales channel firms qualifying for the sample was 0.352. The equivalent ratio for bancassurers, which are also tied sales channel firms, was 0.205. In other words, tied sales channel firms that are not bancassurers faced an expense:new premium ratio 72% higher than that of bancassurers.)

Under these criteria, about 235 of the firms listed in Synthesys were deemed irrelevant to this study. The remaining firms are, however, responsible for the great majority of
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the business in the relevant market. With the exception of the bancassurers, they are largely the same firms as appear in the PIA’s Disclosure Reports.\(^\text{16}\)

Excluding the 10 or so bancassurers, about 120 firms appeared to be genuine competitors in the retail market and remained in the sample. We sought to allocate them to the following categories:

- firms that at the relevant times sold exclusively through the IFA sales channel;
- firms that at the relevant times sold through the IFA sales channel and the tied sales channel; and
- firms that at the relevant times sold exclusively through the tied sales channel.

This allocation was necessary because the hypothesis is that firms in the tied sales channel experienced a greater increase in shopping around after product-specific disclosure than did firms in the IFA sales channel. Allocation was done primarily from Money Management’s annual survey of levels and sources of new business.

Unfortunately, participation in Money Management’s survey is voluntary and not all firms appear in it. Also, it is not straightforward to link some of the names used in Money Management with those used in Synthesys. This is especially the case with complex groups that are the result of mergers, such as CGNU. For these, many entities are listed in Synthesys, whereas Money Management tends to quote consolidated, group figures. Moreover, the names used in Synthesys are the most recent (for the very good reason that this facilitates the creation of time series for current firms).

Allocation of firms to categories was therefore also done by reference to The A to Z of Life Offices, life companies’ websites and discussions with industry experts. Information was also drawn from Synthesys because commissions paid with respect to

\(^{16}\text{In the period 1993-1995, bancassurers had about 10\% by value of the market for new single premiums and 12\% by value of the market for new regular premiums. See Table 39 in ABI (2001).}\)
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Business acquisition are shown separately from other acquisition expenses. Thus a firm that sells exclusively through a tied sales force should show zero as commissions paid with respect to business acquisition. Any inducements it offers to employed sales staff are categorised in Synthesys as other (i.e. non-commission) acquisition expenses. But:

- firms selling through appointed representatives are part of the tied sales channel and commissions paid to appointed representatives are allocated in Synthesys to commissions paid with respect to business acquisition; thus it cannot be inferred that a firm with costs in that category is operating entirely or even at all in the IFA sales channel; and
- there is a potentially difficult question about how to categorise the many firms whose business is obtained largely but not exclusively through one channel.

This question was discussed with industry (actuarial) experts, and reference made to Ward (2002). Could firms that transact their business mainly through one channel but do, say, 5% of their business through the other channel reasonably be regarded as having an acquisition cost function similar to that of firms doing 100% of their business through that main channel? The experts thought that the cost functions would almost certainly be similar since the small volume of business obtained through the other channel would not represent an alternative business model reflected in the structure of the firm’s costs. It would much more likely reflect low-cost pragmatic or legacy arrangements and/or an understandable wish to exploit cheap sources of revenue as they arise. But it was also observed that the higher the cut-off point is set above 5% the greater is the risk that a firm would be running two business models, and this would have implications for the firm’s cost structure.

Ward (2002) experimented with different cut-off points for treating firms as effectively single-channel rather than dual-channel firms. He found that even a cut-off point of 80:20 by business volume made no difference to his results. In light of the actuarial advice and since Ward’s data are for a different period and he was concerned with
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different aspects of firms’ finances, a cut-off of 90:10 has been used here, to reduce any risk of treating unlike items as like items.

It was therefore decided to try to categorise the firms remaining in the sample as follows:

- Category 1: firms transacting 90-100% of their business through IFAs;
- Category 2: firms transacting less than 90% of their business through any one channel; and
- Category 3: firms transacting 90-100% of their business through the tied sales channel.

Eventually, about 100 of the 120 firms were able to be categorized with certainty. The others were small and could be excluded from the sample without materially affecting its coverage of the market.

A further difficulty with overseas business was then identified: the Synthesys data for total acquisition expenses, which was an obvious candidate to be the dependent variable, includes UK and non-UK expenses but the data for new business is UK only. While firms with largely or entirely non-UK business were excluded from the sample at an early stage, on the basis of general information about them, the possibility remained that firms with significant amounts of non-UK business (but a majority of UK business) remained in the sample. Since the regulation that is the subject of this research affects only UK business, any such firms needed to be removed. These few firms were identified by reference to Form 41, Line 52 in Synthesys.17

Firms in Category 2 were excluded from the sample since the research hypothesis is, in effect, that Category 3 firms faced a higher cost increase, due to product-specific disclosure, than did Category 1 firms. The exclusion of firms in Category 2 materially
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reduces the proportion of the market covered by the sample. In 1995, firms in Category 2 supplied roughly half the market (by value), with Category 1 firms supplying about 26% and Category 3 firms about 22% (Source: own calculations from Synthesys).

After excluding Category 2 firms and the firms that could not certainly be allocated to a Category or that had significant non-UK business, 38 firms were left in the sample. Of these, 17 were in Category 1 (IFA sales channel) and 21 were in Category 3 (tied sales channel).

Finally, on the selection of firms, it is worth noting that survivorship bias was not a significant issue. The years 1993-1995 preceded the consolidation that affected the industry in the mid to late 1990’s and beyond and the regulator of course seeks to prevent the disappearance of life companies with obligations to policy holders. Thus the firms that qualified for the sample were almost identical in each of 1993, 1994 and 1995. It was possible to run a balanced panel after making just two adjustments.

Which lines of data? Determining which lines of data from Synthesys to use in the study required is not straightforward. The core problem is that an attempt is being made to draw inferences about demand side behaviour from supply side data. Thus the proxies are at some distance from the behaviour to which they refer.

Several broad approaches to exploring the relationship between firms’ expenses and firms’ business activities suggested themselves:

- total expenses (dependent variable) against business metrics representing all major cost drivers;
- acquisition expenses (dependent variable) against various measures of the value of new business;

17 This nevertheless added to the chore of data cleansing, which was considerable, given that only about 15% of the firms listed in Synthesys qualify for the sample used in the regressions.
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- acquisition expenses (dependent variable) against the numbers of new business contracts in various categories; and
- acquisition expenses (dependent variable) against some combination of the number and value of new business contracts.

Since each of these approaches has useful features as well as potential drawbacks, we tested empirically what they could reveal, including through test data. Details, including of the many alternative measures of business size that Synthesys offers, are in Appendix 3. Finally, acquisition expenses were selected as the dependent variable and all of the costs to firms of consumers shopping around should be captured by them. The numbers of new business contracts were selected as the main regressors as these should best capture the impact of shopping around. This is because the impact of shopping around is expected to be that firms that formerly met x consumers to write y contracts now need to meet (x+z) consumers to write y contracts. Using the numbers of contracts should also pick up the effects of any economies of scale. In addition, data about premium levels were used as they are critical to the amount of commissions paid, which is the largest single acquisition expense. (As average premium size varied materially between firms, just using numbers of policies would not capture this important dimension of the cost function. The variability in the relationship between numbers of policies and the level of new premiums lowers any concern on multicollinearity.)

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18 There are several reasons why firms would not quickly hand over the information and then let the consumers go. First, firms want to capture consumers: contacts are valuable opportunities to impress and then sell. Secondly, compliance departments tend to be risk-averse and therefore unwilling to let sales staff give consumers regulatory information without following the sales process set by the regulator. Thirdly, the disclosure regulations required not just the product-specific disclosure that is central to this study. They also required individual-specific disclosure that depends on the life cover element of products reflecting the age and other circumstances of the individual. Thus a specific price could not be quoted without establishing the consumer’s circumstances. (It is often argued that the incremental costs of regulatory ‘fact finds’ are low because firms in any case want the information for marketing purposes.)
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Some characteristics of the sample

We checked in what ways the business metrics selected above differ between channels (as this could be helpful for interpreting results) and that the sample appropriately reflects the wider population of life companies. For this purpose, reference was made to ABI (1996, 2000 and 2001). The main characteristics of the population are:

- Total individual long-term business fell from new premiums of £19,000 million in 1993 to £16,500 million in 1994 and to £15,000 million in 1995.
- Single premium business is much larger by value than regular premium business, accounting for about 85% of the value of total premiums throughout 1993-1995.
- The number of regular premium contracts is much greater than the number of single premium contracts. Regular premium contracts increased from about 2.5 times the number of single premium contracts in 1993 (4.8 million versus 1.9 million) to about three times in 1995 (3.6 million versus 1.2 million).
- The tied sales channel was dominant in regular premium life business, providing about 70% of this business by value in 1993-1995.
- The tied sales channel provided half of regular premium pension business by value.
- IFAs provided about 60% of single premium life business by value.
- IFAs provided about 60% of single premium pension business by value.
- Life (including general annuity) and pensions business together constitute almost all new business.

With one main exception, the sample reflects the characteristics of the population.
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Table 1: the business of firms in the sample

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SAMPLE DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total new business premiums 1993</td>
<td>£9,284 million</td>
</tr>
<tr>
<td>Total new business premiums 1994</td>
<td>£8,692 million</td>
</tr>
<tr>
<td>Total new business premiums 1995</td>
<td>£7,066 million</td>
</tr>
<tr>
<td>IFA new single premium business as a percentage of total IFA new business 1993-1995</td>
<td>91%</td>
</tr>
<tr>
<td>Tied firm new single premium business as a percentage of total tied firm new business 1993-1995</td>
<td>80%</td>
</tr>
<tr>
<td>Number of new regular/single premium contracts 1993</td>
<td>2,296,168 / 1,150,306</td>
</tr>
<tr>
<td>Number of new regular/single premium contracts 1994</td>
<td>1,945,527 / 1,057,008</td>
</tr>
<tr>
<td>Number of new regular/single premium contracts 1995</td>
<td>1,642,776 / 1,823,953</td>
</tr>
<tr>
<td>New pension premiums 1993-1995 in IFA/tied sales channels</td>
<td>£9,135 million/£4,494 million</td>
</tr>
<tr>
<td>New other premiums 1993-1995 in IFA/tied sales channels</td>
<td>£7,408 million/£4,072 million</td>
</tr>
<tr>
<td>Number of regular life contracts 1993-1995 in IFA/tied sales channels</td>
<td>1,740,649 / 1,823,466</td>
</tr>
<tr>
<td>Number of regular pension contracts 1993-1995 in IFA/tied sales channels</td>
<td>967,743 / 1,154,359</td>
</tr>
<tr>
<td>Number of single life contracts 1993-1995 in IFA/tied sales channels</td>
<td>2,368,217 / 767,278</td>
</tr>
<tr>
<td>Number of single pension contracts 1993-1995 in IFA/tied sales channels</td>
<td>591,573 / 233,637</td>
</tr>
<tr>
<td>1993-1995 total life and pensions contracts/total other contracts</td>
<td>9,646,962 / 47,989</td>
</tr>
</tbody>
</table>

It can be seen from the table that:

- The sample captures about 40% of total retail business; (the other 60% belongs almost entirely to bancassurers and firms that make material use of both the IFA and the tied sales channels);
- The sample reflects the population except that it captures a higher proportion of total IFA sales channel business than it does of tied sales channel business and
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the figure for the number of single premium (life) contracts in 1995 (and overall) looks unexpectedly high.

The high figure for the number of single premium contracts in 1995 is due to the number of single premium life contracts, about 1.35 million, reported by a very large firm, Clerical, Medical and General Life (CMGL). That firm’s equivalent figure for 1994 was 350,000. The reason for the high figure in 1995 is unknown. Financial Adviser (1995-99) shows that the value of CMGL’s relevant premiums increased by about 73% – rather than almost 400%, as implied by the change in contract numbers – between 1994 and 1995. While the figure of 1.35 million has remained on Synthesys for many years and is an important piece of information about an important firm, and Synthesys is widely used, this is an extreme outlier. (The total number of single premium contracts in 1995 was less than 1.9 million.) It has therefore been assumed that the figure of about 1.35 million ought to be changed to about 350,000. This is in line with 1994 and is plausible since the high figure may be due to the digit ‘1’ being added to the front of it.19

Other characteristics of the data include:

- they are a panel of three years and 38 individuals;
- the size of the individual firms is very diverse, with some having premium income 100 times as great as others; and
- the ratios between individual firms’ business volumes and expenses vary a great deal, even within the same channel.

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19 The temptation to increase 1994’s figure by 73% has been resisted because it would lower the ratio of contracts to expenses in the tied channel in 1995. Lowering that ratio would support the research hypothesis. But it would be inappropriate to gather such support on the basis of an unproven assumption that CMGL’s ratio of premiums to contract numbers was roughly constant between 1994 and 1995.
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Application of ratio and econometric techniques to the data

Initially, the following pieces of statistical analysis were undertaken, to check that the data selected and the broad type of model under consideration were capable of yielding results relevant to the research hypothesis, and to assist in development of an appropriate model:

- ratio analysis;
- analysis of fixed costs; and
- simple regressions run with test data.

Ratio analysis

This is described in Appendix 2. The results are consistent with firms in the tied sales channel facing a bigger cost increase (relative to business done) in 1995 than firms in the IFA sales channel but are not conclusive.

Analysis of fixed costs

As an initial test of the hypothesis that fixed costs are higher in the tied sales channel, pooled regressions were run on acquisition expenses versus new business. The details are in Appendix 2.

Taking the constant as a rough proxy for fixed costs, the results were that average fixed costs for firms in the tied sales channel were about £10 million in 1993 and £12 million in 1995. Average fixed costs for firms in the IFA sales channel were about £8 million in 1993 and £5 million in 1995. This result is striking as IFA sales channel firms were so much larger than tied sales channel firms but had much smaller (proxied) fixed costs. Also, there was a marked increase in the difference between the proxies in the two channels over the sample period. The increase in proxied fixed costs of firms using the
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Tied sales channel over the period, when proxied fixed costs for firms using the IFA sales channel fell, is consistent with tied sales channel firms facing a greater increase in shopping around.

Fixed costs cannot be seen directly in the data used here. Since they may be important to the analysis, they were investigated further but found not to be susceptible to direct estimation. See Appendix 2.

From the ratio analysis and the attempt to estimate fixed costs, it was concluded that regression analysis would be needed to explore the research hypothesis properly. It was also concluded that it would be important to control for the relative sizes of firms.

Simple regressions run with test data

The first point in building a model is to define what it is that the model seeks to explain – which here is expenditure as a function of volume and type of business – and what we wish to test, which is whether there is a different relationship between expenditure and business in the tied sales channel in 1995. Initial development of the model used here, including through the use of test data, is described in Appendix 3. The most important point established was the inadequacy, in this context, of least squares estimation in pooled regressions.

Panel estimation – model used

In light of the above, it was decided to proceed through panel estimation. Based on the analysis described in Appendix 3, the following model was used:

\[
\text{TEI}_{it} = \alpha_1 C_{1i} + \ldots + \alpha_{38} C_{38i} + \beta_1 NL_{iit} + \beta_2 NP_{iit} + \beta_3 TOI_{iit} + \gamma_1 NLT95_{iit} + \gamma_2 NPT95_{iit} + \gamma_3 NLT93_{iit} + \gamma_4 NPT93_{iit} + \lambda_1 NL5_{iit} + \lambda_2 NP5_{iit} + \lambda_3 NL3_{iit} + \lambda_4 NP3_{iit} + \varepsilon_{it}
\]

where:
Did life and pensions “disclosure” work as expected?

$\text{TEI}_{it} = £$ value of total acquisition expenses deflated to 1993 prices

$C_{i1} = 1$ if the observation belongs to the first firm; $= 0$ otherwise; and so on for the remainder of the differential intercepts

$\text{NL}_{it} =$ number of new non-pension policies

$\text{NP}_{it} =$ number of new pension policies

$\text{TOI}_{it} = £$ value of total new premiums deflated to 1993 prices

$\text{NLT95}_{it} =$ the number of new non-pension policies in the tied sales channel in 1995 [i.e. $(\delta_{i1}*\text{NL}_{it})$, where $\delta_{i1} =$ dummy variable $= 1$ if the observation is in the tied sales channel in 1995; otherwise (i.e. for other channels in 1995 and all channels in other years) $= 0$]

$\text{NPT95}_{it} =$ the number of new pension policies in the tied sales channel in 1995 [i.e. $(\delta_{i1}*\text{NP}_{it})$]

$\text{NLT93}_{it} =$ the number of new non-pension policies in the tied sales channel in 1993 [i.e. $(\delta_{i2}*\text{NL}_{it})$, where $\delta_{i2} =$ dummy variable $= 1$ if the observation is in the tied sales channel in 1993; otherwise (i.e. for other channels in 1993 and all channels in other years) $= 0$]

$\text{NPT93}_{it} =$ the number of new pension policies in the tied sales channel in 1993 [i.e. $(\delta_{i2}*\text{NP}_{it})$]

$\text{NL5}_{it} =$ the number of new non-pension policies in 1995 [i.e. $(\zeta_{i1}*\text{NL}_{it})$, where $\zeta_{i1} =$ dummy variable $= 1$ if the observation is in 1995; otherwise $= 0$]

$\text{NP5}_{it} =$ the number of new pension policies in 1995 [i.e. $(\zeta_{i1}*\text{NP}_{it})$]

$\text{NL3}_{it} =$ the number of new non-pension policies in 1993 [i.e. $(\zeta_{i2}*\text{NL}_{it})$, where $\zeta_{i2} =$ dummy variable $= 1$ if the observation is in 1993; otherwise $= 0$]

$\text{NP3}_{it} =$ the number of new pension policies in 1993 [i.e. $(\zeta_{i2}*\text{NP}_{it})$]

$\epsilon_{it} =$ residual
4 Results from panel estimation

With fixed effects

Unlike the pooled regressions, the panel regressions, which were run on EViews 5.0, consistently gave results that support the research hypothesis. The results of the fixed effects model above are:

Dependent Variable: TEI?
Method: Pooled Least Squares

Sample: 1993 1995
Included observations: 3
Cross-sections included: 38
Total pool (balanced) observations: 114
White cross-section standard errors & covariance (d.f. corrected)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
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Fixed Effects (Cross)

|   _01–C   | 37848.59    |
|   ...     |            |
|   _38–C   | 3258.588   |

Effects Specification

Cross-section fixed (dummy variables)

<p>| | | |</p>
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<td>R-squared</td>
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<td>Sum squared resid</td>
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<td>Durbin-Watson stat</td>
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<td>Prob(F-statistic)</td>
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</table>
Did life and pensions “disclosure” work as expected?

**NL, NP** (albeit at the 10% level) and **TOI** are all significant and positive, as expected. Higher business volumes generate higher acquisition expenses.

The significant and positive coefficient on **NLT95** is prima facie evidence that for most of their business firms using the tied sales channel faced a higher business:expenses ratio than firms in the IFA sales channel in 1995 and all firms in 1993 and 1994. This is consistent with the research hypothesis. The evidence is robust to the extent that the regression addressed fixed costs, other economies of scale (size effects), inflation and year-specific effects. The interpretation reflects the following:

- The group of individuals of interest is tied channel firms in 1995 as they are thought to have been more affected by consumers shopping around after disclosure was introduced. If they were, then their ratio of expenses to business would increase in 1995 relative to previous years.
- But most firms faced an increase in their ratio of expenses to business in 1995 relative to previous years. This is because of fixed costs and a fall in business volumes in 1995.
- If firms operating through the tied and IFA sales channels had had similar ratios of expenses to business in 1993 and 1994, then, under the research hypothesis, one would expect the costs of the tied sales channel firms in 1995 to be significantly higher than those of the IFA sales channel firms. This would give a positive and significant coefficient on NLT95.
- But previous evidence and the negative and significant coefficient on NLT93 suggests that tied sales channel firms had lower expenses than IFA sales channel firms in 1993. So three results are possible – the cost increase for tied sales channel firms in 1995 either:

---

20 Dummy variables for 1994 were omitted from the model, to avoid perfect collinearity. But a separate model was run that included dummy variables for 1994 only. The results were intermediate between those of 1993 and 1995: NLT94 and NPT94 were not significant. This is the result expected under the research hypothesis, as 1994 is thought to reflect some but not all of the impacts of product-specific disclosure.
**Did life and pensions “disclosure” work as expected?**

i) roughly offset those firms’ previous cost advantage;
ii) was less than those firms’ previous cost advantage; or
iii) was more than those firms’ previous cost advantage.

- Therefore, if the coefficient on NLT95 had been significant and negative, there might have been no cost increase for tied sales channel firms in 1995 or a cost increase that was not as great as those firms’ previous cost advantage. This suggested specifying the model in first differences.
- But this was unnecessary because the coefficient on NLT95 was significant and positive. Thus only result iii) of those listed above could hold: for non-pensions business the cost increase for tied sales channel firms in 1995 was greater than any cost advantage that those firms previously had. That NLT93 is negative and significant, even in the presence of the dummy variables for 1993*policy numbers, reinforces the importance of the positive and significant coefficient on NLT95.

**NPT95** was negative and significant. In 1993, it was positive and significant at the 10% level. Since NPT was not negative in 1993, it changed in the opposite direction to NLT. This appears inconsistent with tied sales channel firms facing higher costs after disclosure but further analysis suggests three reasons why this is not so.

First, the research hypothesis is based on a supposed deterioration in the ratio of sales to meetings with consumers. This is likely to be easier to establish for non-pensions business (NLT) than pensions business (NPT). The starting point for the reason behind this is:

- expense levels are driven by the monetary value of premiums as well as by the number of contracts;
- only the number of contracts is directly relevant to the hypothesis;
Did life and pensions “disclosure” work as expected?

- changes in the monetary value of premiums could be associated with changes in variables that would lower expenses in the tied sales channel and thus produce results the opposite of those expected under the hypothesis; and
- in the sample, the average monetary value of pension premiums was £3,257 (£4,494 million/1.38 million), while the average monetary value of non-pension premiums was £1,566 (£4,072 million/2.6 million) – see Table 1 above.

Thus an increase in expenses associated with pensions business caused by shopping around is more than twice as likely to be outweighed by a change in value-related expenses than is an increase in the expenses associated with non-pensions business caused by shopping around.

Secondly, there may be a specific reason why cost increases for tied sales-channel pensions business were outweighed by cost reductions in 1995. There were reductions in the price of the most expensive products in 1995. These tended to be products sold by tied sales channel firms. One expects firms cutting prices to cut expenses wherever possible. One way to do this is to reduce commission and similar payments to tied sales forces and representatives. If that happened, the resulting lowering of expenses would have been greater per pensions contract than per non-pensions contract and this could produce the observed coefficient on NPT95. There is indeed evidence of reductions in commissions in 1995: see Charles River Associates (2004). Thus NPT95 may not be inconsistent with the research hypothesis.

Thirdly, firms' reactions to pensions mis-selling may have caused the negative and significant coefficient on NPT95. The coefficient on NPT93 is positive and significant. The likely explanation is that the cost advantages of tied sales channel firms were more than offset for pensions business, which is relatively complex, by the greater skills and experience of IFAs. (This would not apply to non-pensions business, which is relatively simple, and the coefficient on NLT93 is indeed negative, implying that the tied sales channel had lower expenses for non-pensions business in 1993.) In 1993 there was no
realisation that pensions mis-selling might be a major issue for firms. But, from 1994 onwards, many tied sales channel firms stopped selling non-standard pension products, such as pension transfers (of which there are many). Those wanting such services had to go to IFAs. The IFA sales channel continued to provide these services but under strong controls designed to reduce the risk from mis-selling claims. Thus in 1995 tied sales channel firms may have handled mostly simple pensions at low cost and IFAs handled more complex pensions under costly procedures. In that case, the negative coefficient on NPT95 would be consistent with developments in the pensions market and would not cast doubt on the research hypothesis

**NLT93** and **NPT93** have been dealt with in the discussion above.

**NL5, NP5, NL3** and **NP3** are not of intrinsic interest. They are included to check that the results of the other dummy variables are not merely year effects.

Descriptive statistics for the variables used in the above regression are in Appendix 5.

*With random effects*

As interpreted above, the results of the model run with the fixed effects estimator support the hypothesis that tied sales channel firms faced a higher cost increase after disclosure than did IFA sales channel firms. Nevertheless, the model was also run with the random effects estimator, again using EViews 5.0. A check was then made to see whether the data accepted the random effects restriction. They appeared to do so. See Appendix 6. The results of the model when run with the random effects estimator were still more supportive of the hypothesis:
**Did life and pensions “disclosure” work as expected?**

Dependent Variable: TEI?
Method: Pooled EGLS (Cross-section random effects)
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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<td>TOI?</td>
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</tbody>
</table>

*Without White cross-section standard errors*

The model was also run without White cross-section standard errors. With fixed effects and random effects, the results were similar to – though less clear than - those reported above. See Appendix 6.

*Further refinements to the model*

Further refinements (log variables, testing for non-stationarity, inclusion of dynamics and regression in first differences) were considered but thought to be unnecessary. See Appendix 7.
5. **Discussion of results**

*Interpretation of the regressions*

The regressions show that for non-pensions business firms using the tied sales channel faced a higher expenses:business ratio than firms in the IFA sales channel in 1995 and all firms in 1993 and 1994. This is consistent with the hypothesis that consumers in the tied sales channel shopped around more after product-specific price disclosure.

*Alternative explanations?*

Are there plausible alternative explanations for the econometric results? Such alternatives would have to affect mainly or only firms using the tied sales channel or firms using the IFA sales channel: the design of the model in effect controls for changes, for example in back-office technology and the property and labour markets, that affect both channels similarly.

Were costs for firms using the tied sales channel inflated in 1995 by expenses associated with the beginning of the switch by life companies from tied sales forces to IFAs? Standard & Poor’s (1996) refers in December 1996 to life offices switching to the IFA sales channel ‘in the last 18 months’ i.e. from mid-1995. But this trend became much more apparent in 1996. Also, the model used acquisition expenses not total expenses as the dependent variable, and acquisition expenses do not include the costs of cutting back or selling direct sales forces.

Did firms using the tied sales channel, concerned about more intense price competition, greatly increase their expenditure on advertising, to try to maintain market share? This seems unlikely:
Did life and pensions “disclosure” work as expected?

- There was extensive price dispersion in this market. Presumably some firms that previously advertised their (low) prices are likely to have spent less on advertising after the new disclosure was introduced since it made the advertising unnecessary. To that extent, regulation and advertising are substitutes. See Sloth Andersen (1998).

- A change in the likely level of expenditure on advertising can be assessed by using the Dorfman-Steiner formula: \( a/R = \eta/\epsilon \). This says that \( a \), the ratio of advertising expenditure, to \( R \), revenues (sales) = \( \eta \), the ratio of the advertising elasticity of demand to \( \epsilon \), the price elasticity of demand. Thus, the larger \( \epsilon \) is and the smaller \( \epsilon \) is (or the larger the mark-up is), the larger the advertising to sales ratio will be. The effect of price disclosure rules on \( R \), \( \eta \) and \( \epsilon \) may have been:
  i) \( R \) declined when disclosure was introduced, as predicted by NERA (1994). Money Management (1997) attributed this decline in part to disclosure.
  ii) \( \eta \) might have declined when disclosure was introduced, as consumers might have become more skeptical about advertising when they also had useful information under regulatory mandate. But this is uncertain.
  iii) \( \epsilon \) increased - or, at least, mark-ups decreased - when disclosure was introduced, as price cuts followed (see above).

Thus the clear expectation under the Dorfman-Steiner formula is that firms would have spent less on advertising after disclosure.

- A possible caveat would arise if the market became much more concentrated in 1995. See Baltzer Overgaard (2002). But, as already explained, the relevant market did not become much more concentrated in 1995. Even if it had, the direction of any effect on the level of advertising would have been uncertain.

We tested this analysis of advertising expenditure with empirical data. Chapter 2 of The Advertising Statistics Yearbooks (1994 et seq) shows a high level of positive correlation between advertising expenditure and consumer expenditure and between advertising expenditure and company profits. This is supportive of the Dorfman-Steiner formula.
Did life and pensions “disclosure” work as expected?

Company profits were rising in 1994, and total expenditure on advertising in the UK at then current prices rose by 11.3% over 1993. But, as noted above, sales in the life and pensions industry were falling. Table 19 in the Advertising Statistics Yearbook shows that advertising expenditure on life and pensions fell from £33,051,000 in 1993 to £30,838,000 in 1994. The figure for 1995 was £31,585,000. These are figures for the whole industry. The industry’s average annual acquisition expenses for 1993-1995 was £5,580,605,000 (Source: own calculation from Synthesys). Thus a change in advertising expenditure of £3 million represents only about 0.05 of a percentage point of total acquisition expenses and the increase in 1995 of about £700,000 represents only about 0.01 of a percentage point of total acquisition expenses. It therefore seems safe to assume that a change in advertising expenses is not driving the results that we observe.

Could the higher expenses:business ratio in the tied sales channel in 1995 for non-pensions business be due to the costs of disclosure itself? This is highly implausible:

- The fixed costs of disclosure (for example, any new software required) were the same for firms in both channels. IFAs did not produce the software. It was prepared by the product companies using IFAs, just as it was prepared by the product companies using the tied sales channel.
- NERA (1994) does not indicate any material difference in the costs of disclosure between the channels. Aside from the fixed costs, disclosure was thought to involve salesmen spending a little longer with consumers, regardless of whether they were IFAs or in the tied sales channel. (A small difference could have arisen at life office level if IFAs faced higher costs that were not immediately reflected in changes in commission rates. But any such cost difference must have been tiny in the context of firms’ cost functions: see next point.)
- In any case, the total costs of disclosure estimated by NERA - once-off costs of £85 million and annual costs of £24 million – are dwarfed by life offices’ total...
Did life and pensions “disclosure” work as expected?

expenditure. On average, this was £5,580 million for each year in the range 1993-1995 (source: own calculation from Synthesys Life).

Could the expenses:business ratio in the tied sales channel have been lower in 1993 and higher in 1995 due to a change in the incidence of mis-selling? A plausible version of this argument depends on:

- mis-selling was more common in the tied sales channel than in the IFA sales channel;
- mis-selling became less common in both channels in 1995, relative to 1993; and
- mis-selling takes less time than appropriate selling.

This argument cannot be dismissed out of hand but it is not very convincing:

- The first condition does hold: mis-selling was more common in the tied sales channel.
- The second condition may not hold: by 1993 a more rigorous conduct-of-business regime had been introduced by the regulators.
- The third condition may not hold: in 1995, most of the time spent in the sales process was on the fact find – the description of the consumer’s circumstances and objectives. For regulatory purposes, this had to be recorded in detail to underpin the recommendation. The search for a product to match the facts took almost no time in the tied sales channel – since the agent usually had only one relevant product to recommend – and this is the point at which mis-selling occurs.

It may even be that any reduction in mis-selling would have impacted more on costs in the IFA sales channel: while IFAs generally did less mis-selling, where they did so their cost savings were considerable since they avoided the ‘all of market search’ which underpins their recommendations. Thus any change in the incidence of mis-selling
**Did life and pensions “disclosure” work as expected?**

probably reduced the cost difference between channels in 1995, thereby masking the change predicted by the research hypothesis. But no firm conclusion can be drawn on this point without undertaking additional research.

Finally, was the higher expenses:business ratio for tied sales channel firms in 1995 due to the costs of putting right pensions mis-selling? Pensions mis-selling affected a higher proportion of sales in the tied sales channel than in the IFA sales channel. But these costs are not accounted for in acquisition expenses. So they should have no bearing on the results of the regressions.

**Other support for consumers shopping around in response to disclosure**

In addition to the econometric results, several possible sources of support for the hypothesis that product-specific disclosure resulted in increased shopping around and relatively higher expenses in the tied sales channel have already been mentioned:

- the qualified or indirect support in such past literature as Babbel (1985), Burkart (2002) and O’Brien (2003);
- the ratio analysis;
- the increase in tied sales channel firms’ proxied fixed costs between 1993 and 1995;
- the fall in sales in 1995;
- the fall in prices in 1995 – in particular, the likelihood that price dispersion in the tied sales channel fell by more than price dispersion in the IFA sales channel;
- the decision of many product providers, after product-specific disclosure was introduced, to switch from the tied sales channel to the IFA sales channel, which presumably means that the tied sales channel had become less profitable, which may in turn mean that it was more affected by the costs increases and revenue pressures associated with shopping around; and
Did life and pensions “disclosure” work as expected?

- the increased competition in the relevant market.

There are also several reasons to suppose that the data used in the regressions understated the extent to which increased shopping around affected the expenses of tied sales channel firms. First, the overall statistics on advertising presented above show that expenditure on it fell slightly between 1993 and 1995. But the data are not split between tied sales channel and IFA sales channel firms. If advertising expenditure fell more for tied sales channel firms as suggested above, it would tend to mask any increase in expenses in tied sales channel firms. So these firms might have faced a larger increase in shopping around than is apparent from the data about expenses and business volumes.

Secondly, this point is reinforced when one considers that the Dorfman-Steiner analysis generalizes to all forms of marketing activity, including the following-up of customer leads: it is in increased costs of administering and holding customer meetings (for a given level of business) that we suggest firms in the tied channel faced higher costs. A tendency not to follow-up less promising leads when mark-ups and revenues fall would further mask the hypothesized cost increase.

Thirdly, as argued in the preceding section of this paper, a reduction in mis-selling by IFAs might also have masked the relative cost increase in the tied-channel in 1995.

Fourthly, firms, especially tied sales channel firms, on average faced lower prices after disclosure. They are therefore expected to have taken action to lower all costs. This would mask the increase in costs associated with shopping around. Tied sales channel firms seem to have taken such action, as is evidenced by their switch away from the tied sales channel from mid-1995 onwards (see CRA 2004).

More direct evidence that firms using the tied sales channel faced higher costs as a result of shopping around by consumers causing a decrease in the ratio of sales to...
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meetings could come from changes in staff numbers. This turned out not to be a fruitful line of inquiry:

- It is not clear whether an increase in staff numbers should be expected. Business volumes fell, so staff numbers might actually have fallen even if the research hypothesis is correct.
- Another reason for uncertainty about staff numbers is that it is not known to what extent extra meetings needed to secure a given level of business could be funded through overtime payments or diverting staff from less productive, optional tasks.
- The data in ABI (1996-2001) on staff numbers are highly aggregated, with the total employed in life and non-life insurance being split between ‘insurance and pension funding’ and ‘auxiliary to insurance and pension funding’. In the auxiliary category, which is probably the relevant category, numbers employed in 1995 were almost the same as in 1993. This is consistent with the research hypothesis, given the sharp fall in business volumes. But it would be unwise to draw any strong inferences, given the breadth of the category. For example, many additional people were employed for the pensions mis-selling review, and there will have been more of them in 1995 than in 1993.
- Another source of data on staff numbers is the individuals registered with FIMBRA and LAUTRO (the PIA’s predecessors) as permitted to sell investment products. Unfortunately, reliable data are only available from 1998 (when the FSA started to operate). The problem is that, prior to the introduction of the training and competence regime, it cost firms almost nothing to register staff as individuals permitted to sell investment products. Thus, for example, bancassurers registered vast numbers of counter staff, most of whom, in reality, spent almost none of their time on investment business. Such people disappeared from the list over time, depending on the strength of the business case for registering them: a search of Books on Screen showed that the SIB, LAUTRO, FIMBRA and the PIA had nine initiatives on training and competence
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between 1990 and 1998. Of these, the ones that came into force on 1.4.93, 1.11.93, 1.7.94 and 1.10.95 are likely to have affected the number of individuals registered for investment business – but without affecting the cost base or business significantly.

- Also, no data of any kind seem to be available on the ratio of sales to salesmen’s meetings with consumers.

As already mentioned, direct and reliable evidence on consumer behaviour is not available, and it may be hard to imagine many consumers shopping around by going from product provider to product provider, although some consumers certainly do this. But, in any case, such behaviour is not necessary for the ratio of sales to customer contacts to fall more in the tied sales channel than in the IFA sales channel. A customer in either channel might say in response to product-specific price disclosure: ‘that’s way too expensive; I’m going to buy premium bonds!’ In the tied sales channel, the salesman would be unable to offer a cheaper alternative and would lose the sale. In the IFA sales channel, the salesman could offer a cheaper substitute and perhaps not lose the sale. In this case, the lost sales in the tied sales channel would lower the ratio of sales to meetings in the tied sales channel, thus increasing acquisition expenses in this channel relative to the IFA sales channel.

Possible areas for further research

A number of possible areas for further research suggested themselves in the course of this work:

- An exploration of the relationship between financial regulation and the level and type of advertising; this relationship could imply larger benefits or costs of regulation than previous studies have found, depending on whether the advertising affected is socially wasteful or welfare-enhancing;
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- An exploration of the boundaries of the market for financial advice and the market for financial products; the extent to which they are – or are not – separate markets could have important implications for regulatory policy;

- An exploration of the battle or co-operation between firms and the FSA to influence consumers; like firms, the FSA is an expert and, as such, might be expected to influence consumer behaviour; but firms can and do respond strategically to the FSA’s initiatives; examining how they responded to disclosure, for example in terms of the interaction between regulation and competition in 1996 and afterwards, could yield useful lessons for regulatory policy;

- The last point could be explored in part through an extension of the present study to later years. As already mentioned, this would give rise to some challenging data issues. But it would be also useful, for example, as a means of testing the hypothesis that the apparent changes in consumer behaviour identified here were reactions as much to the publicity surrounding major regulatory changes as to the disclosures themselves;

- A detailed exploration of the pattern of cost savings in life companies, to identify the extent to which they appear to be driven by regulatory changes.
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6 Conclusion

The econometric results suggest that for non-pensions business, which is the main business in the tied sales channel, tied sales channel firms’ expenses:business ratio rose much more than that of IFA sales channel firms between 1993 and 1995. Given the design of the model, this is consistent with tied sales channel firms facing a greater increase in shopping around by consumers than did IFA sales channel firms.

The opposite result was found for tied sales channel firms’ expenses:business ratio for pensions business. But this result may well be a consequence of firms’ reactions to pensions mis-selling. It is therefore considered not to be a strong indicator that the research hypothesis is unreliable.

There is also a range of other evidence that is consistent with tied sales channel firms’ expenses:business ratio rising much more than that of IFA sales channel firms between 1993 and 1995. Moreover, no credible alternative explanation has been identified.

It may therefore be reasonable to suppose that consumers in the tied sales channel shopped around more after the introduction of product-specific price disclosure. This is especially so in view of the several developments – the incentives to economise – which are likely to have masked the effects of increased shopping around on the data used in this research. But the econometric tests of the hypothesis are indirect and so their results must be viewed with a degree of caution.

While increased shopping around per se is an economic cost, it is reasonable to suppose that it could produce net benefits. (The new work requisitioned by the FSA and mentioned in footnote 13 above appears to support this.) Consumers who shop around are likely to increase the efficiency of their consumption by an amount greater than
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their own valuation of the cost of their time, if they are rational and in possession of
the relevant information, which product-specific disclosure provided. Firms faced by
increased shopping around are likely to improve their offerings and therefore, to
maintain accounting profits, improve the efficiency of their production. This seems
plausible, given the analysis here that firms have a degree of market power and were
competing, wastefully, for the market.

Finally, it is worth emphasising that the results described here do not depend on all or
most consumers choosing to shop around after the introduction of product-specific
disclosure. All that is needed is that sufficient consumers started to shop around to
have a statistically significant impact on the costs of tied sales channel firms relative
to the costs of IFA sales channel firms.
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Appendix 1

Competition in the life industry

Market definition

A broad market definition is preferred. Retail pensions and other life assurance investment products are treated together, as are the different channels through which they are sold. This is partly for simplicity, partly because the more complex assumption of separate markets would make little difference to the analysis undertaken here and partly because there is some evidence to support the assumption of a single market:

- FSA research shows that the incomes of consumers using the IFA and tied sales channels differ only slightly. All of the channels cater for the mass market. In 1995, product providers selling almost exclusively through the IFA sales channel had 26% of the retail market, product providers selling through IFAs and the tied sales channel had 52% of the market and product providers selling almost exclusively through the tied sales channel had 22% of the market. (Source: own calculations from Synthesys.) IFAs’ share of total life and pensions business in 1995 was 47% (ABI, 1998). Moreover, there are no real barriers to consumers substituting between the channels, and consumers do so in material numbers. See Bacon & Woodrow (2001).
- Cook (2000) establishes, with reference to the UK tax regime of the 1990s, that, except for those who are paying higher rate tax when saving and expect to pay

\[\text{\textsuperscript{21}}\text{In fact, an assumption that IFAs and other salesmen operate in separate markets might make it easier to justify the hypothesis, described below, that firms using the IFA sales channel faced a smaller increase in shopping around than other firms. Since this assumption may not be justified, it is avoided.}\]

\[\text{\textsuperscript{22}}\text{It is emphasised that these arguments are not conclusive. There are interesting questions about the separation of the market for investment advice from the market for investment products, which might depend in part on the true extent of heterogeneity in consumers’ investment needs. But these questions are not material to this research.}\]
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basic rate tax during retirement, pensions and other tax-advantaged savings vehicles were broadly substitutes for each other.  

Market structure

In the mid-1990s, the structure of the life and pensions market differed from that for retail current accounts since it was not dominated by a handful of very large firms. New business premiums are the most appropriate measure of market share. The 100 or so firms that are potentially relevant to this study (more details in the Method section below) wrote almost £217 billion of new business in 1995. The top five of these firms by size wrote 28% of the new business. The top 10 of these firms by size wrote 44% of the new business. (Source: own analysis of Synthesys database.) Using the approach set out in Bishop (1999), an upper bound for the Herfindahl-Hirschman Index (HHI) has been calculated from the market shares of these 105 firms as 308. (Source: own analysis of Synthesys database.) Thus it appears that the market does not give rise to concerns about monopolistic competition. See OFT (2003), where a concentrated market is defined as having an HHI in excess of 1,000 and a highly concentrated market as having an HHI in excess of 1,800.

There is also the issue of vertical integration. The market has distinct vertical levels. In addition to product providers and product distributors (the tied and IFA sales channels), there are also important service providers, such as fund managers and the providers of administrative services, who may be third parties or integrated with

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23 Life companies’ non-pension investment products, such as life companies’ with-profit bonds, were advantaged by the taxation arrangements for life company funds. Such bonds and similar products, and pensions, account for a very high proportion of the expenses incurred by life companies that are central to this study. Annuities and permanent health products are clearly not substitutes for the pensions and other investment products just mentioned but account for only a very small proportion of life company expenses. Thus they are not considered to justify a separate market analysis.

24 There is a case for weighting the single and regular premium elements of the total so as to reflect the typically higher initial commissions on regular premium business. But commissions are only one element of acquisition expenses and, for firms in the IFA channel single premium business was 90% of total business, while it was over 80% in the tied channel. Also, commission practices are diverse (probably reflecting the scope they provide for product providers to compete for distribution).
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product providers. Theory suggests that externalities in vertical relationships could result in restrictive contracts between providers and distributors – vertical restraints. But this was less likely with respect to the IFA sales channel, which had regulatory obligations to undertake a fair and unrestricted ‘whole of market’ search on behalf of its customers. Moreover, as explained here, the tied sales channel had to compete with the IFA sales channel. Further, the polarisation rules in place in the mid-1990s may have made vertical integration and restraints less attractive than would have been the case in an unregulated market since it severely limited the available business models, meaning that many constraints designed to lower the average cost of production could not be implemented.

The nature of competition in the market – literature review

Although the market seems not to be monopolistic, its structure gives rise to two particular questions:

- if the market is competitive, how can the IFA and tied sales channels co-exist (assuming that they do not have identical costs)?
- if the market is competitive, how can mutual and stock firms co-exist (assuming that they do not have identical costs)?

The second question is easier to answer than the first. Hardwick (1997) finds that differences in inefficiency between mutuals and stock companies are not statistically significant. Hay (2003) does conclude that mutual firms were on average less cost efficient than equivalent size stock companies during 1989-1999 but adds:

‘This raises the question of how they were able to compete. The answer is given by recalling the data in Table 1: mutuals were on average much larger than stock companies, and so were able to benefit from economies of scale that are evident in our estimations. This protected their competitive position despite their inefficiency.’
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Diacon (2002) also finds that scale economies exist in this market.

Turning to the first question, we note that Berger (1997) analysed a similar situation (agents selling property-liability insurance in the United States) and tested two hypotheses: the market imperfections hypothesis and the product quality hypothesis. The former attributes the co-existence of the two distribution systems to barriers to effective competition. The latter attributes it to independent agents providing higher quality services. Berger measured profit efficiency and cost efficiency and found strong support for the product quality hypothesis.

One might expect Berger’s finding to apply to UK life and pensions business because regulation requires IFAs to provide the ‘best’ product rather than a ‘suitable’ product. This implies higher product quality. At least two studies of the cost of distribution in the UK market for retail investments have drawn on Berger’s work.

Ward (2002) used data for the years 1990-1997. He found cost differences between (more costly) independent and (less costly) tied modes of distribution but his evidence for the product-quality hypothesis was less clear-cut: ‘The revenue and profit functions show some return to the use of independent distribution but the efficiency measures do not.’ However, his modeling of the distribution decision itself yielded some evidence that the IFA sales channel is associated with mutuals and the selling of more complex products, ‘all indicating support for the product quality hypothesis’. He also found circumstantial evidence of a ‘competitive efficient market’.

Klumpes (2004) covered the period 1994-1999. His results provided much stronger support for the market imperfections hypothesis than for the product quality hypothesis. ‘The higher cost inefficiency of IFA firms does not appear to be due primarily to the standard view that the provision of higher quality services is compensated for by additional revenues.’ But Klumpes warns that, for several reasons, his results must be treated cautiously and he recommends further research.
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These results may reflect the difficulty of assessing product quality in this market. Arguably the most important dimension of product quality - how the product fits with the individual consumer’s circumstances – is not intrinsic to the product, has no direct link with price and little direct link with the costs of production (aside from the best/suitable distinction). Moreover, since long-term investment products are credence services whose outcomes depend on actions taken as long as 25 years after their purchase, their quality cannot be assessed with certainty for many years and, without very detailed knowledge of the portfolio risks assumed over time, cannot be assessed at all. See Llewellyn (1999). Thus it is difficult for the price mechanism to operate to reveal quality, which may even be negatively related to price.25

Another barrier to assessing the product quality hypothesis is that 52% of the market is supplied by life offices selling through the IFA sales channel and the tied sales channel. From those offices, a consumer will usually get the same product at the same price regardless of the channel used. See Annex B of Personal Investment Authority, 1997, which notes that dual pricing ‘remains the exception rather than the norm’.

Overall, it appears that the coexistence of mutuals and stock companies, and of the IFA and tied sales channels, does not establish that the market is ‘uncompetitive’. Indeed,

25 Evidence that how the product fits with the individual consumer’s circumstances is the most important dimension of product quality includes (a) this is the main concern of the retail regulatory regime and (b) the other dimensions of quality that could be very important turn out not to be:

- investment performance: this is largely random and unable to be determined ex ante. See Rhodes (2000);
- price: higher prices reduce quality as they merely reduce investment returns. See Carhart (1997) in James (2000) and James (2000) (thus a higher price cannot rationally be seen as a signal of quality);
- service quality: variety in service quality has been greatly reduced as a result of regulation, including back-office training and competence, the complaints regime and the Ombudsman
- product features: conventional wisdom in the industry is to dismiss these as ‘bells and whistles’ i.e. features of no substance. It may be that there is little incentive to innovate because new features could not be patented in this industry and could be copied by competitors through minor tweaks to contracts; and
- soundness of the product provider: variety here has been greatly muted by regulation, not just in the form of capital and other prudential standards but also through the operation of the Compensation Scheme.
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Hay (2003), like Ward (2002), finds some evidence that the market is competitive. On the other hand, James (2000) and Sandler (2002) express concerns about the nature and state of competition in – or, perhaps more accurately, for – this market.

These positions may be reconcilable. James and Sandler are primarily concerned with whether consumers get a good deal. They provide evidence on how firms exploit consumers, given consumers’ bounded rationality. Hay and Ward are concerned with firms’ cost functions. It seems possible that some firms do not compete strongly on price (because many customers do not appreciate how important price is) but are under pressure from shareholders with respect to their expense ratios.

There is some evidence to support this conjecture. First, the entry of the bancassurers into the life market showed shareholders that expense:premium ratios enormously lower than those of most incumbents could be achieved (with a pre-existing branch network). This is understood to have put pressure on traditional life companies. For the period 1993-1995, the bancassurers’ average ratio of total new businesses expenses to total new business was 20.5%, while that of the traditional life companies was 35.2%.

Source: own calculations from Synthesys, using firms in own sample categorised as ‘tied sales channel only’.

Secondly, the PIA’s Life assurance disclosure: two years on, 1997 contains some striking graphs. We have recreated one of these from the disclosure data: see below. It shows that almost all product providers using IFAs paid them between about £550 and about £600 in commission over the first five years of a 25 year unit-linked personal pension of a particular size. This is consistent with firms controlling their expenses and behaving in a competitive fashion. On the very same contracts over the same period, however, the amount charged by firms to consumers (‘effect of deductions’) ranged between about £750 and £2,250, with observations spread roughly equally across that interval. This price dispersion cannot be explained by differences in product quality and is consistent with muted price competition.
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Chart 1: price dispersion

It should be noted, however, that shareholders might accept the socially wasteful competition for the market described by James and Sandler (see above) on the basis that it is necessary to obtain or retain market share. In principle, such competition may lead to the dissipation of all of the firms’ rents.

Alfon (2002) did not analyse product quality in detail but found evidence of price dispersion for apparently similar products sufficient to justify switching, even in the face of the industry’s traditional high switching costs. Interestingly, he also mentions that the gains to be had from switching were declining in the face of price reductions being offered for existing contracts.

O’Brien (2003) draws attention to the large number of firms operating in the UK life insurance market and the reasons for nevertheless believing that consumer power may be weak. He points out that the Government has used consumer weakness to justify
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price regulation (the price cap on stakeholder pensions), despite its stifling effects in Germany. He uses the PIA’s data about charges and evidence about entry, exit, mergers and continuing firms from 1995 to 1999 to assess whether competitive forces are reducing prices. He finds some evidence that competitive forces ‘do operate in the life insurance market: not necessarily as strongly as we would wish, but suggesting that the rationale for price regulation should be reviewed’. His main evidence is:

• new entrants to the unit-linked market had relatively low charges, which he regarded as ‘a competitive stimulus to the market’;
• mergers and acquisitions tend to result in overall reduced charges, suggesting that increased consolidation in the industry does not disadvantage consumers.

Prices have fallen further in the period subsequent to O’Brien’s data. Many have suggested that this is a consequence of the PIA’s publication of ‘RU64’. This Regulatory Update says that firms not recommending a stakeholder pension (a pension that meets certain standards, including low charges, set by the Government) would be expected, if they recommended a pension with a higher charge, to explain what additional value the consumer would receive from paying the higher charge. Two observations follow from this:

• Those who attribute price falls to ‘RU64’ are making an assumption. An alternative hypothesis is that the post-RU64 price falls are, at least in part, a continuation of the operation of the market forces identified by O’Brien. These may themselves depend on the disclosure regulations analysed in this study. This is a significant issue (in 2004) as the FSA is considering changing the disclosure rules and whether to delete ‘RU64’ or to introduce a similar provision with respect to ‘Sandler Products’.

26 Switching costs have been high, for example, due to high up-front charges. As the PIA’s ‘disclosure reports’ (see table of references) show, the reductions in yield experienced by consumers are far higher over five years than over 25 years.
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- Firms seem unable to differentiate on quality grounds between plain vanilla Stakeholder Pensions and other personal pensions. (If firms could differentiate, presumably they would in order to earn higher revenues: a report by Deloitte and Touche for HM Treasury suggests that firms save little in the way of costs when they provide stakeholder as opposed to other pensions.) On the basis that in practice firms cannot differentiate between Stakeholder Pensions and other personal pensions to a sufficient degree to justify selling higher-priced products, one may infer that any quality differences are minor. This is relevant to the discussion about product quality above.

Further support for O’Brien’s analysis that consumer power in this market may be weak, with firms enjoying some market power, comes from the literature on bounded rationality, and on search and switching costs in fragmented markets. This is now summarised by Garrod et al (2008). Moreover, firms’ products are differentiated through branding activities. In such a market, it appears feasible that the introduction of product-specific disclosures could enhance competition through facilitating comparison of offerings, which could, for example, lower the costs of making an effective search, even though consumers might actually spend longer on searching than they would under conditions in which searching is more difficult.

The conclusion of this literature review and analysis is that, despite claims that the UK market for retail investment products is uncompetitive, there is some competition in the market: it does not appear to be a market in which there is no prospect of consumers shopping around. There may even be evidence that competition has increased under the influence of the disclosure regulations that are the subject of this study.27

27 Life firms as a group seem to have made increased efforts to control or cut costs from the point in 1992 when the Office of Fair Trading published its report to the Chancellor on disclosure regulations. It is unsurprising that all types of life firm did this, given the significant share of the market held by ‘mixed channel’ firms i.e. firms which sold through the tied and the IFA sales channels. Also, consumers could substitute between channels. Further evidence is now provided by the work commissioned by the FSA in 2008, which is described in footnote 13 above.
Appendix 2

Ratio analysis and investigation of fixed costs in the life industry

Ratio analysis

Only firms that met the admission criteria for the sample were included in the ratio analysis. First, the ratio of total acquisition expenses to total new premiums was calculated for firms using the tied sales channel in 1993. This was repeated for the same firms in 1995. Then the percentage change in the ratio from 1993 to 1995 was calculated. The same three steps were carried out for firms using the IFA sales channel.

Table 2: expenses:premium ratios by channel

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<tr>
<th></th>
<th>TIED- CHANNEL</th>
<th>IFA- CHANNEL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1993</td>
<td>1995</td>
</tr>
<tr>
<td>Average total</td>
<td>£26,751,000</td>
<td>£26,049,000</td>
</tr>
<tr>
<td>acquisition expenses per firm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average total premiums on new business per firm (i.e. excluding annual premiums on contracts written in previous years)</td>
<td>£69,454,000</td>
<td>£58,564,000</td>
</tr>
<tr>
<td>Ratio of average expenses: average premiums</td>
<td>0.385</td>
<td>0.469</td>
</tr>
<tr>
<td>Increase in ratio from 1993 to 1995</td>
<td>21.72%</td>
<td>7.98%</td>
</tr>
</tbody>
</table>

These results are consistent with the research hypothesis but inconclusive. The ratio of expenses to premiums changed for tied sales channel firms by about three times as much as it changed for IFA sales channel firms. This is consistent with firms in the tied sales channel facing a bigger cost increase (relative to business done) in 1995 than
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firms in the IFA sales channel, and the higher cost increase could be due to shopping around. (It is striking that new premiums for firms in the tied sales channel fell by about one sixth while expenses were roughly the same in the two years. Due to shopping around, a lower proportion of the costs incurred by tied sales channel firms would result in premiums: expenses would increase relative to premiums. The extra costs would still be included in acquisition costs since they are not management expenses. They relate to – failed – business acquisition.)

That the ratio of expenses to premiums changed by less than 10% for firms using the IFA sales channel is also consistent with the research hypothesis. These firms were not expected to face significantly higher costs due to shopping around and, in principle, nothing much changed for these firms between 1993 and 1995: the compliance costs of disclosure estimated by NERA (NPV: £100m for the entire industry) were very small in relation to total acquisition expenses. The reason why the fall in new premiums, for these firms, of one sixth led to a fall in expenses of less than 10% is probably due largely to a combination of fixed costs, other economies of scale and inflation.

This last point explains why the use of simple ratios is inconclusive. Without adjustment, they do not deal with fixed costs, other economies of scale or inflation. Moreover, inspection of the table above shows that the average size of IFA sales channel firms in the sample is between two and three times that of the tied sales channel firms in the sample, depending on which measure is used. (This is representative of the market: Hay (2003) notes that mutual companies, which are strongly associated with the IFA sales channel, are able to compete, despite their

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28 The distinction between fixed costs and other economies of scale may not be important. But, to be clear, the distinction between the two is taken to be as follows:

- **fixed costs** are costs that do not vary with the amount of services produced, at least in the short run;
- **other economies of scale** arise from costs that even in the short run both vary with the amount of services produced and tend to fall as additional units are produced; for example, a very large life office selling large numbers of policies is likely to need more salesmen than a small life office and may, as a result of quantity discounts, be able to lease cars, laptops and software for those salesmen at rates lower than those that can be obtained by small life offices; this is the kind of cost advantage that Tesco is said to enjoy over rival supermarkets in the UK.
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inefficiency, because they are on average much larger than stock companies and therefore benefit from economies of scale.) Furthermore, the fixed costs in tied sales channel firms are likely to be higher than IFA sales channel firms. This is because they have to run their own sales forces, so some costs that are fixed in the tied-channel are met through commissions paid to IFAs in IFA sales channel firms, and these commissions are only paid with respect to transactions.

Fixed costs - introduction

Life companies operate on a very wide range of scale of operation. Some offices have total new premium income of less than £1m per year, while others have new premium income in excess of £1bn per year.

If firms at opposite ends of this scale were competing with each other in a competitive market, one would be tempted to infer that fixed costs must be trivial. But this is implausible. Life companies incur a range of costs that, in the short run at least, are fixed and independent of business volumes. (Thus, if all these firms are in the same market, there must be market imperfections, as discussed above.)

Using EViews Version 3.1, the pooled regressions mentioned in the main text were run on acquisition expenses versus new business:

- for firms using the tied sales channel;
- for firms using the IFA sales channel; and
- for each year in the sample.
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These regressions were ordinary least squares regressions in the form:

\[ Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon_i \]

where:
- \( Y \) = total acquisition expenses;
- \( \beta_0 \) = constant;
- \( X_1 \) = total value of new pensions premiums;
- \( X_2 \) = total value of other new premiums;
- \( \varepsilon \) = residual.

Thus the first regression used data about individual firms in the tied sales channel in 1993, and so on. Pension premiums were used as a separate regressor as they are generally understood to involve materially higher acquisition costs than other premiums. As noted in the main text, the regressions indicated that fixed costs were higher in the tied sales channel than in the IFA sales channel, despite the larger size of the IFA sales channel firms. Also, fixed costs in the tied sales channel grew between 1993 and 1995, while they fell in the IFA sales channel. This could indicate that tied sales channel firms were facing higher costs of the kind hypothesised here.

Fixed costs cannot be seen directly in the data used here. The reason for this is that firms allocate their fixed costs to acquisition and other expenses before they submit the data to Synthesys. In view of the potential importance of fixed costs in this analysis – since IFA sales channel firms in the sample are so much larger than tied sales channel firms in the sample – fixed costs were investigated further, in an attempt to estimate them directly.
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*Fixed costs - evidence supplied to the Sandler review*

Difficult issues of definition attach to fixed costs and these were not fully resolved in the life industry’s submissions to HM Treasury about the appropriate level of the charge cap on the wider suite of ‘Sandler/stakeholder products’. HM Treasury shared some of this information on an anonymised basis. The industry claimed, reasonably, that costs of the following types are fixed (or, at least, not transaction-specific):

1. Property and other accommodation costs.
2. Actuarial costs.
3. Finance and audit costs.
4. HR.
5. Legal advice (internal and external).
6. Many aspects of FSA compliance.
7. Other compliance (taxation, listing, etc).
8. Shareholder relations.
9. Customer service management.
10. IT systems.
11. Marketing and business development.
12. Sales fixed infrastructure.
13. Events, security, etc.
14. General management.

Thus submissions to HM Treasury argued that the marginal costs of investment business transactions are low. A degree of skepticism may be in order. The point of the submissions was, presumably, to establish that a high volume of sales would not justify a low charge cap since many of the relevant costs are fixed. But perusal of the financial accounts of a range of firms suggests that the costs listed above are not trivial.
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Large firms possibly have higher fixed costs than small firms. This is because they operate a wider range of products and services (and, in the short run, the amount needed of many non-transaction services is independent of the volume of transactions).

Fixed costs - evidence in the literature

Since the above evidence is inconclusive, a literature review was performed.

As mentioned above, Diacon (2002) and Hay (2003) find that economies of scale are important in this market. In addition:

- Kaye (1991) looks at UK life industry data for 1980-1986 and finds evidence of economies of scale, which probably implies that some costs are fixed. She estimated ‘the rate of proportionate increase of expenses against the proportionate increase of premiums’ to be about 92%. She noted that this was similar to Praetz’s 1993 result, where a 10% increase in premiums produced an 8.9% increase in total costs.
- Diacon (2002) looks at UK life industry data for 1996-1999 and finds a marked scale efficiency effect. This is in the shape of an inverted U, with small and large insurers appearing to have lower scale efficiency.
- Ward (2002) uses UK life industry data for 1990-1997 and finds that size is a key determinant of whether product firms choose to distribute their products via the IFA sales channel. But he does not associate this with scale economies. He argues that it reflects the need for firms to be big (i.e. have substantial reserves) to enable IFAs to feel confident about recommending their products.
- Hardwick (1997) examines UK life industry data for 1989-1993 and finds strong evidence of ‘scale inefficiency’. He splits companies into five size groups. The smallest has premium income of approximately £55m. The largest has premium income of approximately £1,500m. At the estimated cost frontier, he finds, for a given mix of premium types, costs of £0.37 per pound of total premium
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income in the group of smallest companies. The equivalent figure in the group of largest companies is £0.24. He then makes the ratio 0.37/0.24, yielding the score 1.73. The scores for the intermediate groups are 1.35, 1.20, and 1.12. (The score for the largest group is 1.)

• Hay (2003) examines UK life industry data for the years 1989 to 1999 and concludes: ’We can use our estimated equation to attribute the observed 32% fall (in costs per unit of premium) to different variables…The key finding is that the main explanation was the growth in the size of firms over time, which enabled them to realize the economies of scale which are implied in our estimated equation’.

Direct estimation of fixed costs

While there is general agreement in the literature about the presence of economies of scale (and presumably also of fixed costs), their size is unclear. We therefore tried to estimate directly the fixed costs hidden in the Synthesys data.

Data for 1991 and 1992 for most of the IFA sales channel firms in the sample were used. In these years there were no significant shocks in the market and similar volumes of business. The fixed costs were estimated from the relationship between the change in total costs between the two years and the change in total premiums between the two years. For example, if total expenses increased by 3% while total premiums increased by 4.5%, it would be inferred that fixed costs were roughly one third of total costs. (Other economies of scale might safely be ignored for such a small change, especially one that might mostly reflect inflation.)
Did life and pensions “disclosure” work as expected?

Table: direct estimation of fixed costs

<table>
<thead>
<tr>
<th>Firm</th>
<th>A: % CHANGE IN EXPENSES 91:92 (92exp/91exp*100-100)</th>
<th>B: % CHANGE IN PREMIUMS 91:92 (92prem/91prem*100-100)</th>
<th>C: IMPLIED FIXED COSTS PROPORTION: (1-A/B)</th>
<th>TOTAL ACQUISITION EXPENSES 1992 (£000)</th>
<th>IMPLIED FIXED COSTS (C*92 expenses)</th>
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<tbody>
<tr>
<td>Clerical M&amp;G Life</td>
<td>2.996359</td>
<td>4.502103</td>
<td>0.334453</td>
<td>110890</td>
<td>37087.55</td>
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<td>1.911849</td>
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<tr>
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<td>0.853623</td>
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</tr>
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</tbody>
</table>

Unfortunately, fixed costs cannot be estimated in this way. Sometimes expenses increase while premiums reduce and vice versa (rather than increase or decrease together as expected). This could indicate arbitrary accounting or significant one-off costs or, more likely, one-off business changes, such as transfers from other group companies or major transactions such as opening group personal pensions with new clients.

The crucial point is that there is no evidence that the phenomenon of interest in this research – the change in the expense ratio of the tied sales channel relative to the IFA sales channel in the years 1993-1995 – is driven by changes in economies of scale in one or both channels.
Appendix 3

Development of the econometric model

Preliminary multiple regressions, including test data

The first point in building the model is to define what it is that the model seeks to explain – which is expenditure as a function of volume and type of business – and what we wish to test – which is whether there is a different relationship between expenditure and business in the tied sales channel in 1995.

The second issue considered in building the model was the nature of the data set: how were those data collected and aggregated? As already mentioned, the data are complete and reliable in the sense that they are produced under regulatory mandate. On the other hand, they depend on principles and practices of insurance accounting that are widely believed to allow two reasonable actuaries or accountants to reach entirely different views about the same economic situation. Different firms may therefore allocate the same costs to different sub-headings in the accounts.

Initially, to avoid the difficulty just described, an attempt was made to identify any increase in shopping around by analysing changes in firms’ total costs (gross expenses in Synthesys). Mercers’ cost formula, described above, suggested an attractive way of doing this. A refinement was added: inclusion of ‘contracts off’. This aimed to capture the potentially significant costs faced by firms when policies are terminated or claims made. This model was run using an ordinary least squares estimator, with data pooled for all firms and all years in the sample pooled together, in the form:

\[ Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 (X_{6i} \cdot X_{1i}) + \beta_7 (X_{6i} \cdot X_{2i}) + \beta_8 (X_{6i} \cdot X_{3i}) + \beta_9 (X_{6i} \cdot X_{4i}) + \beta_{10} (X_{6i} \cdot X_{5i}) + \epsilon_i \]
Did life and pensions “disclosure” work as expected?

Where:

\[ Y = \text{total acquisition expenses}; \]
\[ \beta_0 = \text{constant}; \]
\[ X_1 = \text{number of policies in force}; \]
\[ X_2 = \text{value of new regular premiums}; \]
\[ X_3 = \text{value of new single premiums}; \]
\[ X_4 = \text{total assets (funds under management)}; \]
\[ X_5 = \text{total number of policies off during the period}; \]
\[ X_6 = \text{dummy variable} = 1 \text{ if the observation is in the tied sales channel in 1995}; \]
\[ \text{otherwise (i.e. for other channels in 1995 and all channels in other years)} = 0; \]
\[ \varepsilon = \text{residual}. \]

Thus \((X_6i*X_1i) = \text{dummy variable for the tied sales channel} * 1995 * \text{policies in force} = \text{DVCYINFORCE}, \text{ and so on}.\]

The R-squared was high and, as expected, all of the non-dummy variables positive. But the results for the dummy variables were hard to interpret. Under the research hypothesis the ratio of new business volumes to expenses is expected to be lower in the tied sales channel in 1995 (relative to what it was in other years). Thus the dummy variables for regular premium and single premium business in the tied sales channel in 1995 are expected to have a relatively greater amount of expenses to explain. Therefore, since business volumes and expenses are expected to be positively related, these dummies were be expected to be positive, unless the tied sales channel’s ratio of new business volumes to expenses was previously so much higher than the IFA sales channel’s that it remained higher even after falling in 1995. In fact, the dummy for regular premium business was positive and that for single premium business negative.

This model was rerun with test data, to provide further insights into how to proceed. The test data were created as follows:
Did life and pensions “disclosure” work as expected?

- the dependent variable, all other observations for 1993 and 1994, and all other observations for firms using the IFA sales channel in 1995 were left unchanged;
- all regressor observations for firms using the tied sales channel in 1995 were multiplied by 1.5.  

The coefficients on the dummy variables were again hard to interpret. Since the effect of the test data was greatly to decrease the ratio of expenses to business volumes for the observations in the dummy group, it might be expected that the dummy variables that had negative coefficients in the sample data would retain negative coefficients. For the same reason, the coefficients on the dummy variables that were positive in the sample data might be expected to become negative in the regression of the test data. In fact, while one of the coefficients that was positive with the sample data became negative with the test data, another remained positive and one that was negative with the sample data became positive with the test data.

The difficulty of interpreting the results for the dummy variables, when the test data ought to have made them very clear, gives rise to concern about this model. Moreover, the trio of negative coefficients for the dummy variables run with the sample data has no clear explanation. (Kennedy (2003) offers a helpful list of possible reasons for unexpected negative coefficients, of which a few may be relevant, with multicollinearity perhaps the most likely explanation.) It was therefore decided to try a different model, despite the reliability advantage, from a data perspective, of using total expenses as the dependent variable.

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29 This is a far greater shift in the variables than the ratio analysis suggests actually took place in 1995. Note also that this shift is expected to give results that are the opposite of the results expected under the research hypothesis (because this shift increases rather than reduces the ratio of the business volumes to expenses).
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Further development of the model

To avoid the risk that higher costs for tied product providers in 1995 were due to pensions mis-selling or to other costs that are not relevant to the research hypothesis and bore unequally on the two channels, acquisition expenses were set as the dependent variable. Total acquisition expenses are split in Synthesys between:

- Commissions and other inducements paid to salesmen;
- Other marketing costs, such as the cost of running a sales force, maintaining offices for consumers to visit, administration of meetings with consumers (including fulfillment of regulatory requirements) and expenditure on advertising.

These two classes of acquisition expenses are shown, respectively, in Synthesys Form 41, Line 41 and Form 41, Line 43. As explained above, ‘industrial branch’ business had become very minor by 1993. Therefore only the data in the ‘ordinary branch’ versions of Form 41, Line 41 and Form 41, Line 43 were considered.

The research hypothesis is that firms in the tied sales channel faced higher ‘other marketing costs’ after disclosure due to shopping around. Thus firms in that channel would on average have to organise more meetings and employ more sales staff to secure, after disclosure, the level of business that they enjoyed before disclosure. They might also have had to increase base salaries for sales staff experiencing lower success rates in consumer meetings, though the competitive sustainability of this must be open to question. Ideally, then, one would use ‘Other marketing costs’, Form 41, Line 43, as the dependent variable in this analysis.

Unfortunately Form 41, Line 41 includes only commissions paid to third parties. Thus Form 41, Line 43 is not comparable between the channels: for firms using DSFs it includes internal commissions and other inducements paid to sales staff. For the IFA
**Did life and pensions “disclosure” work as expected?**

sales channel, it does not include commissions paid to IFAs. Since commissions are about half of total acquisition expenses (source: own calculation from Synthescys), this difference in ‘Other marketing costs’ between the channels is too large to ignore. Therefore it was necessary to use total acquisition expenses as the dependent variable.

With total acquisition expenses as the dependent variable, the obvious regressors were measures of new business. In Synthescys, these fall into two main categories:

- value of new premiums; and
- number of new policies.

Synthescys Life’s Form 47, Lines 6, 12, 18 and 24 includes a large amount of information about the number of new policies and new premiums. They are split between UK and overseas business and single and regular premium business. Also, for each combination of those (UK single, UK regular, overseas single and overseas regular), they are further split between:

- pensions business;
- life and general annuity business;
- permanent health business; and
- other business.

To reduce the risk of multicollinearity and preserve degrees of freedom, it was decided that some of the sixteen variables noted above would need to be combined or deleted. It was straightforward to exclude overseas business because it is not affected by the UK regulation that is the subject of this research and overseas expenses have been excluded from the dependent variable.
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Single and regular premium business were aggregated. UK financial regulation bites equally on single and regular premium business of the same type, possibly suggesting similar transaction times and costs.

Inspection of the data showed that almost the entire business of the relevant firms was in the pensions and 'life and general annuity' categories, with permanent health and other business typically accounting for only a tiny proportion of a firm’s total business. Discussions with industry experts confirmed that pensions business typically takes longer to sell than other types of business, due to taxation and employer pensions. Therefore the data were categorized as follows for use in the regression analysis:

- UK, single and regular premium, pension data;
- UK, single and regular premium, life and general annuity, permanent health and other data.

A further distinction made in Synthesys is between linked and non-linked business. This distinction was ignored because the status of contracts as linked or non-linked should make no material difference to the length of time it takes to sell the contract. Therefore, in principle, this distinction is not relevant to firms’ acquisition expenses.

**Results of pooled regressions**

Initially, this model was used in an ordinary least squares regression, with data for all firms and all years in the sample pooled together, in the form:

\[ Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 (X_{3i} \times X_{1i}) + \beta_4 (X_{3i} \times X_{2i}) + \epsilon_i \]

where:

- \( Y \) = measure of total acquisition expenses;
Did life and pensions “disclosure” work as expected?

\[ \beta_0 = \text{constant;} \]
\[ X_1 = \text{measure (by value or number of contracts) of pensions business;} \]
\[ X_2 = \text{measure (by value or number of contracts) of other business;} \]
\[ X_3 = \text{dummy variable = 1 if the observation is in the tied sales channel in 1995; otherwise (i.e. for other channels in 1995 and all channels in other years) = 0;} \]
\[ \varepsilon = \text{residual.} \]

Four versions of this model were run on EViews 3.1:

6. \( Y = \text{total acquisition expenses;} \quad X = \text{value of new premiums;} \)
7. \( Y = \text{total acquisition expenses/square root of value of new premiums;} \quad X = \text{value of new premiums;} \)
8. \( Y = \text{total acquisition expenses;} \quad X = \text{number of new premiums;} \)
9. \( Y = \text{total acquisition expenses/square root of value of new premiums;} \quad X = \text{number of new premiums.} \)

The reason why two of these versions involve dividing total acquisition expenses by the square root of the value of new premiums is concern about heteroskedasticity. It is appreciated that this is not ideal – how does one interpret the results? – but it was regarded as a quick and simple approach to be tried in the context of model development.

These four versions of the model gave inconsistent results. Some supported the research hypothesis; others did not. This suggested that worthwhile evidence to support the research hypothesis might lie in the data, if a more powerful estimator were used. Since the sample data are three years’ observations on a cross-section of about 40 firms, the obvious way forward was to use a panel data approach. The pooled regression approach so far used makes highly restricted assumptions (that individual firms have the same intercepts and that the regressors have identical slope coefficients for all individual firms) that may not fit the present data set: see Gujarati (2003).
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Development of the model used in the panel regressions

Important design criteria for the model were:

- restricting the number of variables, with a view to preserving degrees of freedom and limiting any issues arising from multicollinearity (although this should be reduced in a panel) or other causes of unexpected negative coefficients;
- finding a way to control for firm size, given the presence of economies of scale in firms; this would also address any problem of heteroskedasticity;
- using a constant, as a mechanism for addressing the issue of fixed costs;
- checking that any indicators that the tied sales channel in 1995 was relatively more expensive were not simply the result of inflation;
- checking that any indicators that the tied sales channel in 1995 was relatively more expensive were not simply due to 1995 as a whole being more expensive; and
- ensuring that the ability to model heterogeneity across groups that panel data provide is exploited.

A major issue was whether to use a fixed effects approach, a random effects approach or a seemingly unrelated regression approach. The last was dismissed as it allows only contemporaneous correlations in the data to be brought into account. Given the data, the alternative approaches were expected to be more powerful. But it was considered important to choose carefully between fixed effects and random effects. (Since the time series is short, the Least Squares Dummy Variable estimator used in the fixed effects approach and the Generalised Least Squares estimator used in the random effects approach are not the same.)

In choosing between fixed effects and random effects, the warning of Johnston (1997) that ‘there is no simple rule to help the researcher navigate past the Scylla of fixed effects and the Charybdis of measurement error and dynamic selection’ was kept in
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mind. Thus, initially, an attempt was made to determine whether, in principle, the likely effects in the UK life industry are fixed or random in nature. Some of the variables that had to be omitted from the model seemed to be firm-specific and constant over time, suggesting fixed effects. Others seemed to be uncorrelated with the regressors, possibly suggesting random effects but, overall, it was unclear whether the individual-specific effects within the error term are correlated with the regressors. See Appendix 4. Therefore the safe course was to try both approaches and check whether the data would accept the random effects restriction.

We started with the fixed effects approach (in the cross-section) not only because of its wider applicability but also because it is perhaps more appropriate for the data:

- Judge et al (1992) say that the random effects model is useful ‘if the individual firms (or cross-sectional units) appearing in the sample were randomly chosen and taken to be ‘representative’ of a larger population of firms’. The sample in this study was not chosen at random.
- Hsiao (2003) says that ‘The situation to which a model applies and the inferences based on it are the deciding factors in determining whether we should treat effects as random or fixed. When inferences are going to be confined to the effects in the model, the effects are more appropriately considered fixed.’ The sample in this study contains the firms that are considered most relevant to this research. But there are similar firms that have been omitted – the ones that sell to UK retail investors through the tied and IFA sales channels, without either channel accounting for 90% of that business. And there may be other such firms in the universe! Thus our purpose of assessing differences between (groups of) specific firms may not be entirely analogous to Hsiao’s example of a case in which fixed effects are appropriate - assessing differences between specific technicians.

The next issue was to pick the regressors. As already explained, the number of new policies has the most direct relationship with the central issue of whether firms using
Did life and pensions “disclosure” work as expected?

the tied sales channel faced a lower success rate in meetings with consumers. Thus number of policies was chosen as the regressor that would be split between policy types and used to create dummy variables. The total value of new premiums was included to deal with the size of firms, given the direct relationship between premium values and the major acquisition expense that is commissions and other sales inducements.

The problem of heteroskedasticity was addressed through the use of White cross-section errors.

Total acquisition expenses were set as the dependent variable, for the reasons explained above (in this Appendix).

Next, the expense and premium variables were adjusted for inflation (although a low rate of inflation over three years was not expected to create a significant trend in fixed costs, with intercepts varying over time). Since a high proportion of life companies’ expenses are salaries and commissions, it was decided to use a wage deflator. Of those available on the National Statistics website, the most suitable appeared to be LNMM, which is ‘whole economy average earnings not seasonally adjusted’. The rationale was that:

- finance sector remuneration has tended to grow faster than wages in other sectors;
- but wages and commissions are not the only costs incurred by life companies and CPI/RPI have tended to grow less quickly than LNMM.

LNMM is set at 100 in 2000 and, on that basis, was 75.2 in 1993, 78.0 in 1994 and 80.4 in 1995.

The model was further developed on the basis that coefficients relating to individual firms are not the most economical way to test the research hypothesis. What matters is the group of firms that use the tied sales channel and the group of firms that use the
**Did life and pensions “disclosure” work as expected?**

IFA sales channel. Thus, even though the widely differing ratios between business volumes and expenses at firm level suggest slope coefficients varying across individuals, interactive (differential) slope dummies were introduced at group level.

The next step was to include year dummy variables (i.e. year*number of non-pension contracts and year* number of pension contracts). The purpose was to see whether the year dummy variables would strip away the significance from the tied sales channel*year*number of contracts dummy variables. If they did not, this would be further evidence that the findings are robust. The model was then as set out and described in the main text.
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Appendix 4

Fixed versus random effects in the UK life industry

Due to lack of degrees of freedom, there are many variables that could influence the relationship between expenses and business volumes that have not been controlled for by their inclusion, even in proxy form, as regressors in the model. For ease of reference, the model is:

\[ Y_{it} = \alpha_1 D_{1i} + \ldots + \alpha_{38} D_{38i} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \gamma_1 (\delta_{1i} X_{1it}) + \gamma_2 (\delta_{2i} X_{2it}) + \gamma_3 (\delta_{3i} X_{3it}) + \gamma_4 (\delta_{4i} X_{4it}) + \lambda_1 (\zeta_{1i} X_{1it}) + \lambda_2 (\zeta_{2i} X_{2it}) + \lambda_3 (\zeta_{3i} X_{3it}) + \lambda_4 (\zeta_{4i} X_{4it}) + \varepsilon_{it} \]

where:

- \( Y_{it} \) = value of total acquisition expenses deflated to 1993 prices;
- \( D_{1i} = 1 \) if the observation belongs to the first firm; = 0 otherwise; and so on for the remainder of the differential intercepts;
- \( X_{1it} \) = number of new pension policies;
- \( X_{2it} \) = number of new other policies;
- \( X_{3it} \) = value of total new premiums deflated to 1993 prices;
- \( \delta_{1i} \) = dummy variable = 1 if the observation is in the tied sales channel in 1995; otherwise (i.e. for other channels in 1995 and all channels in other years) = 0;
- \( \delta_{2i} \) = dummy variable = 1 if the observation is in the tied sales channel in 1993; otherwise (i.e. for other channels in 1993 and all channels in other years) = 0;
- \( \zeta_{1i} \) = dummy variable = 1 if the observation is in 1995; otherwise = 0;
- \( \zeta_{2i} \) = dummy variable = 1 if the observation is in 1993; otherwise = 0;
- \( \varepsilon_{it} \) = residual.
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Especially as the panel is short in the time dimension, a number of the missing variables, the ones that vary across cross-sectional units at a given point in time but are constant over time, might be in the nature of fixed effects:

- Quality of systems and controls (e.g. do sales leads get followed up?)
- Quality of management (e.g. do they detect and respond to trends in demand?)
- Quality of sales team (are they persuasive?)
- Client niche (e.g. selling to upmarket clients may help maintain sales in a recession)
- Strong brand (could help firm to resist downturn in the market)
- Branch network/opportunities for cross-selling (might lead to more sales of investment products if related products are doing well).

On the other hand, there seem to be several (missing) variables that are the same for all cross-sectional units at a given point of time but that vary through time:

- Recession;
- Regulation;
- Taxation;
- Savings ratio;
- State pensions;
- Life expectancy;
- Image of sector;
- Equity returns; and
- Company pension schemes.

There are also several (missing) variables that vary across cross-sectional units at a given point in time and exhibit variations through time, such as:

- past sales (e.g. contacts);
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• product mix;
• product features;
• product prices;
• commission rates;
• past performance of products; and
• profits and losses (e.g. image effect).

It seems possible that many of these individual-specific effects are random draws from a common population and that the error terms are uncorrelated with the business volume regressors that have been used. Thus there may be a case for using a random effects estimator, despite the apparent presence of some fixed effects. But the overall position is hard to assess.

Accordingly, we decided to start by using the fixed effects estimator, then use the random effects estimator and test whether it was accepted by the data.
Appendix 5

Descriptive statistics

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<tr>
<td>Maximum</td>
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<td>109894.0</td>
<td>241327.0</td>
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**Did life and pensions “disclosure” work as expected?**

<table>
<thead>
<tr>
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<th>NL3?</th>
<th>NP3?</th>
<th>NL5?</th>
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<td>Cross sections</td>
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<td>38</td>
<td>38</td>
<td>38</td>
</tr>
</tbody>
</table>

The data have been discussed extensively in the comparison of the sample with the population in the main text. Features of the data revealed by the tables above include:

- The very wide dispersion in all values (even where zero is not the minimum).
- Standard deviations which are greater than the means for the raw data variables and three or four times greater than the means for the dummy variables.
- The consistent excess of numbers of life contracts over numbers of pension contracts.
- The marked decline in the number of pensions contracts over the period. They fell by more than other contracts, suggesting an effect of the pensions mis-selling scandal.
- A lack of normal distributions. The p-scores of all the Jarque Bera statistics are 0.000. Skewness is invariably above zero and kurtosis is invariably above 3.
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Appendix 6

Hausman test and regressions without White cross-section standard errors

Fixed effects gave satisfactory results, as reported above. The results from random effects were stronger, so naturally the question arose as to whether it was appropriate to use them.

This was therefore tested.

The EViews Reference Guide describes the Hausman test in the context of using instrumental variables to test suspect regressors. It was not clear that this could be adapted to test whether the coefficients estimated by the fixed effects and random effects estimators statistically differ. Therefore an attempt was made to regress the residuals from the random effects version of the final equation reported in the results section against the residuals from the fixed effects version of the same equation. The aim was to determine the extent to which the residuals were correlated. The program refused to run this regression, on the ground of ‘near singular matrix’. This may well mean that the coefficients produced by the two estimators do not statistically differ. In that event, it would be safe to rely on the results of the random effects estimator. But, this could not certainly be established.

In view of the above, the data were loaded into Stata, whose Reference Manual (release 8) shows how to deploy the Hausman specification test to determine whether use of the random effects estimator is appropriate. The results were as follows:

Test: Ho: difference in coefficients not systematic

\[
\text{chi2}(8) = (b-B)'[(V_{b-V_B})^{-1}](b-B) = 14.33
\]

Prob>chi2 = 0.0737
*Did life and pensions “disclosure” work as expected?*

Thus it appears to be safe – just - to use the random effects estimator: at the 5% confidence level, the difference between the fixed effects and random effects coefficients is not significantly different from zero. This tends to reinforce the fixed effects results reported and analysed above.

There is, however, a caveat to the results obtained from Stata. This is that it is not possible in Stata (in 2004) to specify White cross-section errors (or White errors of any kind) in panel models. This was confirmed with Stata's Help Desk, which said that incorporation of White errors as options in Stata's panel models is scheduled. (Meanwhile they recommended bootstrapping.) Thus the coefficients compared above are not strictly comparable with those estimated using EViews.

Since the results from Stata are of coefficients derived without White errors, they are reported below, to indicate what difference it made to use White cross-section errors in the estimations whose results are shown in the main paper. The variables in the outputs from Stata have the same names as in the results shown in the main paper, except that:

- totpre (total deflated premiums) = toi;
- totpen (the total number of pensions contracts) = np;
- tototh (the total number of non-pensions contracts) = nl.

As can easily be seen, the results without White errors are, in material respects, similar to those obtained with White errors:
Did life and pensions “disclosure” work as expected?

1. Estimation using the random effects estimator

|            | Coef.  | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|------------|--------|-----------|-------|-------|---------------------|
| totacqexp  |        |           |       |       |                     |
| totpre     | 0.0873 | 0.0058    | 14.92 | 0.000 | 0.0758–0.0987      |
| totpen     | 0.0609 | 0.0206    | 2.96  | 0.003 | 0.0206–0.1023      |
| tototh     | 0.0998 | 0.0235    | 4.24  | 0.000 | 0.0537–0.1460      |
| nlt5       | 0.1164 | 0.0574    | 2.03  | 0.043 | 0.0038–0.2290      |
| npt5       | -0.4232| 0.1256    | -3.37 | 0.001 | -0.6700–-0.1769    |
| nl5        | 0.0421 | 0.0205    | 2.06  | 0.039 | 0.0021–0.0822      |
| np5        | 0.1746 | 0.0779    | 2.24  | 0.025 | 0.0218–0.3274      |
| nlt3       | -0.0480| 0.0304    | -1.58 | 0.114 | -0.1076–0.0115     |
| npt3 (dropped) |       |           |       |       |                     |
| _cons      | 11284.03 | 2471.23  | 4.57  | 0.000 | 6440.51–16128.55   |
| sigma_u    | 10820.74|           |       |       |                     |
| sigma_e    | 5965.43|           |       |       |                     |
| rho        | .7669  |           |       |       | (fraction of variance due to u_i) |

2. Estimation using the fixed effects estimator

|           | Coef.  | Std. Err. | t     | P>|t|   | [95% Conf. Interval] |
|-----------|--------|-----------|-------|-------|---------------------|
| totacqexp |        |           |       |       |                     |
| totpre    | 0.0772 | 0.0085    | 9.05  | 0.000 | 0.0601–0.0942      |
| totpen    | 0.0444 | 0.0209    | 2.13  | 0.037 | 0.0027–0.0861      |
| tototh    | 0.0229 | 0.0286    | 0.80  | 0.425 | -0.0341–0.0799     |
| nlt5      | 0.1013 | 0.0524    | 1.93  | 0.057 | -0.0032–0.2059     |
| npt5      | -0.3589| 0.1158    | -3.10 | 0.003 | -0.5900–-0.1279    |
| nl5       | 0.0367 | 0.0199    | 1.85  | 0.069 | -0.0029–0.0763     |
| np5       | 0.1188 | 0.0727    | 1.63  | 0.107 | -0.0263–0.2641     |
| nlt3      | -0.0447| 0.0283    | -1.58 | 0.119 | -0.1013–0.0110     |
| npt3 (dropped) |       |           |       |       |                     |
| _cons     | 18113.59| 2511.36   | 7.21  | 0.000 | 13099.49–23127.69  |
| sigma_u   | 18230.22|           |       |       |                     |
| sigma_e   | 5965.43|           |       |       |                     |
| rho       | .7669  |           |       |       | (fraction of variance due to u_i) |
Did life and pensions “disclosure” work as expected?

Appendix 7

Possible refinements of the econometric model

The following were considered but for various reasons not pursued:

- converting the variables into log form – unfortunately there was a malfunction in the program when this was attempted and it was not thought critical to pursue this point further, especially given time constraints; while, ideally, this would be done as the function estimated is linear and cost functions can be non-linear due to non-constant returns to scale, in most life companies variable expenses are very large relative to fixed costs;
- testing for non-stationarity – this was not feasible and not critical, given that only three time periods are included in the sample; note also that the Durbin-Watson statistics were consistently higher than the R Squared ratios (and indeed higher than 2);
- using a single equation model (rather than simultaneous equations) – the argument for the approach taken is that acquisition costs depend on outputs but it might be thought that, since acquisition costs include advertising and sales incentives, outputs might depend on acquisition costs; if so, the approach taken would lead to biased and inefficient coefficient estimates and the solution to this would be to construct a simultaneous equation model in which costs and outputs are endogenous variables; however, while it is true that advertising and sales incentives could have an effect at the margin, outputs are considered to be largely independent of these; by far the biggest driver of outputs is the savings (investment) ratio, which changes hugely, in large part in response to the recent performance of the stock market and unemployment; additionally, in the sample period, the level of business was heavily influenced by the pensions mis-selling scandal; thus the level of business in 1993 was more than 30% higher than the level of business in 1995;
Did life and pensions “disclosure” work as expected?

moreover, it is recommendations by family members and long-term perceptions of the safety of brands that tend to determine which firms individuals will approach and which firms’ products they will accept; thus, overall, the direction of causation from outputs to costs is considered safe and use of a simultaneous equation model unnecessary;

• building dynamics into the model – this was considered unnecessary; as already explained it was considered safe to use data for only one time period after full introduction of the regulatory change being investigated; thus there was no scope to investigate any differences between short-run and long-run reactions;

• regression in first differences – this was considered to be useful in principle but, given the results above, in particular the very clear result on the variable NLT95, turned out to be unnecessary;

• adding input prices – cost functions typically include input prices, having the form $C = f(w, y)$ where $w$ is a vector of input prices and $y$ is a vector of outputs; not using input prices creates the risk of an omitted variables problem, which could lead to biased and inconsistent coefficient estimates; this problem would most likely arise if wage rates or commission rates varied materially and consistently between lots of companies in the sample; but many of the largest firms are based in similar locations away from London, with an implication of consistent wage rates; also, the FSA looked into wage rates in life companies as part of the process of understanding some of the results of a study on the costs of regulation carried out for it by Deloitte and found wages generally in a fairly narrow band not a great deal higher than national average wages; moreover firms, in competition for the available level of business, vary their commission rates, their most important acquisition cost, across product lines, of which there are large numbers, and across time, with frequent changes; further, firms pay different levels of commission to different intermediaries.
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