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All correspondence to:

Associate Professor Andrew Worthington
Editor, *Discussion Papers in Economic, Finance and International Competitiveness*
School of Economics and Finance
Queensland University of Technology
GPO Box 2434, BRISBANE QLD 4001, Australia

Telephone: 61 7 3864 2658
Facsimilie: 61 7 3864 1500
Email: a.worthington@qut.edu.au

Queensland University of Technology

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Principal and Agent Problems in Superannuation Funds

Michael E. Drew and Jon D. Stanford

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Principal and Agent Problems in Superannuation Funds

Michael E. Drew
School of Economics and Finance
Gardens Point Campus
Brisbane Qld 4000

Jon D. Stanford[*]
School of Economics
St Lucia Campus
Brisbane Qld 4072
Email: j.stanford@economcs.uq.edu.au
Tel: (07) 33 65 65 94
Fax: (07) 33 65 72 99

[*] *Corresponding author*

1. Introduction

Anxieties about the performance of superannuation funds and concerns about the safety of superannuation entitlements poses the question of what individual contributors can do to ensure their entitlements are secure. One difficulty for contributors is that they have little control over decisions relating to their superannuation fund; as these decisions are made by their agents over whom they have little effective influence. Principal and agent problems abound in superannuation and, in this paper, we explore the nature and extent of these problems as well as possible solutions. The nature of the principal and agent problems are more severe in defined contribution or accumulation funds, ACFs, by far the most common type of superannuation scheme in Australia. In these funds decisions are made by trustees who are the legal owners of the assets of the fund, but are required to act in the interests of the beneficiaries. Major decisions about portfolio composition determine the gross returns to the fund while other decisions relating to costs affect the net return to the fund and ultimately to the members.

There appears to have been little initial consideration given to the design of superannuation schemes when the new regime was introduced and there are no coherent design principles to guide expansion of the system - even though employees bear the investment risk entirely and have limited opportunities to be involved in decisions about that risk.[1] Against this backdrop, principal and agent, adverse selection and moral hazard problems are examined forthwith in a climate of long-run uncertainty in investment and asymmetric information. With these issues considered, policy recommendations to reduce principal and agent problems are made.

[1] The consultancy firm Noble Lowndes (1986) list the areas where no initial guidance was given in relation to award superannuation, finding that "*the total lack of detailed consultation, the unprecedented period for implementation and the failure to publish in advance the regulations covering administration, combine together to ensure that funds set up or varied to comply with any award are likely to be divergent in type, detail and administrative complexity. This will militate against one of the stated objectives - that of improving portability* [pp. ii]".

2. Superannuation Funds in Australia – An Overview

We take it that the goal of a member of an accumulation fund is to maximise the accumulated benefits at the date of retirement in order to purchase the highest value annuity or pension. This goal is achieved by gaining the highest crediting rate (i.e., the highest net returns) consistent with a given degree of risk. Most members of superannuation funds belong to ACFs as shown in the table below. Membership of ACFs is dominant in the private sector, which has the great majority of superannuation accounts.

Table 1. Membership of Superannuation Funds, Australia, September 2002

	Accumulation Funds	Defined Benefit Funds	Hybrid Funds
Per cent in each sector			
Public Sector	29	9	62
Private Sector	91	1	8
Per cent of total			
Public Sector	3	1	7
Private Sector	80	1	8

Source: Derived from APRA statistics

Table 2. Assets of Superannuation Funds, Australia, September 2002, Per cent of Total

	Accumulation Funds	Defined Benefit Funds	Hybrid Funds
Public Sector	2	2	22
Private Sector	58	2	14

Source: Derived from APRA statistics

3. Principal and Agent Problems

The classic principal agency relationship in one in which the principal engages, through an explicit or implicit contract, the agent to take action and make decisions on behalf of the principal. Agency costs are the costs of establishing and enforcing such contracts. Jensen and Meckling (1976) define agency costs as:

1. Monitoring expenditures by principal;
2. Bonding expenditures by the agent; and,
3. Residual losses borne by the principal.

Monitoring expenditures by the principal are incurred to monitor the agent's behaviour. Bonding expenditures are incurred by the agent to assure the principal that the agent will not behave so as to damage the principal or will provide an indemnity to the principal to cover losses of certain actions. These two categories of costs are out-of-pocket costs of structuring and administering contracts. The residual loss is the value of losses incurred by the principal from decisions made by the agent which produce results which deviate from those resulting from a decision of the principal with the same information and talent as the agent. The principal will find it profitable to incur expenditure in policing the contract to the extent that the reduction in the loss from non-compliance is equal to the incremental costs of enforcement. The residual loss is the opportunity cost of incompletely enforced contracts.

A principal would engage an agent if the agent has superior knowledge or abilities to the principal, but a rational principal would engage an agent who has access to lower transactions costs. In superannuation most principals would prefer an agent to make investment decisions (although it must be noted that the 'DIY' funds are a fast growing segment of the industry; this growth has been attributed to the desire for control on the part of principals, Roberts 2001).[2] A principal has also to include in the contract an arrangement for remuneration of the agent and a provision for the termination of the contract or replacement of the principal. The agent engages in the contract to obtain remuneration and has an incentive to continue in the contractual arrangement. The literature on agency costs distinguishes two types of incentive problems:

1. Hidden action; and,
2. Hidden information.

Hidden action is a situation where it is prohibitively expensive for the principal to observe the agent's actions implying the existence of a trade-off between performance incentives and efficient risk-sharing while hidden information refers to the problem where the agent has superior information to the principal.

A contract has to deal with the incentive problems arising from hidden action and hidden information. An agent can profit from concealing the private information unavailable to the principal. Optimal contracts, according to Myerson (1982) and Radnar (1985) and can be formulated by linking remuneration to multiple indicators of the agent's performance and by invoking the revelation principle. A principal can shield the agent from unnecessary risk by making the agent's remuneration at any time a function of previous outcomes. Under the revelation principle, the principal requires the agent to report his/her information, I, and commits himself/herself to a pair of functions, $f(I)$ and $g(I)$ which specify remuneration for all possible reports. If an agent finds it in his/her best interests to report the actual information, I, in all cases, incentive compatibility prevails. The agent will be willing to enter into, and remain committed to, the contract only if his/her pay-off is equivalent to an exogenously determined reservation level. The principal is faced with two classes of problem:

1. Adverse selection; and,
2. Moral hazard.

Adverse selection problems apply at the outset of the contract when the principal has to select the agent who possesses superior knowledge, abilities or access. The principal may not have the information to make this selection or may not have the ability. In the case of incomplete information, the principal requires a contract that allows for modification of the contract or replacement of the agent. The second problem, moral hazard, exists where the agent does not perform in the best interests of the principal and may be able to garner an information rent.

[2] 'DIY' or do-it-yourself funds are small self managed superannuation funds with fewer than five members each member being a trustee.

Agency problems would be minimised under member choice of fund and are ameliorated by investment choice.[3, 4] Under the current framework, principal-agent problems are compounded by the arrangement where the member's employer chooses the fund and where the trustees of the superannuation fund makes the investment choice. To examine this further we need to consider the structure of superannuation funds and the role of trustees.

3. Structure of Superannuation Funds

Superannuation funds operate as a trust structure. The trustees of the fund are the legal owners of the assets of the scheme held in trust for the members of the fund, i.e., the beneficiaries. Trustees receive contributions that are used to acquire a portfolio of assets; expenses of the fund are meet from contributions and earnings.

Trustees appoint custodians to hold the assets of the trust in a secure manner. Trustees have common law fiduciary duties in relation to the beneficiaries, i.e., to act honestly, to act in the interests of the beneficiaries, and to act prudently. In addition, trustees have legislative responsibilities imposed under the Superannuation Industry (Supervision) Act 1993 (SIS) and the various State Acts regulating trustees powers of investment.[5] The States have now adopted the *prudent person* approach to trustees' powers of investment under which there are no legislative injunctions to hold designated assets but a general requirement to behave as a prudent person in making investment decisions. Stanford (2001) provides an analysis of this regime.

The major requirements from the SIS Act are:

1. Superannuation funds are prohibited from levying and charges exceeding earnings in respect of account balances lower than $1000 except when the fund suffers negative returns;
2. Equal numbers of employer and employee representatives are mandated on trustee boards of large employer sponsored funds;
3. Sole purpose test requires benefits from superannuation funds to be paid only in retirement benefits or in death benefits to contributors who die before retirement;
4. Membership reporting rules require regular reporting to members;
5. APRA is required to approve trustees for public offer superannuation funds;
6. Lodgment of audited annual reports by superannuation funds is mandated;
7. There are investment restrictions on borrowing and on lending to members;
8. Preservation of benefits is required and balances are not to be paid to contributors until they reach the age of 55 years;

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[3] Legislation to introduce member choice of fund is still before the Senate having passed in the House of Representatives.

[4] Members are not offered a complete range of options under investment choice and are not offered a complete choice of asset selection.

9. Compulsory payment of benefits out of the superannuation fund is required when members reaches a specified age which is now 65 years.

Superannuation funds are required to have an investment strategy which allocates contributions to asset classes and which selects individual securities within the asset classes. Trustees have to make a number of decisions - the major ones are about composition of the portfolio which is usually referred to as the 'asset allocation' decision and it is common for trustees to engage the services of an asset consultant to advise on this. Once the asset allocation decision has been made trustees appoint funds managers to acquire assets in implementation of the asset allocation policy. Trustees monitor the performance of funds managers and may replace them.

Superannuation funds are subject to regulation by three bodies: the Australian Taxation Office, ATO, which is responsible for seeing employers and funds comply with the Superannuation Guarantee Charge and for the regulation of self managed funds with fewer than five members; the Australian Prudential Regulation Authority, APRA, is the regulator of most funds and the Australian Securities and Investment Commission, ASIC, which has consumer protection responsibilities. The demarcation between the roles of APRA and ASIC is imperfectly delineated and the consumer protection duties have been carried out in a perfunctory manner.

Trustees must also determine whether they will directly invest the funds or will hire outside managers to do so under a specific mandate. About 65 per cent of superannuation assets are managed by external managers or through the funds of life offices. Trustees select external managers and commit them to a 'mandate', i.e., specific instructions as to the value of assets and the style of management. Trustees usually set a 'benchmark' rate of return for managers to achieve.

In general there are no formal requirements for appointment as a trustee; there are some grounds on which a person may be disqualified as a trustee. Just who can be a trustee depends on the type of accumulation fund. The regulatory authorities classify accumulation superannuation funds in the following categories:

1. Corporate funds which are sponsored by a single non-government employer or group of employers;
2. Public sector funds which are sponsored by government employers or by government business enterprises;
3. Industry funds which are established under an award or agreement; and,
4. Retail funds which are pooled super products marketed by intermediaries to the general public; they include master trusts and personal superannuation products offered by life insurance companies and other financial institutions.

The majority of superannuation accounts are held in retail superannuation funds, accounting for one-third of total assets. Further details are shown in the table below.

Table 3. Membership and Assets of Superannuation Funds, Australia, September 2002, Per Cent of Total.

Type of Funds	Assets	Members
Corporate	12	6
Industry	10	30
Public Sector	20	12
Retail	33	51
Other	25	2

Source: Derived from APRA statistics; Note: 'DIY' funds are included in 'Other'.

Corporate funds must have equal representation of employers and employees as trustees or equal representation on the board of a corporate trustee; similarly, employers and employees are represented as trustees of industry funds. Trustees representing employees may be appointed by a trade union or as a result of some form of election. In a public sector fund, an equal number of employer and employee trustees and an independent chairman are appointed by the Minister. Two points can be noted: first, employers typically select the superannuation fund and some of the trustees of the fund; second, trade unions have a marked role in superannuation funds through their administration of industry funds and their other role in providing 'employee representatives' or the mechanisms to select such representatives.

Retail funds are a special case and quite different in structure to the other types of funds; retail funds are operated by financial institutions as for-profit organisations. Retail funds have a subsidiary company of the financial institution as a corporate trustee and another as the funds manager; the executives of the trustee company and the funds manager company are employees of the financial institution operating the retail superannuation fund. There is no provision for employee representation on the trustees but larger funds may have a 'policy committee' comprised of employee and employer representative to give advice to the trustees.

Scheiwe and Stirling (1999) argue that the current system leaves members of superannuation funds subject to risk of fraud, misappropriation and bad management practices and that consumer protection provisions are inadequate. Given that employees bear the full investment risk in ACFs, it is entirely reasonable that employees have greater choice of trustees. The inclusion of employer representatives on the board of trustees is, as Scheiwe and Stirling (1999) argue, a hangover from the past. It may be appropriate for employers to have a major influence on decisions in a DBF but employers have no legitimate interest in the outcomes of an ACF; employers have a legal responsibility to pay mandated contributions to a complying fund in a similar manner to remitting PAYE taxation deductions to the Australian Taxation Office. The superannuation fund receives the contributions paid on behalf of members by employers and the trustees (whose duties are described in detail below) has to make a number of choices the more important of which are:

1. Asset allocation; and,
2. Asset selection.

The asset allocation decision is to determine the proportion of the fund's total assets to each broad asset class; there is no unique delineation of asset classes; the ones shown

below are those identified by the regulator in Australia. Usually, as indicated previously, trustees employ external consultants to advise on this decision. Trustees are not required to have particular financial skills and may genuinely need advice; in addition, trustees use external consultants to show that they are behaving prudently.

In the aggregate, superannuation funds allocate about 45 per cent of total assets to domestic equities and a further 19 per cent to overseas assets, principally equities. This allocation reflects the belief that there is an 'equity premium', i.e., a long-term historical excess return on equities over bonds (Asness 2000). While this may be a defensible strategy over the long run, assuming previous historical experience will be repeated, in times of falling equity prices, the current value of superannuation entitlements will be reduced through this strategy.

Asset selection decisions involve choice of individual securities or assets within each broad asset class. The fundamental choice in asset selection is between active management and passive management of the portfolio. Under active management the portfolio manager selects individual securities engages in frequent trading of assets in an attempt to out-perform the benchmark. Under passive management, funds managers do not attempt to pick individual securities but select assets by reference to a formula and hold these assets with very infrequent trading. For instance, a passive domestic equity portfolio would attempt to replicate the composition of an equities benchmark such as the S&P/ASX 200 index. The virtues of asset and passive management have been intensively debated in the literature. The major analytical proposition is the Efficient Markets Hypothesis (EMH) (contributed by Fama 1970) which postulates that securities markets are informationally efficient so that it is not profitable to trade on the available set of information. The EMH predicts that active managers will not be able to earn excess returns on a consistent basis. The recommendation of the EMH is to pursue a passive buy and hold strategy, i.e., buy index funds as this strategy over the long term will produce superior returns.

Many of the empirical studies on this question have been concerned with US mutual funds; Jensen (1968), Malkiel (1995) and Gruber (1996) find that the mutual fund management industry destroys value through under-performance of benchmark returns. Recent Australian studies of managers specialising in domestic equities in retail superannuation funds, Drew and Noland (2000), Drew and Stanford (2001a, 2001b, 2003), and Drew, Stanford and Veeraraghavan (2002) corroborate the US experience. Drew and Stanford (2002) further argue that a passive strategy should be the default selection for employees.

4. Principal and Agent Relations in Superannuation Funds

The major principal and agent relations in superannuation funds are summarised below:[6]

Table 4. Summary of Principal and Agent Problems in Superannuation, Australia.

	Principal	Agent	Action	Contract and Remuneration
1	Member (SC)	Employer	Selects fund; selects trustee	• None possible.
2	Member (Award)	Industrial Tribunal	Selects fund and allows union to operate fund	• None possible.
3	Member	Trustee	Runs fund incurs costs selects portfolio	• Trustee determines own remuneration and trust expenses; • Cannot be removed by members • May be removed by regulator under extreme conditions; and, • Is not explicitly required to disclose remuneration and expenses in detail to members.
4	Trustee	Asset Consultant	Advises on portfolio selection and asset allocation	• Contract allows for removal by trustee; and, • Remunerated by fee as percentage of assets under management.
5	Trustee	Funds Manager	Implements portfolio and asset selection	• Contract allows for removal by trustee; and, • Remunerated by fee as percentage of assets under management.

In the first principal and agent relation, under the Superannuation Guarantee provisions, the member's agent in selecting a fund and some of the trustees is the employer who is not subject to direction or influence by the member. The usual channel for influence would be through industrial arrangements but we hypothesise that this channel is likely to be ineffectual as the SG is a legislative requirement and not a part of enterprise bargaining and as trade union officials would prefer to channel SG contributions to the industry fund established to receive award contributions. Paternalism on the part of employers is exhibited in the establishment of corporate superannuation funds; such funds account for a small minority of all funds. Similarly the member is unable to influence the choice of fund given the history of award superannuation. In both cases, the choice of funds and trustees is a *fait accompli* for employees and it is not worth their incurring monitoring costs nor is it worth while for employers or the industrial tribunal to incur bonding expenditures with the employees.[7] In the third relation, members are

[6] Only relationships in compulsory superannuation arrangements are considered. Some contributions to superannuation funds are voluntary and contributors may rely on advice from financial planners. The competence and integrity of financial planners is less than satisfactory, ASIC (2003).

[7] A number of readers of this paper will be members of the Universities corporate superannuation fund, UniSuper, on whose board of trustees is a representative of academic staff. We ask such readers to sit the following pop quiz: (1) can you explain how this position is filled?; and, (2) what role did you play in the appointment of this trustee?

unable to remove trustees who are not required to seek members' view much less act on them. The member plays no role in the determination of trustees' remuneration or expenses and thus has no incentive to incur monitoring costs because the expected benefit is zero. Trustees have no need to bond with members. In the fourth and fifth relation, the trustee is in a position to influence the behaviour of the agents and it is worthwhile for the agents to incur bonding expenditures. An important role of both asset consultants and fund managers is to be 'trustee managers'; to influence trustees to accept the conventions of the funds management industry. This is not particularly difficult as trustees are generally inexperienced in financial matters and are not confident of their abilities to express contrary views. We argue that the general effect of 'trustee management' is to:

1. Increase the costs of the fund;
2. Specify investment objectives in terms which are easily obtainable; and,
3. Encourage herding.

Apart from the costs of the consultants' advice, such advice leads to the use of actively managed asset selection strategies as it is the conventional belief in the funds management industry, contrary to the evidence, that active management can produce superior returns. The costs of active management are high as the industry convention is that funds managers should be remunerated by a percentage fee of the value of assets under management whereas an incentive scheme would be a flat fee with a bonus for out-performance of the benchmark.

Trustees specify the investment objectives of the superannuation in term which are easily obtainable. Common specifications are to obtain a rate of return equivalent to three percentage points above inflation. Alternative specifications of the investment objective are in terms of a comparative return; for instance, to obtain a return consistent with other similar funds or to obtain a return equivalent to the second quartile of similar funds. These specifications, while self-serving, are not suitable for superannuation funds adopting active asset selection techniques; for such funds the appropriate investment objective is out-performance of benchmark indexes.

Specifications of the investment objective are in terms of a comparative return encourage 'herding' on the part of funds managers as the goal of individual funds managers is not to obtain returns specified in absolute terms but in terms of their competitors; this will help ensure that fund managers maintain their mandate.

The major moral hazard problem in the current system is that trustees are likely to persist with under performing funds managers. What mechanisms are available to ensure that an actively managed fund once selected continues to maintain its performance. Harless and Peterson (1998) find that poor performance by US mutual funds can persist for sustained periods. Trustees may be loath to do displace funds managers because this reflects unfavourably on their initial choice. Goetzmann and Peles (1994) argue that US mutual fund investors are disinclined to switch from poorly performing funds for this reason.

Given the extent of the problems in the principal and agent problems we would hypothesise that the fewer the constraints on the agent's behaviour the superannuation fund will produce lower returns and higher costs; the potential residual loss for principals is unbounded; in retail funds investment decisions will not be taken at arms length; and generally, the scope for mismanagement and fraud is substantial.

5. Performance of Superannuation Funds

A recent study by Coleman, Esho and Wong (2003) provides comprehensive evidence for the first time on the performance of superannuation funds. Using APRA annual data for the 1996 to 2002, the study found that significant differences in outcomes occur across the different type of funds; in particular, the findings were that:

1. Returns are highest for corporate funds and lowest for retail funds;
2. High expense funds have low gross and net returns;
3. Retail and industry funds have the lowest returns and volatility and the highest expenses;
4. Many funds, particularly retail funds, have failed to outperform the return available from a risk free investment in Treasury notes;
5. There is evidence of a negative return between returns and expenses suggesting that fund members receive little advantage from investing in superannuation funds with high expenses;
6. Retail funds exhibit potential problems with low returns and high fees indicating the potential for agency risk, i.e., trustees not acting appropriately in members' interests; and,
7. Some 74 per cent of members belong to funds with expenses greater than 1 per cent (100 basis points) per annum[8].

These findings are consistent with our hypotheses and with previous partial studies of performance. They provide confirmatory evidence to the previous work of Drew and Noland (2000), Drew and Stanford (2001a, 2001b, 2003), and Drew, Stanford and Veeraraghavan (2002) that there are substantial performance risks in Australian superannuation funds.

6. Resolution of Principal and Agent Problems

We have argued that the principal agent problem is complete. Principals, the members of superannuation funds, are unable to select their agent, are unable construct the contract under which the agent operates and are unable to replace the agent for inferior performance. Members of superannuation funds experience adverse selection and moral hazard problems and find that their superannuation fund produces a low return, high cost and inefficient result.

[8] Pozen (2002) reports that in the USA, the Federal Thrift plan, a retirement vehicle for most Federal employees, offers a small number of broadly diversified stock and index plans, (investment choice in Australian terminology), with an annual expense ratio of seven basis points (or .07 per cent). Allowing for the fact that some expenses may be absorbed by the employer, Rosen estimates that the full costs of pension plans based on the Federal Thrift plan would be 30 basis points per annum.

Our preferred solution to the principal-agent problem is to allow employee choice of fund as recommended by the Wallis Committee (1997). The Wallis Committee recommended that employees should be provided with choice of fund, subject to any constraints necessary to address concerns about administrative costs and fund liquidity. The basic recommendation was that where superannuation fund benefits vest in a member, that member should have the right to transfer the amounts to any complying fund. Where a member chooses to exercise that right, payments should be transferred to the chosen fund as soon as practicable, subject to controls necessary to maintain orderly management for the benefit of the fund. The analysis of Drew and Stanford (2002) supports the Wallis recommendations and portability of accumulated balances, but considers administrative and transitional costs of a change of regime are likely to be low.

This solution would allow employees to select their own agent to nominate and monitor the fund for their contributions; they have the ultimate sanction of withdrawing and transferring their balances. This creates the incentive for trustees to be responsive to members' wishes and to be more accountable for their decisions. The Commonwealth government is considering introducing new requirements for trustees, e.g., licensing, but we argue that competition and market discipline, now absent, would better safeguard members' superannuation entitlements. Our views on this are sharpened by the report on the quality of financial planning advice, ASIC (2003), which found that, in general principal and agent problems were severe, and, in particular, that 14 per cent of financial plans examined did not meet legal requirements, higher fee investments were recommended without showing the basis of the recommendation, plans recommended the sale of existing assets without showing why the new investments would be better.

The assertion that employees are unable to obtain the knowledge to make a rational choice of fund appears to spring from self interest by industry lobbyists and violates the presumption of consumer sovereignty and any welfare propositions about a regime without choice of fund.

7. Conclusion

We asked in the introduction to this paper how members of superannuation funds could take action to safeguard their superannuation entitlements. Our analysis of principal and agent relations showed that there is nothing members can do. The current structure of superannuation funds leads to poor corporate governance; poor investment decisions by trustees; lack of disclosure by trustees to members; absence of arms length investments by trustees; failure to address member complaints; poor consumer protection for members; inadequate prudential regulation of superannuation funds; lack of competition in the superannuation industry; and a lack of market discipline on superannuation funds. The possibility of potential loss through mismangement and fraud is there although we have no way of assessing how probable a large scale loss is. Even if we assume away such a possibility, we know that *small* rates of underperformance by superannuation funds compound over a working life into *large* declines in terminal values. Our policy

recommendation to solve the principal-agent problems is for unrestricted member choice of superannuation fund and portability of superannuation entitlements.

References

Asness, C., 2000, ‘Stocks versus bonds: explaining the equity risk premium’, *Financial Analysts Journal,* March/April, pp.96-110.

Australian Securities and Investment Commission 2003, Survey on the quality of financial planning advice, *ASIC Research Report*, February.

Bateman, H., 1999, ‘Administrative costs and charges for Australian mandatory superannuation, *Economics and Finance of Retirement Conference*. University of New South Wales. November.

Bateman, H. and Mitchell, O. 2001, ‘A new look at pension plan administrative expenses’, *Ninth Colloquium of Superannuation Researchers*. University of New South Wales. July.

Coleman, A., Esho, N. and Wong, M. 2003, ‘The investment performance of Australian superannuation funds’, *Working Paper 2003-02*, Australian Prudential Regulation Authority, Sydney. February.

Drew, M., and Noland, J. 2001, ‘EMH is alive and well’, *JASSA - Journal of the Securities Institute of Australia,* vol. 4, pp. 15-18.

Drew, M., and Stanford, J. 2001 a, ‘Asset selection and superannuation fund performance: A note for trustees’, *Economic Papers*, vol. 20, pp. 57-65.

Drew, M., and Stanford, J. 2001 b, ‘The impact of fund attrition on superannuation returns’, *Economic Analysis and Policy*, vol. 31, pp. 25-32.

Drew, M., and J. Stanford, 2002, ‘The economics of choice of superannuation fund.’ *Accounting, Accountability and Performance*, vol. 8, No. 2, pp. 1-20.

Drew, M. and Stanford, J. 2003, ‘Returns from investing in Australian equity superannuation funds: 1991 to 1999’, *Service Industries Journal, forthcoming* and 2000, Discussion Paper 279, Department of Economics, University of Queensland.

Drew, M., J. Stanford, and M. Veeraraghavan, 2002, ‘Selecting Australian equity superannuation funds: A retail investor’s perspective. *Journal of Financial Services Marketing*, vol. 7, No. 2, pp. 115-128.

Dulebohn, J., Murray, B. and Sun, M. 2000, ‘Selection among employer-sponsored pension funds: the role of individual differences’, *Personnel Psychology*, vol. 53, pp. 405-32.

Fama, E., 1970, ‘Efficient capital markets: A review of theory and empirical work’, *Journal of Finance*, vol. 25, pp. 383-417.

Goetzmann, W., and Peles, N., 1994, ‘Cognitive dissonance and mutual fund investors’, *Journal of Financial Research*, vol. 20, pp. 145-58.

Grinblatt, M., and Titman, S. 1989, ‘Mutual fund performance: An analysis of quarterly portfolio holdings’, *Journal of Business*, vol. 62, pp. 394-415.

Grinblatt, M., Titman, S. and Wermers, R. 1995, ‘Momentum investment strategies, portfolio performance, and herding: A study of mutual fund behaviour’, *American Economic Review*, vol. 85, pp. 1088-105.

Gruber, M. 1996, 'Another puzzle: The growth in actively managed mutual funds', *Journal of Finance,* vol. 51, pp. 781-810.

Harless, D., and Peterson, S., 1998, 'Investor behaviour and the persistence of poorly-performing mutual funds', *Journal of Economic Behaviour and Organisation*, vol. 37, pp. 257-76.

Jensen, M. 1968, 'The performance of mutual funds in the period 1945-1965', *Journal of Finance*, vol. 23, pp. 389-416.

Jensen, M. and Meckling, W. 1976, 'The rheory of the firm: Managerial behaviour, agency costs and ownership structure', *Journal of Financial Economics*, vol. 3, pp. 305-60.

Kelly, P. 1992, *The End of Certainty*. Allen and Unwin, Sydney.

Kingston, G., Piggott, J. and Bateman, H., 1992, 'Customised investment strategies for accumulations superannuation', in *Superannuation and the Australian financial system*, Davis, K. and Harper, I., (eds), Allen and Unwin.

Malkiel, B. 1995, 'Returns from investing in equity mutual funds, 1971-1991', *Journal of Finance*, vol. 50, pp. 549-72.

Myerson, R. 1982, 'Optimal coordination mechanisms in generalized principal-agent problems', *Journal of Mathematical Economics*, vol. 10, pp. 67-81.

Noble Lowndes, 1986, 'Superannuation and the Accord – a report for the Metal Trades Industry Association', Noble Lowndes International Holdings Pty Ltd.

Pozen, R., 2002, 'Arm yourself for the coming battle over social security', *Harvard Business Review*, November, 56-69.

Radner, R. 1985, 'Repeated principal-agent games with discounting', *Econometrica*, vol. 53, pp. 1173-98.

Roberts, M. 2001, 'Self managed superannuation funds – preliminary statistics', Ninth Colloquium of Superannuation Researchers. University of New South Wales. July.

Scheiwe, D. and Stirling, K., 1999, 'Superannuants needn't be treated worse than shareholders', *Queensland Economic Forecasts and Business Review*, vol. 8 (new series), pp. 62-83.

Stanford, J. 2001, 'Economic analysis of the legal concept of trustees' powers of investment', *Discussion Paper No 293*, School of Economics, University of Queensland.