An Chomhairle Pinsean
The Pensions Council

Pensions Council analysis of a proposal furnished to the Department of Social Protection by Mr Colm Fagan which he suggests should be used as the structural basis for the proposed Automatic Enrolment (AE) system - including the decumulation phase.

February 2024

Letter to the Minister

February 2024

Dear Minister

In 2023, you wrote to the Pensions Council (the Council) to ask it to analyse a proposal from Mr. Colm Fagan, who suggested it as an alternative structural basis for the Automatic Enrolment (AE) system that was approved by Government in March 2022, including the decumulation phase.

Mr Fagan states that his proposal promises increased investment returns and lower expenses for participants. In return, there would be no investment choice for AE participants: the proposal requires all pension pots to be 100% invested in equities (or similar) at all times, as well as restrictions to avoid anti-selection by participants. The inherent volatility of the high allocation to equities would be managed by using a formula to value all assets and transactions at smoothed values. A buffer account would be established over time to cover net exits where the smoothed value exceeds the market value.

The Council acknowledges the positive aspects of Mr. Fagan's proposal but ultimately does not recommend it as the structural basis for the approved AE system. The Council's position reflects its assessment across the following five areas as requested by you in your letter:

1. **Technical feasibility**: The Council focussed primarily on the pre-retirement elements of the proposal. Paragon Research Limited carried out a technical evaluation on behalf of the Council. While it would be a departure from any existing approach to pension saving, Paragon found that the proposal was technically feasible subject to resolution, where possible, of a number of risk management issues.

   The proposal relies on the assumed outperformance of equities compared to other asset classes. While this outperformance has been observed in the past, it varied over different times and different markets. The Council found insufficient evidence to provide assurance of the consistent future outperformance of this approach.

2. **Practical feasibility:** The practical feasibility of the proposal was assessed by the Council. The scheme's viability would be placed at risk if significant numbers cease contributions whenever smoothed value exceeds market value. Its success therefore depends on the sustained participation of a large number of individuals. There is uncertainty on whether this condition can be met on an ongoing basis, and it would therefore be imperative that the design incorporates provisions for its cessation in the future.

   The smoothing formula was carefully considered. This is intended to manage investment volatility but introduces considerations relating to equity and fairness in the distribution of investment returns across different participant

groups and generations. The Council has concerns regarding the practicality of implementing some restrictions.

Under the proposal, the scheme would be established as a public corporation with trustees, the corporation having mutual status. There appears to be no provision in the proposal for the consumer protection obligations that would arise were this investment approach implemented in a private sector arrangement, whether as an insurance contract, a pension scheme, or some other type of financial entity. The purpose of insurance or pension obligations is to protect contributors and beneficiaries by providing in advance for challenges that might arise. If there are no equivalent mechanisms for the proposal, the Council concluded that this raises the question of whether there is an implicit State guarantee.

3. **Similar approaches elsewhere:** The Council did not find any precedents for an investment approach akin to the proposal in global, national, or provincial pension provisions. Some similarities exist with some private sector arrangements. In these cases, smoothing formulas depend on manual intervention while buffer accounts are established at the start rather than building up over time.

4. **Appropriateness for the provision of an AE solution:** The success of this proposal relies on intergenerational solidarity. In considering the appropriateness of such a proposal for the AE system, the Council concluded that policymakers would have to grapple with complex trade-offs. While the proposal holds the possibility of higher returns and increased pensions, it comes at the cost of restricting choices for consumers, raises questions about intergenerational fairness, and necessitates potential guarantees and/or capital requirements. It would likely come under significant political pressure to change the rules if it performed better or worse than expected.

5. **Other matters:** The Council was of the view that policy decisions should be mindful of potential consequences, including implicit guarantees, a loss of confidence, governance risks and untested aspects of the proposal. It could be considered that upon establishment, the Central Processing Agency could seek to identify a product that would capture the benefits that Mr Fagan has identified while addressing the risks that the Pensions Council's analysis has outlined.

The Pensions Council is at your service to help you or your officials with any further support or information you might need.

Yours sincerely,

Roma Burke

Chairperson

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1. Executive Summary

Auto-enrolment (AE) is a retirement savings system for employees that will be introduced in 2024 for those who meet certain criteria. The design of the system was approved by Government in March 2022 and published online.

In 2023, the Minister asked the Pensions Council (the Council) to analyse a proposal (the Alternative AE proposal) by Mr Colm Fagan, who suggested it as the structural basis for the proposed Automatic Enrolment system, including the decumulation phase.

The Alternative AE proposal advocates a single pooled fund invested solely in equities (or similar), in the expectation that it will boost returns, reduce expenses, and eliminate advisor costs. Participants would contribute while in employment, receive a lump sum at retirement and then make regular withdraws during retirement. All valuations and transactions would be based on smoothed rather than market values. A buffer account would be established to fund the difference when the smoothed value of net exits exceeds their market value. Strict rules are proposed to prevent participant individual savers acting (or "selecting") against the fund. Retirees can opt to secure an income for life and opt out of this protection. The scheme would operate as a public corporation with mutual status.

In comparison to the approved AE system, the Alternative AE proposal differs significantly in respect of investment risk, smoothed vs. market valuations, the type of benefit at retirement, as well as flexibility and choice.

The Council spent the majority of its deliberations on the pre-retirement elements of the Alternative AE proposal. The post-retirement elements were considered but have been found to warrant further investigation and research.

Technical feasibility

Paragon Research Limited (Paragon) carried out a technical evaluation on behalf of the Council. It concluded that the Alternative AE proposal offers several significant potential advantages compared to the approved AE system, in particular that it could produce pensions more than double the size of those projected under the approved AE system, based on assumptions. Paragon expressed concerns about the management of several aspects of the risks involved, including the use of the buffer account, the risk of the scheme becoming unattractive to new contributions, and governance risks. It suggested strategies to manage these risks, such as State advocacy, financial instruments, or by appointing risk mitigation experts.

Paragon's findings in relation to the value of the projected pensions were not unexpected. If participants are invested in equities over a time horizon of 50+ years and if equities outperform other asset classes over this period, then participants would do significantly better than if they were invested more conservatively.

This outperformance has been observable historically (referred to as the Equity Risk Premium, or ERP), however, the Council noted that it varied over different time periods and different markets. Over the very long run the ERP has been volatile. Predicting the future ERP involves uncertainties.

The investment of participant contributions, the payment of benefits and the value of individual pension pots would be based on a formula which reflects the expected long-term return on real assets and also takes some account of actual market returns. The objective of the smoothing formula is to enable participants to benefit from the returns of investing in higher risk assets, while addressing concerns they might have in relation to the corresponding higher volatility.

Using a smoothing formula that incorporates the estimated future ERP means that some groups may benefit, and others may lose out. For example, if the ERP is underestimated, earlier generations of contributors will lose out relative to later generations and vice versa. Also, even where the smoothed return converges to the market return, the distribution of returns among AE contributors and beneficiaries may still be affected: for example, in the event of a sudden short term market shock, part of any new contributions will in effect be transferred to the benefit of pre-existing savings, held by other participants.

Practical feasibility

The Council examined the practical feasibility of the Alternative AE proposal. The scheme's viability would be placed at risk if significant numbers cease contributions whenever the smoothed value exceeds the market value. There is considerable uncertainty regarding the future membership numbers. The structure of the proposal as a public corporation with mutual status raised questions regarding protections for contributors and beneficiaries. The use of a buffer account which builds up gradually over time was not considered sufficiently robust by Paragon. If it were to be regulated under insurance law, this would result in significant capital requirements. There may be ways to transfer some of these risks to third parties; however, that cost would impact on returns to pension savers. Changes to the Solvency II regime could be sought to facilitate the proposal, but this would likely be a long and uncertain process. If it were to be regulated as an IORP under pensions law, it would be treated as a defined benefit scheme, also requiring reserves in certain circumstances.

The Alternative AE proposal relies on smoothed values to mitigate market fluctuations. Restrictions, such as no investment choice, rejoining delays, and benefit limitations, aim to ensure stability. Restricting the ability of a person to withdraw their money out could prove unpopular. The Council considered the restrictions in aggregate. In the event of unexpected or extreme scenarios, there would undoubtedly be political pressure to change the rules in order to increase/decrease benefit payments, and any such change could undermine the functioning of the Alternative AE proposal.

Comparable models

The Council found no examples of an investment approach akin to the Alternative AE proposal in national, state, or provincial pension provisions globally. While some private sector arrangements share similarities, they rely on manual intervention rather than a long-term mathematical formula. Buffer accounts in collective defined contribution schemes differ in that they are established upfront, rather than over time.

In terms of international comparisons and products in different markets, the proposal could be compared to variable annuities which involve guarantees and hedging strategies as well as cash-balance plans found in the US and Japan, crediting a nominal account with a fixed for floating rate.

Suitability

The Council is of the view that the proposal is conceptually straightforward, but the details are complicated. The public may not understand the technicalities, but commentary could be developed that would enable the public to grasp the essentials.

The demand for investment choice would depend among other things on how well the Alternative AE proposal is expected to perform, actual performance relative to expectations set and on whether it is believed that the Government would stand behind the scheme in the event of any financial challenges arising. There may be a higher demand for choice during periods where the fund is underperforming relative to other investments.

Ultimately, the Council believes the Alternative AE proposal requires a guarantor to stand behind it. This may be the State or another party, or through capital protections.

Other matters

The approved AE system aims to launch in Q4 2024. If the Alternative AE proposal were to be introduced instead, it could jeopardise timelines.

Post-retirement features allow lump-sum withdrawals, full equity investment, variable income drawdown, and optional longevity protection. While the Council acknowledges potential cost savings for retirees, concerns arise regarding investment risk, advice needs, and the reliance on continuing contributions for stability.

This proposal relies on intergenerational solidarity. In considering the appropriateness of such a proposal for the AE system, the Council concluded that policymakers would have to grapple with complex trade-offs. While the proposal holds the promise of higher returns and increased pensions, it comes at the cost of restricting choices for consumers, raises questions about intergenerational fairness, and necessitates potential guarantees and/or capital requirements. It would likely come under significant political pressure to change the rules if it performed better or worse than expected. In that context the feasibility of the Alternative AE proposal is fundamentally uncertain.

Conclusion

The Council acknowledges the positive aspects of Mr. Fagan's proposal but ultimately does not recommend it as the structural basis for the approved AE system.

The technical feasibility, evaluated by Paragon, indicated that while the proposal is technically feasible, there are risk management concerns to overcome. The Council found insufficient evidence to provide assurance of the consistent future outperformance of equities over other asset classes.

In terms of practical feasibility, the scheme's viability would be placed at risk if significant numbers cease contributions whenever smoothed value exceeds market value. There is considerable uncertainty regarding the future membership numbers. There are also practical concerns about implementing restrictions. The proposal's lack of consumer protection provisions and absence of precedents globally or nationally were observed. There could be complex trade-offs in intergenerational fairness to consider as well as potential guarantees, and/or capital requirements. Concerns about political pressure, implicit guarantees, loss of confidence, governance risks, and untested aspects were also noted.

2. Introduction

An Chomhairle Pinsean, also known as the Pensions Council (the Council), was established under section 26B of the Pensions Act, 1990 as amended (the Act). Its role is to advise the Minister for Social Protection on matters relating to policy on pensions. The Council also represents and protects the consumer interest and helps to ensure that the pensions system has a strong consumer focus.

The Council comprises representatives of the Departments of Social Protection, Public Expenditure NDP Delivery & Reform and the Central Bank of Ireland, the Pensions Regulator, as well as between 4-8 other members, each of whom the Minister considers to have the relevant skills, specialist knowledge, experience, or expertise to enable them to carry out the functions under the Act. All members are appointed by the Minister and no members are remunerated for their role. The Minister appoints the Chairperson.

2.1 Auto Enrolment

The Council is aware that many employees are not saving for retirement, which means that they will be relying on the State Pension when they retire. While the State Pension can ensure that retired people stay above the poverty line, most people are used to having more money to live on. Auto-enrolment (AE) is a retirement savings system for employees that will be introduced in 2024 for those who meet certain criteria (based on age and salary). In addition to employee contributions, their employer and the State will also contribute – for every €3 that an employee puts in, the employer will also put in €3 and the State will top up by €1. Employees will be able to leave the system or pause their contributions, but they will be automatically re-enrolled at a later date. An independent body, the Central Processing Authority (CPA), will be set up to administer the scheme and look after participants' best interests.

The approved AE scheme will provide a default strategy for the investment of contributions as well as a range of alternative strategies (at least three) which employees may choose from. The default investment strategy is likely to be broadly set out in the primary legislation, with further detail specified by the Minister by regulations. This is expected to reflect "*the reasonable expectations of a typical employee for the purposes of making savings for retirement*[1]", with appropriate diversification of investment and risk as well as the age of each participant. The alternative investment options will likely include conservative low risk, a moderate risk and a

[1] https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_social_protection_community_and_rural_development_and_the_islands/submissions/2022/2022-11-10_draft-heads-and-general-scheme-of-the-automatic-enrolment-retirement-savings-system-bill-2022_en.pdf, Head 33

higher risk strategy and the Minister may specify by regulations any specific requirements to be complied with.

2.2 The Minister's request

In April 2023, the Minister wrote to the Council asking it to analyse a proposal that was furnished to her Department by Mr Colm Fagan, in which he suggested that the proposal be used as the structural basis for the approved AE system, including the decumulation phase.

The Minister requested the Pensions Council to:

1. assess the technical feasibility of the proposal;
2. assess the practical feasibility of the proposal;
3. outline whether the Council was aware of any similar approach being employed elsewhere, with regard to AE or other large defined contribution schemes;
4. consider the appropriateness of employing such a proposal in the provision of AE for those not engaged with or familiar with complicated financial products; and
5. outline any other matters that the Council wished to raise.

2.3 The Council's approach

The Council examined and deliberated upon the Minister's request. It resolved to procure external assistance for the technical evaluation (item 1), while reserving the remaining issues (items 2 – 5) for further deliberation by the Council. In June 2023, the Council issued a Request for Quotation to identify a preferred provider to deliver the technical assessment. This was published on eTenders and on the Council's website. It was also notified to several bodies who might have members interested in responding.

The Council received high quality, compliant responses from companies based in Ireland and abroad. The responses were assessed by the Council in line with the Request for Quotation criteria and Paragon Research Limited (Paragon) was identified as the preferred provider. Paragon's final report was made available to the Council in December 2023.

The Council met numerous times over the course of 2023 and 2024 to progress the technical feasibility assessment and consider the other matters raised by the Minister. It reviewed the findings, including Paragon's report, and finalised its report to the Minister.

The Council recognises the importance of its role as a statutory body, and for the duration of the project, the Council maintained a heightened awareness of the potential for conflicts of interest and the potential impact of undue influence from third parties. All activities were carried out by and on behalf of the Council in an independent, transparent, and professional manner. Any Council members who received individual representations notified the Council of that fact.

This report is structured in the same format as the Minister's request. The Council and Paragon decided to focus on the pre-retirement elements of the proposal. The post-retirement elements were considered but warrant further investigation and research. This is discussed in section 8 of this report.

3. Summary of the Alternative AE Proposal

The Minister provided the Council with a copy of Mr Fagan's proposal *"A New Approach to Auto-Enrolled Pensions",* version 11 May 2022.

In his proposal (referred to as the Alternative AE proposal in this report), Mr Fagan states that "*it will transform the world of pensions… raising investment returns, lowering expenses and removing an entire swathe of advisor costs… it will ensure that investment is premised on societal needs and the green transition."*

To achieve this, he proposes a single pooled fund for all members (including retirees), which will be invested entirely in equities. Members will transact at smoothed values, rather than market values, these values will be determined by a mathematical formula that averages market values over long periods*, "and which factors in the expected higher returns from equities*". The fund will be valued once per month, or less frequently. Members will contribute to the fund while they are active and make withdrawals from the fund when they are retired. The scheme will be a public corporation, with trustees and having mutual status. There will be no Government backstop or guarantee; however, a buffer account will be established. This buffer will be funded from margins in the management charge and credited with the excess when the market value exceeds the smoothed value for net exits.

Because values are smoothed, Mr Fagan states that strict rules are required to prevent members exploiting the difference between smoothed and market values to their advantage. The rules include the following:

- contributions are a fixed percentage of qualifying earnings;
- no additional voluntary contributions or transfers in or out are allowed;
- funds may only be taken on death or retirement.

If a person leaves the scheme, they will not be allowed re-join for a period of at least three years. At retirement, a portion must be taken as a lump sum and the balance as regular instalments, subject to minimum and maximum amounts. There would be rules on when and how the withdrawal amount can be varied. Retirees can opt for longevity protection in which case an income is guaranteed for life (the amount may change based on life expectancy projections) and they can also opt out of this protection.

3.1 Comparison of some key differences between the Alternative AE proposal and the Approved AE system

It is useful to compare some of the key features of the Alternative AE proposal to what we know about AE in its current format (the Approved AE system), based on the draft Heads and General Scheme of the Automatic Enrolment Retirement Savings System Bill 2022.

System	Approved AE	Alternative AE
Model	Defined contribution	Collective defined contribution[1]
Legal form	To be defined by legislation	Public corporation with mutual status
Limits on earnings and contributions	Yes	Yes
Employee, employer, and State contributes	Yes	Yes
Pre-funded	Yes	Yes
Buffer account	No	Yes
Automatic enrolment	Yes	Yes
Enrolment based on certain criteria	Yes	Yes
Able to opt out	Yes	Yes
Able to opt back in	Yes – within 3 months	Yes – but after at least 3 years
Investment choice	Yes	No
Default fund	Yes	Yes

Default strategy investment approach (pre-retirement only)	Diversification of risk based on age (life-styling)	Invested 100% in equities at all times
Smoothing of returns	No	Yes
Can assets go down as well as up?	Yes	Yes
Value of retirement savings	Market value	Smoothed value
Can a member get back less than they contributed?	Yes, but unlikely over the long term	Yes, but unlikely over the long term
Transfers in	Not allowed	Not allowed
Transfers out	At point of retirement only (mandatory)	Not allowed
Benefits paid on death	Yes – market value of account	Yes – smoothed value of account
Lump sum at retirement age	Yes	Yes
In-scheme drawdown *(i.e. post-retirement)*	Not a feature of the Approved system	Yes
Purchase of open-market retirement product (e.g. annuity or ARF)	Optional - alternative is withdrawal of balance, subject to tax.	Not allowed, not required due to drawdown post-retirement
Option to secure an income for life	Yes, through an open market annuity – amount guaranteed at point of purchase.	Yes, through "longevity option" from age 75 – amount not guaranteed

[1] The Alternative AE proposal was labelled above as "collective defined contribution" to distinguish it from individual defined contribution in the Approved AE system. Whilst there are many forms of collective defined contribution schemes one definition is that *"Collective Defined Contribution pension schemes enable savers to pool their money into a single fund to share investment risk and longevity risk*." The Alternative AE proposal does require collectivism in terms of sharing of risk across generations.

The key differences therefore between the Alternative AE proposal and the Approved AE system can be summarised as:

1. The level of investment risk: the Alternative AE proposal envisages 100% equity investment (higher risk, higher expected return) throughout the remaining lifetime of the member, while the Approved AE system will take an approach that reflects the risk profile of the typical member (lower average risk, lower expected return).

2. The value of member accounts and transactions: the Alternative AE proposal envisages members transacting at smoothed values which may be lower or higher than the market value. Under the Approved AE system, all transactions and valuations would be at market value.

3. The length of time members will remain in the system: under the Alternative AE proposal, members will remain in the system for life. Under the Approved AE system, they will transfer their savings out at retirement age and must then invest in a post-retirement solution, possibly incurring additional costs in doing so.

4. Guarantees: the Alternative AE proposal states that there will be no Government backstop or guarantee. However, if the AE scheme were to run out of money for any reason, the smoothed value of member savings based on the proposed formula may not be valued at zero. For example, if the fund was wound up for whatever reason in the initial years after inception and if equities had performed very poorly, the smoothed value could be greater than the market value and the liabilities could be greater than the assets (an unlikely but possible scenario). A guarantee of some sort would therefore presumably be required to make good any remaining member savings. The Alternative AE proposal also offers the option for retirees to secure an income for life. Under the Approved AE system, there are no guarantees. All transactions take place at market value. If a retiree wants a guaranteed income, they can purchase an annuity with a life company.

5. Type of benefits at retirement: under the Alternative AE proposal, the fund will continue to operate as it did pre-retirement. Retirees will receive a lump sum plus an income (a percentage of their accumulated savings). From age 75, they can opt for an income for life. Under the Approved AE system, members must take their fund at retirement. They can choose a lump sum, plus use the balance of their savings to secure guaranteed income with an insurance company or take a variable income (using an Approved Retirement Fund) or draw down the entire amount in cash. All withdrawals under both systems are subject to the same Revenue rules.

6. Flexibility and choice: the Alternative AE proposal mandates one fund for all members. There is no choice and members cannot transfer their savings out. If members stop contributing, it is at least three years before they would be permitted to rejoin. Under the Approved AE system, members can choose how their retirement savings are invested, they can restart contributions any time and they must transfer out at retirement.

4. Technical feasibility

The Minister asked the Council to consider the technical feasibility of the Alternative AE proposal including the appropriateness and reasonableness of any underpinning assumptions employed and whether the modelling and evidence provided is sufficient to provide assurance of feasibility.

Paragon carried out a study of the technical feasibility of the Alternative AE proposal on behalf of the Council. This study focussed on the Alternative AE proposal's investment features pre-retirement. The key features identified by Paragon were:

1. Contributions are invested only in equities, and they remain invested only in equities post-retirement. Paragon observed that this is *"based on the consensus opinion in finance that historically such stock market investments have achieved the highest investment returns, albeit they have also had the highest variance of return"*.

2. There is only one single investment fund to minimise investment expenses and avoid members making investment decisions that may not be in their best long-term interests.

3. Investment returns are smoothed according to a mathematical formula.

4. Investment risk still largely rests with the individual, but the risk arising from any differences between the smoothed returns and the actual returns needs to be managed.

5. A novel approach for drawing a pension from the accumulated fund at retirement while still keeping the underlying investments in the stock market was also proposed.

Paragon concluded that the Alternative AE proposal offers a number of significant advantages over the Approved AE system, the primary advantage being that it could produce pensions more than double the size of those projected under the current AE proposal, based on assumptions. Paragon expressed concerns about the management of several aspects of the risks involved, including the use of a buffer account, the risk of the scheme becoming unattractive to new contributions and governance risks.

Paragon outlined potential ideas to manage these risks. It also proposed a simplified version of the Alternative AE proposal, which in its opinion, was materially better than the Approved AE system.

4.1 Discussion

In broad terms, the main investments of pension funds comprise financial assets (such as government bonds and deposits) and 'real assets' (such as quoted company shares (also known as equities), property and other non-financial assets).

The equity risk premium (ERP) is a key concept in finance and investment analysis. It represents the additional return that investors expect to receive for taking on the risk of investing in equities (real assets) instead of financial assets. In essence, it attempts to quantify the compensation that investors demand for bearing the uncertainty and potential fluctuations associated with stock market investments. There is, however, no universal definition of what constitutes the market return and what constitutes a risk-free rate (which allows measurement of any excess return achieved).

The Alternative AE proposal will mandate managers to seek assets that will deliver real returns over a 50-year plus investment horizon. The Council observed that in some periods in some markets for some length of time, equities have enjoyed strong returns. In other periods in other markets over other intervals, equities have performed weakly and/or bonds have outperformed equities[2]. Over the very long run, the ERP has been volatile[3].

Notwithstanding the potential variability in the ERP, in a traditional life-styling model, younger pension scheme members are encouraged to take on some investment risk (by investing more in real assets) and to mitigate the impact of extreme negative outcomes when close to retirement (by investing more in financial assets). By doing this, these members are expected to benefit from the ERP, as their retirement savings should be higher at retirement, all else being equal.

The Alternative AE proposal requires that 100% of AE assets be invested in equities at all times. This could lead to a much better outcome for the member, but is subject to risks, including the risk of extreme market events. Such risks are mitigated via smoothing values, using a buffer account, banning transfers in and out, and the continuation of the fund post-retirement such that there is no single drawdown date at which differences between smooth and market values would crystallise.

[2] EF McQuarrie "Stocks for the long run? Sometimes yes, sometimes no", Financial Analysts Journal, a publication of the CFA Institute. https://doi.org/10.1080/0015198X.2023.2268556

[3] Jordà et al "The rate of return on everything 1870 -2015" published in the Quarterly Journal of Economics Vol 134 (3): 1225-1298 https://academic.oup.com/qje/article/134/3/1225/5435538

4.1.1 Smoothed values

In the Alternative AE proposal, the investment of member contributions and the payment of benefits would not be based on the actual value of the accumulated assets but on a formula which reflects the expected long-term return on real assets and also takes some account of actual market returns.

According to Paragon, "*this is the main novel aspect of the Alternative AE Proposal. This enables smoothing of investment returns without brutally investing in assets that are likely to have much poorer returns, just to reduce the expected volatility."* In other words, it could enable members to benefit from the higher expected returns from investing in higher risk assets, while addressing concerns they might have in relation to the corresponding higher volatility; it therefore could deliver a better match to the appetite of AE participants for less volatile assets.

The actual returns on the invested assets are likely to vary much more than the returns calculated by the proposed formula. If actual returns are higher than calculated returns, new contributions would be credited at better than market value, and benefit payments would be paid at less than market value. If actual returns are lower than calculated returns, the situation would be reversed: new contributions would be credited at less than market value, while benefit payments would be paid at more than market value. As a result, there would be times when excess undistributed returns build up inside the fund, or alternatively, when fund assets are being reduced to the benefit of new contributions or of benefit payments.

According to Paragon, over longer periods of time, the smoothed return converges towards the market return.

4.1.2 Buffer Account

Buffer Accounts are typically used in Collective Defined Contribution schemes, but they are established at the start rather than being built up over time and relying on a likelihood of favourable returns to establish it, as is proposed in the Alternative AE proposal. Paragon concluded that *"the use of the Buffer Account in the Alternative AE Proposal as a risk management tool was not considered sufficiently robust".*

Alternative methods to manage the funding level risk were suggested by Paragon: (1) For the State to stand strong and advocate the merits of the scheme when the market value is less than the smoothed value until the time when smoothed value would be less than MV which is something that is mathematically going to happen due to the nature of the smoothing formula, (2) to use options (a type of financial instrument) and/or (3) swaps (a financial contract) to offset the risk or (4) appoint a person of competence and character to manage the risk using risk

mitigation techniques. These methods require further research according to Paragon.

4.1.3 Equity Risk Premium

The Council recognises that there is historical evidence of an ERP in most national markets and convincing arguments about why an ERP should be expected to continue in the future. Investing in equities can also help to provide protection against inflation.

The Council could not find any evidence to provide assurance about what the ERP will be in the future. It would depend on many factors including, which equities and in which markets the fund would invest in. This raises the question about what baseline should be used for future predictions, how and who would predict it.

Importantly, the predicted ERP incorporates expectations of future stock market returns which are not directly observable, and this is a key consideration when considering the Alternative AE proposal; any model of the ERP is a model of investor expectations.

If the ERP is underestimated, earlier generations of contributors will lose out relative to later generations. If it is overestimated, the position will be reversed.

The Council noted that the smoothing formula involves periodic updates to the ERP as well as potential constraints on the extent to which expected return will be allowed to vary from one year to the next. The process to determine and periodically review the ERP would need to be robust. The Council understands that processes have been developed within the financial services industry to develop ERP assumptions and manage the risks included in products that have exposures to equities. The Council would recognise that the examples identified relate to products where the equity allocation is much less (65% or lower, typically) to that proposed under the Alternative AE proposal. The Council would also note an example of a firm who might develop the ERP assumptions and use risk tools to manage the risks could be an insurance firm. Such a firm is typically part of large financial services group, would have a diversified suite of products, use group and external market risk transfer arrangements such as reinsurance or derivative contracts to manage such risks and would hold capital against those risks.

The Council considered fairness and equity. The historic record of the ERP includes many very significant events – world wars, financial and economic crises. If the future ERP is derived from historical experience, it should implicitly allow for the long-term effect of such events. However, even where a shock (a sudden significant loss in investment value for example) does not have a significant effect on the long-term aggregate return, it may have an effect on the distribution of returns

among AE contributors and beneficiaries – for instance, if there are net inflows immediately after a shock, part of the new contributions will in effect be transferred to the benefit of pre-existing savings, held by other members. Paragon suggested this could be managed by requiring each new contribution to buy into the scheme at the market value, while achieving smoothed returns thereafter.

A fuller discussion on risk-sharing across cohorts and generations as well as the reliance on intergenerational solidarity (effectively a social contract) as would be the case for the Alternative AE proposal can be found in the 2020 OECD publication 'OECD Pensions Outlook 2020', Chapter 6[4].

4.1.4 Resilience to shocks

The ability of the Alternative AE proposal to withstand investment shocks would be key to its success or failure. The Council considered a simplified (albeit unlikely) scenario in which the smoothed value equalled the market value, but a day later, markets fell by 25% and did not recover, and contributions ceased. The fund ran out of money after 15 years; however, the smoothed value was still positive.

This scenario demonstrates the importance of the availability of capital to protect members when extreme events happen. While the Alternative AE proposal proposes to build up a buffer account to manage such events, Council did not consider it sufficiently robust to be used as a risk management tool.

5. Practical feasibility

The Minister asked the Council to consider the practical feasibility of the Alternative AE proposal including an assessment of the structures and constraints proposed, and a view of any changes that may be needed at EU and /or national level to pension, tax, financial supervision, and regulatory law to facilitate it.

The Council considered this and has set out its discussion and views below. Formal legal advice should be sought before any further steps are taken.

5.1 Discussion – requirement for new entrants and scale

For the Alternative AE proposal to be a success, potential contributors (i.e. employees and their employers) will need to 'buy into it' both at outset and on an ongoing basis.

[4] https://www.oecd-ilibrary.org/sites/67ede41b-en/1/3/6/index.html?itemId=/content/publication/67ede41b-en&_csp_=db494ff1be802026d362be74cb05db06&itemIGO=oecd&itemContentType=book

There is a risk of the Alternative AE proposal becoming unattractive and contributions stopping at any stage. This may be because members are or become reluctant to invest in the Alternative AE proposal and especially when the smoothed value exceeds the market value.

Once auto-enrolment comes into operation, employers who do not currently provide pensions for their employees will have the choice of enrolling their employees in the AE scheme or of implementing alternative pension provisions that will reach the threshold for exemption.

Employers can at any future date re-consider their choice between the two and facilitate reluctant employee groups to opt out of the State-run scheme by setting up an appropriate alternative instead.

The Council sees potential uncertainty about the numbers that may join the Alternative AE proposal (and indeed, any AE scheme). For example, employers may choose to extend their existing pension arrangements to incorporate current non-participants, or opt-out rates may be different to those expected by the Department of Social Protection.

Beyond these uncertainties, the Council would also highlight that the Alternative AE proposal would differ significantly from other models of Irish pension investment, which may cause take-up to be lower or slower than desired or anticipated.

There might also be challenge to the Alternative AE proposal in mainstream or social media, which may make prospective participants take a “wait and see” attitude. Given that benefits of the Alternative AE scheme may only be demonstrable into the longer term, the risk of low participation numbers would need careful consideration.

5.2 Discussion – scheme structure

Under the Alternative AE proposal, the scheme would be established as a public corporation with trustees, the corporation having mutual status. In the past many life insurance companies were mutuals, which meant that the profits from the business went to the policyholders; in particular, to the “with profits” policyholders. Over time, most of them “demutualised”. Today, there are no such mutuals in Ireland. There are still some mutuals in the UK (Friendly Societies), although these are regulated as insurance companies.

The scheme appears to offer similar benefits to an IORP (pension scheme) or an insurance arrangement. However, IORPs, insurance arrangements and all firms who provide financial services are subject to regulation which aims to protect the policyholders and beneficiaries. It is not clear how the Approved nor the Alternative AE would be exempt from similar regulations or protections.

The Government could choose to introduce protections, or they could be forced to, by, for example the European Court of Justice (if the decision not to similarly regulate was successfully challenged). If protections were to be introduced, the scheme might be regulated using existing insurance or pensions legislation.

It is useful to consider the effects if such legislation were to be applied.

1. Under insurance law, considerable amounts of capital are required because of Solvency II obligations, particularly where products offer guarantees. The capital requirement would reflect the impact of extreme adverse scenarios, among other factors.

   The Alternative AE proposal, if it took the form of an insurance undertaking or if similar requirements were to apply, could result in significant capital requirements relating to the potential expectations of members or an implicit guarantee.

   The Approved AE system does not provide any implicit guarantees and if it took the form of an insurance undertaking or if similar requirements were to apply, would not be expected to result in significant capital requirements.

2. Were this a private sector funded pension scheme, it would be treated under the Pensions Act as a defined benefit arrangement. Although no initial capital would be required, the scheme would still be obliged to demonstrate how, if the market value fell below the smoothed value, the difference could be remedied. in such circumstances, the scheme would have to implement a 3-year plan to rectify any shortfall. It is not obvious that the Alternative AE proposal as presented could meet this obligation.

The purpose of insurance or pensions requirements is to protect contributors and beneficiaries by providing in advance for challenges that might arise. If there are no equivalent mechanisms for the Alternative AE proposal, this raises the question of whether there is an implicit State guarantee.

The Council considered whether the Alternative AE proposal could be accommodated within the Solvency II regime. In an earlier paper[5], Mr Fagan stated *"The scheme's unique nature means that it is unlikely to be possible to accommodate it within the EU's Solvency II regime as currently*

[5] https://www.colmfagan.ie/documents/40_Document.pdf?d=January%2030%202021%2016:55:59

documented. Changes will be required to the text of the regulations, without diluting the underlying Solvency II principle".

If the Government were to take this approach, it would need to approach the EU Commission, the Commission would need to accept the proposal, it would then need to go through the EU legislative process. In summary, this would likely be a long and uncertain process.

5.3 Discussion – investment structure

A central feature of the Alternative AE proposal from an investment perspective is the difference between the smoothed and market value.

The investment structure does not appear to create any specific difficulties under Irish legislation that could not be addressed. Property rights, which are protected by the Constitution, may be a consideration, and legal advice should be sought to confirm the position.

A fundamental feature of the Alternative AE proposal is that if there are periods where the market return is less than the smoothed return, the higher expected return can nonetheless be credited and paid on the assumption that the higher return will eventually be achieved. Therefore, current beneficiaries can be paid the higher amount using funds from current and future contributors because those contributors will be the ones who benefit from the higher future returns. In practical terms, the Alternative AE proposal will only work if there are sufficient current and future contributors to the scheme. The proposal implicitly assumes that the scheme will be continued indefinitely and that there will be no future significant change to the design of the AE system that will affect this. According to the Paragon report, the scheme would become problematic if there was a prolonged fall in the Irish population (and hence in contributors to the scheme) at the same time as when there was a prolonged fall in the stock market.

The establishment of a buffer account was proposed to mitigate this risk, with any excess between the market value and smoothed value for net exits being credited to the buffer account, and vice versa. Paragon noted challenges with the buffer account and offered solutions to address them. One of these solutions was to use financial instruments to manage the variability between the smoothed and market value. These instruments would come at a cost (if they were available). For example, if this was operated by an insurance company, capital would be required in relation to the market and counterparty risks created by this approach. Furthermore, if such instruments are available at an acceptable cost, there is no certainty that they would always be available in the future.

The increased level of investment risk within the Alternative AE proposal may be possible because much of the associated volatility is mitigated through smoothing – which in turn requires restrictions on participants. The Alternative AE Proposal requires:

1. No investment choice will be offered to members.

2. Members who stop contributing will have to wait several years (at least three) to rejoin in certain circumstances. AVCs would not be permitted, and while not directly referenced, changes in contribution levels (for example, due to changes in Government policy) may cause challenges also.

3. All benefits must be taken as income or drawdown, and not as lump sum transfers (other than a portion of the pot at retirement). There is limited flexibility on the pace of drawdown in retirement.

5.4 Council's views

The Council's views of the practical feasibility of the Alternative AE proposal are as follows:

- The design of the proposal must allow for its cessation at some future date, whether because economic circumstances make it unsustainable or because there is some change to retirement policy. Before any decision is taken, the procedures for such cessation should be specified.

- Although it is proposed that no investment choice be offered, contributors will always have the option stop future contributions. This may be more likely if it is perceived that the AE system represents poor value/higher risk for contributors. Perception of these matters would critically depend on communication around the scheme and the willingness and ability of the State or other party to stand behind it. If a negative perception were to arise and persist, it may be that some employers would offer their employees the alternative of enrolling in an occupational pension scheme.

- An assumption of reduced costs is one of the drivers (though not the main one) of the higher pensions expected under the Alternative AE proposal. These cost savings would come from several sources: an absence of investment advice, group rates for investment management post-retirement and lower costs pre-retirement through simpler administration and less frequent pricing.

  However, the Council notes the potential for some new costs, for instance to cover the cost of selecting and implementing solutions to manage the risk inherent in the Alternative AE proposal. In addition, the Council is of the view that members may require

retirement advice other than investment advice during retirement, and so those costs may also need to be considered.

- The re-joining restrictions were understood to be necessary to prevent anti-selection but potentially unfair, and possibly discriminatory, to females, who may be more likely to cease contributions on a temporary basis for reasons such as caring responsibilities, and not for arbitrage purposes. It may be therefore difficult to introduce such a rule. It may be worthwhile exploring the potential to permit re-joining under specific circumstances.

- Any proposal to restrict a member's right at retirement to "get their money out" is, in the Council's view, likely to be very unpopular. Since ARFs and fund drawdown were introduced in 1990, they have become the dominant form of benefit for defined contribution pensions.

- The Council considered the restrictions in aggregate. In the event of unexpected or extreme scenarios, there would undoubtedly be political pressure to change the rules in order to increase/decrease benefit payments, and any such change could undermine the functioning of the whole system. Paragon considered this and concluded that political risk could be managed by requiring additional constraints in the governance of the scheme.

  It would be a matter for Government and possibly for the Oireachtas to decide whether such changes should be made. Council's view is that provision should be made for such risks.

6. Comparable models

The Council was unable to identify any examples of an investment approach similar to the Alternative AE proposal being used for any funded national, state, or provincial pension provision. There are instances of centralised savings and retirement funds such as the Singapore Central Provident Fund but none appear to adopt an investment approach comparable to this proposal.

In some jurisdictions (for instance Germany, Iceland, U.K., and the Canadian province of New Brunswick) there are private sector arrangements such as smoothed return plans, target benefit plans and collective defined contribution. There are some similarities with this proposal but in general, the investment return allocation in these arrangements depend on manual intervention and decisions, and not on a long-term mathematical formula.

Buffer accounts are typically used in collective defined contribution schemes, but the buffer account is established at the start rather than relying on a likelihood of favourable returns to establish it.

In terms of international comparisons and products in different markets, the proposal could be compared to the following products and markets:

Variable Annuities developed first in the US in the early 2000s

These products provided guarantees, and individuals had a real account value and a nominal account value. The investment strategy for these involved hedging the difference between the market value and nominal value.

Variable annuities

Variable annuities, also referred to as segregated funds in Canada, are deferred retirement savings products with an annuity option. The underlying assets for these products are managed in individual accounts, usually with a variety of investment options, allowing for the realisation of market returns rather than locking in a fixed rate. A minimum rate at which the accumulated funds can be converted into an annuity is guaranteed at issue, though annuitisation is not mandatory and the policy may be surrendered instead. Optional guarantees are provided by the insurers which offer additional levels of protection from investment, mortality and/or longevity risk. These guarantees have become the distinguishing feature of variable annuity products.

Insurers typically hedge the investment risk of providing the guarantees for these products using financial derivatives. Following significant losses during the financial crisis, several providers who had not been sufficiently hedging their risk exited the market. Those that have remained have attempted to reduce the riskiness of the products by modifying their design, for example by limiting the number of investment options available, reducing the level of the guaranteed returns, and placing further restrictions on the amount and
timing of withdrawals from the account.

Extract taken from 'Life Annuity products and their guarantees', OECD 2016

The proposal may also be similar to cash-balance plans found in the US and Japan, where the provider/employer credits a nominal account with a fixed for floating rate each period.

There may be a risk of individuals perceiving the smoothed or credited return at a point in time as a guarantee, and as such there is an associated risk that such individuals would lose trust in the system when they realise that this is not the case. More research would be required to assess the potential impact of this risk and how to effectively manage it.

7. Suitability for AE

Some specific issues identified were whether the public will understand the structure (and whether they need to); whether more choice will be demanded and the need for a guarantor.

The Council's view on each of the above are as follows:

- This proposal is conceptually straightforward, but the details are complicated. The public may not understand the technicalities, but Council expects that there will be commentary that will enable the

public to grasp the essentials, especially on the relationship between market value and the smoothed value.

- The demand for choice would depend among other things on how well this is expected to do, on whether it is believed that the Government will stand behind it. There may be a higher demand for choice during periods where the fund is underperforming relative to other investments.

- This system requires a guarantor to stand behind it. This may be the State or another party, or through capital protections.

8. Other matters

5.5 AE Timetable

AE is anticipated to be introduced in the second half of 2024. There are a number of identified gaps and fundamental issues to be resolved for the Alternative AE proposal to be workable as discussed in the Paragon report. Resolution of these matters (where possible at all) could jeopardise the AE timelines.

5.6 Post-retirement

The Alternative AE proposal includes post-retirement as well as pre-retirement features. Under the proposal, retirees:

- Can take a lump sum at retirement.

- Will remain fully invested in equities.

- Can draw down their remaining benefits as variable income (the proposal specifies lower and upper limits percentage of their pension savings).

- Can opt for “longevity protection” from age 75, which will provide for an income for life, although the level of that income may change based on life expectancy projections and opt out of this protection.

By remaining in the scheme, this will likely reduce advice fees and product set-up costs, which is good news for members. This should lead to more money in retiree pockets.

There are two matters that the Council felt was important to draw to the Minister’s attention:

5.6.1 Remaining fully invested in equities

The Alternative AE proposal states *"by remaining in the smoothed fund and making regular withdrawals from it, retired members will have no need for investment advice, the cost of which can take a large chunk from a small pension pot."*

Notwithstanding values are smoothed and returns should be less volatile, investment risk still largely rests with the individual. This means that retirement pots can go down as well as up, in line with investment returns. Income, which is a percentage of the retirement pot, is therefore also variable. This is a more pronounced risk where retirees are fully invested in equities, as is the case in the Alternative AE proposal. To mitigate against this, the proposal relies on the assumption of continuing contributions by other members, which may not be appropriate.

In normal circumstances, where a retiree purchases an ARF product, they will use the services of a regulated financial adviser. The retiree and their adviser will agree an asset allocation mix to reflect the needs and risk appetite of the retiree. This may result in a reduced exposure to volatile assets, such as equities where capital preservation becomes more important and if they have a lower risk tolerance. The asset allocation may also be geared towards income generating assets, such as government bonds. The asset allocation will remain under review with the adviser and may change over time. The investment returns do not rely on other contributors.

In 2023, Insurance Europe commissioned a survey of 16,000 people across 15 EU counties[6]. This survey found that security and safety still remain by far the most important priorities (44% of respondents) and 82% favoured safety over performance.

In the Council's view, given that there is significant investment risk in the Alternative AE proposal, advice may still be necessary, even though it comes at a cost. Understanding investment risk may be particularly relevant for the target AE demographic.

Advice to retirees around their pension benefits is not wholly focussed on investment matters. For example, a wish to understand the ability to draw additional income in the short term (and the effect on ongoing income as a result); implications of changes in the personal taxation regime; changes to personal circumstances or the health of the individual can all give rise to a need for advice.

[6] https://insuranceeurope.eu/mediaitem/ce4f9788-85f7-4c2b-8f02-a0d0875421a3/Pension%20priorities%20in%20Europe%202023.pdf

5.6.2 Longevity protection

The Council is in favour of a model which can provide some level of guarantees for retirees. In the Council's view, this should be subject to the relevant protections (i.e. solvency and capital requirements) as other products which guarantee an income for life. It would be worth carrying out an analysis to see if savings can be achieved versus an insurance company product.

5.7 Could the potential benefit of the ERP be accessed through the Approved AE System?

The Council understands that the default investment strategy under the Approved AE system will include equity investment, so members can benefit from the potential ERP for some of their pension savings for some period of time, the detail to be set out when the requirements for the investment management services is published. However, it is not likely to be to the same extent as is proposed in the Alternative AE proposal (100% equites at all times).

In addition to the default strategy, a higher risk strategy will be made available under the Approved AE system. Therefore, if members want to access potentially higher returns for a higher proportion of their savings and for a longer period of time and can accept the volatility associated with that choice, they may be able to benefit more fully from any ERP. However, if members cannot accept the volatility, they cannot benefit from this. Those with large incomes and/or large savings pots may be more able to accept that volatility, while those on lower salaries and with smaller savings pots might not. As pointed out in the Alternative AE proposal, most members are likely to go into the default fund. It could be considered that upon establishment, the Central Processing Agency could seek to identify a product that would capture the benefits that Mr Fagan has identified while addressing the risks that the Pensions Council's analysis has identified.

5.8 Trade-offs

In making a decision, a policy maker faces complex trade-offs. The Alternative AE proposal is intended to generate a significantly higher return resulting in a higher level of pension in retirement. This comes at a cost. The costs include a restriction of choice and options for consumers, questions of intergenerational fairness, the question of a possible government guarantee, potential capital requirements to protect consumers and ensure a level playing field for all firms, the potential for a loss of confidence leading to a self-reinforcing downward spiral, and a proposal that has not been tested in practice before and which there are different views.

9. Conclusion

The Council acknowledges the positive aspects of Mr. Fagan's proposal but ultimately does not recommend it as the structural basis for the approved AE system.

The technical feasibility, evaluated by Paragon, indicated that while the proposal is technically feasible, there are risk management concerns to overcome. The Council found insufficient evidence to provide assurance of the consistent future outperformance of equities over other asset classes.

In terms of practical feasibility, the scheme's viability would be placed at risk if significant numbers cease contributions whenever smoothed value exceeds market value. There is considerable uncertainty regarding the future membership numbers. There are also practical concerns about implementing restrictions. The proposal's lack of consumer protection provisions and absence of precedents globally or nationally were observed. There could be complex trade-offs in intergenerational fairness to consider as well as potential guarantees, and/or capital requirements. Concerns about political pressure, implicit guarantees, loss of confidence, governance risks, and untested aspects were also noted.

10. Next steps

The Alternative AE Proposal is detailed. The Council's views on the proposal have been set out in this report and summarised in the executive summary. The Council suggests that the Council's discussion and views be considered by the Minister (or by her officials on her behalf). Where further steps are taken, it would be prudent to seek legal advice in advance, particularly in the context of the practicalities. The Council is available to meet the Minister and/or her officials to discuss this report.

11. Appendices

Appendix 1: Letter from the Minister to the Pensions Council

Oifig an Aire Coimirce Sóisialaí
Office of the Minister for Social Protection

26 April 2023

Ms Roma Burke
Chairperson
The Pensions Council
c/o Verschoyle House
28/30 Lower Mount Street
Dublin 2

Re: Proposal from Mr. Colm Fagan with respect to Auto Enrolment

Dear Roma,

Attached is a proposal that has been furnished to the Department by Mr. Colm Fagan which he suggests should be used as the structural basis for the proposed Auto Enrolment system – including the decumulation phase.

I would appreciate it if the Pensions Council would analyse this proposal please and provide me with its assessment covering the following –

1. The technical feasibility of the proposal – including the appropriateness and reasonableness of any underpinning assumptions employed and whether the modelling and evidence provided is sufficient to provide assurance of feasibility.
2. The practical feasibility of the proposal – including an assessment of any of the structures and constraints proposed, and a view of any changes that may be needed at EU and/or national level to pension, tax, financial supervision and regulatory law to facilitate it.
3. Whether the Council is aware of any similar approach being employed in any other jurisdiction with respect to their AE solutions or indeed in any other large DC pension scheme anywhere in the world.
4. The appropriateness of employing a proposal such as this in the provision of an AE solution designed to provide a quality-assured retirement savings system for hundreds of thousands of people not engaged or familiar with complicated financial products and earning in the low to middle income brackets in the main.
5. Any other matter in this respect that the Council feels worthy of consideration.

In view of the fact that I hope to bring the Auto Enrolment legislation to the Houses in advance of the summer recess, and that it is likely to be at Committee stage in the autumn, I would appreciate it if this could be given priority in the Council's work. Both Tim Duggan and Clare Dowling are available to the Council to discuss this further if required.

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Áras Mhic Dhiarmada, Store Street, Dublin 1, D01 WY03
minister@welfare.ie | + 353 1 704 3000 | www.welfare.ie

Oifig an Aire Coimirce Sóisialaí
Office of the Minister for Social Protection

I would like to thank you and the members of the Council in advance for taking on this important work and I very much look forward to your detailed and careful consideration of the issues involved.

Yours sincerely,

Heather Humphreys, T.D.
Minister for Social Protection

The Minister is a Designated Public Official under the Regulation of Lobbying Act, 2015
(details available on www.lobbying.ie)

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Appendix 2: The Alternative AE Proposal

A New Approach to Auto-Enrolled Pensions

Entry for Institute and Faculty of Actuaries' Redington Pensions Prize

Version 11 May 2022

1. Introduction

The brief for the Redington prize is "*to propose a system, or reform to the current system, which would deliver a low-cost affordable pension to the majority of the population …*" This paper meets the brief by proposing a reform to the UK's current auto-enrolment (AE) system, which delivers more than 50% better value for members, and can be extended to improve outcomes for retirees under DB and non-AE DC arrangements. It will transform the world of pensions as profoundly and permanently as passive investing transformed the world of investments, raising investment returns, lowering expenses, and removing an entire swathe of advisor costs. By shifting the investment focus from short-term returns to sustainable returns over a 50-year plus investment horizon, it will ensure that investment is premised on societal needs and the green transition.[1]

~

Two essential requirements for "*a low-cost affordable pension*" are low costs and high investment returns. The UK's current AE system goes some way towards achieving both goals, but it falls short in key areas:

(i) The "low expenses" criterion is satisfied pre-retirement, but not post-retirement. High charges are far too common in drawdown products. Also, most retirees, especially those unfamiliar with the stock market – who comprise the vast majority of AE members - need regular investment advice in retirement. The high fixed cost of advice can cause a significant drag on investment returns, particularly for the less well-off.

(ii) High investment returns come from investing in equities[2]. Expected[3] returns from equities are approximately 4% a year[4] more than from bonds. Currently, AE default funds aim to capture the high returns by investing heavily in equities when members are young, but "lifestyling" means transferring a significant portion of members' funds to bonds and cash in the lead-in to retirement, when account values are at their highest and have the highest earnings potential[5]. Cautious investment strategies and consequently lower expected investment returns normally continue all through retirement, possibly for 30 years or more. At the extreme, annuities imply 100% in bonds. Typically, the reduction in expected returns post-retirement is most marked for the less well-off, who can least afford the volatile luxury of equity investment. As a pension consultant once remarked to the author:
"It's fine for an affluent retired old professional like you to put your trust in equities,

[1] Appendix 2 sets out how the proposal meets other requirements of the brief.
[2] The term "equities" is used throughout as shorthand for assets offering equity-like returns and volatility; similarly, "bonds" is shorthand for assets offering bond-like returns and volatility.
[3] The adjective "expected" is used throughout in the mathematical sense of probability-weighted outcome.
[4] The equity risk premium (ERP) is discussed on pages 16 to 20 of the paper: https://web.actuaries.ie/sites/default/files/2021-01/AE%20paper%20for%20SAI%20CFagan%206%20Jan%202021.pdf
[5] One indicator of the relative importance of investment return at different ages is that the expected investment return in a single year for an older lifelong contributor could exceed total expected returns in the first ten years for a new joiner.

but less affluent pensioners cannot afford that luxury: they must take less risk and invest a significant portion of their funds in bonds."

The smoothed equity approach to AE proposed in this paper addresses these shortcomings. Members will remain in the smoothed scheme for life. It will have just one pooled fund, for both active and retired members[6], which will be invested entirely in equities. A key innovation is that all member transactions with the scheme, without exception, will be at smoothed values rather than at market values. Smoothed values will be determined by an objective formula that averages market values over long periods, and which factors in the expected higher returns from equities. Details of how smoothing will operate are set out later in the paper.

Smoothing transforms the volatility of investment returns, as the following charts show:

Figure 1

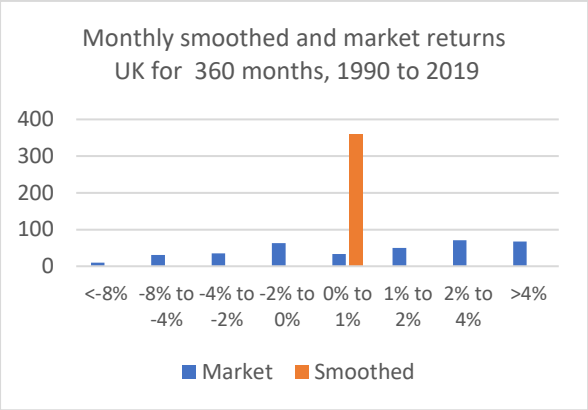


Figure 2

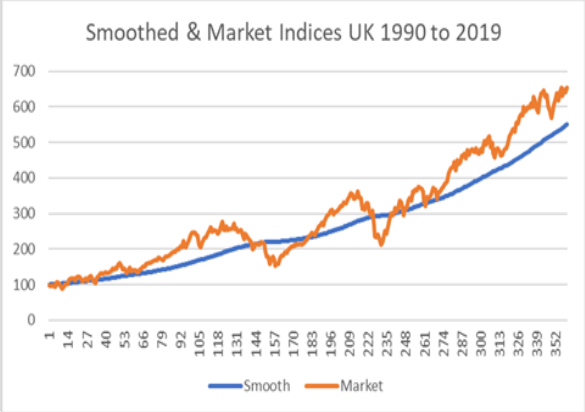


Figure 1, which shows positive smoothed returns every month for the UK market for the 30 years 1990 to 2019, illustrates how smoothing reduces the volatility of returns to such an extent that members (and administrators) will be able to view pension accounts like high-interest deposit accounts. Figure 2, which graphs the cumulative market and smoothed returns of figure 1, shows that smoothing achieves that goal without departing significantly from market values in the long run.

Insisting that members transact with the scheme at smoothed rather than market values completely changes the investment challenge. At present, the aim is to meet investment objectives at individual contributor level, e.g., to de-risk in the run-in to retirement, so that assets can be sold at reasonably predictable prices when members start claiming gratuities and pensions. Under the proposed smoothed approach, trustees will look at the fund as a whole, and see that cashflows will be positive for 30 years or more, and that investments won't have to be sold for years, possibly for decades, after that (because investment income will cover the excess of outgo over income for many years after cashflows turn negative). Negative cashflows at individual contributor level will be dealt with by transferring between members at smoothed values. Accordingly, the trustees will mandate investment managers to seek assets that will deliver real returns over a 50-year plus investment horizon.

Stipulating that assets be invested entirely in equities and that members transact with the scheme at smoothed rather than market values has a number of other advantages:

[6] The scheme will have the legal form of a public corporation, run independently for members by a board of trustees.

(i) Smoothing eliminates the lottery that market fluctuations bring to decisions on retirement date, etc. Members retiring just after a stock market crash will have almost identical entitlements to those retiring just before it.

(ii) Investing 100% in equities means significantly higher investment returns on average, particularly post-retirement. At current interest rates, retired members can expect to earn c6% a year in the smoothed fund versus c2% from an annuity (assuming a 4% ERP)[7].

(iii) The strategy of investing entirely in equities at all times eliminates the risk of having to move funds pro-cyclically from equities to bonds in falling markets, with the possibility of exacerbating the fall, as could happen in a "With-Profits" type arrangement.

(iv) A low weighting for current market value in the smoothing formula allows more investment in less liquid assets, for which reliable market values may not always be available, than would be possible with marked-to-market unit-linked funds.

(v) Much reduced volatility of returns means that members will be able to view their pension accounts like deposit accounts. This will allow much greater flexibility in dealing with life's uncertainties, e.g., early or late retirement, part-time work, long-term care, increased longevity. The details are discussed in Section 2 and Appendix 2.

(vi) Investing exclusively in "real" assets means that retired members will have better inflation protection than if funds were invested entirely or significantly in bonds.

(vii) Investment adviser costs will be eliminated, because pension accounts will remain invested in the smoothed fund post-retirement. Advisers add value by matching asset mix to individual risk appetites. Smoothing severs the link between risk and return, so no decisions will be required under this heading, and consequently no costs incurred.

Another innovation, discussed in Section 5, will allow retired members to protect against the risk of outliving their savings, without having to sacrifice any of their capital (as would be required for annuities), and without losing the benefit of high returns and low charges in the smoothed fund.

The proposal to use smoothed rather than market values poses a number of challenges, which are explored in later sections. Before considering the challenges, it is worth bearing in mind that the smoothed approach recognises a fundamental truth, namely, that a slavish belief in the pre-eminence of market values at all times is misguided, particularly for AE pensions.

(a) For most quoted companies, their underlying businesses are far less volatile than is implied by fluctuations in their share prices. To illustrate, the author is a long-standing investor in Phoenix Group Holdings. For the last ten years at least, the dividend has been maintained or increased each year[8]. Dividend increases have averaged over 4% a year, and management has indicated that the dividend is safe for the next 20 years at least. Despite the business's stability and the positive prognosis, the dividend yield is 8.3%[9], compared with 2.2% on gilts[10]. The share price also oscillates wildly: in the last three years alone, it has fluctuated between 78% and 131% of the current price, a 53% swing. It is impossible to rationalise such volatility for a stable business. To quote John Maynard Keynes, the fluctuations are no more than "*bubbles on a steady stream of enterprise*" and should be of little interest to long-term investors. The smoothed equity approach recognises this fact.

(b) An AE scheme can expect positive cash flows for decades into the future, so sharp falls in market values should be seen not as bad news but as opportunities for trustees to acquire

[7] Both estimates are before charges.

[8] Adjusting for rights issues.

[9] Based on the closing price of 599.4p on 11 May 2022.

[10] Suggesting (but of course by no means proving) an ERP well in excess of the 4% assumed in this paper.

assets cheaply for members. The detailed proposals in this paper exploit that fact, while also recognising that assets must be sold eventually at market prices prevailing at time of sale.

The fact that smoothed values will sometimes be above, sometimes below, market values means that strict rules will be needed to prevent financially astute members from exploiting differences between smoothed and market values to their advantage - and of necessity to other members' disadvantage, since the scheme's mutual status means that gains by one group must be balanced by losses by another: there will be no government backstop or guarantee.

Section 2 (page 5) looks at the rules required to minimise this risk, and the feasibility of enforcing them.

Section 3 (page 8) sets out the proposed smoothing formula.

Section 4 (page 14) explores how the scheme's long-term stability and durability can be ensured.

Section 5 (page 17) addresses the challenge of longevity.

Section 6 (page 20) studies how the smoothing parameters will be set.

Section 7 (page 23) is the concluding section.

Appendix 1 (page 26) estimates the added value under the smoothed approach.

Appendix 2 (page 28) sets out how the proposal meets the brief from the Institute and Faculty of Actuaries.

2. Members Transact with the Scheme at Smoothed rather than Market Values

As noted above, the proposed scheme will have just one pooled fund, which will be invested entirely in growth assets ('equities'). All member transactions with the fund will be at smoothed values rather than market values. The challenges posed by this rule, and how they will be surmounted, are analysed below for the four possibilities:

(i) Contributions artificially increased when smoothed value is less than market value (i.e., members want to contribute more when smoothed values are below market values).

(ii) Withdrawals artificially reduced when smoothed value is less than market value (i.e., members want to avoid selling when smoothed values are below market values).

(iii) Withdrawals artificially increased when smoothed value is above market value (i.e., members want to accelerate exit plans when smoothed values exceed market values).

(iv) Contributions artificially reduced, or cease entirely, when smoothed value exceeds market value (i.e., continuing and new members try to avoid buying into the fund at greater than market value). This is the most challenging scenario.

(i) **Contributions artificially increased when smoothed value less than market value**
Contributions to the proposed scheme (from employees and employers) will be a fixed percentage of qualifying earnings. Additional voluntary contributions (AVC's) will be prohibited: they must be effected through a separate arrangement. Also, since AE is aimed primarily at lower-paid workers, with an upper limit on qualifying earnings, the risk is minimal of earnings being artificially inflated to exploit situations where smoothed values are less than market values. There will also be a prohibition on transfers into the scheme. Thus, the risk is minimal of contributions being artificially increased when smoothed values are less than market values.

(ii) **Withdrawals artificially reduced when smoothed value less than market value**
Funds may only be withdrawn at or after retirement or on death. The rules will stipulate that (say) 25% must be taken as a gratuity at retirement and the other (say) 75% taken in the form of regular (monthly) instalments from retirement onwards[11]. They will also specify minimum and maximum regular withdrawal percentages in retirement[12], with strict rules on when and how the withdrawal amount can be varied, e.g., it may be increased or reduced to deal with changed personal circumstances such as cessation of part-time work, commencement of state pension, death of a spouse, changes in price levels, long-term care, but not to exploit differences between smoothed and market values. These provisions minimise the risk of withdrawals being artificially reduced when smoothed values are less than market values, while still allowing retirees considerable flexibility to deal with life's vicissitudes.
In theory, there is a risk of workers deferring retirement in order to avoid taking the gratuity when smoothed value is less than market value, but the risk is low, especially since most members will be lower paid and will have little choice on date of retirement.

[11] The actual percentage allowed to be taken in cash at retirement doesn't matter. What does matter is that there can be no optionality: members must take the specified percentage (with *de minimis* provisions). In practice, the retirement gratuity may be limited to a maximum of (say) 1½ times' earnings. For reasons explained in Appendix 1, this will favour the smoothed approach.

[12] Suggested minimum and maximum percentages are 3% and 8% of smoothed value respectively, with higher maxima over age 80. These percentages are not written in stone. The higher the regular withdrawal amount, the greater the risk of running out of money prematurely. This risk is discussed in detail in Section 5.

(iii) **Withdrawals artificially increased when smoothed value greater than market value**
This is the opposite risk to that outlined in (ii), and the same rules address it. Under this heading, it should be noted that members who decide to leave the smoothed scheme will not be allowed to take transfer values. Their accumulated funds must remain in the scheme, to be paid on eventual retirement or death on the same terms as continuing members. The 'no transfers out' provision may prove contentious, but any member concerns under this heading will be allayed by the assurance that expense charges will be lower and expected long-term returns higher than in a conventional DC pension[13].

(iv) **Contributions reduce or cease entirely when smoothed value exceeds market value**
As noted above, this is the most challenging of the four scenarios, because workers will always have the option of leaving the smoothed scheme. The scheme's viability will be placed at risk if significant numbers cease contributions whenever smoothed value exceeds market value.
It is reasonable to ask why new contributors should join, or existing contributors stay, if smoothed value exceeds market value (expected to be the case close to 50% of the time), given that they could buy the same assets for less through a conventional DC arrangement. The answer is that the smoothed scheme offers better value, to such an extent that it justifies paying substantially more than market value to buy into it.
The three sources of added value are:

a. Higher expected investment returns, at low volatility, from remaining fully invested in equities all through retirement and in the lead-in to retirement, when 'lifestyling' shifts a significant portion of members' savings to cash and bonds.
b. No need for investment advice, pre- or post-retirement, thus eliminating a cost that can be a severe drag on returns, particularly for members with small pension pots.
c. Lower costs, mainly from members being charged group rather than individual rates for administration and investment management post-retirement. Costs pre-retirement will also be lower under the smoothed scheme than under a conventional DC scheme.

It is estimated (Appendix 1) that young contributors will enjoy up to 70% better value in the smoothed scheme than in a conventional DC pension which employs a 'lifestyle' investment strategy pre-retirement, and is invested 50% in bonds, 50% in equities post-retirement. In other words, the smoothed AE scheme is a better option even if the smoothed value is up to 170% of market value. This estimate assumes a 4% equity risk premium. The breakeven ratio falls to approximately 150% of market value if the assumed equity risk premium is 3%. It also reduces with age, falling to 133% shortly before retirement assuming a 4% equity risk premium, and to 128% assuming a 3% equity risk premium.
The smoothed fund calculations in Section 3 show that there is a very small risk of smoothed value exceeding 150% of market value at any time, so the risk is minimal of younger workers ceasing contributions when smoothed value exceeds market value. The risk is marginally higher for older workers, but the impact on smoothed returns of older workers ceasing contributions when smoothed value exceeds market value by a significant margin will be negligible, even if they behave ultra-rationally, which is unlikely in the real world, for reasons discussed in Sections 3 and 7.

[13] The expense charge under the smoothed AE scheme will be expressed as a flat percentage of funds under management, and no discount for large accounts. Therefore, members who have left will be charged the same percentage of AUM as continuing members. There will be no penalty for leaving the scheme.

An additional safeguard to dissuade contributors from leaving when smoothed value exceeds market value will be to insist that, if they leave the smoothed scheme, they will not be allowed to re-join for at least (say) three years.

It is important to emphasise that the above considerations do ***not*** apply for workers who are prepared to accept the volatility of stock markets or who believe that they (or their advisers) have an edge in forecasting market movements. If someone is comfortable investing close to 100% in equities pre- and post-retirement, then the advantages of smoothing don't apply, or apply to a lesser extent. Workers in this category will typically be above-average earners and will probably also be comfortable making their own allocations to different asset classes and individual shares, before and after retirement. Thus, they are unlikely to have joined the smoothed AE scheme in the first place, preferring instead a pension which allows them to make their own asset allocation decisions. Workers in this category have no relevance to this paper. The vast majority of workers, especially the lower-paid, who are the primary beneficiaries of AE, are not in this position. They are happy to have investment decisions made for them, as evidenced by the fact that close to 99% of NEST[14] members opt for the default investment strategy.

The above analysis indicates that it will be possible to insist that members transact with the scheme at smoothed rather than market values, and that the scheme's financial stability will not be placed at risk when smoothed values depart from market values, assuming that the formula for calculating smoothed values is seen to be fair to different categories and generations of members - old and young; active and retired; early and late joiners - and that smoothed values don't stray too far from market values. These challenges are addressed in the following sections.

[14] National Employment Savings Trust

3. The Smoothing Formula

The smoothing formula in this section achieves the key objective of ensuring that smoothed value equates to market value on average, without systematically favouring or disadvantaging any particular group or cohort of members.

Assuming monthly calculations[15], the smoothed fund valuation at month t assigns a weighting (p) to that month's market value and a weighting (1-p) to the previous month's smoothed value increased by the expected long-term return, and adding cashflows in the month. The ratio p is fixed from the outset and cannot be varied subsequently.[16]

Algebraically, the calculation is as follows:

$$\mathbf{SV_t = CF_t + p * (MV_t - CF_t) + (1-p) * SV_{t-1} * (1+i_{t-1}),}$$

where:

- $\mathbf{SV_t}$ is smoothed value in month t.
- $\mathbf{CF_t}$ is cashflow in month t.
- **p** is weighting for current market value in the smoothing formula.
- $\mathbf{MV_t}$ is market value in month t (including cashflow, CF_t).
- $\mathbf{i_t}$ is the expected (monthly) long-term return on the scheme's assets at time t.

At the extremes:

if p = 1, $SV_t = CF_t + (MV_t, -CF_t) = MV_t$, as expected.

if p = 0, $SV_t = CF_t + SV_{t-1} * (1+i_{t-1})$, also as expected.

Trial and error indicate that an appropriate value for "p" is between 1% and 1.5%. A value for "p" of 1% is assumed in this paper. The implications of varying it are explored in Section 6. The paper also assumes that "i_t", the expected long-term return (including the Equity Risk Premium) assumed in the smoothing formula will remain constant at 4% per annum (0.33% a month). The implications of varying this assumption are also explored in Section 6.

Table 1 below shows smoothed fund calculations for the scheme's first six months, for a notional scheme start date of 1 January 2020, assuming cashflows and market returns as per the table. The market returns shown are actual returns on the FTSE All-Share Index in the period.[17] Prices fell sharply between January and March 2020 as markets reacted to the spread of COVID-19, then recovered in the next three months. The calculations also assume that the smoothing formula gives a 1% weighting to current market value and assumes a long-term return (including ERP) of 0.33% a month (4% a year).

Cashflows are assumed to grow from 10 in the first month (Jan 2020) to 20 in month 2 (Feb 2020), 30 in month 3 (Mar 2020), etc. This pattern of cashflows is broadly consistent with how cashflows might be expected to grow in the early months as the new smoothed AE scheme is rolled out.

[15] For conventional DC pension arrangements, fund values are normally calculated daily. For the smoothed fund, monthly or even quarterly valuations will suffice because of the low weighting for current market value in the smoothing formula and consequent low volatility of quoted returns.

[16] The implications of this stipulation are discussed in Section 6.

[17] In practice, returns will be reduced by the management charge. This detail is ignored.

Table 1

Month	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
(a).Net cashflow in month (CF_t):	10	20	30	40	50	60
Market return in month	**-3.3%**	**-8.9%**	**-15.1%**	**+4.9%**	**+3.4%**	**+1.5%**
Market value at month end ($MV_{t+1} - CF_{t+1}$):	9.67	27.04	48.44	92.79	147.68	210.87
(b) $p * (MV_t - CF_t) \cdots\cdots (p=0.01)$	0	.0967	.2704	.4844	.9279	1.477
(c) $(1-p) * SV_{t-1} * (1+i_{t-1}) \cdots (i_t = 0.33\%)$	0	9.9327	29.828	59.693	99.505	149.42
(d) SV_t = (a) + (b) + (c)	10	30.029	60.098	100.18	150.43	210.90
Smoothed return in month: = $(SV_{t+1} - CF_{t+1}) / SV_t - 1$	**0.29%**	**0.23%**	**0.13%**	**0.25%**	**0.31%**	**0.33%**

The table shows monthly market returns varying from a low of -15.1% (March 2020) to a high of +4.9% (April 2020), a range from lowest to highest of 20%. Smoothed returns for the same period vary from a low of +0.13% (March 2020) to a high of +0.33% (June 2020). The range from lowest to highest is 0.20%, or one-hundredth of the range for unsmoothed returns. The ratio of smoothed to market value ranges from a high of 124% at end March 2020 to 100% at end June.

This example shows the virtues of smoothing, especially for workers unaccustomed to the volatility of stock markets. The vast majority of AE contributors are in this category. The paper makes no attempt to quantify the psychological benefits of lower volatility; they are discussed however on pages 16-17 of the paper referenced in the footnote[18].

Another example of smoothed fund calculations, this time over a longer period, gives similar results. Table 2 below assumes a hypothetical scheme start date of 1 January 2000 and the same pattern of cashflows, i.e., increasing arithmetically in the early years as the scheme is rolled out. This assumed scheme start date is challenging: 1 January 2000 marked the end of the dotcom boom and the start of the subsequent bust. Markets fell sharply for the next three years before recovering. Smoothed and market returns for the scheme's first six years, with smoothed returns calculated in exactly the same manner as in Table 1, are as follows:

Table 2

Year	2000	2001	2002	2003	2004	2005
Market return	-6%	-13%	-23%	+21%	+13%	+22%
Smoothed Return	+4%	+2%	+1%	+2%	+5%	+7%
Cashflow	+780	+2,220	+3,660	+5,100	+6,540	+7,980

Over the six-years, market returns span a 45% range (from a low of -23% in 2002 to a high of +22% in 2005) compared to a 6% range for smoothed returns (+1% in 2002; +7% in 2005). At the end of the period, the smoothed value is 83% of market value, but it was well above market value for much of the period. By end September 2002, markets had fallen more than 40% since 1 January 2000; smoothed values had increased by more than 7% over the same period, and the ratio of smoothed to market value was 140%.

The key question asked by critics is whether, in this hypothetical scenario, new and existing members would be happy to contribute to the scheme in September 2002. One critic jibed:

[18] https://web.actuaries.ie/sites/default/files/2021-01/AE%20paper%20for%20SAI%20CFagan%206%20Jan%202021.pdf

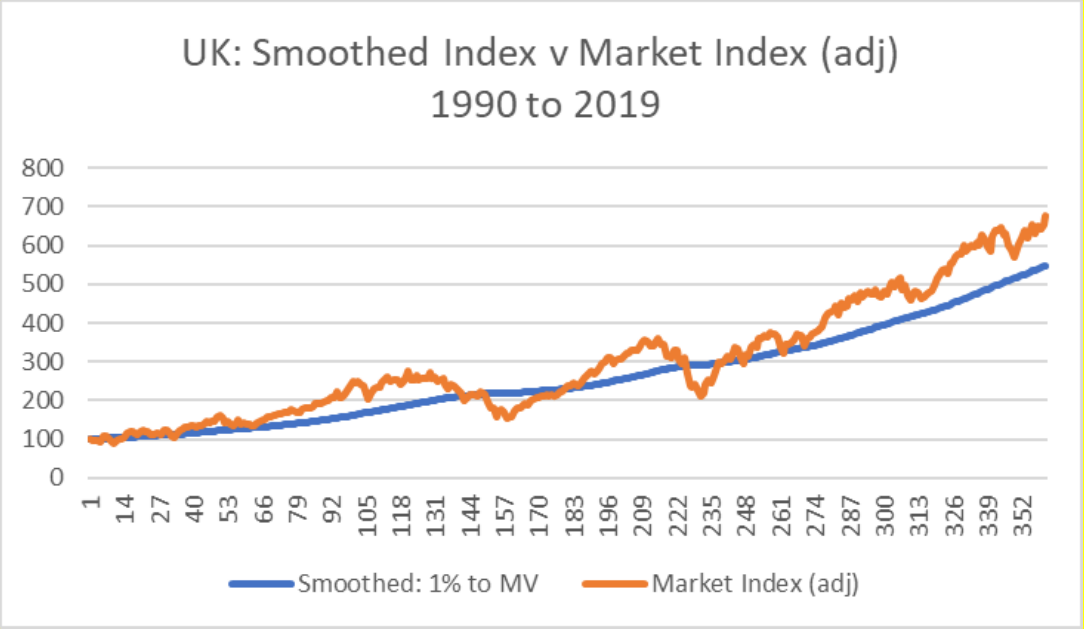
> ***"Pensioners needn't worry if the market drops because they won't be paid by selling their investments at low prices. They will get paid by taking cash from incoming contributions and giving more of that cash to pensioners than their investments have actually earned. (No, it's not a Ponzi scheme.) Investors needn't worry that their cash isn't being used to buy investments because they are being credited with notional investments at a higher value than the fund actually holds. (No, really, it's NOT a Ponzi scheme.)"***

Yet this is precisely what is happening in the above example. Members retiring in September 2002 are being paid 140% of market value. New joiners and continuing contributors at that date are buying from them at that inflated price. The analysis of Appendix 1 indicates that, in this scenario, young to middle-aged workers will readily agree to the trade, because the ratio of smoothed to market value is well below the point at which it would be worthwhile for them to move to a market-based arrangement. As is also noted in Appendix 1, the breakeven point is lower for someone close to retirement, so older workers may be best advised in this hypothetical September 2002 scenario to transfer to a market-based arrangement, remembering of course that the rules will stipulate that their accumulated savings must remain in the smoothed fund, for eventual payment on the same terms as other members, and they will be prohibited from re-joining the smoothed scheme for three years. If this scenario were to play out in practice, there is a strong possibility that members close to retirement would prefer to remain in the smoothed scheme, seeing that it had delivered 7% growth since January 2000, and reject the option of moving to a market-based arrangement which had experienced a 40% fall over the same period, whatever the theoretical merits of such a move.

Smoothed values were calculated for the 30 years 1990 to 2019, assuming market movements as per the UK's FTSE All-Share Index, and cashflows growing arithmetically for the first 10 years, remaining constant for the next ten years, then reducing arithmetically for the final ten years, reaching zero at the end of 30 years. The trapezoid shape of assumed cashflows reflects a likely real-world pattern of cashflows as the new AE scheme is rolled out and gradually ages.

On these assumed cashflows and market movements, and with the same parameters as above for the smoothing formula (1% weighting for current market value, 4% pa assumed long-term return), smoothed and market indices (adjusted for cashflows) over the 30-year period are as follows:

Figure 2



The contrast between the stability of smoothed returns and the volatility of market returns in figure 2 is illustrated starkly in figures 1, 3 and 4 below:

Figure 1

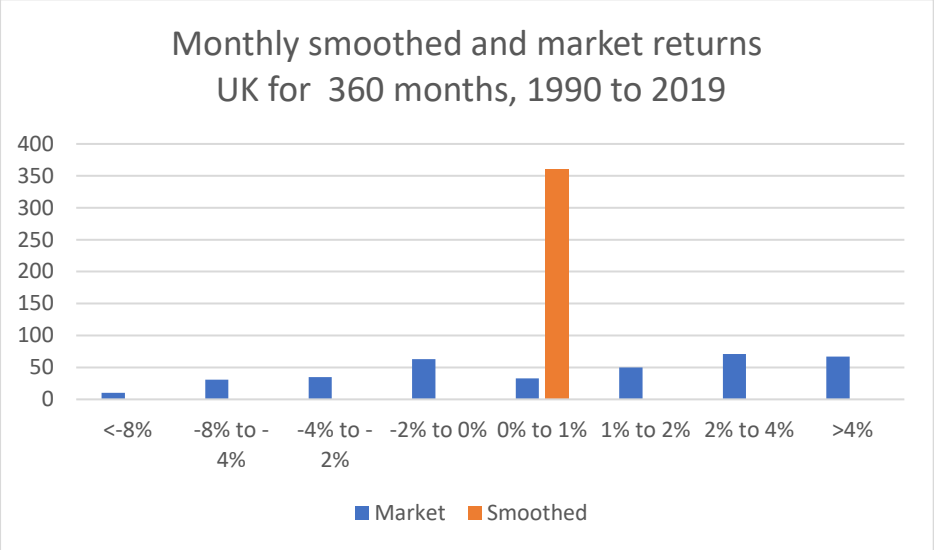


Figure 3 (another view of the market returns in figure 1)

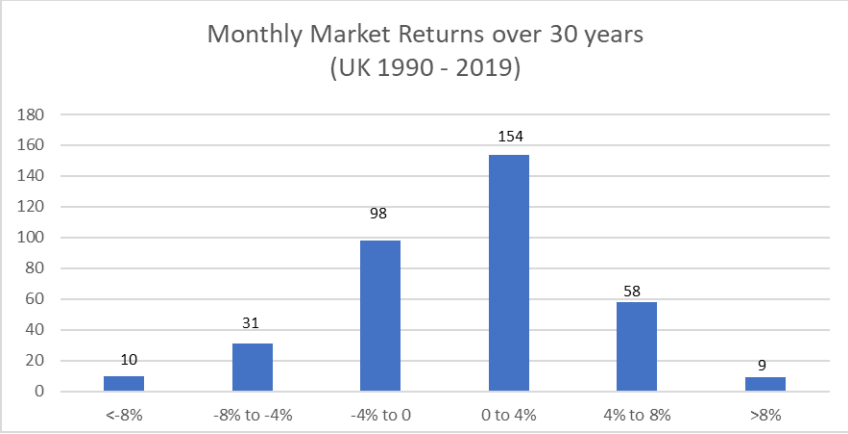


Figure 4 (an expanded view of the smoothed returns in figure 1)

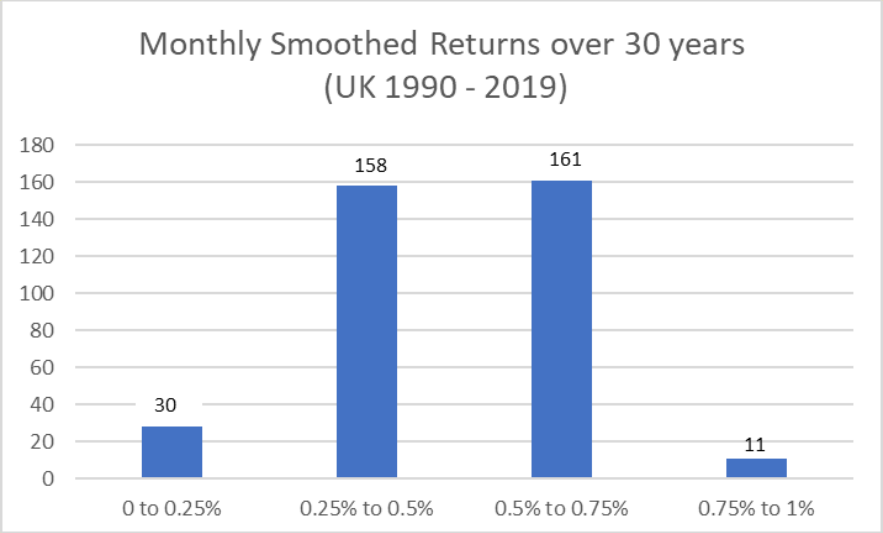


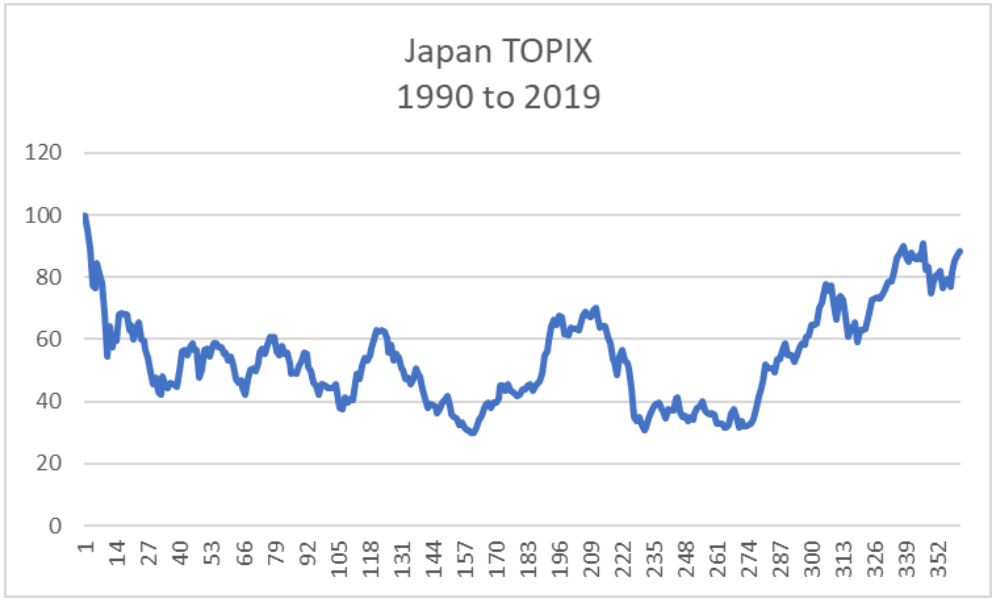
Figure 3 shows that, over the 30-year period (360 months), market values fell more frequently than one month in every three, falling by more than 8% in a month on 10 occasions, by more than 4% in a month on 41 occasions. In contrast, figure 4 shows positive smoothed returns every month for the entire period.

That particular 30-year period was generally good for UK equities. Markets fell sharply on occasion (e.g., after the dotcom boom and during the Global Financial Crisis of 2007-09) but the smoothed approach copes well with corrections that reverse themselves within a few years. The question is: how would it cope with a more prolonged downturn? The Japanese experience since 1990 provides such a test.

From its all-time high on 31 December 1989, the Japanese market fell precipitously – down 40% in 1990, down another 25% over the next two years. After three years, the total return index was just 45% of its starting level. It staged a partial recovery in the early 2000's, but suffered a severe relapse during the Global Financial Crisis, falling more than half between 2007 and 2009. By January 2013, twenty-three years after the initial collapse, the Japanese total return index was less than 40% of its starting level. It recovered strongly in later years but was still only 82% of its January 1990 level by 1 January 2020.

Figure 5 shows the progress of Japan's TOPIX Index with dividends reinvested in the 30 years from January 1990 to December 2019.

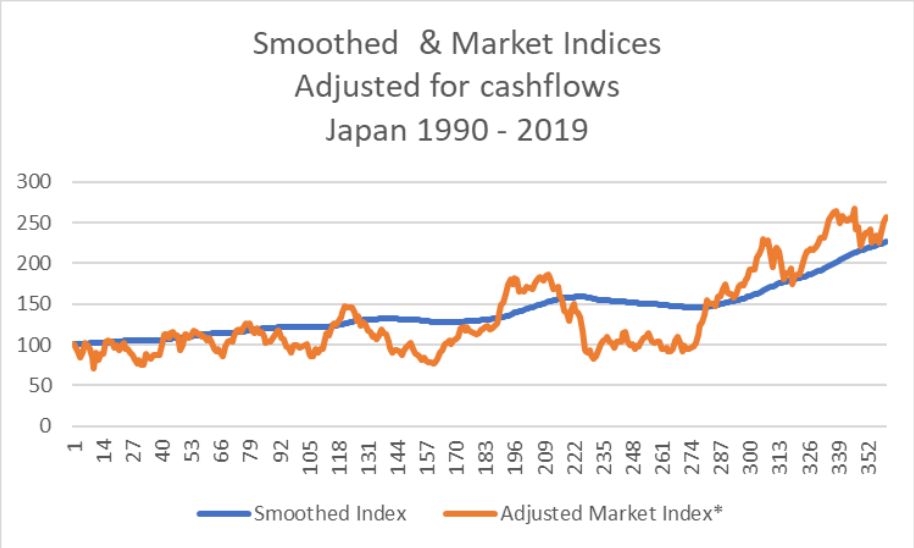
Figure 5



Assuming the same trapezoid pattern of cashflows as above[19] (increasing for ten years, staying constant for ten years, then declining through zero after 30 years), the progression of smoothed and market indices (adjusted for cashflows) is as follows:

[19] The reasonableness of this assumption for both the Japanese and UK markets over that period will be explored in Section 6.

Figure 6



The fall in market values in the early years shown in figure 6 is not nearly as severe as that shown in figure 5. This is because new cashflows are being invested at lower prices, and the benefits of the improved terms are being shared across the membership. Smoothed returns are negative in some years (worst calendar year smoothed return is -0.7% in 2009), but the lowest smoothed ten-year return is a positive 19.4% (average +1.8% a year, between 2003 and 2012) and the average smoothed return over the entire 30-year period is +3.0% a year. These returns are surprisingly good against the backdrop of Japanese financial experience in that period, which included periods of negative returns, even for bank depositors.

Figure 2 (smoothed and market returns for the UK) shows that smoothed values can remain below market values for long periods; figure 6 (smoothed and market returns for Japan) shows that they can remain above market values for long periods. Members contribute over many years and receive an income from the fund over many years, so the risk of a systematic bias for or against any particular cohort is minimal. This conclusion rests on the assumption that, in the long-run, periods of undervaluation relative to market value will be broadly balanced by periods of overvaluation. The reasonableness of this assumption will be tested in the next section.

4. Ensuring the scheme's long-term stability and durability

Positive cashflows cause the ratio of smoothed to market value to be drawn back towards 100% whenever it strays, in either direction. Algebraically, this is because (S+C)/(M+C) is closer to 100% than S/M (S signifies smoothed value, M market value and C cashflow)[20]. High cashflows relative to existing funds in the early years ensure stable smoothed returns in those years, in all market conditions. This pattern is clearly discernible in table 3 below, which shows lowest and highest smoothed returns for scheme years 1 to 5 for all hypothetical 1 January scheme start dates between 1/1/1986 and 1/1/2020 and market returns as per the UK's FTSE All-Share Index. Cashflows are assumed to follow the early-years pattern outlined earlier.

Table 3

Scheme Year	Lowest return	Return year	Scheme start year	Highest return	Return year	Scheme start year	Range lowest to highest
Year 1	3.0%	2008	2008	5.0%	2009	2009	2.0%
Year 2	2.4%	2008	2007	5.9%	1987	1986	3.5%
Year 3	2.1%	2002	2000	6.0%	1993	1991	3.9%
Year 4	1.8%	2002	1999	6.5%	1997	1994	4.7%
Year 5	1.6%	2002	1998	7.2%	1998	1994	5.6%

The final column of table 3 shows that the range from lowest to highest smoothed return increases each scheme year, from 2.0% in the first scheme year (lowest 3.0% for start date 1 January 2008, highest 5.0% for start date 1 January 2009) to 5.6% by the fifth scheme year (lowest 1.6% in 2002 for a scheme start date of 1 January 1998; highest 7.2% in 1998 for a scheme start date of 1 January 1994). Especially noteworthy is that smoothed returns are positive in each of the first five years for all hypothetical 1 January scheme start dates from 1986. This is a very desirable outcome for workers, most of whom will have little or no understanding of the stock market and for whom any fall in the value of their investments, however small, would be a cause for concern. As noted earlier, this paper steers clear of trying to quantify the psychological benefits of smoothing.

Positive cashflows are a source of stability, but negative cashflows have the opposite effect, if the smoothing approach is left unchanged. Negative cashflows would cause smoothed values to diverge from market values, in both directions. Algebraically, this is because (S-C)/(M-C) is further from 100% than S/M.

Positive cashflows are expected for the scheme's first 30 years or more, but they will eventually turn negative. That eventuality must be planned for in advance.

The challenge posed by negative cashflows is surmounted by stipulating that, when cashflows do eventually turn negative, members will still receive smoothed value on exit, calculated in exactly the same manner as when cashflows are positive. However, amounts withdrawn from the fund for net exits will be calculated at market value, with the excess (if any) of smoothed value over market value coming from a separate buffer account. Similarly, the buffer account will be credited with the excess whenever market value exceeds smoothed value for net exits. Thus, negative cashflows will have no impact on the scheme's financial equilibrium: the ratio of smoothed value to market value will be exactly the same immediately before and immediately after funds have been withdrawn. This begs the question: when will the buffer account be established, and how will it be funded?

[20] Ignoring the trivial case where S = M, when the ratio S/M is exactly the same as (S+C)/(M+C), i.e., 100%.

The buffer account will only be required when cashflows turn negative, projected for some time after year 30. It will be funded from margins in the management charge. Margins will emerge because the management charge for the smoothed scheme will be approximately the same as under the current AE regime (0.5% of AUM) but the costs of managing the underlying assets and of administering members' accounts will be lower than at present. This is because there will be just one smoothed fund, compared with a multiplicity of unit-linked funds required at present for AE. For example, NEST has 46 unit-linked funds for members who choose the default investment option, one for each planned retirement year, as well as specialist funds. The smoothed fund will be valued once a month (possibly less frequently, because of the stability of smoothed returns), compared with daily valuations required under the current AE regime.

In the long run, the cost of managing assets and administering member accounts in the smoothed scheme is estimated at 0.3% of assets under management[21], so 0.2% of AUM can be transferred to the buffer account each year.

In the early years, costs will exceed 0.5%, and the shortfall will be covered by borrowings. No transfers will be possible in those years. Borrowings in the early years are expected to have been repaid by year 15, possibly sooner, and transfers of 0.2% per annum to the buffer account can start from that date. The buffer account will be well funded by the time cashflows eventually turn negative, sometime after year 30. When cashflows do turn negative, the buffer account will be deployed as above to pay any excess of smoothed value over market value or to receive any excess of market value over smoothed value for net exits.

The buffer account cannot be allowed to fall to zero. Projections indicate that this will never happen, assuming transfers as above[22]. The 2,000 60-year simulations in the paper referenced in the footnote include some extreme outcomes: one shows negative returns on cashflows over the entire 60 years, which of course also implies periods of negative smoothed returns.

An additional safeguard against the buffer account falling to zero is that scheme rules will authorise the trustees to increase the management charge (with resulting higher transfers to the buffer account) if they believe there is a risk of the buffer account being exhausted at some future date[23]. Because of the very long timescales involved and the stability of projected cashflows (due *inter alia* to the prohibition on transfers), the trustees will be able to anticipate problems years in advance and so will have ample time to take corrective action if necessary. A small increase in the management charge, of the order of 0.05% a year, should be sufficient to address potential problems well before the scheme's viability could be put at risk. Preliminary analysis indicates that, in the long-term, a reduction in the management charge is more likely because of the buffer account getting too large than of it being increased because of the buffer account getting too small.

The long-term 'steady state' is for net cashflows to be negative (i.e., claims to exceed contribution income), but investment income and capital gains will keep total fund values broadly unchanged in real terms. However, contingency plans must consider the possibility of the scheme closing to new entrants at some future date and even of it closing to new contributions from existing members. In either eventuality, net assets will eventually fall to zero. If that were to happen, equity between

[21] Detailed analysis will be required to confirm this estimate. *A priori* considerations, which include comparing the number of transactions required with those required for unit-linked funds, indicate that, if anything, it overestimates the long-term cost of running the smoothed scheme.

[22] Details of the 2,000 simulations, each extending over 60 years, from which this conclusion were derived can be found in Section 12 of the paper to the Society of Actuaries in Ireland referenced earlier.

[23] Any increase in the management charge will of course be subject to regulatory approval.

different cohorts would still be maintained by converting entitlements for remaining members to guaranteed amounts when the end was in sight and compensating them for the loss of future equity participation by crediting them with the remaining balance in the buffer account. This is the ultimate acid test of the scheme's durability. It passes the test.

The above measures will ensure the smoothed scheme's continued durability and fairness, irrespective of whether cashflows are positive or negative, and of whether asset values are growing or declining.

5. Addressing the challenge of longevity

A major challenge for DC pensioners is deciding how much to withdraw from their pension accounts each year: take too much and risk outliving their savings; take too little and risk leaving too much for the next generation. Life annuities address the longevity risk but have two big drawbacks:

(i) Retirees sign away the right to unused capital on death;[24] they also lose the right to make withdrawals other than through regular annuity payments. Nor can they vary the withdrawal amount to deal with changes in personal or family circumstances or changes in price levels[25].

(ii) the implied rate of investment return for the rest of their lives is the return on bonds at time of purchase (or less, after factoring in the insurer's need for margins to cover costs, for longevity and investment risks, and to reward regulatory capital).

The longevity option under the smoothed approach as set out below eliminates these drawbacks while still guaranteeing an income for life and allowing retirees to enjoy equity returns until death. Members retain full entitlement to their pension accounts and any balance on death is paid to their dependents/ estate. They can opt out of longevity protection at any time.

Members may opt for longevity protection from age 75. Up to then, they decide what percentage of the account to withdraw each year, within specified lower and upper limits (3% and 8% respectively of smoothed value were suggested earlier). Then, on reaching 75, they may opt (but are not obliged) to transfer some or all of their account to a "Lifetime Income Fund" (LIF), which will earn a lower return than the main smoothed fund.[26] The proposed reduction in smoothed return is 2.45% a year, in exchange for which members have a right to an income for life, determined as below.

The amount transferred to the LIF at age 75 will be divided into 15 equal subaccounts. The retiree will claim one subaccount each year. On death before age 90 (i.e., before 15 years have elapsed), any remaining balances in the subaccounts will be paid to the estate.[27] For example, if a retiree dies at 85 exact, they will have claimed 10 subaccounts and the remaining 5 subaccounts will be paid to their estate.

If the retiree lives to age 90, they will have claimed all 15 subaccounts; there will be nothing left in the LIF, and longevity protection will be activated as below.

From age 90, retirees will receive an additional subaccount each year for the rest of their lives, irrespective of how long they live. These 'bonus' subaccounts will be paid from a separate "Longevity Protection Fund" (LPF), which the trustees will establish and maintain for members' benefit. The LPF will be funded by the 2.45% yearly deductions from smoothed returns from age 75.

Table 4 below models the workings of the Lifetime Income Fund (LIF) and the Longevity Protection Fund on simplified assumptions. A fixed return of 4.5% a year is assumed for the smoothed fund[28], implying a return of 2.05% a year on the LIF. Column 5 shows assumed survivors each year from

[24] The loss of capital on death can be alleviated but not eliminated by choosing a guaranteed minimum payment period (typically five years). This choice has a cost in the form of a lower annuity.
[25] It is possible to buy inflation-linked annuities (for a price) but fixed annuities are the norm.
[26] The likelihood is that retirees will not transfer the entire account balance to the LIF; that they will leave some in the main smoothed fund, to provide for a dependent or for a 'rainy day'.
[27] The rules could include a provision allowing retired members to request that, on death, payments should continue to a named beneficiary for the remainder of the 15 years rather than be paid as a lump sum.
[28] This could be expressed as an assumed 1% pa risk-free, plus 4% equity risk premium, less 0.5% management charge.

1,000 joiners at age 75: 538 are assumed to survive to 90 and 122 to 100. These assumed survival rates are much higher than current survival rates at older ages. They allow for a high element of self-selection and for significant mortality improvements in future.

The table indicates that someone who transfers £150,000 to the LIF at age 75 can take £10,000 a year for life, increasing by 2.05% a year (column 3) if the model assumptions are realised. In year 15, the income per surviving member is £13,420. By year 30 (i.e., if the member survives to 105), the annual income is £18,200. On death before 90, any remaining balance in the LIF is paid to the member's estate, e.g., on death at the end of year 1, £142,870 is paid to their estate.

Table 4

Progress of Longevity Protection Fund to age 107 for 1,000 pensioners joining at age 75. Each starting account value is 150 (15 sub-accounts of 10)						
		Per Contributor (150 starting balance)		Total for all contributors (1,000 starters at 75)		
Year	Age at start of year	Amount withdrawn	Account balance at year end	Survivors at year end	Additions to (+), Payments from (-) LPF	LPF at year end
0			150.00	1000		
1	75	10.10	142.87	992	3,573	3,653
2	76	10.31	135.38	980	3,361	7,253
3	77	10.52	127.53	963	3,129	10,778
4	78	10.74	119.30	942	2,879	14,206
5	79	10.96	110.68	916	2,617	17,520
6	80	11.18	101.65	888	2,346	20,706
7	81	11.41	92.21	856	2,070	23,755
8	82	11.64	82.34	823	1,795	26,658
9	83	11.88	72.02	787	1,522	29,413
10	84	12.13	61.25	750	1,254	32,019
11	85	12.37	50.00	710	995	34,476
12	86	12.63	38.27	669	745	36,790
13	87	12.89	26.04	626	510	38,966
14	88	13.15	13.29	583	291	41,017
15	89	13.42	-	538	91	42,956
16	90	13.70	-	493	- 7,057	37,676
17	91	13.98	-	447	- 6,566	32,659
18	92	14.26	-	402	- 6,051	27,943
19	93	14.56	-	357	- 5,520	23,557
20	94	14.85	-	314	- 4,980	19,526
21	95	15.16	-	271	- 4,430	15,876
22	96	15.47	-	231	- 3,879	12,625
23	97	15.79	-	192	- 3,335	9,784
24	98	16.11	-	156	- 2,799	7,363
25	99	16.44	-	122	- 2,281	5,363
26	100	16.78	-	92	- 1,791	3,773
27	101	17.12	-	65	- 1,340	2,573
28	102	17.47	-	44	- 948	1,720
29	103	17.83	-	27	- 629	1,155
30	104	18.20	-	16	- 387	812
31	105	18.57	-	8	- 218	625
32	106	18.95	-	4	- 109	542
33	107	19.34	-	2	- 53	512

The final column of table 4 shows the projected growth and decline of the LPF. In the fifteen years from age 75, the LPF grows as new contributions are added (2.45% of account balance each year is transferred for survivors from the 1,000 who joined at 75). Payments from the LPF commence from

age 90 and reduce as the number of survivors from the 538 who reach age 90 declines, until there are just 2 survivors at age 107. According to the model, there is still a positive balance in the LPF at that date.

The trustees will be charged with managing the LPF. Subject to regulatory constraints,[29] they will be allowed to vary the deduction from investment return for the cost of longevity protection if projections for life expectancy change. Increasing longevity may also cause the trustees to increase the age at which members join the LIF, to ensure fairness across generations.

[29] One of the main ones being an obligation on trustees to ensure that members' expectations for the cost of longevity protection (e.g., a 2.45% pa deduction from returns) accord with advice from independent experts.

6. Setting parameters

Two key objectives of the smoothed approach are:

(i) To reduce the incidence of negative smoothed returns, ideally eliminating them completely.

(ii) To avoid smoothed value diverging so far from market value that contributors would be best advised to cease contributing to the scheme. The analysis in Appendix 1 indicates that the breakeven point for a young contributor is c170% of market value (assuming a 4% ERP) and is lower for older contributors.

Looking at the smoothing formula of Section 3:

$$\mathbf{SV_t = CF_t + p * (MV_t - CF_t) + (1-p) * SV_{t-1} * (1+i_{t-1}),}$$

objective (i) is achieved by giving a low weighting to current market value (i.e., a low value for "p"), while objective (ii) is achieved by assigning a high value to "p".

Analysis of the UK market for a notional scheme start date of 1 January 1990, and assuming the same trapezoid pattern of cash flows as earlier, indicates that a value for "p" of 1% would have delivered positive smoothed returns each month for the entire 30-year period. The ratio of smoothed to market value peaks at 142.4% (in January 2003)[30], which is well below the point at which the analysis of Appendix 1 indicates that it would be worthwhile for young or middle-aged members to cease contributing. Thus, on the evidence of the UK market for that period, a value for "p" of 1% would have met both objectives.

A similar exercise for the Japanese market for the same 30-year period tells a different story. Using a value for "p" of 1%, negative monthly smoothed returns occur not infrequently, and the ratio of smoothed to market value peaks at 191.8%, which is well above the point at which the analysis of Appendix 1 indicates that it would be worthwhile for members to cease contributing[31]. Therefore, the pattern of cashflows for Japan would differ from that assumed earlier, so smoothed returns would be lower than those indicated in Section 3. The weighting for current market value in the smoothing formula would have to be increased to 9% to bring the peak ratio of smoothed to market value below 160%. However, if "p" is increased to this level, many of the advantages of smoothing are lost, and negative smoothed returns would occur far too frequently, thus failing to achieve objective (i).

This paper assumes that the experience of the Japanese market from 1990 is an outlier and can be ignored in contingency planning, considering especially that investment managers will have a worldwide mandate, that investments will be chosen to deliver good returns over long investment horizons, and that the portfolio will be suitably diversified across industries, technologies, geographies, etc. Against that backdrop, a value for "p" of 1% can be expected to give reasonable results for objectives (i) and (ii). However, this conclusion must be thoroughly stress-tested.

In Section 3, it was stated that, once a decision is reached on the weighting for current market value in the smoothing formula, that weighting should remain unchanged forever. It is important for the integrity of the smoothing approach that members can trust that the formula is tamper-proof. At the same time, it is impossible to know how the world might change in future. Will the value for "p" chosen at the outset still be appropriate 50 years from now? The solution may be to specify a fixed

[30] The ratio peaks in September 2002 for a scheme start date of January 2000. (See commentary on Table 2.)
[31] It is worth noting however that the worst month for Japan occurs almost 20 years after the initial collapse in 1990 and comes in the wake of a market fall of more than 50% between June 2007 and February 2009.

value for "p" at the outset, but to schedule a review after (say) 25 years, to confirm if the initial choice is still appropriate. Any review will need to be carefully circumscribed and accompanied by an assurance to members that no-one will be disadvantaged unreasonably by a change.

Figure 7

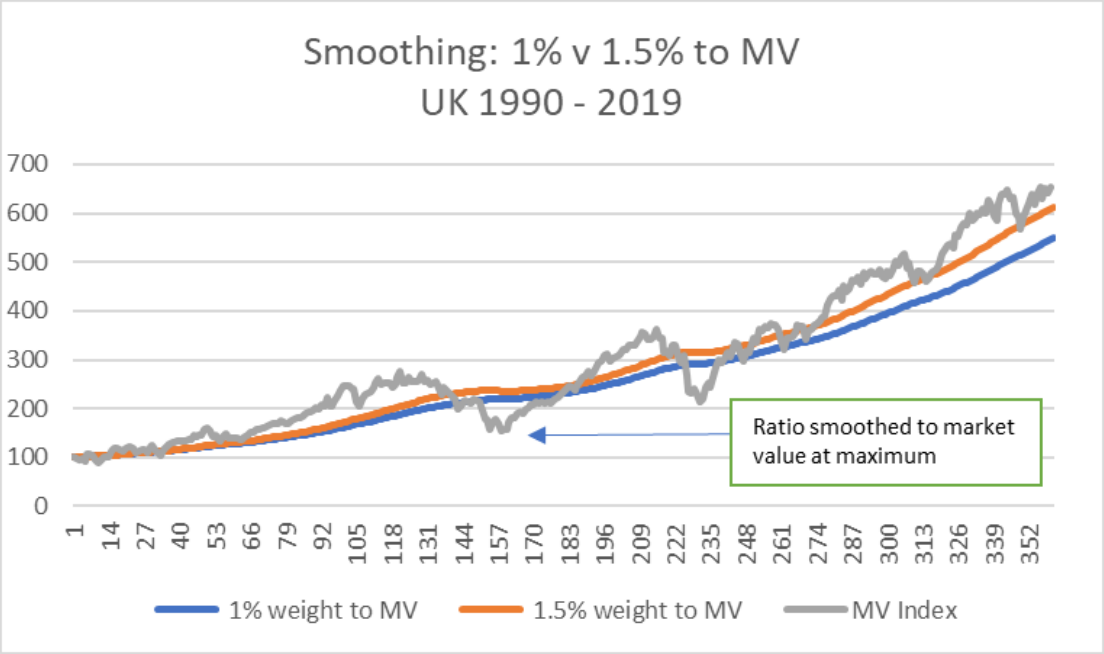


Figure 7 compares smoothed indices for the UK from 1990 to 2019, one with a 1% weighting for current market value in the smoothing formula, the other with a 1.5% weighting. The graph shows that, when markets grow strongly for a sustained period, the gap between the two increases. This can be seen in the period leading up to January 2000 (month 121), again in the period leading up to July 2007 (month 211), and most recently in the period leading up to December 2019 (month 360). In all cases, subsequent market falls brought the indices closer together. The same would be true in reverse if markets were to experience a prolonged fall, and can be seen in the corresponding graph for Japan.

At the point where the ratio of smoothed to market value is at a maximum (January 2003, when the ratio tops 140%), the monthly smoothed return (i.e., the rate of change of the smoothed index) is marginally negative with p = 1.5%. The slope of the smoothed index, i.e., the smoothed return, remains positive throughout with p = 1%.

Turning now to consider the impact of the long-term return "i_t" assumed in the smoothing formula:

$$\mathbf{SV_t = CF_t + p * (MV_t - CF_t) + (1-p) * SV_{t-1} * (1+i_{t-1}),}$$

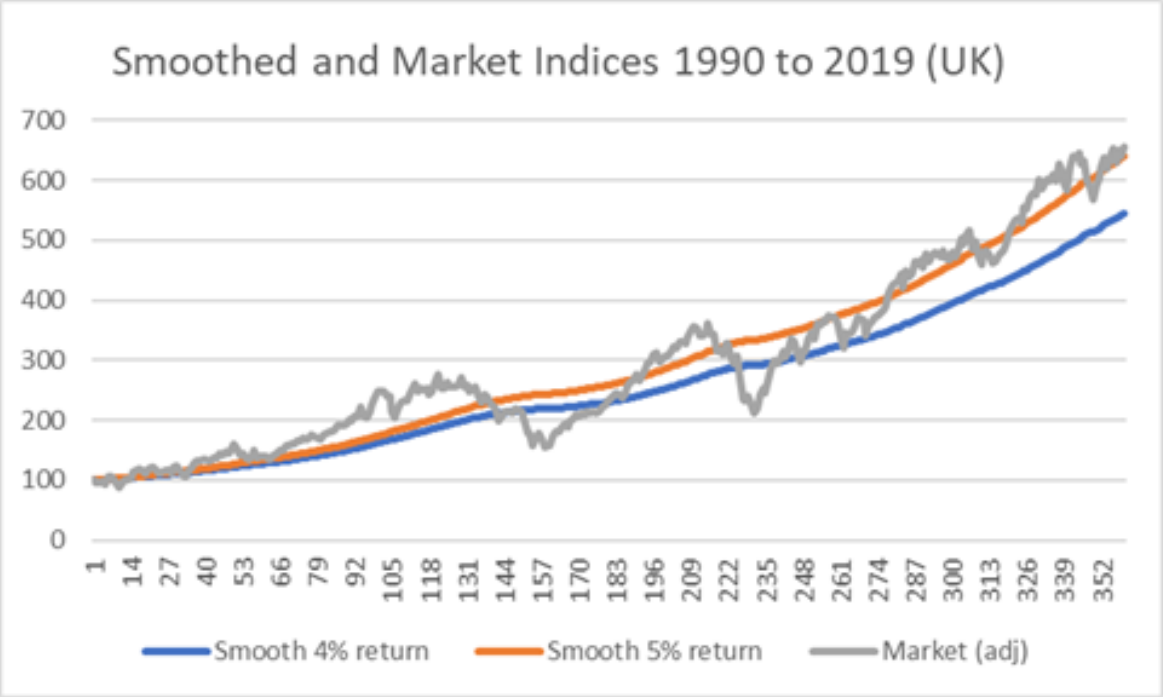
in theory, the chosen value of "i_t" should be the trustees' best estimate of the expected long-term return at time t, composed of the expected risk-free return plus the expected Equity Risk Premium (ERP). Whilst the risk-free component is readily observable in the market, the same is not true for the ERP. Even among experts, opinions vary widely[32]. Therefore, careful governance will be required around its periodic assessment. The likelihood is that the trustees will reassess the expected long-term return only once a year, possibly less frequently. Also, to ensure continuity,

[32] See for example https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3861152 The survey shows an average market risk premium for the US (1,756 respondents) of 5.5%, with a range from 3.1% to 8%.

constraints may be placed on the extent to which expected return will be allowed to vary from one year to the next.

This paper assumes a constant total return of 4% a year in the smoothing formula. Table 8 below shows how the charts of market and smoothed indices would have looked if the formula assumed a total return of 5% a year instead of 4% ("p" = 1% in both cases).

Figure 8



7. Conclusions

In their book "Radical Uncertainty", authors John Kay and Mervyn King stress the importance of asking "*What is going on here?*" Answering the question for AE pensions, the first observation is that scheme cashflows will be positive for decades to come, and member outcomes will be optimised by investing as much as possible in equities. That is the universal advice to young contributors and is manifested in high equity contents for AE default funds at young ages.

The response to the question would continue by observing that, from the scheme's perspective, falls in market values are good news, at least in the early decades, when cashflows are positive, because they allow trustees to acquire assets cheaply for members. Yet the conventional view is that falls in market values are bad news for older members, so much so that they are advised to reduce the equity content of their pension pots in the run-up to and after retirement, and to replace them with bonds and cash, which are expected to yield lower returns, with associated lower risk. Therefore, the scheme as a whole sacrifices return by investing a significant proportion of its assets in lower-yielding bonds and cash. A high-level estimate is that the expected value of AE assets (including for retired members) after 60 years under a "lifestyling" approach as set out in Appendix 1 is less than half the corresponding value under a smoothed equity approach.

The insight in this paper is that market values don't have to be obeyed blindly. Freed from this straitjacket, the conundrum of how to spare older and retired members from having to shift funds from equities to bonds in order to protect their value in volatile markets is resolved by stipulating that member transactions with the scheme take place at smoothed values rather than market values. At a stroke, this cuts the volatility of returns to a fraction of what it would be if transactions were at market values. Most importantly, it allows members to stay fully invested in equities for life.

The paper shows that smoothed values, calculated as per the formula in the paper, equate to market values on average. They can stray for a time, in either direction, but the formula eventually brings them back into balance. For AE members, purchases and sales are both spread over decades, so everyone can be reasonably assured of getting fair value in the long-term.

The paper also shows that, when cashflows eventually turn negative and assets must be sold at market prices prevailing at time of sale, the same smoothed approach can still be applied in a manner that is fair to all, even to the point of ensuring equitable treatment of the last survivors if the scheme is closed entirely to new contributions and assets fall to zero. This is a challenge that other approaches, most notably CDC (Collective Defined Contribution) fail adequately to address, because of the tension between the commitment to level contributions at scheme level and the inexorable rise in required contributions at individual level as members age. The only requirement under the smoothed approach is that cashflows remain positive for long enough to allow the scheme to cover its costs from management charges and to establish a modest buffer account. That point should be reached within 15 to 20 years at most. Projections indicate that cashflows will remain positive for considerably longer, so this objective will be readily achieved.

The value for money under the proposed approach is enhanced further by lower costs, particularly post-retirement, but also pre-retirement. Pre-retirement, the NEST scheme, for example, has 46 default funds, one for each planned future retirement age. Each fund must be valued and priced daily and units allocated to or cashed from members' accounts at prices prevailing on those dates. Under the smoothed equity approach, there will be just one fund, which will only need to be valued once a month, maybe even once a quarter. Returns will be quoted like interest rates rather than as

movements in unit prices, making the fund simpler for members to understand and for trustees to administer.

From retirement onwards, cost savings are greater. Retired workers will remain as members of the scheme, enjoying equity returns at deposit-like volatility. They will not have to leave at retirement, incurring frictional and out-of-market opportunity costs in transitioning from active to retired status, and without incurring higher charges for administration and asset management. Also, by remaining in the smoothed fund and making regular withdrawals from it, retired members will have no need for investment advice, the cost of which can take a large chunk from a small pension pot.

The big question is whether the smoothed approach would survive a prolonged market downturn, which could cause smoothed values to exceed market values for long periods. The paper shows that, even in a severe downturn (e.g., UK total return index falling more than 40% from peaks in 1999 and 2007), the ratio of smoothed to market value never gets close to the point at which it would be worthwhile for a young or middle-aged worker to consider moving from the smoothed to a market-based scheme. The relative insensitivity of smoothed returns to external market conditions in the scheme's early years, as shown in table 3 (page 14), provides further reassurance.

If markets keep falling over many years, smoothed returns will eventually turn negative, but the risk is mitigated by new cashflows being invested at lower prices in falling markets, and the benefits of those improved terms being shared across the membership. Even in the catastrophic Japanese market conditions after 1989, studied in Section 3, over a decade of almost uninterrupted falls is required for negative smoothed returns to make their first appearance, by which time market values (including 10 years of reinvested dividends) are down more than 60%.

The smoothed approach delivers better value for the vast majority of members even if they are being asked to contribute when smoothed value exceeds 150% of market value. The cross-over point, at which it is theoretically advisable for a contributor to consider moving to a market-based arrangement, is lower at older ages. In the hypothetical example of a scheme starting at the end of the dotcom boom, and funds invested in the UK market, a worker who was close to retirement in September 2002, when smoothed value was 140% of market value, would be theoretically best advised to move to a market-based arrangement, noting of course that they would only be allowed to move for new contributions, and they would be precluded from re-joining for three years. At that point, though, the worker would have seen steady growth in their smoothed account, up 7% from the start of 2000, compared to a loss of more than 40% if they had opted instead for a market-based arrangement from the start. In those circumstances, a behavioural psychologist might argue that the member would be more likely to stick with the smoothed approach, whatever the theoretical merits of moving.

It is important to stress that the smoothed equity approach is not for everyone. Contributors who are prepared to accept the volatility of stock markets pre- and post-retirement, or who think that they or their advisers have an edge in forecasting markets, are excluded from this general rule. Workers in these categories may do better by staying outside the smoothed scheme. Such people will generally be high earners and will probably already have alternative pensions in place. Therefore, they will not be part of the target group for auto-enrolment. Experience shows that the vast majority of workers (around 99% of NEST members) have no desire to manage their own investments.

Another question asked by critics is how the scheme's balance sheet will be presented when smoothed value exceeds market value. The answer is that the liability under the smoothed

approach is *not* the current smoothed value of the assets, but their smoothed value in the long-term. Provided that the trustees can satisfy themselves (and their auditors and regulator) that smoothed value will equate to market value on average when liabilities eventually crystallise (on death or at/in retirement), then it matters not whether smoothed value is above or below market value at a balance sheet date. Analysis shows that it will be relatively straightforward for the trustees to satisfy this requirement[33].

The longevity proposals in Section 5 eliminate the risk of retirees outliving their savings, without forcing them to part with a portion of their capital and allowing them to continue to reap the rewards of equity returns at low volatility. They can have their cake and eat it. All they will be asked to sacrifice is a portion of the investment return from age 75.

Existing market-based AE schemes can continue alongside the smoothed scheme. Longer term, the better value and lower volatility of returns under the smoothed approach should see it capturing a high proportion of the overall AE market.

When the smoothed AE scheme has been in place for a number of years, it should be possible to extend it to DB retirees and to retirees from non-AE DC arrangements, resulting in gains for both sponsors and retirees. For example, at current interest rates, the cost to a DB sponsor of a level pension for a new retiree could be (say) 21 times the yearly pension. Assuming an expected return from equities of 4% a year more than from bonds, the retiree could reasonably expect a 25% higher pension from the smoothed fund at a 20% lower cost to the sponsor. In deciding which to choose, the retiree (or their adviser) would need to balance the risk of the 4% ERP not being realised against the expectation of a 25% higher pension if it is realised, with the added advantages in the smoothed fund of flexible drawdown, unused capital returned on death, etc. Similar offers could be made to retirees from non-AE DC arrangements.

In both cases, the trustees would need to take steps to minimise the risk of anti-selection by, for example, stipulating that transfers to the smoothed scheme must be phased over (say) five years, with "interest" at (say) the risk-free rate plus 1% a year being credited on amounts yet to be transferred. The purpose in spreading transfers over a number of years would be to minimise the risk of sponsors and retirees opting for the smoothed scheme when smoothed value is less than market value but eschewing it when smoothed value exceeds market value. This refinement introduces an element of leverage to the smoothed scheme, the implications of which will require careful consideration before implementing it.

The above musings on how the proposed approach might be extended to DB retirees and to retirees from non-AE DC arrangements are tentative and will require detailed evaluation. What the paper has demonstrated however is that the smoothed equity approach meets the brief of delivering a low-cost affordable pension to the majority of the population, and of ensuring that trustees and investment managers take a long view on investments, one conducive to investing sustainably.

[33] See for example pages 51-52 of the paper: https://web.actuaries.ie/sites/default/files/2021-01/AE%20paper%20for%20SAI%20CFagan%206%20Jan%202021.pdf which explore the hypothetical example of a single contribution on 1 January 1990, invested in the Japanese market.

Appendix 1
Estimating the added value of the smoothed approach to auto-enrolled pensions

This appendix estimates the added value of the proposed smoothed approach compared to the current AE regime. AE contributors who are happy to embrace the volatility of equity returns pre- and post-retirement and who don't have to pay for investment advice post-retirement are excluded from the comparison. Such contributors are in the minority. Close to 99% of AE members opt for the default investment approach pre-retirement and can reasonably be expected follow a similar investment strategy post-retirement. They will be the biggest beneficiaries of the smoothed approach.

Under the approach proposed in this paper, members will remain in the smoothed scheme post-retirement (after taking the retirement gratuity), earning equity returns and benefiting from lower (Group) charges for administration and asset management. The comparison is therefore between:

(a) Under AE as it currently operates, a default investment strategy pre-retirement followed post-retirement by an annuity or a drawdown product with an asset mix as below; and
(b) Under the smoothed approach, 100% in equities pre- and post-retirement, with market values smoothed as per the formula in the paper to reduce the volatility of returns quoted to members.

The assumed default investment strategy pre-retirement under the current regime is 80% equities, 20% bonds until 10 years before retirement, with the mix changing gradually to 50% equities, 50% bonds by retirement date. At retirement, members are assumed to take a 25% gratuity and to invest the other 75% in an individual drawdown product with the same investment mix as just before retirement, i.e., 50% in equities, 50% in bonds[34]. These proportions are assumed to remain constant until death[35] (average 22 years assumed from retirement to death[36]). Retired members are assumed to make level annual withdrawals, and to aim to leave a residual balance on death of 10% of the account value at retirement.

Other assumptions required to complete the comparison are as follows:

(i) Average long-term return on equities 4% a year higher than on bonds. Alternative calculation assumes a 3% p.a. higher average return on equities[37].
(ii) Post-retirement, average charge for administration and asset management of 0.9% a year under the current regime compared to 0.5% under the smoothed approach. The difference is mainly due to different terms for individual and group buyers.

[34] The average equity content post-retirement is probably more than 50% for affluent retirees, who can afford to take investment risk, and less than 50% for less affluent retirees. Most AE retirees are in the latter category.
[35] The likelihood is that the equity content reduces further at advanced ages. This possibility has been ignored, as has the possibility of retirees buying annuities (implying 100% in bonds) either at retirement or at an older age. The assumed equity/bond mix can be interpreted as an average during retirement.
[36] Average life expectancy from retirement is less, but retirees opting for drawdown must plan on the basis that they will outlive expectations.
[37] Calculations assume a bond yield of 1½% a year, and level contributions and withdrawals. Results would be similar if contributions and withdrawals were assumed to increase with inflation, with a corresponding increase in bond and equity yields.

(iii) Post-retirement, average charge for investment advice of 0.6% a year. No corresponding charge under the smoothed approach.[38]

(iv) Pre-retirement, charge of 0.5% a year for admin and asset management under both approaches, although the cost of the smoothed approach is assumed to be 0.3% a year in the longer term, with the 0.2% saving being transferred to the buffer account. Savings will result mainly from the lower cost of administering a single pooled fund. Also, fund valuations will only be required monthly or possibly even quarterly under the smoothed approach, versus daily valuations required at present under AE.

On these assumptions, the smoothed approach delivers almost 70% better value for a young contributor, falling to 50% better value for someone in mid-career, and to 33% for a contributor five years from retirement.

The relative value differs between gratuity and pension. For someone who contributes to the smoothed fund for their entire working life, the pension under the smoothed approach is 85% higher than under a lifestyle approach, while the gratuity is 32% higher. These relativities reflect the much better value of the smoothed approach post-retirement, due to a combination of higher investment returns (100% in equities versus an assumed 50% in equities under a lifestyle DC approach), lower administration costs and no charge for post-retirement investment advice (in combination, assumed to be worth another 1% a year in retirement). The estimated 70% overall better value for the smoothed approach allows for the relative weightings of cash and pension in the overall retirement package. However, the gratuity could represent a lower percentage of the fund at retirement for workers in this category if the gratuity is restricted to 1½ times' earnings. Thus, the value of the overall package under the smoothed approach for someone in this category could be more than 70% higher than under a lifestyle approach.

For a worker who joins the smoothed scheme in mid-career, the overall package under the smoothed approach is worth approximately 50% more than under a conventional lifestyle approach, approximately 33% more for someone who joins with five years to go to retirement.

The above comparative figures assume an average Equity Risk Premium of 4% a year. The corresponding figures if the long-term ERP is 3% a year rather than 4% are as follows (with similar clarifications and qualifications):

	Superior return under smoothed approach compared to a conventional approach	
	4% ERP	**3% ERP**
Contributes to smoothed scheme for full working lifetime	+70%	+52%
Contributes to smoothed scheme for 22 years	+50%	+39%
Contributes to smoothed scheme for 5 years	+33%	+28%

[38] Charges for investment advice vary widely. The cost (as a percentage of assets under management) is higher for smaller pension pots.

Appendix 2
How the proposal meets the brief from the Institute and Faculty of Actuaries

Originality of ideas to address the question posed

The core idea, that all member transactions with the scheme take place at smoothed rather than market values, is original (to the best of the author's knowledge). So too is the longevity proposal, which guarantees retired members an income for life without requiring them to sacrifice a portion of their capital and allowing them to continue to benefit from equity returns at low volatility.

Practicality in how the ideas could be translated into policy and actions

Translating the ideas into policy and actions should be straightforward. The reformed auto-enrolment scheme will require less functionality than already exists for AE, so existing architecture will more than suffice. New legislation will be required, prohibiting transfers in or out of the smoothed scheme, and specifying the percentage of account value that must be taken in cash at retirement (e.g., 25%), with the remainder (e.g., 75%) being taken in the form of regular (monthly) withdrawals ("pension payments") from retirement onwards. These restrictions on members' freedom are justified by the higher benefits and by the assurance that leavers with "paid-up" entitlements will be treated exactly the same as continuing members. They will be credited with the same investment returns and will be charged the same admin and investment fees.

Existing AE schemes will be allowed to continue as at present.

A clear evidence base that has informed the thinking and conclusions in the paper

The evidence base that has informed the thinking and conclusions in the paper includes the expert consensus that equities are expected to outperform bonds by a significant margin in future; the almost universal advice to pension savers to invest heavily in equities when young but to shift to less risky/ lower expected return assets as retirement approaches; and the consensus among pension advisers that buyers of drawdown products, particularly those of modest means, should pursue cautious investment strategies in retirement. The evidence base extends to the author's use of smoothing techniques similar to those described in the paper in managing his own pension for many years; and his involvement (with another retired actuary, who also helped develop the ideas in this paper) in an ongoing campaign to prevent DC retirees and other retail investors being sold unsuitable products with high charges.

An analysis of both the risks and the opportunities if the author's ideas were adopted

The paper analyses in detail the risk that some members will try to exploit, to their advantage and to other members' disadvantage, situations where smoothed values differ significantly from market values. It focuses particularly on the risk of workers ceasing contributions if smoothed value exceeds market value. It also analyses the risks if markets experience a prolonged downturn, resulting in negative smoothed returns. The main opportunity analysed in the paper is the expectation of significantly higher benefits under the smoothed equity approach than under an alternative arrangement that involves "lifestyle" investing pre-retirement and a 50:50 mix of equities and bonds in retirement.

Investment needs to be premised on societal needs of levelling up and the green transition.

In contrast with the UK's current auto-enrolment system, which aims to meet investment objectives at the level of the individual member, the proposed approach will look at the scheme as a whole and the expectation of positive cashflows for decades into the future. The consequent lengthening of the investment horizon, which will be reinforced by the prohibition on transfers, will allow trustees to take a very long view when setting investment objectives, and will ensure that investment is premised on societal needs and the green transition. It will also allow the trustees to invest a higher proportion of cashflows in illiquid assets, including infrastructure, than is possible at present. Infrastructure and other illiquid assets can deliver enhanced value to society and excellent returns to investors.

The levelling up objective will be achieved by investing members' funds in equities for the entire duration of their membership, including in retirement. At present, this luxury is normally confined to affluent retirees, who can afford to take the risk. Less affluent retirees are generally advised to invest a high proportion of their funds in bonds, with the expectation of lower long-term returns.

The proposal should be cognisant of long-term trends such as increasing longevity, long term care and the technological landscape

The proposal is cognisant of long-term trends under a number of headings. One long-term trend is for "retirement" to be a more fluid concept than in the past. The proposal recognises this trend. Contributors may retire at any age, without actuarial adjustment for "early" or "late" retirement: they just start drawing from their pension accounts. They will also have the option of working part-time and of taking a lower pension. The proposal can address the challenge of long-term care in a similar fashion: the regular withdrawal amount can be increased to help defray the cost of long-term care, recognising of course that any increase in withdrawal amount depletes the account value (i.e., it is not an insurance solution). The flexibility outlined above is possible because the pension account can be viewed as a form of deposit account. The proposed restrictions to counter the risk of anti-selection (i.e., to prevent retired members from withdrawing more when smoothed value exceeds market value or less when smoothed value is less than market value) will not apply if withdrawal amounts are being varied for reasons of personal need or for wider demographic or economic reasons (e.g., inflation) rather than for financial reasons.

The paper's proposal for longevity protection allows for significant mortality improvements between now and when the first retirees reach age 75. The proposed deduction from account values (2.45% per annum) from age 75 for members opting for longevity protection is based on the projected survival rates of Table 4. Subject to regulatory approval, trustees may vary the deduction if mortality rates differ from those projected and they may also change the age at which members may opt for longevity protection, to ensure fairness across generations.

Appendix 3: Paragon’s Report

Technical Feasibility Assessment of Alternative Auto-Enrolment Proposal

6th January 2024

Dr. Colm Fitzgerald FIA FSAI
Paragon Research Ltd

Executive Summary

The purpose of this study, funded by the Pensions Council, was to investigate the technical feasibility of an Alternative Auto-Enrolment (AE) Proposal.

The Alternative AE Proposal was found to offer a number of significant advantages over the current AE proposal, but concern arose about the management of several aspects of the risks involved.

The primary advantage was that the Alternative AE Proposal would likely produce pensions more than double the size of those projected under the current AE proposal. This reduces the effective cost to produce adequate post-retirement income and would likely result in:

- Less resistance / more acceptance of AE.
- Pension coverage of a wider proportion of the Irish population.
- A reduction in future pension inadequacy and the burden on the State.

Given the potential upsides from the Alternative AE Proposal, it was necessary to investigate if the concerns were fixable or otherwise. During the course of this research several approaches were discovered to manage risks that were of concern.

The use of the Buffer Account in the Alternative AE Proposal as a risk management tool was not considered sufficiently robust, but four alternative methods were found to prudently manage the funding level risk. These require further research to determine the optimum approach. The risk of the scheme becoming unattractive to new contributions was found to be fixable by adjusting the smoothing approach so that an equal approach was applied to all individual contributions. The governance risks were found to be material, but precedents were found highlighting how strict governance measures could be implemented.

A simplified version of the Alternative AE Proposal is set out that would be prudent for the State to launch immediately once the governance of the scheme is established. This would have 100% equity investment (or equivalent), smoothing of returns and risk sharing. The work on determining the optimum risk management framework could begin straight away, but this does not need to delay the launch of AE. Most of the further work involves the post-retirement period and there are international precedents of not initially defining this, for example, when Australia launched its pensions superannuation scheme. After the optimum risk management approach was determined, the State could decide on the final operation of the scheme, within the fixed parameters outlined and communicated to the public in advance.

The outcome of the assessment was that a simplified version of the Alternative AE Proposal was found to be materially better than the current AE proposal. The decision to implement the simplified Alternative AE Proposal might be considered analogous to the introduction of the Euro. There are considerable upsides, but it requires prudent governance, the risks need to be managed and it needs to be stood behind during times of turbulence. It is likely a public good and all reasonable efforts could be made to implement it in the public interest.

Table of Contents

1 Introduction

The purpose of this report is to outline the findings of a technical feasibility assessment of the Alternative Auto-Enrolment (AE) Proposal, as described in the Request for Quotation published on June 21st 2023[1] and according to the tender accepted.

The feasibility assessment was carried out on a multidisciplinary basis because a narrower siloed approach would be at risk of not adequately seeing the bigger picture and consequently giving an inadequate viewpoint.

Recognizing that the world is altogether too big, too complex and too fleeting for direct acquaintance, the multidisciplinary approach was complemented by surveying about thirty experts in direct and indirectly related fields. Consequently, I would like to thank and express my deep gratitude to these experts for the open sharing of their perspectives, especially because these individuals did so in the public interest rather than their own narrower individual self-interest.

I would also like to thank those on the Pensions Council who willingly shared their expertise when some of the perspectives created in this report were at an early stage of development.

This report is intended to be an independent[2], multidisciplinary and real-world technical assessment of the Alternative AE Proposal. A short time was available to conduct the assessment, so the risk of human error might be higher than normal. Despite this constraint, every effort was made to produce an objective assessment.

[1] https://www.pensionscouncil.ie/en/news/rfq-for-technical-feasibility-assessment-of-alternative-ae-proposal.html

[2] It is important that this report is considered independent. I declare that I do not have any conflicts of interest that might negatively impact the content.

2 Background

The background to this assessment is sketched below and refers to a fuller consideration of the background and context in Appendix A. This is designed to help the reader who is primarily interested in seeing the results of the assessment. A reader who would like to fully understand the assessment would need to consider the appendix also.

Section A.1 looks at the history of financial innovations, both progressive and problematic innovations. It advocates the necessity to look at financial innovations from first principles, to use a multidisciplinary approach, to survey many experts to get as varied a set of perspectives as possible and to do so with humility. Failing to understand the context and bigger picture in which financial innovations happen is hazardous.

Section A.2 outlines the broad context of this assessment, in particular the significant and urgent problem that AE is aiming to help address, namely the substantial projected inadequacy of retirement income for the State as a whole, including the implications for the finances of the State. The broad context is discussed including the importance of meeting the needs of social protection, the economics context, the political economics context and other factors necessary to ascertain the bigger picture.

Section A.3 outlines the real-world investment context. Investing is primarily the application of nous conditioned by reason, as distinct from being primarily about the application of mathematical formulae. If that were not the case mathematicians, who don't engage nous, would be the richest people in the world. In professional investment management firms, those who engage nous typically work in the investment decision making roles, while those who only reason or apply mathematical skills typically work in the back or middle office, to aid carrying out the conditioning of the nous of the decision makers. The application of nous in investing is imperative.

Amongst other topics, this section discusses the concept of the Equity Risk Premium (ERP), an academic concept regarding the difference between the average returns from investing in the stock market and the bond markets. This topic was a cause for concern expressed during discussions with experts during the assessment. The ERP narrative is discussed as one without any of the human or psychological aspects of investing. In real-world investing. This makes it a weak narrative, one that can give a mere shallow description of investment returns, but from which a progressive solution for an investor cannot arise. If a person simply tries to "get" the ERP by investing in equities they will immediately be subject to the human experience (the 'agon' of it) and the health of their ego rather than a mathematical formula will most likely determine the returns they make. If they have a narrow comfort zone, as soon as volatility creates negative returns, they will likely panic and sell, and probably at the bottom of the market.[3]

[3] This perspective is taken from the established Core Reading of the Fellowship Investment & Finance subject (SA7) of the Institute & Faculty of Actuaries and is

Prudent sensible investors understand that it is mostly a human experience that has to be lived[4]. The investment markets reward patience and discipline and they punish any deficiency of these. Investing in the stock market is participating in the enterprise of a nation, sharing in its agon, but also in the returns. This perspective is taken from Jack Bogle, who revolutionised pensions investing and is regarded as having done more to improve the finances of the average American than anybody else in history.[5] Under the Alternative AE Proposal whoever is responsible for the running of the scheme will have to endure much of the agon of the investing, in place of members of the scheme. This is regarded as part of enabling them to participate in investing the same way as wealthier people can.

Section A.4 attempts to outline the story in which the Alternative AE Proposal is being assessed in order to add further perspective to aid the goal of attaining a clearer big picture for the assessment.

discussed in considerable further depth in different sections of these educational materials.

[4] "According to the acclaimed investor, Howard Marks, "the biggest investing errors come not from factors that are informational or analytical, but from those that are psychological." This perspective is established and widely held investment practitioners.

[5] https://www.youtube.com/watch?v=MLgn_kVKjCE

3 Methodology

This section is structured around the Request for Quotation and the tender accepted[6]. It involves a multidisciplinary assessment that includes surveying experts to get wider perspectives.

This was based on the principle that an individual's mind is limited, which limits their individual capacity to carry out an overall assessment in an area that has been historically prone to failures. To overcome this, the perspectives of different individuals were pieced together in order to be able to construct a useful bigger picture.

This methodology is multidisciplinary to avoid only getting a limited siloed perspective. The main specific requirements of the Request for Quotation are set out in the next subsection.

3.1 Requirements and Specifications of Assessment

This assessment should include:

a) Analysis of the proposed model, which would be expected to be sufficient to draw out the key features, drivers, risks and uncertainties. Assessment of the financial out-performance suggested by the proposed model when compared to the UK model referred to in the paper.
covered in sections, 4.1, 4.2, 4.3 and 4.6

b) Modelling; scenario testing of the proposed model (use of real-world ESGs (economic scenario generators) is preferred but not a requirement); and investigate the impact of changing the two key variables in the proposed model's smoothing formula on a periodic basis: expected long term return (i) and/or weighting (p).
covered in section 4.5

c) Assumptions; A list of the key assumptions and an assessment of these assumptions underpinning the proposed model; Stress testing individual assumptions / scenario testing; and model a number of plausible adverse scenarios (e.g. 1-in-25 year stress events to market or mortality/longevity risk) at varying spot years in the future.
covered in sections 4.4 and 4.5

d) Performance: Assessing the drivers of performance in the proposed model.
covered in section 4.3

e) Assessing the various assertions made in relation to the proposed model in an Irish context including the acid test of the proposed model's durability in the event the scheme is closed to new entrants at some future date and net assets fall to zero.
covered in sections 4.6, 4.7 and Appendix B.

[6] https://www.pensionscouncil.ie/en/news/rfq-for-technical-feasibility-assessment-of-alternative-ae-proposal.pdf

4 Multidisciplinary Assessment

4.1 Key Features

The key features of the Alternative AE Proposal are:

i) Contributions are invested only in the stock market, and they remain invested only in the stock market post-retirement. This is based on the consensus opinion in finance that historically such stock market investments have achieved the highest investment returns, albeit they have also had the highest variance of return.

ii) There is only one single investment fund to minimize investment expenses that damage investment returns. Contributions are paid into this fund and pension benefits are drawn from it in retirement, both at the smoothed value rather than the market value. One of the main reasons for this is to prevent those contributing from sabotaging their returns by panicking / getting overly fearful and switching to 'cash' (or more 'cautious' investments) during times of stock market turmoil and consequently both suffering poor returns and losing out on future compounding of stock market returns.

iii) Investment returns are smoothed according to a mathematical formula. This is the main novel aspect of the Alternative AE Proposal. This enables smoothing of investment returns without brutally investing in assets that are likely to have much poorer returns, just to reduce the expected volatility.

iv) The investment risk still largely rests with the individual, but the risk arising from any differences between the smoothed returns and the actual returns needs to be managed. Consequently, the Alternative AE Proposal faces a risk when the market value of the investments is less than the smoothed value of the investments and there is a wind-up of the AE scheme. The Alternative AE Proposal outlines a risk management plan to deal with this.

v) The formula to smooth investment returns is as follows

$$SV_t = CF_t + p*(MV_t - CF_t) + (1-p) * SV_{t-1} * (1+i_{t-1})$$

Where:
SV_t = smoothed value in month t
CF_t = cash flow in month t
p = weighting for current market value in the smoothing formula
MV_t = market value in month t (including the cashflow, CF_t)
i_t = is the expected (monthly) long-term return on the scheme's assets at time t

vi) The Alternative AE Proposal includes a novel approach for drawing a pension from the fund accumulated at retirement while still keeping the underlying investments in the stock market.

Many professionals in related fields were sceptical / dismissive when this approach was initially broached with them. However, after time spent discussing this pooled approach, the majority conceded there was considerable economic value to be derived from continuing participation by pensioner funds in equities if there was confidence that the risks to pensioners and the State's exposure would be limited in possible future adverse scenarios.

The risk management plan and the pensions drawdown plan in the Alternative AE Proposal model are discussed in section 4.4.

4.2 Drivers

The main driver is the market value (MV_t). Over longer periods of time, the smoothed return converges towards the market return.

The "*i*" is the artificial increase in the smoothed value that is supposed to reflect the long-term expected return on equities. "*i*" has a direct impact on the returns, mostly in the short term, but can later be nearly fully diluted by the change in market value. In projections in the Alternative AE Proposal, "*i*" is fixed but it is supposed to be set each year prospectively.

The '*p*' is the rate at which recognition of changes in market value is delayed. For example, a 1% monthly "*p*" is about a 12% yearly "*p*" and means that changes in market values are only fully recognized after about 8.5 years (~1/0.12)[7].

4.2.1 Analysis of Drivers

How do smoothed historical returns compare with actual market returns?

Two examples from history are used below to provide illustrations. Firstly, that of the US stock market from 1871 to 2010. This is an example of a stock market that created relatively strong returns. Secondly, that of the Belgian stock market from 1833 to 2005, during which time they experienced two World Wars in their country and had relatively weaker stock market performance. More recent stock market returns were left out to create a more conservative comparison because recent years have been very positive, with historically very strong returns, possibly distorted by Quantitative Easing (QE).

[7] This is a very crude and rough estimate and a more accurate analysis is given in section 4.2.1

The illustrations created have annual smoothing without loss of generalization (as distinct from the Alternative AE Proposal that has monthly smoothing) with an "*i*" of 7% for US and "*i*" of 6% for Belgium, and "*p*" of 10%. These result in non-negative smoothed annual returns. For comparison, the Alternative AE Proposal suggests "*p*" of 1% monthly (roughly 12% annualized). The illustrations are shown in *Figures 1* and *2* below.

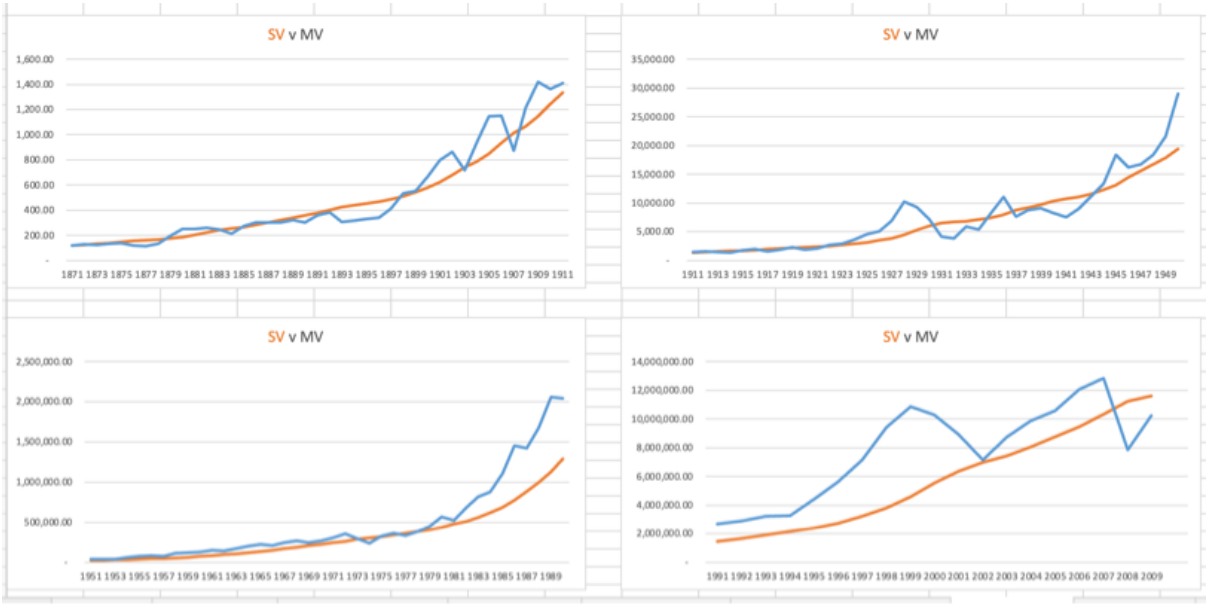


Figure 1 - Illustration of Market Value v Smooth Value for US Equities

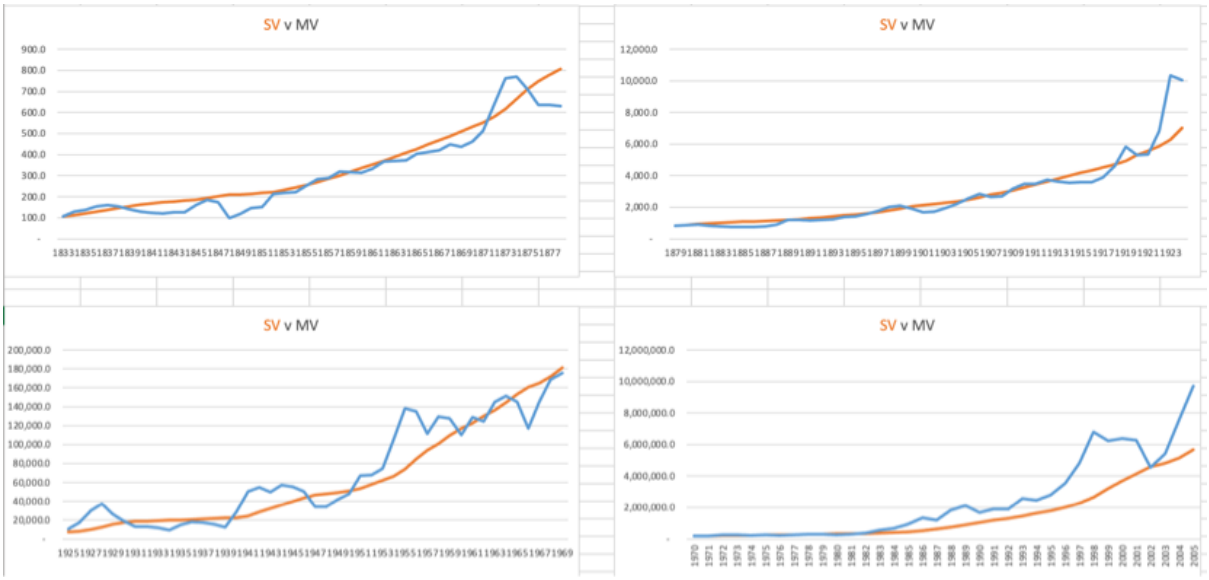


Figure 2 - Illustration of Market Value v Smooth Value for Belgian Equities

How do smoothed returns change when "*i*" and "*p*" change?

Over long periods of time, changes in market value dominate versus changes in "*i*" or "*p*".

This is illustrated below in two tables that show the historical geometric average smoothed returns in a steady-state with zero net cashflows for both the US from 1871 to 2010 and for Belgium from 1833 to 2005. The smoothed values for different combination of values of "*i*" and "*p*" are given for each set of stock market returns (values of "*i*" are on the top row in each table).

Table 1 – Historical smoothed returns in the US stock market from 1871 to 2010

Geometic average SV returns with net zero cashflows in steady state								
0%	3%	5%	6%	7%	8%	10%	12%	= "*i* "
8.72%	8.72%	8.72%	8.72%	8.72%	8.72%	8.72%	8.72%	MV%
8.20%	8.37%	8.49%	8.56%	8.64%	8.72%	8.93%9	9.25%	P=5%
8.5%	8.62%	8.72%	8.77%	8.82%	8.87%	8.99%	9.12%	P=10%
8.56%	8.67%	8.75%	8.80%	8.84%	8.89%	8.99%	9.10%	P=12%
8.61%	8.71%	8.78%	8.82%	8.86%	8.90%	8.98%	9.07%	P=15%

Table 2 – Historical smoothed returns in the Belgian stock market from 1833 to 2005

Geometic average SV returns with net zero cashflows in steady state								
0%	3%	5%	6%	7%	8%	10%	12%	= "*i* "
6.91%	6.91%	6.91%	6.91%	6.91%	6.91%	6.91%	6.91%	MV %
6.13%	6.25%	6.34%	6.40%	6.47%	6.64%	6.80%	7.48%	P=5%
6.38%	6.47%	6.54%	6.57%	6.61%	6.65%	6.73%	6.84%	P=10%
6.44%	6.52%	6.57%	6.60%	6.64%	6.67%	6.74%	6.82%	P=12%
6.49%	6.56%	6.61%	6.64%	6.66%	6.69%	6.75%	6.81%	P=15%

In the shorter term, "*p*" determines the delay in the recognition of changes in market value. This can be illustrated by the two examples below. Each shows a hypothetical future where the market values increase in line with standard actuarial assumptions of a 7% return per annum. In the first, "*p*" is 12% and in the second "*p*" is 6% and the additional delay in recognition of changes in market value can be seen by comparing the two charts.

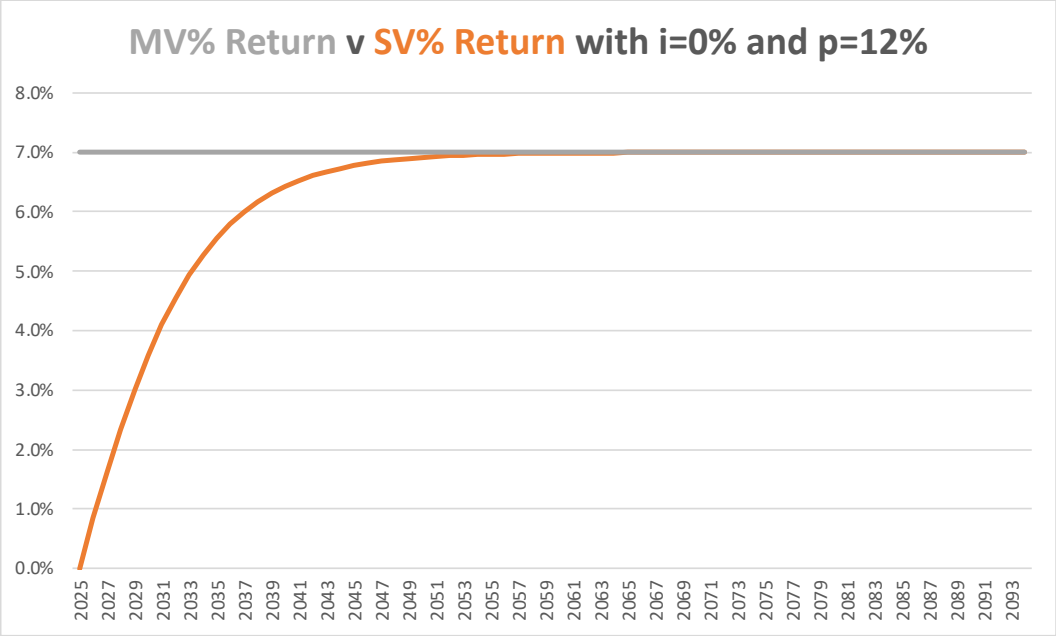


Figure 3 – Future smoothed returns with *i*=0% and *p*=12%

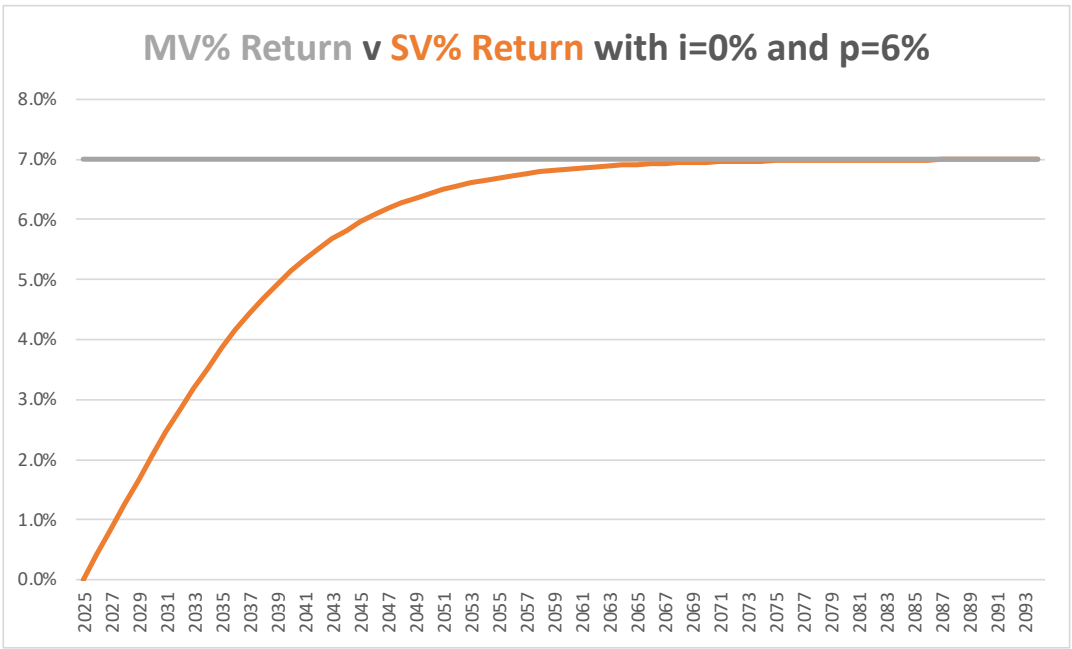


Figure 4 – Future smoothed returns with *i*=0% and *p*=6%

4.3 Assessment of Financial Out-Performance

The Alternative AE Proposal states that it can deliver 50% better value for members compared to the existing UK model which uses a lifestyling investment approach. A comparison of the projected pensions from the Alternative AE Proposal and the UK model is outlined below in *Table 3*.

The projections are based on the following assumptions:

- Projections for a worker earning €20,000 per annum.
- Contributing 1.5% for years 1-3, 3% for years 3-6, 4.5% for 7-9 and 6% from year 10, with 1/3rd extra from the State and matching employer contributions (as per page 18 of Draft Heads and General Scheme)[8].
- The Alternative AE Proposal assumes 100% investment in equities.
- The lifestyling approach assumes 70% equity/30% bonds up to 7 years before retirement and linearly switching to bonds and using inflation-linked bonds to provide a pension increasing with inflation protection in retirement.
- Equities are assumed to make a 5% real return, bonds a 1% real return.
- Investment expenses are assumed to be 0.5% of funds invested per annum.
- For simplicity, the worker is assumed to retire at age 65 and live to age 95.
- Assumptions are consistent with the Financial & Economic Assumptions and Principles of Society of Actuaries in Ireland (SAI, 2022)[9].

Table 3 – Projected benefits from the Alternative AE Proposal versus lifestyling

Projected (real) pensions and lump sum (25% of fund) benefits at age 65 of worker earning €20k						
	Pension			Lump Sum		
Age at joining	Lifestyling	Proposed	Alt/LS	Lifestyling	Proposed	Alt/LS
25	4,468	10,695	239%	42,916.81	61,807.23	144%
35	2,672	5,901	221%	25,665.53	34,100.84	133%
45	1,372	2,806	205%	13,173.97	16,217.19	123%
55	427	809	189%	4,102.04	4,673.82	114%

These projections show that the Alternative AE Proposal would produce pensions between 89% and 139% higher than the lifestyling approach used in the UK model.

Although other approaches could be used for comparing the two different investment approaches, the above approach is designed to be simple so that it is more easily understandable to a general audience (without any complicated annuity values).

The impact of the 0.5% investment expense is that it reduces projected pension under the Alternative AE Proposal by 16% for a 25-year-old. A further 0.1% increase in investment expenses would reduce the projected pension by another 3.5%.

If instead of a lifestyling approach of 70% equities and 30% bonds, 100% equities investment strategy was used and then it was gradually reduced over 7 years before retirement, the projected pension for a 25-year-old would increase from €4,468 to €5,505. Albeit this would not be a sensible or prudent risk to take for a worker who might be relying on the pension because of the additional risk it would involve.

[8]https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_social_protection_community_and_rural_development_and_the_islands/submissions/2022/2022-11-10_draft-heads-and-general-scheme-of-the-automatic-enrolment-retirement-savings-system-bill-2022_en.pdf

[9] https://web.actuaries.ie/sites/default/files/2023-04/230414%20Financial%20Economic%20Assumptions%202023.pdf

If the Alternative AE Proposal was introduced 50 to 70 years ago and the monies invested in the US stock market, the pension produced for a 25-year-old would have been about €40,000 (about 800% higher than the projected lifestyling / UK approach) along with a lump sum of about €157,000. This is because historic stock market returns were higher than the above assumptions during this period.

In short, the potential out-performance from the Alternative AE Proposal is substantial and the estimate given of 50% greater performance is very conservative. The impact that these higher pensions could have on the quality of life of future pensioners would be very significant.

Take a pensioner on ~€250 per week from the state pension. Suppose they had modest savings, and the current lifestyling approach would give about say €50 extra per week. The Alternative AE Proposal if it existed 50-70 years ago would give an extra ~€450, so the pensioner would have €700 per week instead of €300. The impact on the quality of life of the pensioner from this cannot be underestimated.

This naturally prompts several questions.

4.3.1 Is investing 100% in equities prudent?

The following perspectives on this topic were gathered:

One senior actuary (based outside Ireland) mentioned that they had several pension funds from different jobs they previously held and that all of them were 100% invested in equities. This was because the funds were well managed, with good funding levels and because of the strong covenant from the sponsoring employers. From this perspective, the investment approach in the Alternative AE Proposal of investing 100% in the stock market is not new or unusual nor without precedent, albeit not all pension funds are that well managed nor have strong employer covenants.

I discussed the topic with another senior actuary who recently presented research to the Society of Actuaries in Ireland advocating for greater allocation to stock market investments.

I spoke to a senior financial planning expert in Dublin. They also advocated for greater general allocation to stock market investments.

I asked one of the best investors that I've ever met (who is currently retired) how they would feel about having 100% of their investments in the stock market. They replied that it wouldn't bother them at all, but that they could see how it would really bother other people, especially if they looked at the share prices every day.

In the modern introduction to the famous book, *The Intelligent Investor*, by Ben Graham, it is discussed whether an investor should invest 100% of their savings in the stock market. The key to answering was whether the investor panicked and sold during

the financial crisis. If they did, and didn't have the stomach for it, they would likely do the same again and ruin any benefit from the investments.

4.3.2 Are There Any Issues of Social Exclusion Here?

Those advocating for the introduction of Auto-Enrolment might argue that they are trying to help people save for retirement.

However, the current AE proposal to have a lifestyling approach like the UK might likely be socially exclusionary because it locks people out of the better investment approaches. It could cement a two-tier pension system in Ireland. Such a result would be socially destructive rather than providing social protection. Most of the experts who I surveyed shared this perspective.

Ireland has done very well in recent times to avoid the significant increases in inequality seen in other parts of the developed world and should be highly praised for doing so. Such actions protect the fabric of our society and protect us against the ills that arise when a cohort of society is brutalized and becomes fodder for demagogues, who subsequently damage the country.

The Alternative AE Proposal, by enabling ordinary workers to prudently invest in the stock market, the way richer people in stronger positions can, would arguably result in a more equitable outcome for Irish society, aiding equality of opportunity.

While a small proportion of people can and likely want to manage their own pension investments, these people are likely quite driven and are likely to have well-paying jobs with good pensions. And if they cannot manage their pension investments, they can likely afford investment advice. However, ordinary people or indeed most people do not have the wherewithal to invest professionally, nor have the money for investment advice. Asking them to make investment choices is like asking somebody to do their own dentistry, they would likely create a lot of pain for themselves and be worse off for all their efforts. Some people do want pension investment choice, but most people would prefer to have a competent person look after their pension for them.

Investing is not a simple intellectual exercise, these investments must be lived through, and without proportionality, discipline, guts and broad shoulders, this typically goes wrong. Most people are ill-suited to this, just as they might be ill-suited to being a dentist. The only sensible social protection, in this case, is to provide pension investment management for those in AE, just as free or subsidized dentistry is made available to those paying PRSI.

The Alternative AE Proposal would also directly benefit the State's finances because taxes would be collected on the larger pensions, at a time when the State is projected to have significant fiscal problems from an aging population. These funds would be useful for other areas of social protection in our society.

4.4 Assessing the Assumptions

Discussion regarding the assumptions for "*i*" and "*p*" was outlined in an earlier section.

The main assumption that is of concern in the Alternative AE Proposal is regarding the Buffer Account. This was considered to be problematic, but also to be fixable.

The approach set out in the paper in Appendix B of the RfQ was not considered sufficiently robust as is currently proposed. This viewpoint was shared with an international expert on the topic of Buffer Accounts, Professor Oskar Goecke, who is also a government advisor in Germany. His view was that the paper was a good start but was not there yet.

For example, if the fund was wound up, for whatever reason, in the initial years after inception, when equities had performed very poorly, SV would be higher than MV and the liabilities would be greater than the assets (albeit this is an unlikely scenario).

Buffer Accounts are typically used in Collective Defined Contribution schemes, but the Buffer Account is established at the start rather than relying on a likelihood of favourable returns to establish it, as is proposed in the paper. Other experts surveyed expressed concern about the Buffer Account approach in the paper.

However, several options exist that would enable the risk regarding the difference between SV and MV to be prudently managed.

The other main assumption was an implicit assumption that there would be no political interference. This is not credible. But again, this problematic element would be considered fixable. It would require additional constraints in the governance of the scheme for it to have credibility. This is discussed further in section 4.6.2 (and is analogous to the budget rules that were introduced to help regulate the Euro).

4.4.1 Options to Manage the Risk When SV>MV

Several options exist that would enable the risk regarding the difference between SV and MV to be prudently managed.

The simplest option would be the State playing the role advocated by Benjamin Graham which is imperative to provide sound investment advice for members. Graham stated that "the investor's chief problem and even his [/her] worst enemy is likely to be himself [/herself]". Consequently, he argued that clients may hire an advisor "not to manage money but to manage [themselves]". In this case, the State's role would be to follow Graham's advice and to advocate the merits of this Alternative AE Proposal when the members got anxious, worried or panicked.

Following on discussion in Appendix A, it is hopefully obvious why many Defined Benefit pension schemes were given investment covenants by the sponsoring employers. The sponsoring employers knew that the Trustees would find the ups and

downs involved in managing the investment to be difficult so they stood behind them to provide credible support. This enabled the trustees to make investments that were likely to be more volatile in the short-term but that would likely perform much better in the long-term (which benefited the company in the long-term). Providing some kind of covenant to ordinary people is likely to be imperative if they are to be able to make the kind of investment choices that are in their best long-term interest. Otherwise, they effectively become locked out of these investments.

In this case, this would not involve the State providing a covenant, but only standing strong and advocating the merits of the scheme when SV>MV until the time when SV would be less than MV which is something that is mathematically going to happen due to the nature of the smoothing formula. This is arguably an easier role than that played by many investment advisers because there is much less courage required. After all, the State would be standing strong over a mathematically converging formula rather than standing over the performance of financial markets. Standing strong is a role that the State plays in other areas of Irish life, so it is not something new and is also something that would be arguably expected of the State to credibly act as the effective investment adviser to members.

There is one exception to this which is discussed further in section 4.6.5 and this exception is a chicken and egg scenario. The scheme would become problematic if there was a prolonged fall in the Irish population at the same time as when there was a prolonged fall in the stock market. But failing to enact progressive social policies is usually what contributes to falling populations (for example, this can result in higher emigration), so enacting this Alternative AE Proposal, due to its progressive nature, might be considered something that would act against factors that would contribute to a fall in the Irish population.

The most astute investors, whom I spoke to about this risk, were firmly of the view that the Irish population was likely to rise significantly so this was not considered a material risk. It was considered that our population would likely rise because of our low population density relative to the UK, from immigration from war zones, from Ukraine and Eastern Europe, and because Ireland is likely to be relatively less impacted by climate change.

The second option would be using the financial markets to hedge the risk using put options. The cost of such put options was not possible to estimate because any bank quoting a price would need to study the Alternative AE Proposal first and would likely want to read this report first. The cost is likely to be variable over time because the cost of put options depends on the level of volatility in the market. When volatility is high the cost of these options goes up. This option would also likely require regular purchasing of such put options unless a long-term structured product was used. This is also a possibility because longer-dated equity put options are now available in the market, for example on the S&P 500.

The third option was again using financial markets to hedge the risk of SV>MV by entering a Total Return Swap, where the scheme would swap the total return on its equity portfolio for the return generated by the smoothing formula (either in whole or

in parts). The practicalities of this approach are likely to be better than the previous option and it is likely to be less expensive. Put options are effectively insurance and can be costly.

This Total Return Swap approach would have several technical aspects that would need careful consideration. These include the number and credit quality of the counterparty(s), the frequency of marking-to-market, the collateral agreements (for example, the size of the initial margin payments), issues regarding regulatory capital, the need for independent pricing sources, and importantly negotiating the effective margin (profit) in the swap agreement. There are various reasons why a counterparty might want to transact such a Total Return Swap. For example, tax, accounting or regulatory reasons and the desire to invest in equities and specifically to get the volatile element of the return. One of the benefits of Total Return Swaps is that the principals are not exchanged so the overall credit risk is lower than it would otherwise be.

Like option two, this approach would likely need to be investigated after this report was published so the counterparty could adequately assess the risk rather than having to reinvent the wheel from not seeing this report beforehand.

The fourth option would be to use a risk mitigation technique to manage the risk This would necessitate it to be carried out by a person of competence and character (as discussed in Section A.3), otherwise the technique would not work.

The technique would involve simplifying the smoothing formula in the Alternative AE Proposal, by setting "*i*" equal to zero. This has the effect of delaying recognition of most of the expected returns and it creates significant expected "over-funding" of >200% that has historically been able to withstand pandemics, revolutions, risks of starvation, wars along with economic shocks and depressions.

The drivers of the investment returns under this risk mitigation approach are the 40- and 70-year average nominal returns for SV and MV with "*i*"=0 and "*p*"=6%. These are the typical periods in which members will be either contributing or drawing down from their pension pots. While the SV returns are lower than they would be with a positive "*i*", they result in expected pensions that would still likely be much greater than that under lifestyling. The rolling moving average of 40- and 70-year SV and MV returns in the US from 1871 to 2010 are outlined in *Figure 5*.

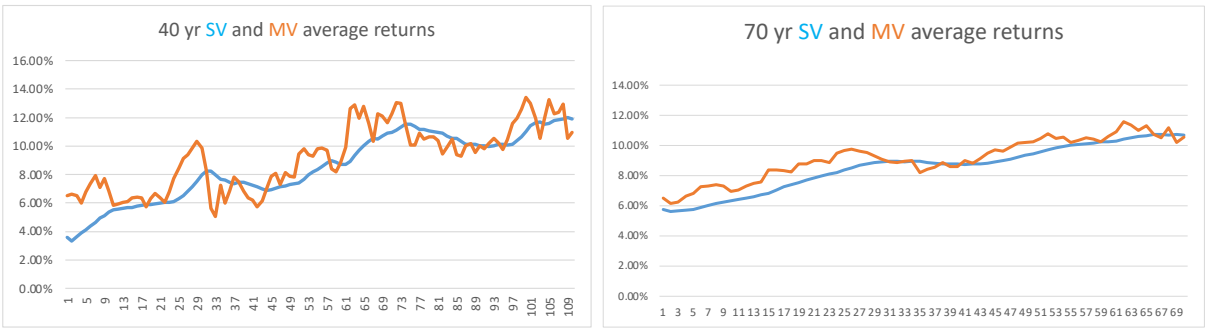


Figure 5 – 40- and 70- year average SV and MV returns in the US from 1871 to 2010

The results of using the technique are illustrated below. *Figure 6* shows the ratio of MV/SV from 1871 to 2010 using US stock market data with "*i*"= 7% and "*p*" = 10% and *Figure 7* shows the same for Belgian stock market data from 1833 to 2005 but with "*i* = 6%. These parameters result in zero years with negative SV returns.

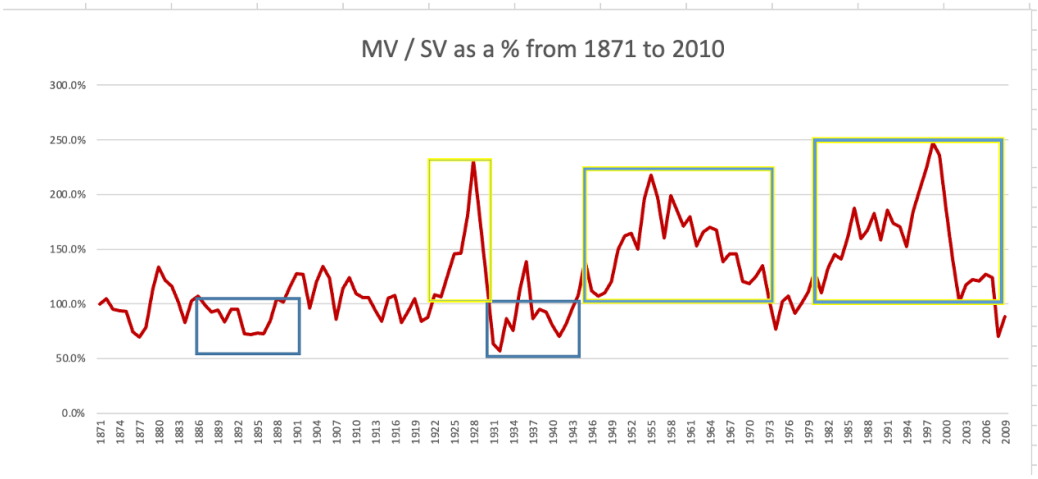


Figure 6 – Progression of MV/SV using historical US stock market data

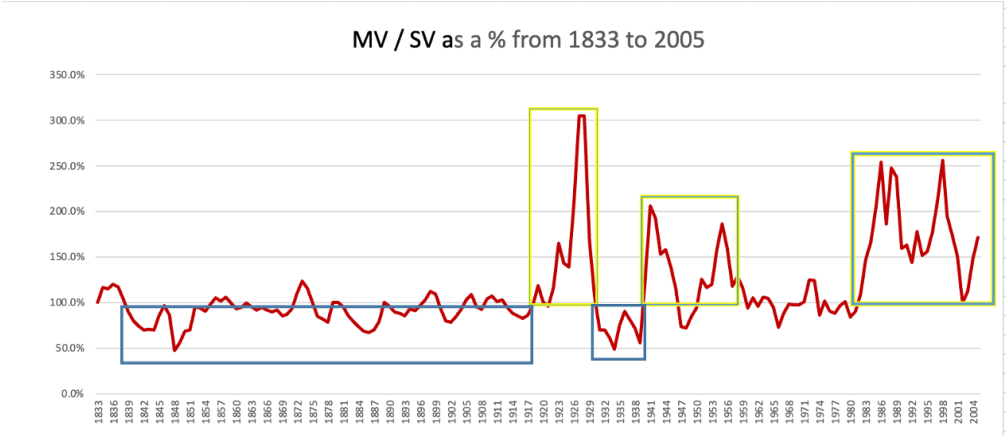


Figure 7 – Progression of MV/SV using historical Belgian stock market data

As can be seen from both *Figures 6* and *7*, there are significant time periods where MV/SV < 100%, in other words where SV>MV and where members might be concerned about the funding of the scheme. The risk mitigation technique makes "*i* " equal to zero. The impact of this on MV/SV can be seen in *Figures 8* and *9*.

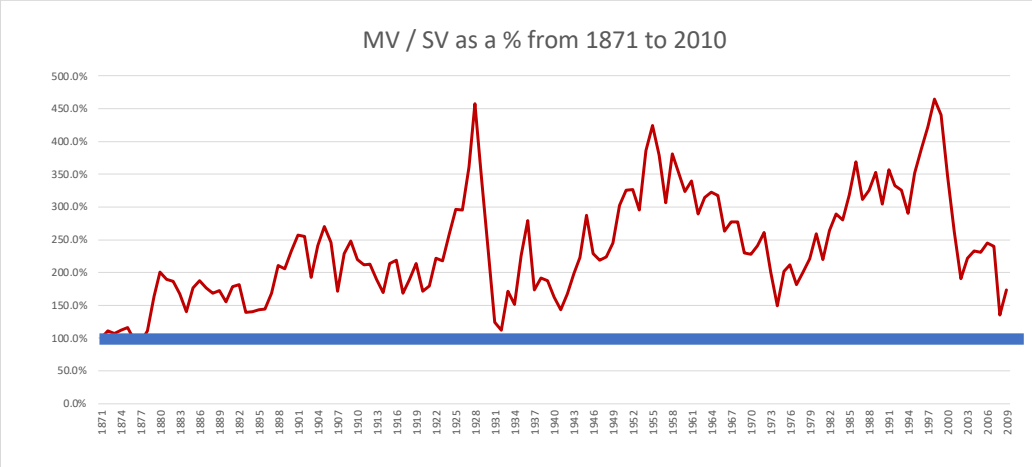


Figure 8 – Progression of MV/SV using US stock market data with "*i*" = 0

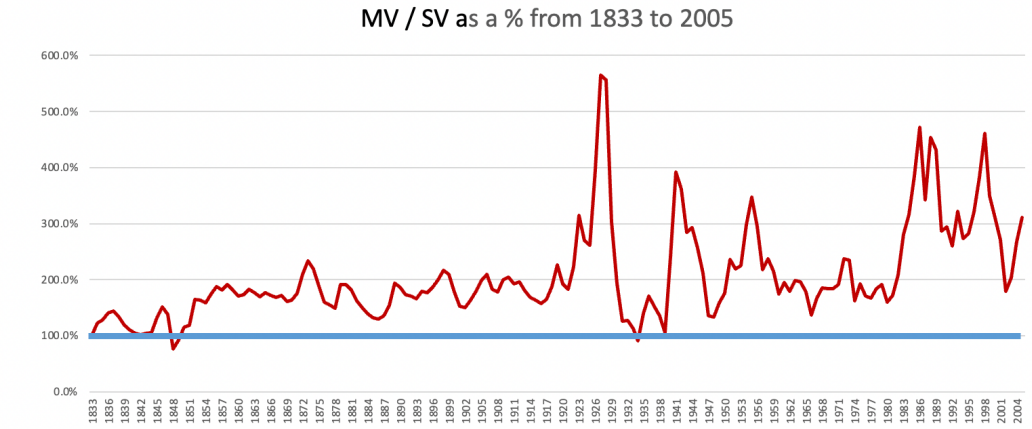


Figure 9 – Progression of MV/SV using Belgian stock market data with "*i*" = 0

Over the 311 elapsed years of stock market data (172 in Belgium and 139 in the US, with the highest returning years excluded), there was only 3 years in which SV>MV in the Belgian data, for two years around the 1848 revolution and threats of starvation in Belgium and one year during the Great Depression. On each occasion, stock markets recovered sharply in the years ahead when the panic ended and, in each case, the ratio of MV/SV was only marginally below 100%.

This risk mitigation approach relies on the expected positive return from businesses that would be natural in the normal course of events in a capitalist country. Entrepreneurs are driven, at least in part, by the possibilities of creating profits, and stock market investment is buying a share of those profits that result from human endeavour.

The risk mitigation approach is most vulnerable over short time periods of time at the early stages of smoothing and least vulnerable at the later stages when the delay in recognition of (cumulative) expected returns is highest. The delay of recognition of natural returns kicks in a stronger way in the medium and longer term which needs to be kept in mind if any extreme events happen in the earlier years.

While this risk mitigation technique arguably manages the risk of MV/SV<100% quite well, it does rely on the person or people responsible for the scheme having a character that contains at least some superior prudence because some degree of standing over the risk mitigation process may be required, and it would be sensible to prepare for such an event.

Character is also necessary for the opposite reason because given the likely over-funding that would result from this risk mitigation approach, many members and other stakeholders would be expected to put pressure on the scheme to get "more" in various ways and those managing the scheme would need to have the backbone to stand strongly within the governance of the scheme so that each member gets fair benefits and is seen to get fair benefits. Where a person of a different character is responsible, they might likely find it to be personally less hassle to give in to those shouting the loudest and create a quieter life for themselves at the expense of the interests of the members as a whole.

That said, the overfunding created would need to be distributed to AE members, for example in the form of an "equality bonus" and again a character with superior prudence would be necessary to carry out any such distribution.

The difficulty for the person or people responsible is that implementing the governance is not a series of intellectual decisions, it is a series of human decisions that require character, being able to get over the person's own ego to consider the interests of others, in this case of members. Many people might not believe that people of such character exist, but, in my opinion, the majority of the 30 experts who were consulted as part of this assessment would likely have such a character, and some of them had real-life experience of doing just this. The example of the team created by Jack Bogle is an obvious precedent to follow too. In the last decade, a psychometric character test has become available, and this is likely appropriate to use to screen the professionals who might be in significant positions of responsibility in the AE scheme[10].

The final option would be to use some combination of the above four options. It is recommended that each of these options be investigated to determine the optimum approach for the State.

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[10] www.knowyourselftest.com
The research supporting this test is contained in the following three publications
Fitzgerald, C. (2023). *A theoretical foundation for classical character archetypes*. Journal of College and Character, 24(1), 41-51. https://doi.org/10.1080/2194587X.2022.2157440
Fitzgerald, C. (2023). *Character development in higher education using classical character archetypes*. Journal of College and Character, 24(1), 21-40. https://doi.org/10.1080/2194587X.2022.2157438
Fitzgerald, C. (2014) *Assessing Psychological Capacity for Risk Taking and Risk Management,* Society of Actuaries in Ireland

4.4.2 Post-retirement

There was not sufficient time to fully investigate the post-retirement part of the Alternative AE Proposal.

The Nobel Prize-winning economist William Sharpe referred to the problem of decumulation of pension funds after retirement, over the period that the pensioner lives, to be the "nastiest, hardest problem in finance" (Ralph, 2023[11]).

In my experience, this problem has been solved, probably many times and to different degrees, but in private rather than public narratives. For example, during the investigation, I became aware of pension funds with active and retired members who were fully invested in the stock market. There are precedents supporting the potential for the Alternative AE Proposal backing post-retirement liabilities with stock market investments.

Moving an idea from a private to a public narrative is difficult, more difficult than most might imagine, but it is possible, and my PhD included an example of how that can be done. I believe a similar approach to that advocated in my PhD could be followed to enable a more public narrative to be created that included prudent risk management and facilitating pensions in payment to be backed by stock market investments, and hence for the AE scheme to provide significantly higher pensions for its members.

The biggest obstacle to this is a human rather than an intellectual one. Most people find it very difficult or impossible to think outside accepted public narratives. The obstacle is fear, and the challenge is to apply courage, care and patience.

I would strongly recommend that further work is carried out in this area. In other countries when they introduced new pension scheme, for example in Australia, they were able to postpone decisions regarding the post-retirement element of the schemes, and I think it would be fruitful for Ireland to investigate the many different approaches that could be used to manage the risk inherent in backing pensions in payment with equities.

Whilst not enough time was available to fully investigate the post-retirement element of the Alternative AE Proposal, the following points would likely be useful to consider in further work:

- Most people want a pension that is payable for the rest of their lives and one that will keep pace with inflation.[12]

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[11] Ralph, O. (2023). *Time to deal with the 'nastiest, hardest problem in finance'*, Financial Times, March 9, 2023.

[12] Older workers joining the AE scheme will likely be offered lump sum benefits rather than pensions due to the likely small sizes of their pension fund savings at retirement. The Alternative AE Proposal has advantages here because it creates smoothed returns that are unlikely to be negative so it would be unlikely for say older workers to get less than their contributions returned to them on retirement.

- Some expenditures that pensioners have in retirement increase with age. Dan Ariely, with whom I discussed the overall proposal, suggested that one method to deal with this challenge is to revive the idea of tontines. These were considered problematic in history because there were incentives to kill the other members, but today, because of blockchain technology, it is considered that these can be created anonymously.
- Any decision to buy a deferred annuity should bear in mind that the cost of purchasing it rises as the age of the pensioner increases. For example, if a pensioner wanted to buy a deferred annuity at age 80 to start at age 85, this annuity would be cheaper the younger they are when they buy it because it contains a pure endowment component that allows for the probability that they will live up to the starting age of the pension. So, it is cheaper for a 70-year-old to buy a deferred annuity starting at age 85 than it is for an 80-year-old to buy the same.
- In my opinion, the Alternative AE Proposal does not fully consider the risk of inflation rising significantly and the potential for hyperinflation. Further work would likely be valuable here.
- The Alternative AE Proposal highlights that if a pensioner buys an annuity and they die early they don't get any more pension payments. Whilst this is true, it is part of the nature of providing longevity protection. Where a pensioner wants their relatives to still be able to get some of their pension investments after they die, this will likely cost more to achieve.

4.5 Scenario and Stress Testing

This section outlines the scenario and stress testing for potential extreme events, including pandemics, revolutions, risks of starvation, world wars, potential for nuclear war and extreme geopolitical events.

Counterintuitively, as is usually the case in real-life investing, although the stock market is more volatile than investing in bonds, in each case below, stock market investments were generally less risky.

4.5.1 Pandemics

Most readers of this report will have personal experience of the stock market performance during Covid-19. Equities fell fast, recovered and then raced ahead. Over the same time, bonds initially and briefly performed well, but they have subsequently performed historically poorly, as interest rates have risen sharply as a result of the rise in inflation that followed the significant increases in fiscal expenditure in all major countries that arose from the pandemic.

Spanish flu (1918 to 1920) had a similar impact and many real-life investment market traders pointed to this example as a reason to buy the stock market after the initial drop when Covid-19 began. Albeit this was in sharp contrast to media narratives that

the public would have seen, where doom and gloom was the main theme in financial markets news.

To put numbers on the impact of Spanish flu:

- In Belgium, CPI was up 184% during WWI from 1914 to 1917.
- In 1918, Belgian equities were up 18.1% in nominal terms (the real return was -13.7%). Because inflation was 30%+, bonds likely performed very poorly
- In 1919, Belgian equities were up 27.4% in nominal terms (real 105.1%). Inflation was very negative due to the end of WWII, it was ~ -75%. Bonds would have performed very well during this year.
- In 1920, Belgian equities fell 8.9% (real -23.6%). Inflation was about 14.7%, so bonds would have performed poorly.
- In the next four years equities up about 80% in nominal and real terms.

- In the US, inflation was up 50% during WWI and it averaged about 16% from 1918 to 1920 (so prices were up 56% in 3 years).
- US equities fell 17% in 1918, rose 17% in 1919 and rose 19% in 1920 and US equities rose another 28% in the following 4 years.

In summary, equities were a better and safer asset than bonds during these pandemics.

4.5.2 Revolutions and Threats of Starvation

In Belgium in 1848 there was a significant revolution and a threat of starvation. And other revolutions were happening around Europe and other countries also had starvation issues (for example, Ireland). As might be expected, this was a big political and economic shock and resulted in significant panic. Belgian equities fell 43% in 1848 but they recovered 115% over the next four years (with no evidence of any major change in inflation). Just before the revolution, equities had risen about 35% in the 3 years up to 1848.

In summary, equities had a very sharp fall during the revolutions but recovered losses four years later.

4.5.3 World Wars, Pandemic, Great Depression and an Oil Price Shock

In this section, a combination of extremely negative events experienced by Belgium is considered.

Between 1913 and 1982, Belgium experienced two world wars where their country was part of the battleground and when they experienced catastrophic war damage. During this time, they also experienced Spanish flu, the Great Depression and the Oil Price Shock of the 1970s, a series of devastating economic and financial crises.

During these 69 years, Belgian equities fell marginally in real terms, the aggregate real return for the 69 years was slightly negative. However, in nominal terms, Belgian equities were 108 times higher over this period (an aggregate return of >10,800%). They experienced high inflation that would have damaged returns on bonds.

In summary, stock market investments protected values in real terms and provided an inflation hedge during an historically challenging period.

4.5.4 Are Bonds Safer Than Equities?

The conclusion from the previous sections is that, when considering any awful things that might happen to the stock market, it is important to be careful of the risk of catastrophizing. Catastrophizing means that a person fixates on the worst possible outcome and treats it as likely, even when it is not.

History would suggest that bond markets seem more exposed to major losses than equity markets – largely due to losses from the erosion of inflation to the value of the bond. This erosion usually is not reversed in comparison to the stock market where the erosion of value is usually reversed. This is counterintuitive and it is important to remember the perspective of Howard Marks, “I'm convinced that everything that's important in investing is counterintuitive, and everything that's obvious is wrong”.

This perspective is also supported by historical quantitative analysis, for example, by Robinson et al. (2016), who investigated the worst market drawdowns in the US stock market. They looked at the 24-month returns prior to a trough in the market and the subsequent 24-month return. The worst was in the Great Depression, when the trough was on 30th June 1932, the market lost 75.48% in the two years before that and rose 142.23% in the subsequent two years. The second worst was the 31st Oct 1857, with market falling 40.58% and then rising by 39.87% in the following two years. The next three worst cases were similar with falls of about 40% in two years, followed by the market rising by about 65% in the following two years[13].

It is also worth comparing recent bond market performance. The US 30-year Treasury Bond has fallen in value by over 40% since its peak a few years ago. Bonds are often considered ‘safe’ assets, particularly US government bonds, but from this example, they obviously are NOT safe assets.

[13] Robinson, J. et al. (2016). Applying a Systematic Investment Process to Distributive Portfolios A 150 Year Study Demonstrating Enhanced Outcomes Through Trend Following,
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2902042&utm_source=Investor+Amnesia&utm_campaign=1040af9ef6-EMAIL_CAMPAIGN_2023_10_25_01_39&utm_medium=email&utm_term=0_7228441be9-1040af9ef6-%5BLIST_EMAIL_ID%5D

4.5.5 Potential For Nuclear War

It is arguably not sufficient to only consider whether the Alternative AE Proposal would be able to handle extreme historical events, it is also necessary to consider where it might be able to handle novel extreme future events.

The event that most people might consider relevant is the potential for another significant world war that might include some element or more of a nuclear war. We have never seen a nuclear war, but we can look to history for analogies of very significant wars.

In my opinion, the most relevant analogy is the History of the Peloponnesian War recorded by Thucydides. This is difficult to discuss because, as the author wrote, it was not written for the immediate public taste. However, it was written to last forever, because it is considered to mostly describe human nature and the conflicts that arise.

This war lasted several decades and was very destructive, both to wealth and to average character levels throughout Greece. If the analogy holds up, the war would be much bigger than World War I or World War II. I've been surprised how closely recent events have analogously followed the narrative of Thucydides and would also be quite concerned that a very significant war could be on the horizon (that said, I hope I am wrong).

If this analogy were to hold up over time, then like in previous wars, stock market investments might likely outperform bonds, but it would likely be a volatile time in financial markets. Given the likely timing, this might occur when an AE scheme is either launching or in its early stages, so it could be the first challenge for those responsible for the scheme. Any nuclear conflict would likely cause some panic in financial markets and the survival of the human species would be in question. But this scenario would need calm heads and the psychological acumen that is needed to invest well would be even more important at this time to avoid making poor investment decisions.

4.5.6 Major Geopolitical Change

The potential for significant geopolitical change needs to be considered.

Jacque Attali has produced one potentially relevant narrative on this topic. In his book, published in 2006 entitled "A Brief History of the Future", Attali outlines various predictions for the future, which have been uncannily accurate. These are discussed in section A.2.5.

The outcome of a market-based empire in the world, outlined by Attali, where markets had more power than individual countries is not an attractive future but is one where stock markets might be considered likely to continue to perform well.

In Tocqueville's *Democracy in America*, he outlined how the US might get into trouble due to internal political problems. His writings read like the events after the last US

presidential election when there was some civil strife. His narrative seems to fit well with Attali's one about the coming end of the American Empire.

Given the splitting of the world into two different sides, those with the US and NATO and those more aligned with China and Russia, it might be sensible to limit equity investment in the AE scheme into countries that are less likely to result in property rights issues emerging.

Globalization is still occurring in many ways today, but in other ways, de-globalization is also starting and this needs to be considered when deciding which stock markets the AE scheme might invest. It would be imperative that a person with the appropriate psychological acumen made this decision for the AE scheme.

4.6 Risks and Uncertainties

4.6.1 Narrative Risk

The biggest risk with the Alternative AE Proposal is that the overall narrative created for it is either wrong, shallow or distorted. This is equivalent to getting the big picture wrong.[14]:

The method adopted in this assessment was primarily geared towards addressing this particular risk because of the many historical examples of new ideas in finance that resulted in significant problems because the big picture that was used was problematic. The method has aimed to look at the Alternative AE Proposal from first principles and to survey as many experts as possible to get as wide a view as possible of the Alternative AE Proposal so that any potential flaws might be visible. Each human mind is limited in its capacity to fully see the world as it is, but drawing from many human minds, with the right character and motivation, provides the potential to see the world closer to the way it actually is.

One of the main reasons why an overall narrative might be poor is that it is influenced by individuals whose self-interest is different from the self-interest of the likely members of the AE scheme. Therefore it is essential to consider the character of those trying to influence this narrative. At a minimum, any conflicts of interest, no matter how minor, should be fully disclosed.

The big challenge with creating an overall narrative is that in any story, each person naturally sees the story from their own perspective, rather than at the higher level of the narrator of the story. So piecing the many and varying perspectives together is

[14] The important of this risk can be seen from the extract below from the Core Reading of the Enterprise Risk Management subject of the Institute & Faculty of Actuaries *"A lack of appreciation of this "bigger picture" (or perhaps even worse, a belief by the individual that they do have this appreciation when in fact they do not) will likely sabotage any attempts to improve risk efficiency in an organisation."*

tricky but essential and involves standing back and abstracting to get a broader perspective and doing so in an independent manner with personal detachment.

If the Alternative AE Proposal is feasible, the narrative needs to include the psychological acumen necessary to invest well and the superior prudence necessary to consider adequately the interests of others and the public interest more generally, otherwise the scheme would risk being run for the benefit of those running it or for the benefit of other parties rather than being run in the interests of likely AE members.

4.6.1.1 Expected Concern and Criticism

Gustave Le Bon wrote:

> "Civilisation is impossible without traditions, and progress is impossible without the destruction of those traditions. The difficulty, and it is an immense difficulty, is to find a proper equilibrium between stability and variability. Should a people allow its customs to become too firmly rooted, it can no longer change, and becomes…. incapable of improvement." (p40-41)[15].

There are numerous forces in our society that aid stability. It is usually natural that traditions are respected and protected to maintain the human advances made by society. People with fixed mindsets are natural supporters of the status quo and are opponents of, and often fear, change, aiding stability in society. Furthermore, according to Nietzsche, a cohort exists in human society who have a form of ethics that considers its creative act to say "no" to anything outside themselves, anything different from themselves and anything not of themselves.[16]

New ideas take time to digest. If they were obvious to everybody, they would already exist. My experience in carrying out this assessment was that for the first three weeks, I was intensely concerned and critical of the Alternative AE Proposal, being uneasy or unsettled by any novel aspect that seemed initially to lack robustness. It was only after about four weeks that I could get a clearer view of the Alternative AE Proposal in the form of a holistic overall narrative where the benefits and challenges could be structured and I had a framework within which my concerns could exist with a degree of proportionality. I would expect most other people to similarly experience concern and be critical until they spent a considerable period of time to fully digest the Alternative AE Proposal and allow time for their nous to fully understand it. If a person fails to engage their nous, they will not have evolved their big picture understanding in order to fully comprehend it.

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[15] Le Bon, G. (2014). The crowd – study of the popular mind. Aristeus Books. (Original work published 1895)

[16] Nietzsche, F. W. (2003). The genealogy of morals (H. B. Samuel, Trans). Dover. (Original work published 1887)

Concern and criticism can come from other quarters too. Charlie Munger[17] noted how a bias exists to adhere to commitments to which a person has publicly attached themselves and to have a bias to be consistent with historical actions. Charlie highlighted how in the field of physics, the old guard during the time of Max Planck never accepted the new physics in spite of confirming evidence.

Machiavelli noted how with new ideas, there are usually only lukewarm defenders of them and many ardent attackers by those who are doing well under the existing arrangements[18].

In summary, there is a risk of concern or criticism, arising for different reasons acting in a way that disproportionately limits improvements that would otherwise be considered politically prudent and sensible.

4.6.1.2 Moving Forward

Le Bon went on to highlight:

> "The ideal for a people is in consequence to preserve the institutions of the past, merely changing them insensibly and little by little. This ideal is difficult to realize. The Romans in the ancient and the English in modern times [as of 1895] are almost alone in having realized it" (p 41)[19]

He subsequently quoted the English historian, Macaulay, who highlighted that England has only been very slowly changed, part by part, under the influence of immediate necessitates and never by speculative reasoning. Macaulay wrote:

> "To think nothing of symmetry and much of convenience; never to remove an anomaly merely because it is an anomaly; never to innovate except when some grievance is felt; never to innovate except so far as to get rid of the grievance; never to lay down any proposition of wider extent than the particular case for which is it necessary to provide; these are the rules which have, from the age of John to the age of Victoria, generally guided the deliberations of our two hundred and fifty Parliaments" (p 43).[20]

There is a risk that any efforts to move forward with the Alternative AE Proposal, any amendments of it or otherwise, would fail to adhere to this above-established approach considered to provide the greatest likelihood of success.

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[17] In his famous Harvard lecture on the Psychological of Human Mis-judgment

[18] Machiavelli, N. (1979). The portable Machiavelli. Penguin. (Original work published ca. 1480-1527)

[19] Le Bon, G. (2014). The crowd – study of the popular mind. Aristeus Books. (Original work published 1895)

[20] There are exceptions to this in the form of great leaders who give greater vision to the people enabling greater advances, albeit these leaders usual do their working within similar constraints.

4.6.2 Political, Governance and Behavioural Risk

The political and governance risks were the risks most cited among the experts surveyed.

Some thought the risks were too problematic to be run and pointed to examples of historical problems arising. Others were able to share positive examples and precedents where these risks were manageable. Considerable time was spent trying to reconcile the different perspectives shared by these experts.

The negative precedents shared included examples around experiences of unfortunate situations, grievances and opportunism, followed by special pleading either using the media or through politicians, or both, or taking advantage of an imbalance of power, that resulted in the perceived integrity of governance systems being undermined. Other precedents shared were related to with-profits insurance policies and Defined Benefit pension schemes, where lobbying and other factors were considered to produce what were considered unfair outcomes. Broadly speaking there was a concern that external power could be brought to bear impinging on the ability of the Alternative AE Proposal to be well governed.

Furthermore, when the Alternative AE Proposal was discussed at the Thinking Ahead Group in the Institute & Faculty of Actuaries (IFoA), a leading actuary expressed concern that the governance arrangements might be interfered with in the future, undermining its integrity.

The main positive precedent was from the field of risk management, in particular the governance of independent central banks, for example the US Federal Reserve. The US Federal Reserve has a governance that gives power to the Board of Governors to set monetary policy, free from political interference. In recent years, Donald Trump was considered by some to have tried to politically influence the Board to reduce interest rates, but despite the influence of the President of the United States, the Board had the power to maintain its independence and to act accordingly. Similar comments could be made about the European Central Bank.

Some of those surveyed shared other positive precedents in private that relate to situations closer to home, where acts of appropriate character aided the maintenance of governance integrity despite very significant outside political pressure.

The conclusion that I arrived at was that, broadly speaking, there are four factors to consider. Firstly, the governance ought to be constructed so that there is sufficient power given to stand up against any outside influence within a governance structure with appropriate rules. Secondly, there needs to be a human and ethical wherewithal that can apply superior prudence in order to resolve the dilemmas that can arise to arrive at fair and equitable outcomes. Thirdly, astute investment acumen is required to adequately and astutely assess the investment environment. And, fourthly, a person is required who can stand up in public to carry this out, and withstand the likely conflict that would come with that.

The Board of the Federal Reserve might be considered to tick these four boxes. They have rigorous governance and have to balance a dual mandate to keep both inflation and unemployment low (conflicting objectives); they need sound economics and financial acumen and wherewithal to make their decisions; and the Chair needs to hold a press conference to stand over and be accountable for their decisions.

A potential problem and concern would be that it might not be realistic to be able to appoint an appropriate person who can do this for the Alternative AE Proposal approach.

This same challenge arises in the field of public relations and is documented. Edward Bernays, considered the father of public relations, wrote about the ideal public relations person. He wrote that the ideal professional should be a person of:

> "character and integrity, who has acquired a sense of judgment and logic without having lost the ability to think creatively and imaginatively. He should be truthful and discreet; he should be objective, yet possessed with a deep interest in the solution of problems. From his broad cultural background, he should have developed considerable intellectual curiousity; and he should have effective powers of analysis and synthesis along with the rare quality of intuition. And with all these characteristics, he should be trained in the social sciences and in the mechanics of public relations." (p 126)

Somewhat surprisingly, Bernays goes on to say that liking to meet people is useful but not essential and that some of the ablest public relations people he knew were "shy" (introverted as opposed to extroverted). And so he advocated that they deal with this by hiring a "handshaker" or a "front man".[21]

Comparably, the governance challenge with the Alternative AE Proposal can be met by either a person who can tick the last three boxes above, or alternatively by two or three people who between them tick the three boxes and work well together. For example, a person of character for ethical choices, a person with investment acumen for the investment wherewithal and a media spokesperson to deal with public communications and engagement.

This needs to be coupled with legislation and/or governance that gives power to this person(s) and create functional rules for the scheme for it to be able to deal with anti-selection (for example around ill-health retirement). There are precedents of such governance power holding up, for example, with the US Federal Reserve. But also examples going back to the first democracy in Ancient Athens, where it was decided that certain funds would be made available for public theatrical performances to aid public character development, and these safeguards held right up to the downfall of Athens[22].

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[21] Bernays, E. (1952). *Public relations*, Norman

[22] Goldhill, S. (2005). Why classics matter. John Murray.

Further work is required to study positive precedents so that they can be copied (or improved) for the Alternative AE Proposal. It would be also useful to investigate and learn from what went wrong with the negative precedents, whether and to what extent these were from a lack of power to withstand outside influence, a lack of character or ethical wherewithal to resolve the dilemmas, or a lack of investment acumen, or a lack of wherewithal or support to stand up against outside influence. In many cases, too much responsibility was likely placed on the shoulders of one person, or character was not adequately considered in the governance.

The key challenge would be around character. It would be essential to have a person of appropriate character involved to maintain integrity. Aristotle (ca. 380-300 B.C.E./1981) explicitly mentioned this danger, that if citizens are to judge and distribute offices according to merit, then they must know each other's characters; where they do not possess this understanding, the election to offices and decisions of lawsuits will go wrong[23].

Why is this important? Because the person appointed, while having the power to do the right thing and to be a leader, might choose instead to conform, or look after their own narrower self-interest rather than the interest of the scheme, or more problematically, they might behave in an imprudent manner that creates its own problems. A person is needed with a socially responsible character, as opposed to an individually responsible character, a conformist character or the character of a brute[24].

This further work could consider using new methodologies that have been created in the last decade to assess character so that the risk of problematic behaviour is minimized[25].

It is said that all reason is against life, but all vital instincts are for it. Moving forward is ultimately about optimism (coupled with prudent reasoning) rather than pessimism. In Switzerland, it was expressed to me that they decided to implement an individual-defined contribution pension plan in a similar initiative there because they didn't trust the politicians and felt that only individual property rights could be relied on to protect pension savings. In Ireland, we already have a precedent of the State putting a levy (even though it was small) on private pension funds, which is equivalent to breaching these individual property rights. So there is no easy answer by opting for an apparent easy solution. Life is a hill, and the better aspects are higher up. Creating sound governance and a sound constitution for the AE scheme is something that I believe is not just possible, but something that we have the expertise to achieve in Ireland.

An analogy between the Alternative AE Proposal with that of the introduction of the Euro might be useful to make here. In the 1990s, I took a module in UCD that was quite categorical that having a single European currency was not a sensible idea and that it was not feasible because there were so many things that could go wrong.

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[23] Aristotle. (1981). Politics (T. J. Saunders, Trans.). Penguin (Original work published ca. 380-300 B.C.E.)

[24] https://knowyourselftest.com/character/

[25] See references in footnote on page 21.

Ultimately the politicians in Europe decided that the upsides of the Euro were worth managing the risks involved and they were willing to apply leadership. They did so by creating various rules and governance to support the Euro and hiring appropriate people in the ECB. They were also willing to stand behind the Euro during times of turbulence. Ultimately the decision regarding this risk is a political one rather than anything else, but with political will these risks are likely well manageable in my opinion formed from undertaking this assessment.

The other side to the political and governance risk is the behavioural risk of the potential members of the AE scheme.

A significantly positive element of the Alternative AE Proposal is that it prevents members from panicking when the stock market is at the bottom and it tries to remove the behavioural reasons why most people lose money when investing. Most people like to fit in and try to think like other people do, and this makes them naturally likely to lose money when they are investing in the stock market. This can be seen in *Figure 10* that shows why most people usually buy when the stock market is high and usually sell when it is low making the whole experience regressive and likely to mean that they lose money or miss out on the potential to make significant returns from investing in the stock market.

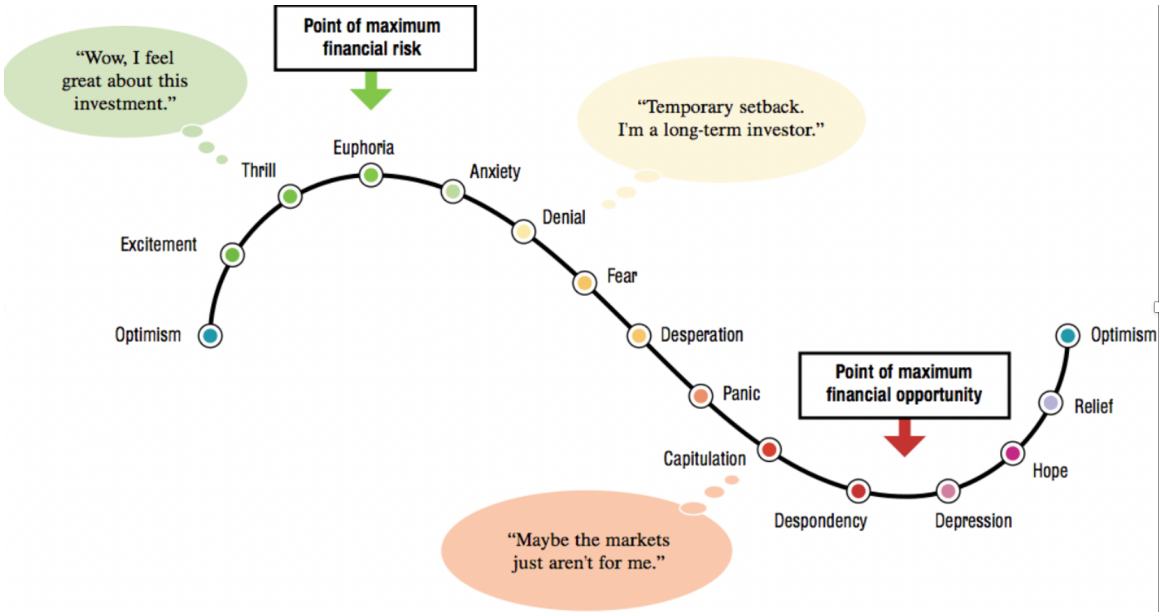

Figure 10 What typically goes wrong for ordinary investors

I am concerned about the prospect of Ireland adopting the UK model that gives members of the scheme a choice to move from a default fund to a cautious fund. While most people opt for and stick with default funds, many members would naturally be driven toward choosing to switch to cautious funds at the worst possible time. I would be most concerned that such switching could be encouraged by influencers. And if members switch into the cautious fund, they may neglect to move their fund back into the default fund at a later stage in which case they can destroy their future investment return potential and will likely end up with a substantially lower pension pot.

In order to manage behavioural risk, it is important that the expectations of members are well managed so as not to create unnecessary complaints and/or stimulus for politicians or others to try to interfere in the first place. This is particularly the case around the risk sharing within the scheme. This is a key challenge for the governance. Just as those paying insurance premiums don't expect their premiums to be returned if they don't make a claim, members cannot expect to have it both ways too.

It would be important that the governance of the scheme can handle the likely political pressure that would arise from members wanting to move into safer assets during times of turbulence, both from a position of having adequate governance and a suitable person in the position of responsibility. There would be a significant challenge to create governance for the Alternative AE Proposal, for example to protect it from any anti-selection from members and to minimize any moral hazard.

Political risk arising from unfortunate individual cases and politicians or media personalities advocating for exceptions is something that would need significant consideration. It is important that the rules of humanity are never set aside, and that the rules are enforced along with proportionality being maintained.

The significant upside of the Alternative AE Proposal is that the State can transfer the behavioural risk from the public who are typically not suited to manage it, to somebody chosen for their ability to manage it. This would be considered prudent risk management.

Paternalism has historically been considered key to providing sound pensions in retirement and this is often an element of the system used in many countries in the EU. This topic is discussed further in section 5.3.

4.6.3 Risk of Scheme Becoming Unattractive and Contributions Stopping

In the Alternative AE Proposal, the author of the Proposal states that there is a risk of scheme becoming unattractive and contributions stopping when the market value (MV) is substantially less than the smoothed value (SV).

This risk can be fully mitigated by changing the smoothing approach. Instead of smoothing at the overall scheme level, smoothing of the future returns of individual calendar year contributions could be carried out[26]. This would mean that each new contribution would buy into the scheme at the market value and would achieve smoothed returns thereafter, so the problem of MV being less and SV no longer exists, and the scheme would remain attractive for members to continue to contribute.

This would make the calculations for the valuation of each member's pension pot more complicated, but it would be in a way that a college student would easily be able to

[26] In actuarial terminology, this would be called creating a new bonus series each calendar year.

carry out the calculations, and where an App could be created to allow the public to carry out the calculation and valuations themselves (if they wanted to).

This approach is arguably fairer and arguably removes what might be considered a second-order Ponzi nature in the Alternative AE Proposal. The second-order Ponzi nature is that those who contribute and join early in the Alternative AE Proposal would likely get better smoothing of returns than those who might join at a later stage.

More positively, smoothing by contribution makes it more attractive for members to continue to contribute during times of market turmoil when market values are lower and expected future returns are higher. Stanley Druckenmiller, a famous investor, pointed out that “When a dress is on sale you want to buy but people's behaviour it's the opposite in the stock market; you want to buy higher and sell lower. You need to fight that emotion." Members would need to be reminded of this during market turmoil.

4.6.4 Investment Risk

It is important to be clear that the investment risk in the Alternative AE Proposal is largely borne by the members and not by the State. Risk management is required for the difference between the MV and the SV when the MV is less than the smoothed value.

The investment risk might be split in two, into the longer-term strategic investment risk from being 100% invested in equities, and the shorter or medium-term risks from investing in equities.

It would be necessary to monitor on an on-going basis the continued appropriateness of the strategic investment decision to be 100% invested in equities. This would be negated if the historical conditions upon which this was founded were found to have changed or were likely to change. For example, if there was a significant change from operating in a capitalist society to operating within a communist society, where the entrepreneur would not likely be rewarded in the same way.

On a medium and short-term horizon, the fact that QE has been used to inflate asset prices, over the last decade or so, needs to be borne in mind. Arguably stock market prices today depend more on central bank liquidity than they do on fundamental value. For example, negative economic data often causes the stock market to go up these days because market participants know that it might make it more likely that there will be more QE, and this will drive up stock prices.

Because of the impact of QE, I have mostly ignored the very strong stock market performance over the last 15 or so years in this assessment. Any reversal of the inflation of asset prices caused by QE, while it would mean falling stock market values in the short-term, might be considered to the positive in the longer-term because it could bring stock market valuations back closer into alignment with underlying fundamental valuation norms. In this case, future contributions would likely have the prospect of achieving higher returns.

It is also important to bear in mind that investing in the stock market as a method to achieve returns that might likely match any increases in wages, salaries and the cost of living has a fundamental risk. National Income in a country is considered by economists to be made up of rent, wages and salaries, interest and profits, and it is considered to arise from the four factors of production, land, labour, capital and enterprise. Investing in the stock market is investing in enterprise in order to match the performance of labour.

Over the last decade or so, we have seen profits in the US rise a percentage of national income, as the private sector has become more powerful, so enterprise has outperformed labour. This is positive for pension funds. If the opposite happened, it would be negative.

A sensible approach would be to monitor these percentages over time to get an independent assessment of any likely significant over or under-valuation in the stock market.

The AE scheme could also be open to investing in other asset classes that are shown to have the same investment return capacity as equities. For example, recent research showed that forestry investment not only has produced higher returns and lower risk than equities in the US, but it is also likely a better match for salary inflation (Fitzgerald, 2021)[27].

The impact of climate change on future investments is unknown and would need to be monitored. Assets like forestry investments might also be more appropriate in such circumstances. Public narratives on such topics are often quite poor in hindsight and the scheme needs be insulated from potential fad ideas and political hobby horses of politicians. For example, diesel cars were once considered much better for the environment and car tax was reduced for them. In hindsight, this looks ill-judged.

4.6.5 Funding Level Risk and the Risk to the State Finances

The risk management of the Alternative AE Proposal regarding the funding level of the scheme (MV/SV) is questionable in places, but mitigation measures are available that might be considered prudent given the upside potential. This is discussed elsewhere in the report in section 4.4.1.

When considering the risk to the State finances, it is important to see the big picture. The State has significant un-funded pension obligations, and these are significantly bigger than any risk from the AE scheme, so overall proportionality is important.

[27] Fitzgerald, C. (2021). The forestry investment total return index. The Journal of Alternative Investments, 23(4), 131–150. https://doi.org/10.3905/jai.2021.1.125

One of the risk management options for managing the Alternative AE Proposal would be for the State to stand behind it (not to stand behind the investment returns but just to stand strongly behind the scheme). This is discussed further elsewhere in the report.

Where the State to consider this, it would be important to differentiate it from when the State decided to stand behind the banks during the financial crisis. At the time, Irish banks were significantly insolvent and while some needed to be saved, some of them needed to go bust[28].

We could not afford to save all of the banks, but even if we could it would not have been a smart move. Financial markets reward countries that behave in prudent and astute ways and they punish those who behave imprudently, just as any person is more likely to lend money to somebody who is sensible and very much less likely to lend to somebody who behaves foolishly. In my viewpoint, if the State stood behind the Alternative AE Scheme it would be signalling to the financial markets that it is smart and proactive about the long-term sustainability of the State's finances and consequently, all things being equal, I think it would likely improve the State's credit rating, meaning that the State could borrow at lower interest rates.

As discussed in section 4.4.1 another significant aspect of the State's finances in the longer term is the extent to which the population is either rising or falling. As discussed, there are likely factors that might mean there is significant immigration into Ireland in the coming decades. But it is important that the State is run prudently so that it is a place where our younger people want to stay and contribute to the country rather than to emigrate. The Alternative AE Proposal would be the State offering a better AE scheme than other countries and would likely, at least marginally, improve the attractiveness of Ireland as a place to live from a financial perspective.

The other aspect of the Alternative AE Proposal is that it would likely produce much higher pensions. These would be taxable and the taxes raised would likely materially help the State's future finances at a time when they are expected to be problematic due to an aging population.

In summary, the Alternative Proposal is likely better for State finances in the long-term than the current AE proposal.

4.6.7 Social Protection Risk

This theme of social protection is paramount in this assessment.

It is essential to understand that social protection in a country is primarily about protecting a more enlightened self-interest than it is about being benevolent towards those who are less well-off. Every human being needs to feel at least ok about themselves, and if they experience significant problems and setbacks in life and have

[28] For further background https://www.askaboutmoney.com/threads/colm-fitzgerald-money-and-the-housing-bubble.157558/

nothing to support them, this generally brutalises the person. When this happens, and a person cannot see a constructive way forward with their life, they still need to feel ok, and will usually try to feel ok in a destructive way. This makes a person not just a problem for themselves, but also usually a problem for others. Social protection is a recognition that misfortune and other regressive events can happen to any of us so it is good to have a social safety net to help prevent a person from falling into a very poor state of affairs. Some argue that this is a law of humanity.

This is not just about benevolence, it is about self-interest. It is less expensive to provide social protection than it is to deal with the consequences of social protection not being provided, for example, increased crime and other destructive behaviour.

Furthermore, social protection is also very important when the State overall faces a significant challenge, for example during the economic crisis in 2008/9. When such crises hit, those in power are usually able to protect themselves, and they usually protect others who are loyal to them, which means that most of the weight of the correction from the crisis falls on everybody else. Without social protection measures this is likely to create significant inequality which is toxic for our society.

Why is it toxic? You just have to look at the UK and the US to see why.

One of the primary benefits of the Alternative AE Proposal is that it would likely add an extra layer of social protection to Ireland's social protection infrastructure and it would help make sure that any adjustments that are necessary from future crises will fall less of those who will likely be hardest hit. This might be considered a social protection stability mechanism. This is very important for Ireland because it would reduce the risk of Ireland voting for policies that are ultimately against its interest due to the State having failed to provide social protection and a sizable cohort consequently voting for something which they distorted see as positive but which is, in-fact, regressive for the State.

The Alternative AE Proposal effectively opens up the best pension investment strategies to those who would otherwise be excluded from them. If a person has only modest savings and assets, they cannot afford to take the risk of investing in the stock market. While these investments may be good in the long-term, they are ultimately volatile and if investment happens at the wrong time they can cause significant losses. The Alternative AE Proposal is likely to level the playing field between those on modest salaries and those who are very rich in terms of what they can prudently consider as investments. Should the State decide to introduce the Alternative AE Proposal, the public might be grateful to the State for being courageous and publicly spirited enough to do so, but also to the author of the Alternative AE Proposal for his efforts to get it introduced.

Taking the analogy of drinking water. Right now, the rich and the strong can access the best drinking water, while others cannot. The Alternative AE Proposal is analogous to helping everyone have access to the best drinking water.

When looking at what has happened in the UK. After about 10 years of their AE scheme being up and running, the average savings of members is only about one month's cost of living. This is likely because many people have opted out and many small pensions pots may likely be forgotten by their owner, for example, because they are forced to emigrate.

There are other issues with the UK model and these are discussed in other sections.

In summary, the Alternative AE Proposal is likely to improve social protection whilst arguably implementing a lifestyling approach may be socially destructive because it would create a two-tier pension system, with those less well-off being effectively excluded from the best pensions investment strategies.

Some might argue, but hey, aren't we providing pensions where there were no pensions before, so that's good. To me this stinks of the socially regressive influence of Ayn Rand, that some people count and some people don't. If we go down that route, the social protection infrastructure in Ireland is likely to regress significantly and we will all indirectly pay the price for that.

4.6.8 Inflation Risk

In Ireland, we have been lucky for the last 30 or so years that inflation has been very low and not at all problematic. But as most people notice in the shops, that has changed quickly, and most people notice in their pockets the financial damage that inflation causes.

Inflation risk is largely covered in the Alternative AE Proposal because over long periods stock market investments generally keep pace with inflation (albeit they have little or no correlation over shorter periods).

The opposite is the case with the UK model. Firstly, there is an increased reliance on bonds which perform poorly during times of inflation, and secondly, where there is an option for members to have an Approved Retirement Fund (ARF) type of approach to drawing down their pension funds. I'm quite alarmed to have seen that. ARFs have been very positive over the last decade or so when both bonds and equity markets were performing well. But, in my opinion, they are a completely imprudent option for an ordinary person because they do not provide inflation and longevity protection. What the UK has done here reminds me of the US banks that went bust earlier this year because they failed to perform the most basic of risk management. The most basic risk management in pensions is that a pension will last a person's lifetime and that it will keep pace with inflation. Otherwise, it risks sending a pensioner into poverty in late old age, which would be awful, and would mean the State would need to intervene.

I am concerned that the UK model might result in a complaints scandal if when members are drawing down their pension, there is a fall in the stock market and a fall in the bond market at the same time as a rise in inflation (a relatively likely scenario).

In such a case, many people's pension pots would run out before they die, and the State would likely have to step in to help them.

I would urge significant caution regarding following the UK on the path it has taken regarding AE.

4.6.9 Expense Risk

I was somewhat concerned about the lack of transparency on fees that was available to me. There was not sufficient time to fully investigate fees for post-retirement. From the work I could do there, I would be even more concerned about those fees.

From that perspective, the single-fund approach of the Alternative AE Proposal has the benefit of simplicity and a lack of choice. Choice means extra complexity and extra costs and consequently lower returns. Also keeping pension pots within the one fund for the duration of a person's lifetime has advantages in keeping costs down.

To put numbers of it. The 0.5% that is assumed for the charges paid by AE members results in the Alternative AE Proposal producing a 16% lower pension than would have been the case if there were no charges. An extra 0.1% in charges would further lower the pensions by another 3.5%. Pension fund charge can seem small, but they have a significant compound impact on the size of the pensions paid.

At present there is a proposal to have four different fund providers. This would only make sense if it was felt that the competition created would result in a 75% reduction in the fees that would normally be applied. This is very unlikely in my opinion and I would suggest that having one fund provider would be optimal. There appears to be a case to be made here that what is called a natural monopoly exists, so one provider would be optimal.

If efficiency was a goal to keep expenses low and to ensure there are appropriate incentives for those involved, it might be useful to consider precedents for managing assets that have already been set up by the State, for example, in the National Treasury Management Agency,

4.6.10 IT Risk

Any new AE scheme will need new IT.

Ideally this is created from scratch rather than as an add-on to any legacy system. Most financial organizations incur significant costs in managing their legacy systems and I would consider it essential that the AE scheme does not get caught up in that.

The IT system would likely be put out to tender. However, if the State only look for "full providers" there are a limited number of firms who would likely tender and the competition between them might not have a significant downward reduction in the cost

to the State. However, if the tendering was opened more widely and there was a will to create a system from a combination of smaller providers, this could potentially reduce the overall cost to the State in a material way.

4.6.11 Modelling Risk

The Alternative AE Proposal does not include modelling of population risk.

If population were to decline and if this was accompanied by a fall in asset values over the same period, then the smoothing formula becomes problematic and can result in it going into a 'death spiral'.

This is somewhat of a chicken and egg problem because proper economic management of the country would reduce the risk of population decline and likely result in a population increase. So, if enacting the Alternative AE Proposal is the more prudent option, this will likely reduce the probability of a population decline, all else being equal.

Inflation risk and in particular the risks from hyperinflation also need to be considered in any further work, along with assessing population risk, to optimize the risk management approach.

4.6.12 Investment Psychology Risk

The tone of the Alternative AE Proposal would be of significant concern because it goes against accepted wisdom in investment psychology.

It is generally accepted by the great investors in history that there is a necessity to have a proportionate degree of humility. This is not humility that is demeaning, but rather one that is open to learning more, because investing is an activity where constant learning is essential.

The media and movies often portray this situation differently, with uber-self-confident people, with big egos, being the stereotypical norm. This is not always the case, for example, the film Margin Call is widely regarded as giving a more accurate perspective on real-life investing and traders.

Another specific issue would be regarding the mentality expressed in several places in the Alternative AE Proposal, that would come across as what psychologist Eric Berne would call a "loser" mentality. According to Berne, "winners" know what they will do if they lose and they don't talk about what they will do if they win, as distinct from "losers who talk about what they do if they win and don't know what they'll do if they lose" (Berne, 1975)[29].

[29] Berne, E. (1975). *What do you say after you say hello?* Corgi.

Another analogy in investment psychology is also relevant, the distinction between a "professional" investor and an "amateur" investor. Amateur investors are considered to see investments that look good and when they consider positive potential to exist, they invest. In contrast, a professional investor would focus more on feeling the upside but would not act on it until they have fully considered the downside risk.

As mentioned, I would have significant concerns regarding the above points in the Alterative AE proposal. A significant change of tone would be a prerequisite for prudence and would be a major part of the corrections needed in the Alternative AE Proposal.

4.6.12 Housing Risk

It is important for the State to step back and get a bigger picture of the forecasted problem of poor pension coverage in the future. It is essential that the State has a coordinated approach to dealing with this.

Inadequate housing is arguably the main cause of poverty in old age and a reason why the State would likely have to step in, and an extra cost would arise for the State.

I recently came across a 69-year-old living in Dublin who while he is drawing a pension from the State of less than €200 a week, needs to continue to work in order to be able to afford to live there. He grew up in the area and is attached to it. He emigrated when he was younger but returned to Ireland, and because he has low PRSI contributions, he has a low State pension. He told me he would need to move to Donegal if he stopped working. It struck me that even if he had a substantially higher pension, he is still in a problematic situation because he does not own his home.

The housing issue in Ireland appears to be more important to address than the pensions issue, because it is likely to undermine any attempt to directly address the pensions issue.

Lower home ownership exacerbates the projected problems with State finances. This problem has been highlighted many times in recent years[30][31][32][33]. Homeownership

[30] https://www.irishtimes.com/business/2023/07/20/ireland-has-one-of-lowest-rates-of-home-ownership-for-under-40s-esri-says/
[31] https://www.cso.ie/en/releasesandpublications/ep/p-cpp2/censusofpopulation2022profile2-housinginireland/homeownershipandrent/
[32] https://www.breakingnews.ie/ireland/taoiseach-alarmed-by-low-home-ownership-rates-in-ireland-1433572.html
[33] https://www.pensionscouncil.ie/en/council-opinions/2023/pensions-council-observations-arising-from-the-esri-report-future-trends-in-housing-tenure-and-the-adequacy-of-retirement-income/pensions-council-observations-arising-from-the-esri-report.pdf

rates have been falling since the 1990s[34]. What this means is that the example above of the 69-year-old is likely to become much more common in the future.

This begs the question, how will the Alternative AE Proposal likely impact home ownership and would it be better or worse than a lifestyling approach?

Table 4 – Expected value of 10 years of contributions under lifestyling, the Alternative AE Proposal and from saving for a deposit for a home

Age	Lifestyling	Alterative	Home
25	41,911.37	69,519.02	80,099.66
35	30,347.82	44,872.45	59,601.67
45	21,974.71	28,963.83	44,349.24

A comparison of the expected value of 10 years of future contributions invested for a person earning €20,000 per annum using the lifestyling approach and the Alternative AE approach are shown in *Table 4*, together with the expected value of saving these contributions to buy a home (and missing out on the contributions from an employer and the extra contribution from the State). The expected value from home ownership assumes the contributions are saved and used as a 10% deposit to buy a home. It assumes that rent and the cost of the mortgage will be similar and that house prices will rise by about 3% per annum in real terms (arguably a conservative assumption, some might assume a higher figure). The expected value ignores the benefit of being able to live rent-free in retirement and this makes the estimate even more conservative.

Home ownership is a leveraged property investment and likely to be much more financially beneficial for individuals and implicitly for the State.

An obvious conclusion is that young people who are saving for a home could be exempt from AE. That said, if historical equity returns were used in the estimates in *Table 4*, the outcome from the Alternative AE Proposal might be more comparable with owning a home, but that would be comparing the two under different bases.

The importance of home ownership cannot be underestimated. For example, they provide a more financially secure home for children to grow up. Often couples postpone having children until they can buy their home.

The State might like to consider that pension fund monies saved within an AE scheme could be used as collateral (a deposit) to buy a home. However, this is probably only a good idea when house prices are reasonably priced by historical standards, for example when house prices are about 4-5 times average earnings or less. Otherwise, the pension fund monies would just force up house prices for everybody and everybody loses. So, a sensible policy might be to allow members of the AE scheme to use their funds as collateral (a deposit) to buy a home when house prices are low

[34] https://assets.gov.ie/6348/140219142846-5a166a1ec85f4237935fb5c21dd666cb.pdf

relative to average earnings, for example when they are less than 5 times average earnings. While this would likely be sensible for individuals, it would also likely help reduce volatility in house prices during recessions.

4.6.13 Legal Risk

I am not a legal expert and the assessment of the legal risk from the Alternative AE Proposal is consequently limited.

At present, members of occupational pension funds are entitled to transfer values to move their funds to another pension fund. This would not be possible with the Alternative AE Proposal because it would introduce selection risk that could undermine the scheme. However, the Alternative AE Proposal is designed to be a relatively excellent pension scheme compared to others that are available and it would likely be imprudent for any member to want to switch out of it into another scheme. To my understanding AE will not be an occupational pension scheme so it would not require transfer values to be offered to members.

The governance of AE needs to be clear about the property rights arising. If this was not clear and robust, it might be open to legal challenge, for example, when market values were higher than smoothed values.

4.6.14 Complaints Risk

As mentioned already, I would be quite concerned that the UK model, if it was adopted here, might create a complaints risk from any misconceptions or otherwise arising from it. This is because it might not provide a pension as is traditionally understood by the public and because it enables some retirement options that don't adequately manage longevity and inflation risk. For example, if a pensioner from the scheme had their investments in equities and bonds (instead of an inflation-linked annuity) and if significant inflation arose, the value of the investments might fall significantly in the short-term and coupled with withdrawals from the pension pot, the pensioner could run out of money.

I would consider it essential that inflation and longevity protection be fully provided in the AE scheme to avoid pensioners running out of money, and/or their pensions being eaten away by inflation and/or any litigation arising against the State.

Like any financial product, if it is not managed prudently, or if there is negligence, there is a risk of litigation, so the Alternative AE Proposal would need to have particular emphasis on its governance and its constitution, for example, how fairness is defined and other issues around any risk sharing. A chain is only as strong as its weakest link. For this to be achieved, it would be necessary that those involved would be motivated in the right way and any conflicts of interest or misalignments of interest be recognized and mitigated. As mentioned earlier, it might be worth considering managing the AE scheme through the NTMA to better ensure that the interests of those involved are best aligned with the interests of the State and the likely members of the AE scheme.

In my opinion, many OECD AE schemes might currently face this risk when there are significant numbers of members retired and there is a price inflation shock.

4.7 Analysis – Assessment of Key Assertions Made

If the Alternative AE Proposal paper was presented to an academic journal for publication, I consider that the likely result would be a decision to "accept but with corrections". This is quite a standard result, even for very good papers. Every author is human (myself included) and their work can usually include some poorly worded sentences and have other aspects that can likely be improved in other ways.

An overview of the corrections needed regarding assertions made is as follows:

- The tone of some assertions is reaching or excessively optimistic.
- The returns in Table 1 are presented poorly and this is confusing in places.
- Some of the data (Table 2) isn't verifiable (the original data was lost).
- Several assertions would fail the 'proportionate degree of humility' criteria in investment psychology, others would be worrying in their over-confidence.
- Japan has a very unusual economic history so arguably it is not a representative equity market. Japan's economic history is characterized by periods of growth but mostly by long periods, often very long periods, where they stay the same. Over several hundred years during the last millennium, Japan had an average economic growth rate of approximately 0%. Japan is often characterized as having several "lost decades" recently, but from a longer-term perspective, this might instead look like a reversion to a historic norm.
- The assertion regarding the Buffer Account is not considered sufficiently robust. This is discussed at length elsewhere in this report along with the risk mitigation approaches that could be used in place of it. Not one of the 30 experts who were surveyed was willing to stand behind it technically.
- In summary, much of the corrections required involve a change in tone and could be remediated.
- The Buffer Account is the main technical issue.

An assessment of individual assertions is made in Appendix B.

5. Discussion

5.1 Analogy with the Euro

The decision whether or not to go ahead with the Alternative AE Proposal is analogous to the decision to go ahead with the Euro, the European Single Currency. That said it is likely a simpler decision because it does not require support from any other country in the EU, although it might also be an approach that they might consider useful in their countries. It is also likely less risky because the State would have direct control over the AE scheme, unlike with the Euro, where issues can arise from within countries other than the State.

Like with the Euro, there is likely considerable upside to the Alternative AE Proposal. It is likely a win-win-win for the State. It would likely result in greater tax revenue in the future when the State's finances are forecast to be problematic. It would likely result in pensions that are more than double on average compared to the current AE proposal. And, because it is more financially attractive, it might result in much more people staying enrolled, increasing pension coverage, which is the goal of the State.

Again like with the Euro, the risks need to be managed, sound governance is required, and it would need to be stood behind during times of turbulence in financial markets until storms blew over.

Many economic theories suggest that the Euro is fundamentally flawed. In contrast, the smoothing formula in the Alternative AE Proposal results in the smoothed value converging with the market value over time. It has a fundamentally supportive foundation. That said, there are risks around it too.

While the risk management methodology in the Alternative AE Proposal was found not to be sufficiently robust, several prudent approaches to managing the risk were found. It is recommended that these be further investigated to determine the optimum approach.

Opportunities like the Euro and this Alternative AE Proposal don't come around every day and it is recommended that the State adopt a simplified version of the Alternative AE Proposal which is outlined later in this report, that includes a prudent risk management overlay.

5.2 Aesop's Fable – The North Wind and the Sun

> *"The North Wind (Boreas) and the Sun had a contest of strength. They decided to allot the palm of victory to whichever of them could strip the clothes off a traveller.*
>
> *The North Wind tried first. He blew violently. As the man clung on to his clothes, the North Wind attacked him with greater force. But the man,*

uncomfortable from the cold, put on more clothes. So, disheartened, the North Wind left him to the Sun.

The Sun now shone moderately and the man removed his extra cloak. Then the Sun darted beams which were more scorching until the man, not being able to withstand the heat, took off his clothes and went to take a dip in a nearby river."

[This fable shows that persuasion is often more effective than violence].
(Aesop, ca. 620-564 B.C.E./1998[35])

Other OECD countries have implemented AE schemes but with limited or poor outcomes. Auto-enrolling somebody into a pension scheme whether they want to or not might be considered a brutal or violent approach.

Were the State to implement the Alternative AE Proposal, they would effectively be offering those on low incomes the same type of pension investment approaches as those open to wealthier individuals. On the basis of Aesop's Fable, this seems like a much more sensible and civilised approach, one based on persuasion.

The State could go further and change the AE scheme into a Choice-Enrolment scheme but one where the choice available to those on low incomes was very persuasive. In my opinion this would be the wiser approach and would avoid the problems inherent in, for example, the UK approach, where those who didn't want to enrol, and who subsequently un-enrol, are left with money having been taken from them that they might lose access to in the future. It is important for the State to learn the lessons from what has gone wrong in other OECD countries. Many of the small pension pots extracted from workers might be lost for various reasons (for example if they emigrate) and it might be asked if this was a form of theft. Somebody who voluntarily joins a pension scheme is more likely to keep in touch with it, feel a sense of ownership and not lose their benefits. This likely encourages greater personal responsibility too.

That said, from discussion with the experts surveyed, views were expressed that most of the better employers automatically provide pension schemes for their employees so some form of automatic enrolment has advantages. It is suggested that further thought be put into this to avoid the use of brutal measures, or at least to keep them to a minimum. Leadership is about giving people a choice and it creates a more civilised and progressive response than authoritarian compulsion.

Forcing people into pension schemes that they don't want to join, and have them lose money as a way to get out of them, is likely to damage the reputation of pension savings in our culture and harm our society in the longer term.

A further point here is that Ireland currently has the most progressive tax system in the EU. An AE scheme was considered by one tax expert surveyed to effectively increase the tax wedge for those on lower incomes in Ireland damaging Ireland's progressive

[35] Aesop. (1998). The complete fables (O. Temple & R. Temple, Trans.). Penguin (Original work published ca. 620-564 B.C.E.)

tax system and arguably an element of its competitive economic advantage[36]. Changing this to a Choice-Enrolment has advantages from that perspective too.

A strength of the Alternative AE Proposal is that it opens up the potential to consider a Choice-Enrolment pension scheme in contrast to an Auto-Enrolment pension scheme or some combination of the two.

5.3 Paternalism

It might strike many people as bizarre that the main reason for the advent of Defined Benefit pension schemes in the UK was because of paternalism. We now live in a more individualistic society than existed back then in the UK.

However, paternalism with pension schemes makes significant sense from a social protection perspective.

A parent might naturally want their children to grow up strong and healthy and to one day become independent so they can look after themselves. On that journey, the children are likely to experience ups and downs, but when children know they have a healthy safety net with their parents, they are much less likely to get overwhelmed by fear or panic and they are less likely to lose courage and confidence, and less likely to actually fall back on their parents. Consequently they would be more likely to grow into independent adults. From the parents perspective, providing that safety net is important but it is also important for the children to have an incentive to leave home and find a better life for themselves.

In a similar way with the AE scheme, the Alternative AE Proposal could ideally only be offered to those on lower or middle incomes, and those on higher incomes could be looking after themselves since they would likely be strong enough to do so.

It is worth pointing out that the proposed employer AE contribution rates are lower and the State contribution is lower than what those in well-paying jobs usually get. So there is an incentive for members to leave the scheme, to fly the nest if you will.

It would be important to debate the maximum income threshold in which an AE member could join the scheme. The aim is to primarily help those on lower and below-average incomes.

We live in a society that is becoming more individualistic each year. It would have been bizarre to see someone walking around staring at their phone in their own world only 5 or 6 years ago. Now it is a norm. The Alternative AE Proposal is an approach that has the potential to bring back some in-it-togetherness in Ireland. This is much needed in my opinion and would be good for our society.

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[36] http://www.publicpolicyarchive.ie/ireland-has-the-most-progressive-income-tax-system-in-the-eu-2/

5.4 Equality, Inclusion and Social Protection

As discussed in several earlier sections, the current AE proposal is considered likely to increase inequality, while the Alternative AE Proposal is likely to contribute to reducing inequality, fostering inclusion in our society and resulting in greater social protection.

A recent study by Pobal showed that the number of people living in areas classed as very or extremely disadvantaged has increased from 143,506 individuals to 195,992 since 2006[37]. This might be of significant concern to any prudent citizen of Ireland.

The fundamental importance of these issues needs to be stressed because they are foundational to our society given that we live in a democracy.

Tocqueville succinctly highlighted their importance[38]:

> "*The idea of rights in the United States*
>
> After the general idea of virtue, I know no higher principle than that of right; or rather these two ideas are united as one. The idea of right is simply that of virtue introduced into the political world. It was the idea of right that enabled men to define anarchy and tyranny, and that taught them how to be independent without arrogance and to obey without servility…
>
> I am persuaded that the only means which we possess at the present time of inculcating the idea of right and of rendering it, as it were palpable to the senses is to endow all with the peaceful exercise of certain rights; this is very clearly seen in children, who are men without the strength and the experience of manhood. When a child begins to move in the midst of the objects that surround him, he is instinctively led to appropriate to himself everything that he lays his hands upon; he has no notion of the property of others; but as he gradually learns the value of things and begins to perceive that he may in his turn be despoiled, he becomes circumspect, and he ends by respecting those rights in others which he wishes to have respected in himself. The principle which the child derives from the possession of his toys is taught to the man by the objects which he may call his own. In America [in the 1830s], the most democratic of nations, those complaints against property in general, which are so frequent in Europe [in the 1830s], are never heard, because in America there are no paupers. As everyone has property of his own to defend, everyone recognises the principle upon which he holds it.

[37] https://www.pobal.ie/pobal-hp-deprivation-index/

[38] Tocqueville, A. (1998). Democracy in America. Wordsworth Classics. (Original work published 1835 & 1840)

> The same thing occurs in the political world. In America, the lowest classes have conceived a very high notion of political rights, because they exercise those rights; and they refrain from attacking the rights of others in order that their own might not be violated. While in Europe the same classes sometimes resist even the supreme power, the American submits without a murmur to the authority of the pettiest magistrate. (p 93-94)

It is imperative that every person in Ireland feels like they have some private stake in the well-being of our State. When a child has no toys or a person has no significant private possessions, they do not naturally learn to respect the toys or possessions of others. In a similar way, if people are excluded from investing like others (or for example, excluded from having the potential to buy a home), it causes social problems to arise. The virtue of the laws of our land can be doubted by those excluded. This is fundamentally damaging to our society and it costs less to prevent this arising than it does to deal with the consequences. The Alternative AE Proposal directly gives those on lower incomes greater investments in the stock market (analogously, more possessions like those of richer people that are their own), upon which a person naturally learns to respect more the rights given to individuals by law in our State.

Social protection is enlightened self-interest. As Pericles put it, “My own opinion is that when the whole state is on the right course it is a better thing for each separate individual than when private interests are satisfied but the state as a whole is going downhill” (Thucydides, ca. 432-400 B.C.E./1972, p. 158)[39].

To anybody who might consider arguing against this point, the words of Tocqueville might be useful for them to consider[40]:

> I think that democratic communities have a natural taste for freedom; left to themselves, they will seek it, cherish it and view any privation of it with regret. But for equality their passion is ardent, insatiable, incessant, invincible; they call for equality in freedom; and if they cannot obtain that, they still call for equality in slavery. They will endure poverty, servitude, barbarism, but they will not endure aristocracy.
>
> This is true at all times, and especially in our own day. All men and all powers seeking to cope with this irresistible passion will be overthrown and destroyed by it. In our age freedom cannot be established without it, and despotism itself cannot reign without its support. (p 204)

[39] Thucydides. (1972). History of the Peloponnesian war (R. Warner, Trans.). Penguin. (Original work published ca. 432-400 B.C.E.)
[40] Tocqueville, A. (1998). Democracy in America. Wordsworth Classics. (Original work published 1835 & 1840)

5.5 The Life of Crowds and the Importance of Ideals

In his famous book "The Crowd", Gustave Le Bon[41] discusses the life of crowds and suggests that they begin to become more than just a crowd when an ideal emerges. When others buy into this ideal, a movement is formed. Le Bon suggests that such movements naturally grow into businesses as they become larger. He then highlights how when the original virtue upon which helped grow the original ideal begins to decline, the businesses decline.

Recently the Competition and Consumer Protection Commission Survey[42] showed a fall from 85% to 76% of those 45 to 54 years of age with a pension plan in place in just the last year. This would suggest that the Pensions Industry could do with a new ideal to give it a new lease of life.

This survey also pointed out an alarming point that many are using cash investments as forms of pension savings. Thereby they lose the opportunity that is available from compounding returns. To give an example. If a 25-year-old saved €1000 a year in their pension for the next 40 years until they were 65, this €40,000 would be estimated to accumulate to about €210,000 if it was invested in the stock market. That would be over 5 times higher in value than if the money was kept in cash.

The instincts of the public to use cash investment to me supports one of the main points of this assessment, that is it is not prudent to pass the enormous investment risks that arise from pension funds fully onto the shoulders of the ordinary person in the street. Most people find pensions to be an incredibly boring subject and have little or no instinct to deeply consider the technical investment aspects of pensions. It is more sensible for the State to take this burden from them, just as the State provides dentistry services rather than requiring people to manage their dental health without the help of a competent dentist.

The novel approach of the Alternative AE Proposal, if implemented, could in my view potentially create a new pensions movement. Furthermore, other countries might adopt the "Irish pensions model" and Ireland would likely be showing strong international leadership on an issue that is also impacting most other developed countries.

From the State's perspective that they want to improve pension coverage, in my opinion, the key to doing this is to create a new pension movement and the ideal at the heart of the Alternative AE Proposal has that potential. I also believe that this is potentially a once-in-a-generation or a once in a multi-generational opportunity for the State.

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[41] Le Bon, G. (2014). *The crowd – study of the popular mind*. Aristeus Books. (Original work published 1895)

[42] https://www.ccpc.ie/business/wp-content/uploads/sites/3/2023/09/2023.09.23-Pension-research-2023.pdf

5.6 A Simplified Version of the Alternative AE Proposal

A simplified version of the Alternative AE Proposal is set out below that, once the governance of the scheme was established, would be prudent for the State to launch immediately and that would be better than the current AE proposal. It contains the three elements that are essential for the AE scheme to provide genuine social protection – it has 100% equity investment (or equivalent), smoothing of returns and risk sharing.

After the optimum risk management approach was determined, the State could decide on the final operation of the scheme, within fixed boundaries communicated to the public in advance.

5.6.1 The Simplified Smoothing Formula

Initially, each monthly contribution by an AE scheme member would be invested directly in equities and the accumulated amount of these contributions at the end of a calendar year would have their future returns provisionally smoothed according to the formula below:

$$SV(x)_{t+1} = 0.1 * MV(x)_{t+1} + 0.9 * SV(x)_t * (1.04)$$

Where x is the contribution year, $SV(x)_t$ = smoothed value of contributions made in year x at the end of year t and $MV(x)_t$ = market value of contributions made in year x at the end of year t. $SV(x)_1$ is set equal to $MV(x)_1$ which is the market value of the first calendar year's contributions accumulated to the end of the first calendar year. The formula holds for $t = 1, 2, 3\ldots$

The value of a member's pension savings would be:

$$\sum_{over\ all\ contribution\ years} SV\ (x)$$

The reason for the smoothing by each calendar year of contribution is discussed earlier and it also has the advantage of bringing the focus on the benefit to members of each contribution that they make to their future pension.

For example, if a 25-year-old contributed €100 as part of AE in a calendar year, the State would add another €33.33 and their employer would add another €100. Under this approach, it would be estimated that this €233.33 (€100+€33.33+€100) invested for 40 years would provide a pension of €77.50 per annum from age 65 for a period of 30 years (so returning 30x€77.5 = €2,325.70, that's a return of 2200%+ on the €100 contribution by the member). This amount would be in real-terms allowing for

the loss of purchasing power from expected inflation. This compares to a pension of only €26.40 per annum under a lifestyling investment approach.

The above estimates are made using what are considered to be prudent actuarial assumptions and assuming that SV converges to MV over time. If the stock market performs in the same way as it has done in the last 50-70 years, that is in a stronger way than is implicit in these actuarial assumptions, the pension estimate would be €202.60 per annum (so returning 30*€202.6 = €6,079.90, that's a return of 5900%+).

I believe that this is an attractive financial proposition for a 25-year old (and indeed the propositions for other ages are also attractive) and this would likely result in a considerable improvement in pension coverage in Ireland as a result.

After the optimum risk management approach was determined, this formula would be adjustable to determine a fixed formula, within the following boundaries:

- The "*I*" factor, the "4%" (the "1.04") in the simplified formula, would be adjustable down to 0%, the point where it was earlier shown to create a prudently manageable funding level risk.
- The "*p*" factor, the "10%" (the "0.1") in the simplified formula, would be adjustable up to 33%, should any material concern arise during the further research regarding the effect of the smoothing on the funding level risk.

This approach is set out to be prudent for the State to follow because where any element of the simplified approach is subsequently considered to be imprudent, during the further research, the State would have the tools to deal with it.

Furthermore, if during the further research, any hedging or otherwise is subsequently considered prudent, in particular for the post-retirement phase, the costs could be deductible from the market values (the $MV(x)_t$ values).

Other adjustments could be made to implement prudent risk management so that the risk sharing approach was set on a sound foundation. Given the small expected size of the contributions and monies involved over the next five years, it would arguably be optimum for the State to stand behind the scheme until the risk management framework was fully determined. The State could set up a Buffer Account for this to improve public confidence in the approach, and to act as a stop-gap, until a prudent risk management overlay could be created and potentially backdated.

This effectively enables the State, as it were, to jump in, but also to row back if necessary.

5.6.2 Deciding on the Optimum Approach to Smoothing

The optimum approach to managing the risks arising from the smoothing of returns needs to be determined, in particular how to sensibly back pensions in payment using equities.

I would recommend that the State carry out this research over the next 2-3 years and decide on the final overall approach to smoothing by the end of the next 5 years, keeping the above formula in place until then, assuming AE begins next year. The pre-retirement part of the formula could be potentially agreed earlier than this.

This overall strategy is consistent with political economics theory and allows more time and a step-by-step approach to implement change. It would be essential that due care was taken to hire / appoint professionals that had the appropriate psychological acumen and the appropriate character for the task.

5.6.3 Next Steps

The following next steps, amongst others, could begin immediately:

- Determine and draft the governance for the scheme.

- Determine the practicality and cost of the use of financial options and total return swaps to manage the smoothing risk. This is an adversarial task and it needs to be conducted by an appropriate person(s) with real-life derivatives pricing experience and expertise and appropriate psychological acumen so that a realistic assessment of the cost is established.

- Determine the optimum risk management approach for the pre-retirement phase of the scheme.

- Determine the optimum risk management approach for the post-retirement phase of the scheme.

6. Conclusions

The Alternative AE Proposal would likely produce significantly higher pensions for those contributing into the scheme. There are significant upside benefits for those who would opt to stay enrolled, with estimated pensions being roughly twice as high as from schemes in other OECD countries.

From the State's perspective, higher projected pensions would also increase expected future income tax revenue. The Alternative AE Proposal would likely be more attractive than approaches in other OECD countries and would likely result in higher levels of members opting to stay enrolled, resulting in higher future pension coverage.

The risks arising are analogous to those arising from the introduction of the European single currency. There is considerable upside, but the risks need to be managed, and most importantly the scheme would need to be stood behind in times of turbulence, just like with the Euro. There are several options available to the State to (directly or indirectly) stand behind it that would enable prudent management of the risks involved, either providing a backing itself, or using the market to hedge the risk or appointing a person of appropriate character to manage it, or a combination of these.

On the issue of the provision of social protection, the current AE proposal might be considered to be one of social exclusion, hindering or practically preventing ordinary people from prudently investing like those on higher incomes. It would likely contribute to increasing inequality in Irish society. The current AE proposal might be misguided and counterproductive. It might contribute to increased emigration, reducing the birth rate and reducing home ownership, thereby creating more problems for the State than it fixes. In contrast, the Alternative AE Proposal has a more inclusive and 'in it together' approach which is likely to achieve more social protection.

It might be sensible to offer an opt-out from the AE scheme for those who are saving for a home. Auto-enrolling them would likely result in a poorer financial outcome and a less secure outcome for individuals and for the State. Having a Choice-Enrolment might also be considered a wiser option in the long term.

A simple version of Alternative AE Proposal is described that would be considered as feasible (as feasible as was the creation of the Euro with which it is analogous). It is recommended that further work be carried out to establish the optimum risk management approach to achieve smoothing of returns and risk sharing.

The Alternative AE Proposal, in this regard, would likely be significantly better than the current AE proposal.

Appendix A – Background and Context

A.1 Assessing Financial Innovation

The last fifty years have seen considerable financial innovation in developed economies. Some of this has created positive economic benefits and some have been problematic and caused considerable financial harm. In assessing the Alternative AE Proposal it is essential to learn lessons from the past.

From the Irish public's perspective, arguably the greatest positive impact of financial innovation has arisen from the creation and adoption of the Euro[43].

More generally, significant financial innovation has arisen from the development of derivatives markets. Although these markets have regulatory challenges, many of the outcomes have enabled greater functionality in financial markets. In most cases, these markets have had positive impacts, for example, by creating additional methods to manage financial risk. But they have also enabled the creation of some relatively opaque financial products that have caused harm to many market participants.

One such product was a Collateralised Debt Obligation (CDO), where sub-prime mortgages were repackaged in a way that split them in a flawed way into different risk categories, resulting in investors making significant losses during the financial crisis in 2008. The flawed guaranteed annuity options products sold to pension investors during the 1990s resulted in the failure of Equitable Life, the oldest insurance company in the world. In recent years, the pensions industry has had to deal with problems arising from Liability Driven Investment (LDI) products. There are many other examples of problematic financial innovations.

A.1.1 Lessons from historical financial innovations

What lessons can be learnt from history?

Concerning the Euro, its introduction was as much a political decision as an economic/financial decision. The majority of academic opinion was that it would not be possible for the Euro to function given cultural differences in Europe and other factors. Politicians effectively decided that while it would likely be challenging to introduce the Euro, the benefits outweighed the risks. Even in rare cases where

[43] While the Euro was accompanied by significant and on-going regulatory challenges, it might be considered to have created considerable economic and social benefits in the form of no longer having the requirement and costs that arise from needing to change currencies within the EU, from greater trade between EU countries that was stimulated by the removal of constraints around having different currencies, and from a human and social perspective, a greater feeling of relatedness within the EU

relative certainty about the future exists, decisions about new financial innovations will likely have a political element to them too.

The Euro has been a success story so far. But what can be learnt from financial innovations that went wrong?

Arguably these have arisen because the big picture was not fully understood, or at least not fully understood by the relevant decisions makers.

In the case of CDOs, simply stepping back from the groupthink and applying some analogies would have spotted the problems. CDOs claimed to have a Super-AAA component that was more secure than lending to the US government. Clearly this could not have been the case with subprime mortgages.

Concerning the guaranteed annuity options, these were introduced as a 'bells and whistles' addition to pension products to improve sales. They guaranteed to use a discount rate of at least 4% for calculating annuity prices, and interest rates had not gone to such lows in contemporary times, and consequently the risk was considered negligible. Standing back and looking at a longer history of interest rates would have suggested that the risk was not negligible. Also looking at the product from another discipline would have helped. From a financial derivatives perspective, swaptions (risky products) were being sold for free,

In summary, it is essential to assess the big picture by piecing the jigsaw together from first principles, ideally using a variety of disciplines, and doing so requires looking at each of the pieces from many different perspectives.

Given the significant history of past failures, two additional and essential perspectives are needed, firstly, to guard against any over-confidence, and, secondly and more positively, to apply a proportionate degree of humility. It's important to recognise, using Werner Heisenberg's words, that "only a few know, how much one must know to know how little one knows." And, the famous investor, Howard Mark's words that "everything [in investing] that's 'obvious' is wrong."

A.2 Broad Context

It is critical to understand the broader context in which this assessment is set in order to soundly assess the Alternative AE Proposal. This section discusses that context, along with sections A.3 and A.4.

A.2.1 Ireland's Aging Population

While Ireland's current demographic split by age is relatively good, its population is expected to age considerably. It is projected that while Ireland currently has "around

4 persons of working age to support each person aged 65 and over, this number is expected to fall to just over 2 by 2050."[44]

The need to act prudently because of Ireland's ageing population has been a driving force in the calls for the creation of an AE Pension Scheme. The idea being that if people can look after their pensions more, the State's pensions' burden will be less problematic. Other OECD countries are facing similar difficulties with ageing populations and most have launched an AE scheme in their country.

A.2.2 Social Protection

Another driving force being the introduction of Auto-Enrolment is that excessive economic inequality is economically and socially problematic, and relatedly, that the projected poor conditions of the State's finances might contribute to greater inequality, in a way that would damage the fabric and foundation of Irish society.

Ireland has done a good job of managing economic inequality. According to the OECD, Ireland is one of the best countries at doing this[45]. Considerable recognition and credit for this could be given to the Department of Social Protection and others who have played their part in this, including the current and past Ministers for Social Protection.

Social protection is not primarily about being benevolent towards those less well-off, it is primarily about enlightened economic self-interest.

Every human person needs to feel at least ok about themselves. If they get brutalised by life for whatever reason, they still have the human need to feel ok. When they cannot do that in a positive and constructive way, they need to do that in another way, and this can be both problematic for them and for society.

From a psychological point of view, when a human being cannot create, they need to destroy. The chief task of social protection is to help keep people feeling ok in a good place so they can feel good about themselves for positive reasons and to try to keep themselves in a place where they want to create by encouraging their productive orientation.

We don't need to look far for examples of this going wrong. After the financial crisis, inequality increased proportionately more in the US and the UK. In my opinion, they allowed those in their country on low incomes to get brutalised which made them fodder for demagogues. Failing to provide adequate social protection to these people, resulted in many of them getting into a place of wanting to pull society down to their level, rather than aiming to improve their own economic situation. When a society fails to provide adequate social protection, it usually causes social problems.

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[44] https://www.gov.ie/en/press-release/7908d-minister-donohoe-publishes-population-ageing-and-the-public-finances-in-ireland-report/

[45] https://www.oecd.org/gov/gov-at-a-glance-2021-ireland.pdf

In summary, social protection is about enlightened economic self-interest rather than being solely about benevolence. Arguably it is much less expensive for wealthy people to have a good social protection system in Ireland than it is for them to live with greater social ills, crime and much higher individual protection costs. As Pericles put it, “My own opinion is that when the whole state is on the right course it is a better thing for each separate individual than when private interests are satisfied but the state as a whole is going downhill” (Thucydides, ca. 432-400 B.C.E./1972, p. 158)[46].

A.2.3 Pensions

The pensions landscape has changed considerably in the last 50-70 years. With people living much longer, they need pensions that are expected to be paid for about twice as long as in the past. At the same time, pension contributions are much lower than they were historically. This has been largely driven by the move from what is called “Defined Benefit” to “Defined Contribution” pension schemes.

I can personally remember noticing that my employer was contributing about 20% of my salary to my pension in their Defined Benefit scheme about 20 years ago. This dropped by more than half when I switched jobs to work for another company and they had a defined contribution scheme.

So needing twice the size of a pensions pot with only about half the historical contributions is an indication that a significant ball has been dropped.

To understand why this has happened with a social protection lens, it is important to remember the culture that created the older pension system.

After World War II in the UK, the main driver for the creation of pension schemes was paternalism. This can seem incredible and even bizarre in our individualistic society today. At that time, the stronger and richer people in UK society had recently experienced a war with Germany, when it looked at one stage that they might lose. They did not feel as secure as they might have done historically, and during the course of the war, they realised that it was not sufficient for them to be in a good position for their life to be good, they needed the rest of the country to be strong too, otherwise the war would be lost. A significant “in it together” feeling pervaded after World War II. They learned the lesson of Montesquieu that “the interest of the individual is always identical with the common interest, and that to attempt to separate oneself from it is fatal… justice to others is charity to yourself” (Montesquieu, 1748/2010, p. 57)[47]. Defined Benefit pension schemes and the National Health Service were two outcomes of this culture.

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[46] Thucydides. (1972). History of the Peloponnesian war (R. Warner, Trans.). Penguin. (Original work published ca. 432-400 B.C.E.)

[47] Montesquieu, C. (2010). The spirit of the laws. (T. Nugent, Trans.). Digireads. (Original work published 1748)

This culture in the UK has largely been overtaken by a more individualistic culture where (misguided) narrower self-interest rather than a more enlightened self-interest is dominant.

A.2.4 Economics

To meet its aims of social protection, the DSP faces two socially regressive economic influences that are at play in recent times.

The first arises from the monetary policy of Quantitative Easing (QE).

QE is a new form of money printing. Historically money printing was used to try to stimulate economic growth and it worked to a limited degree due to “money illusion” and the Cantillon Effect. When people had more money they might have thought they were better off, but the money printing usually also caused prices to rise, in a way where they were actually worse off. Those who get initial use of the newly printed money gain at the expense of those who are later users of it.

Today QE is used to stimulate economic growth in a more deceptive way. It might be regarded to rely on what might be considered to be “goods and services illusion”. QE works by increasing asset prices, so while money might have bought the same amount of shopping in Tesco or for Ryanair flights, it could buy less in terms of buying a home, or indeed other assets.

QE works as follows:

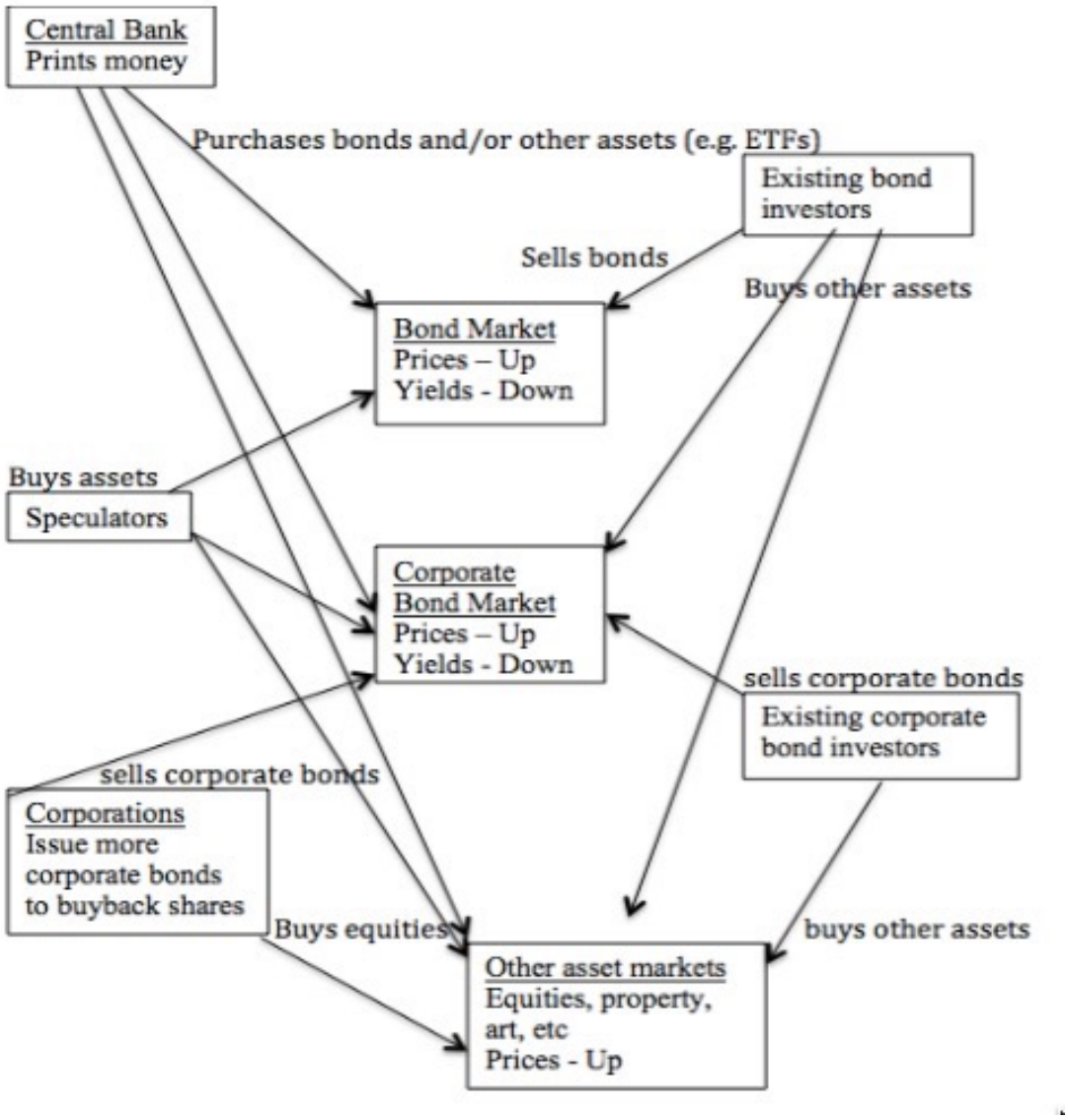

Diagram 1 Quantitative Easing and Asset Prices

As shown in *Diagram1*, asset owners will see their wealth increase, causing a wealth effect. Those with no assets will see no gains and will be relatively worse off having not participated in the windfall. The overall result is likely to be an increase in economic inequality.

Economic growth is likely to increase due to the wealth effect. Those who receive wealth gains will have higher purchasing power and when these gains are spent the economic activity created should also mean increased employment. The impact will mostly be in areas with a higher concentration of asset owners. Those without assets 'might' be regarded to gain from seeing more jobs being created, as money 'trickles down' to them. Overall, the impact is unlikely to be significant and possibly transitory if the asset prices revert to their mean levels in time.

Counter-intuitively, retail price inflation rates are likely to stay low. Less wealthy people will not see any significant gains from QE. Indeed, retail price inflation may even fall or turn into deflation, because the relatively less well-off may be worse off (for example, needing to save more for a home), meaning average demand for a normal basket of goods may fall, leading to lower prices.

Nominal wages should see small and marginal gains from QE. The economic growth impact is unlikely to be very significant – so any demand-pull effect will be small. Most of the increase in employment is likely to be in the service industries to service those with greater levels of wealth. These jobs are often poorly paid. Real wage increases may only be very small due to low inflation, however due to increased asset prices (including higher home prices) the purchasing power of those real wages may be considerably lower, making those on low incomes considerably worse off.

The main impact of QE in Ireland has been much higher house prices and falling home ownership[48]. This creates very significant social protection challenges.

The second economic challenge arises from the recent return of inflation. The stark price rises of food and other human essentials in Ireland over the last couple of years have been quite shocking for many. Inflation is socially destructive and it hits the most vulnerable the hardest, especially pensioners with pensions that don't increase with inflation.

This return of inflation is also quite a concerning development as it usually means that the ability to engineer economic growth in the economic status quo has been lost to some extent at some monetary or fiscal level and that the printing press and borrowing are being used excessively to maintain the economic status quo.

A.2.5 Political Economics

Some of the salient political influences that are relevant for this assessment are best set out by outlining the thoughts of Alexis de Tocqueville, Ayn Rand and Jacques Attali.

Probably of most importance is to understand the writings of Alexis de Tocqueville. Most people have never heard of him, and even though he was French, every US President since Dwight D. Eisenhower has quoted from his book "Democracy in America" which Tocqueville wrote after his nine-month visit to America in 1831 (Tocqueville, 1835&1840/2003)[49]. He foresaw the future of not just the USA but of other democratic countries. Even though he wrote that men and women would one day become equal in democracies, which in 1831, even before suffragettes, would have been highly unconventional, he was still elected to the French Academy because of the brilliance of his writing.

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[48] https://www.irishtimes.com/business/2023/07/20/ireland-has-one-of-lowest-rates-of-home-ownership-for-under-40s-esri-says

[49] Tocqueville, A. (2003). Democracy in America (G. Bevan, Trans.). Penguin. (Original work published 1835 & 1840)

His main idea was that democracies create a driving force for equality and that anybody who stood in the way of that would likely get bowled over. He said this force would not always produce good outcomes, but it needed to be recognised to understand the political dynamics in a democracy.

In the context of Ireland's housing crisis, Tocqueville also observed how as a country evolved as a democracy, rents, all else being equal, would rise relatively speaking. He explained that this was an implication of the force of equality. Previously, aristocratic landlords were paid in rent, but also in other non-monetary ways, like in respect, loyalty, status etc. But because those human aspects become less important as democracies evolve since people are considered more equal, what matters most becomes the monetary rent and that is likely to rise.

Along with the impact of QE on house prices, the increases in rents are also a significant social protection concern. Ireland is seeing more corporate landlords and this is likely to drive rents higher because the potential for any human relationship between landlord and tenant in such an instance is minimal to none. An understanding of Tocqueville's writings suggests that this is unlikely to be the last development in the rental market that causes rents to likely increase further.

Given this significant driving force for equality, it is not surprising that the shape of hierarchies change in democracies. Money (rightly or wrongly) becomes the main determinant of a person's position in the social hierarchy.

This environment has fostered the growing influence of Ayn Rand. Most people have never heard of Ayn Rand. And if they have it is probably because of the film *Dirty Dancing* (1987). In the film, the character Baby confronts the waiter who got her friend pregnant and abandoned her, and he waves a copy of Ayn Rand's 'The Fountainhead' at Baby to justify his selfishness, saying that "some people count, some people don't".

Rand's philosophy is that some people are more important, e.g. those who create jobs, and if some of the other people get hurt along the way, that's ok. This brutal idiocy based on narrow self-interest has become a significant influence in the US. On my last visit to a bookshop on a US university campus, I noticed that of the two bookcases entitled "Classics", one of them was full of nothing other than the two main novels of Ayn Rand, The Fountainhead[50] and Atlas Shrugged[51]. Rand ignores that we need other (good) people to be happy and that purely individualistic living results in getting lost in an individual's ego that makes them lose sight for the more important things in life. Nevertheless, her influence on the likes of Alan Greenspan and others in power in the US is well documented. Her influence is also highly seductive for those who feel they have been treated unjustly by the force of equality. It blurs that the greatest human happiness comes from living a socially responsible life.

[50] Rand, A. (2007). The Fountainhead, Penguin (Originally published in 1943)
[51] Rand, A. (2007). Atlas Shrugged, Penguin (Originally published in 1957)

Jacques Attali is a French polymath and visionary. While he is well known in France and regularly in the French media, he is little known in Ireland. In 2006, he wrote a book entitled "A Brief History of the Future" (Attali, 2006)[52]. Most remarkably, it has proved mostly right about political and economic developments since then.

Attali foresaw the growing power of the private sector / large corporations and effectively the strong stock market performance that would be the result. He sees this trend continuing until about 2030. Around 2030 he foresees the US empire being replaced by a market-based empire, where markets have more power than individual nations and the world becomes a "market without democracy" (Attali, 2006, p. 166). This is often referred to as a globalist future. This market and monetary focus would likely exacerbate the influence of Ayn Rand and increase the social protection challenge facing Ireland.

Tocqueville noted in later writings (Tocqueville, 1856/2008)[53] that societies that did not have groups of citizens who acted on higher ethical grounds than were otherwise expected of them in a democracy usually fell into a state of absolute government. This is ultimately the challenge for Ireland, can a small cohort of Irish citizens act in ethical ways that mean they counter the regressive elements of individualism and where we show a humanity beyond market forces?

Other political economic influences are discussed in section 4.5.6.

A.3 Investment Context

The Alternative AE Proposal has at its core a new pension investment strategy. This section considers the investment context in greater depth.

A.3.1 Real Life Investing

In my professional experience, successful real-life investing is little understood. It is not easy to understand. If it was, it would be easy to get rich from investing. Reading the following few pages will unlikely materially change that for the reader. But it is necessary to discuss the topic to highlight certain themes which are essential to make this a realistic report.

To get across some of the essence of real-life investing, the only tools are abstractions, theories and phrases. Language alone is always grossly inadequate as a method of communication. It is inadequate if the listener is merely passive, if they fall into the mistake of the literal-minded who expect words to contain a precise image of reality. They never do. All language can do is act as a guidepost to the mind. It is necessary for the reader to apply a degree of empathetic imagination to revive within themselves

[52] "Attali, J. (2006). *A brief history of the future*, Arcade Publishing; Reprint edition (1 July 2011)
[53] Tocqueville, A. (2008). *Ancien regime*, Penguin (Originally published in 1956)

something of the inward sense from which the words arise. This is because, as it is necessary to abstract from life to communicate, the reader must animate the abstractions in order to gain a sense of understanding.

Successful real-life investing involves a person using their mind in an uncommon way. According to Walter Lippmann, most people desire first what they want and then they begin to reason (Lippmann, 1913/2008, p. 111)[54],. However, sound investing requires independent thought (nous) and reasoning to be applied first. It also requires a self-reliant and independent mind frame (as distinct from applying groupthink) because sound investing is usually counterintuitive. For example, most people usually want to panic when 'blood is on the street', but good investors are precisely looking to buy at these times.

In my opinion, the relative lack of understanding of real-life investing is exacerbated by some 'rational' theories that are often advocated in academia, like the Efficient Market Hypothesis and the Capital Asset Pricing Model, often known as Modern Portfolio Theory. These argue that it is impossible to consistently outperform the stock market. Successful market participants usually regard these theories as a group-ego defence mechanism for those who have closed themselves to the reality that such out-performance is possible (IFoA, 2019)[55]. The famous investor, Charlie Munger, wrote "Beta and Modern Portfolio Theory and the like – none of it makes any sense to me". In my experience, these theories can be harmful to young students or even nihilistic. The theories can smother their competitive, healthier and more vital instincts in mathematical cotton wool.

Schopenhauer highlighted how disproportionate rationality can trample on the human use of nous and undermine human aliveness, both of which are essential to a professional investor. He wrote, "*A mother had, for their education and betterment, given her children Aesop's fables to read. Very soon, however, they brought the book back to her, and the eldest, who was very knowing and precocious, said: "This is not a book for us! It's much too childish and silly. We've got past believing that foxes, wolves and ravens can talk: we're far too grown-up for such nonsense!*" (p. 235) [56]. I will leave it for the reader to draw out the analogy with the Alternative AE Proposal.

While real-life investing does present an intellectual challenge to determine the right investments to make, it is mainly a human rather than an intellectual endeavour. It requires courage, guts, discipline, patience and a proportionate degree of humility. Why? Because investments have to be lived. If an investor is short of these attributes, their ego will likely find the whole experience to be too uncomfortable and they will likely sell their investments at the worst possible time, making the whole experience regressive for them. Markets behave in a manic depressive manner and psychological

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[54] Lippmann, W. (2008). *A preface to politics*. Arc Manor. (Original work published 1913)

[55] IFoA (2019). *Core reading for fellowship subject SA7, investment & finance*, Institute & Faculty of Actuaries.

[56] Schopenhauer, A. (1970) *Essays and aphorisms*, Penguin

strength is required to bear such an experience. Investing requires a responsibility which might be considered bewildering to many and an alertness that would be considered uncommon. The most common background of traders on the NYSE that I came across were former US Marines. Being a marine does not qualify you to invest well, but a good investor requires the attributes of a marine.

This general viewpoint is supported by the perspectives of the great investors of all time. Some examples would be as follows: Peter Lynch who said, “Your ultimate success or failure will depend on your ability to ignore the worries of the world long enough to allow your investments to succeed”, advocating the imperative of patience to invest well. Benjamin Graham highlighted that “Successful investing is about managing risk, not avoiding it”, so advocated that applying courage is a prerequisite. Paul Tudor-Jones said “Don't be a hero. Don't have an ego. Always question yourself and your ability”, highlighting that a prudent investor needs to have the psychological capacity to be egocritical. Warren Buffett said, “We don’t have to be smarter than the rest. We have to be more disciplined than the rest”, stressing the importance of discipline, and he highlighted that “Risk is not knowing what you are doing”, in other words not knowing what the story is really about. His partner, Charlie Munger, highlighted the importance of taking a long-term perspective and learning from history, he said, “If you want to be a good investor, you have to be a long-term investor.” and “There is no better teacher than history in determining the future. There are answers worth billions of dollars in $30 history books.”

The above perspectives are perhaps put better and more succinctly by Benjamin Graham (author of The Intelligent Investor and regarded by many as the best investment educator of all time). He wrote “Intelligent investment is more a matter of mental approach than it is of technique. A sound mental approach toward stock fluctuations is the touchstone of all successful investment under present-day conditions” (IFoA, 2019). This is a core idea to consider when assessing the Alternative AE Proposal.

In academic investment theory, there is also the concept of the Equity Risk Premium (ERP). The concept is usually meant to refer to the extra performance that an investor is expected to get from investing in equities rather than in bonds. But as most people know from their own lived life experience, it is not sensible to feel entitled to get an extra reward from simply taking extra risk (as mathematics alone might encourage). Being reckless is risky, for example, and is not sensible. That said, most people can likely validate from their own experience that applying courage and patience are usually rewarded in life. In my opinion and experience, it is no different in investing. To get a good result, an open mind and one willing to endure an ‘agon’, are two prerequisites. I prefer to think of an Equity Courage and Patience Premium (ECPP) because investing in equities has to be lived through to get the reward. The extra returns are what any sensible person would expect from applying courage and patience over a period of time and experiencing the ‘agon’ involved, together with maintaining their psychological backbone. This is easier said than done, but its relevance is hopefully obvious to readers.

Einstein said, “It is the theory that decides what can be observed.” Analogously, limiting any consideration of an investment strategy to a concept like the ERP prevents an adequate investment big picture from emerging.

The stereotypes for investors are often very misleading too. It is in the investment industry’s interest to glamourise investing to encourage others to engage in it. But the reality is that the best investors have a proportionate degree of humility. You’ll find most of the famous investors have explicitly stated that about themselves, for example. Ray Dalio, said, “To make money in the markets, you have to think independently and be humble.” Such humility is necessary to deal with investments when they go wrong, as some investments are likely to go wrong, so this downside risk can be prudently managed when it likely happens.

Furthermore, investing is not, as some might think, about having a good idea and making lots of money from it. It is a marathon not a sprint and is primarily about applying ongoing nous and having and applying an actively critical mindset (including being ego-critical) as distinct from a passively critical mindset and the investor must have a capacity for non-conformity (IFoA, 2019).

The wherewithal to invest like this is rare. In my experience, there are more people who carry out dentistry in a sound and capable manner than those who do the same with investing. For this reason, facilitating the general public to make big financial decisions that they are arguably not equipped to make, is analogous to facilitating the public to carry out work on their own teeth. The end result would be the same, lots of needless pain, resultant despair and ultimately awful dental health. In my opinion, the experience would result in most people losing belief that useful dentistry was even possible.

Research evidence supports this perspective. While some academic theories suggest that some people win and some lose in these situations. The real-world evidence is mostly that a very small minority wins and often wins big, while the vast majority lose. Marmont and Berzon estimate that only thirteen of each hundred people who go into a casino come out a financial winner (Maremont & Berzon, 2013[57]). So while many might expect that outcome, Barber et al. (2014[58]) show that “Less than 1% of the day trader population is able to predictably and reliably earn positive abnormal returns net of fees”. Investing well is more difficult than gambling well.

Spread betting has been banned in many countries in the world because about 90% of those who engage in it lose money (IFoA, 2019). To put this in perspective, these are people who are interested enough to engage with financial markets and they still mostly lose. Most of the public has little or no interest even in financial markets.

[57] https://www.wsj.com/articles/how-often-do-gamblers-really-win-1381514164
[58]http://faculty.haas.berkeley.edu/odean/papers/day%20traders/The%20Cross-Section%20of%20Speculator%20Skill.pdf

Given these stark precedents, adopting an investment approach for AE that gives 'choice' to people, that effectively lets them panic at the bottom or buy at the top is ill-judged and likely to be socially regressive.

While there are a lot of people who want choice regarding their investments, these are in the minority and are likely people with lots of drive who will end up in high-paying jobs. Consequently they are not in the cohort of the population that AE is aimed at.

I am certainly not calling for any type of investing to be banned, that would have prevented me from learning about the markets from investing in them. While democracies have many challenges, their main benefit is the free human spirit unleashed by civic and economic freedom, and this freedom of the human spirit is the main antidote to the ills that can arise in a democracy. From that perspective, it is very positive that our civic freedom in Ireland has resulted in this Alternative AE Proposal being assessed. This bodes well for the health of our democracy.

It is important to recognise that greater real-world financial and investment education is needed so that people can more prudently manage their own finances, or at a minimum know when and what they don't know.

A.3.2 Helping Others Invest Well

Investing your own money is different to investing the monies of others.

This was one of the lessons from the late Jack Bogle. He recognised that most people in financial markets are working there primarily for their own benefit, in which case the more they charge clients the more they earn. But Jack created a team of people, like himself, who not only wanted to make money for themselves but also wanted to make money for others (The Motley Fool, 2019[59]).The outcome was that, according to Warren Buffett, Jack singlehandedly improved the finances of more Americans than anyone else ever by being able to very significantly cut the investment costs they incurred (CNBC Television, 2019[60]).

To put rough numbers on it. Suppose a 25-year-old saved $1,000 every year until they were 65 for their pension by investing in the stock market. If returns are about 7% per annum, the $40,000 of money invested accumulates to about €210,000 at age 65. If there is a 2% per annum fund management charge, this amount reduces to about €120,000. These small charges have a very big impact.

What I learnt from my own experience in financial markets and beyond was the recognition that the stories of the world presented to me were often shallow and usually

[59] The Motley Fool (2019). *Jack Bogle on Index Funds, Vanguard, and Investing Advice* [Video]. YouTube https://www.youtube.com/watch?v=MLgn_kVKjCE

[60] CNBC Television. (2019). Watch Warren Buffett pay tribute to Jack Bogle during 2017 Berkshire meeting [Video]. YouTube https://www.youtube.com/watch?v=Aqm2Xm-9DJE

did not include the concept of character. And that when and where I was able to add the concept of character to the narrative, my understanding improved, but also my potential to do something more constructively and my capacity to behave more ethically.

An example of a narrative presented to me that was shallow and misleading was around the idea of self-interest that was supposedly advocated by Adam Smith[61]. Actually reading his books, in particular A Theory of Moral Sentiment, it becomes quite obvious that Adam Smith was not a free market capitalist at all, but would have directly advocated financial regulation by people of appropriate character (Smith, 1759/2009).

What exactly is meant by the expression, 'people of appropriate character'? For Smith it was those whom he referred to as being superiorly prudent. What did he mean by superiorly prudent?

A.3.2.1 Prudence Versus Superior Prudence

According to Smith,

> "*Prudence comes with propriety and from the combination of two qualities that are most useful to an individual. These are, firstly, superior reason and understanding, by which an individual is capable of discerning the remote consequences of all their actions, and of foreseeing the advantage or detriment that is likely to result from them. Secondly, self-command, by which an individual is enabled to abstain from present pleasure or to endure present pain, in order to obtain a greater pleasure or to avoid a greater pain in some future time. A prudent person cares about their health, wealth, position and reputation, among other things upon which their well-being and happiness depend. This is considered the proper business of prudence…*
>
> *Security is considered the first and the principal object of prudence. Prudence is adverse to expose its health, wealth, position or reputation to any sort of hazard. It is more cautious than enterprising and relatively more inclined to preserve the advantages that we already possess than to prompt us to the acquisition of still greater advantages. Prudence aims to be steady, and to steadily trade the ease and enjoyment of the present for the probable expectation of greater ease and enjoyment in the future – for a more lasting time. The methods of improving our situation which it principally recommends are: those that don't involve exposure to hazards; the accumulation of additional knowledge and skill in an individual's profession; industry in the exercise of the individual's profession; and frugality in our expenses. Finally, a prudent person is typically not willing to subject themselves to any responsibility which they do not consider to be their duty."*

[61] Smith, A. (2009). *The theory of moral sentiments*. Penguin. (Original work published 1759)

Enlarging the concept, Smith wrote

> *"However, superior prudence is wise and judicious conduct, when directed to greater and nobler purposes beyond that of the care of the health, the wealth, the position and reputation of the individual".*

Smith wrote that it comes about when prudence is combined with the greater and more splendid virtues, with valour and courage, with strong benevolence, with regard to the rules of justice, and all these supported by a proper degree of self-command.

Conducting the assessment involves accepting an additional workload to assess the Alternative AE Proposal, arguably this is the application of strong benevolence. Ireland becomes a better place when people in positions of responsibility behave with superior prudence.

Actions with this character are essential for social progress, particularly in the political arena. A combination of character and the psychological acumen to invest well are two prerequisites that need to be considered when making appointments into positions of responsibility, where people in those positions can impact the financial well-being of people in Ireland.

More broadly, the lesson here is that character is a prerequisite for our capital markets to function in a way that benefits all rather than just a few, and given that we live in a democracy rather than an oligarchy, that needs to be the aim.

A.4 What is the Story?

In my PhD I looked at both how determining the overall narrative/story is more important than any individual analysis and how the overall story dominates and limits any analysis that can be carried out. As a consequence, it is essential to investigate the story more broadly as part of the feasibility assessment.

This feasibility assessment has arisen from Colm Fagan[62] proposing a novel approach for pensions investing to those within the establishment. As might be expected, this is something that likely causes some friction and conflict, and while it might appear to be an usual situation to those involved, it is a type of challenge that has been faced in many democracies since Ancient Athens, and the issues arising have been documented in many forms, including in plays.

Democracy is considered to have a number of ills, but these are considered worth bearing because of the free human spirit that democracy is considered to unleash.

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[62] Colm Fagan founded a successful actuarial consultancy in Ireland. He is a former President of the Society of Actuaries in Ireland. He has a mathematical number series named after him. And he is considered by some as the originator of what is referred to as the Wilkie Model in Actuarial Science.

Emerson noted that when a person tries to publish what has come to them in the form of inspiration, it makes them odious to men and men odious to them (Emerson, 2013 p. 67)[63]. This would be a pitiable burden for anybody. That said, it is unacceptable for any inappropriate public criticism to be tolerated from any odiousness felt. Some of the experts surveyed expressed concern that they might be inappropriately criticised in public for speaking their open minds on the merits of this Alternative AE Proposal. It is imperative that public discourse be conducted in a polite tone.

George Bernard Shaw also commented on situations like this, highlighting that "the reasonable man adapts himself to the world; the unreasonable man persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man" (Shaw, 2000)[64].

The establishment has a difficult role managing things to keep them on the right course. 'Heroic' individualists represent a threat to civic cohesion[65]. The view of the establishment towards them is naturally that where licence and insolence are tolerated, the ship of state is doomed.

I surveyed the perspectives of Sophocles (1953)[66], Eysenck (1995)[67], Garvie (2016)[68], Voltaire (1977)[69], Berne(1947/2011)[70], Hudson (1975)[71] and Aristotle (2000)[72] on this topic and all seemed to be consistent with what I observed. My conclusion is that Ireland is likely in an exceptionally good and positive place by historical standards, because in most times, the novel idea for pension investment that is being assessed in this report, would not be assessed at all.

The other stakeholders also need to be considered when considering the full story. The primary stakeholder is the potential members of the AE scheme. They need to be the primary focus. This Alternative AE Proposal suggested that it could make future pensioners considerably better off financially speaking.

The pensions industry is another stakeholder and its primary interest aim to maximise its profits from the advent of AE in Ireland. The pensions industry is discussed further in section 5.4.

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[63] Emerson, R. W. (2013) *We are the Builders of our Fortunes*, Best Success Books.
[64] Shaw, G. B. (2000). *Man and Superman*, Penguin
[65] Garvie, A. F. (2016). *The plays of Sophocles*, Bloomsburg
[66] Sophocles (1953). *Electra and other plays*, Penguin
[67] Eysenck, H. (1995). *Genius: The natural history of creativity*, Cambridge University Press, ISBN 0-521-48014-0
[68] Garvie, A. F. (2016). *The plays of Sophocles*, Bloomsburg
[69] Voltaire. (1977). *Philosophical Dictionary* (T. Besterman, Trans.). Penguin. (Original work published 1764)
[70] Berne, E. (2011). *The mind in action*. Read Books. (Original work published 1947)
[71] Hudson, L. (1975). *Human Beings: Introduction to the Psychology of Human Experience*, Jonathan Cape Ltd
[72] Aristotle (2000). *Politics*, Book VII, Ch 4, Penguin

Appendix B – Assessment of Individual Assertions

This section refers to page numbers in the Request for Quotation for this Assessment[73].

Assertions 1 - "delivers more than 50% better value for members" and "can be extended to improve outcomes for retirees under DB and non-AE DC arrangements". (Page 11)

Comment
The tone could be improved, for example, expressing it as "likely to deliver". That said, the statement when expressed in that way would be an understatement. Further work would be needed because while theoretically this could be the case, risk management issues would need further investigation.

Assertion 2 - High fund expenses post-retirement. (Page 11)

Comment
Agree and further work needed. Not having scheme members having to pay advice fees or profit margins of fund providers would theoretically benefit the members. Not enough time was available to fully investigate this. As mentioned previously, I was concerned about the lack of full transparency regarding fees.

Assertion 3 – Volatile luxury of equity investment. (Page 11)

Comment
Agree. Arguably the current AE proposal excludes those in poorer circumstances from prudently investing in the best-performing assets. It is a major concern likely inhibiting social inclusion.

Assertion 4 – Assertions based on only 30 years of data. (Page 12)

Comment
Further work was carried out in this assessment to address the deficiency. It is not credible for a fund that is expected to be in existence for the next 100 years or more, which means 30 years of data is only 1/3rd of a data point v 000's needed for normal statistical inference. That said, the assessment above provides additional data.

Assertion 5 – "Under the proposed smoothed approach, trustees will look at the fund as a whole, and see that cashflows will be positive for 30 years or more, and that

[73] https://www.pensionscouncil.ie/en/news/rfq-for-technical-feasibility-assessment-of-alternative-ae-proposal.pdf

investments won't have to be sold for years, possibly for decades, after that (because investment income will cover the excess of outgo over income for many years after cashflows turn negative)." (Page 12)

Comment
Clarification is needed. This is a speculative comment. It is assuming the fund is set up prudently, but the Buffer Account is arguably not credible, albeit other risk management methods exist and could be considered prudent.

Assertion 6 – "Members retiring just after a stock market crash will have almost identical entitlements to those retiring just before it." (Page 13)

Comment
Clarification is needed. This is arguably an exaggeration. But adding proportionality to the wording would fix it.

Assertion 7 – "At current interest rates, retired members can expect to earn c6% a year in the smoothed fund versus c2% from an annuity (assuming a 4% ERP)." (Page 13)

Comment
Clarification is needed and potentially further work. The mechanics of post-retirement are not clear. Would the members be offered annuities at a real rate of 5%? There was not sufficient time to fully investigate this, and further work could be carried out without delaying the launch of AE.

Assertion 8 – Other assertions in this section rely on the overall approach being prudent and it is not as is currently set out. (Page 13)

Comment
Clarification is needed. With prudent risk management of MV/SV, the assertions, expressed with a more realistic tone could be valid.

Assertion 9 – Real assets providing inflation protection. (Page 13).

Comment
Clarification is needed. This is only the case over reasonably long periods of time. Over short periods of time there is little or no correlation between, for example, equity returns in the US and US CPI.

Assertion 10 – "Another innovation, discussed in Section 5, will allow retired members to protect against the risk of outliving their savings, without having to sacrifice any of

their capital (as would be required for annuities), and without losing the benefit of high returns and low charges in the smoothed fund." (Page 13)

Comment
Clarification is needed. This does not come without a cost. Postponing buying a deferred annuity results in the cost of that deferred annuity increasing (by the cost of a pure endowment over the period involved).

Assertion 11 – "An AE scheme can expect positive cash flows for decades into the future, so sharp falls in market values should be seen not as bad news but as opportunities for trustees to acquire assets cheaply for members. The detailed proposals in this paper exploit that fact, while also recognising that assets must be sold eventually at market prices prevailing at time of sale." (Page 13)

Comment
Clarification is needed. This ignores that the scheme might need to be wound up.

Assertion 12 – "strict rules will be needed to prevent financially astute members from exploiting differences." (Page 14)

Comment
Agree. Preventing anti-selection is essential. Further work would be required here to ensure the proposal is fully protected from anti-selection. For example, around any ill-health retirement optionality.

Assertions 13 – Risk that "Contributions reduce or cease entirely when smoothed value exceeds market value." And "AE scheme is a better option even if the smoothed value is up to 170% of market value". (Page 16)

Comment
Agree with first assertion. This is likely true particularly if a media personality picked up the issue. Clarification is needed with the second assertion. The working of this was not shown and the risk is not likely to be this simple or this rational. That said, this assessment highlights how this risk can be mitigated and this is discussed earlier in the assessment.

Assertion 14 – "The smoothed fund calculations in Section 3 show that there is a very small risk of smoothed value exceeding 150% of market value at any time, so the risk is minimal of younger workers ceasing contributions when smoothed value exceeds market value." (Page 16)

Comment
Clarification is needed. This is dependent on young people thinking like the author expects them to – and this might not be the case.

Assertion 15 – “if they leave the smoothed scheme, they will not be allowed to re-join for at least (say) three years.” (Page 17)

Comment
Clarification is needed. This is inconsistent with the current Draft Heads, and it implies that these would be adjusted.

Assertion 16 – “If someone is comfortable investing close to 100% in equities pre- and post-retirement, then the advantages of smoothing don’t apply, or apply to a lesser extent.” (Page 17)

Comment
Agree. This is a key point and could be drawn out more. This assessment has elaborated the point in an earlier section.

Assertion 17 – “MV_t is market value in month t (including cashflow, CF_t)”. (Page 18)

Comment
Clarification is useful. The formula could be simplified to make it easier to understand by not including the cashflow in the market value

Assertion 18 – “The paper also assumes that “i_t”, the expected long-term return (including the Equity Risk Premium) assumed in the smoothing formula will remain constant at 4% per annum (0.33% a month).” (Page 18)

Comment
Agree. This is consistent with research by the Society of Actuaries in Ireland

Assertion 19 – Table 1 on page 19

Comment
Clarification is needed. This table and the formula are somewhat confusing, and the formula could be adjusted to improve the coherence and make it easier to understand.

Assertion 20 – Table 2 on page 19

Comment
Checking is needed. Data to check this table was not available but the data could be sourced so it can be checked. That said, the overall argument does not materially depend on it, so it is not a material issue overall.

Assertion 21 – “how would it cope with a more prolonged downturn?” (Page 22)

Comment
Agree. The additional data modelling above supported the conclusion.

Assertion 22 – Figure 5, page 22

Comment
Clarification is needed. The smoothing in this example relies on new contributions, if there was negative cashflows, the opposite would be the case. Smoothing by contribution removes this issue.

Assertion 23 – Table 3, page 24

Comment
Clarification is needed.
The ability of the smoothing formula on a yearly basis to keep returns positive was demonstrated by modelling undertaken during the feasibility assessment.

Assertion 25 – “The challenge posed by negative cashflows is surmounted by stipulating that, when cashflows do eventually turn negative, members will still receive smoothed value on exit, calculated in exactly the same manner as when cashflows are positive. However, amounts withdrawn from the fund for net exits will be calculated at market value, with the excess (if any) of smoothed value over market value coming from a separate buffer account. Similarly, the buffer account will be credited with the excess whenever the market value exceeds the smoothed value for net exits. Thus, negative cashflows will have no impact on the scheme’s financial equilibrium: the ratio of smoothed value to market value will be exactly the same immediately before and immediately after funds have been withdrawn. This begs the question: when will the buffer account be established, and how will it be funded?” (Page 24)

Comment
This issue is addressed elsewhere.

Assertion 26 – “The smoothed fund will be valued once a month (possibly less frequently, because of the stability of smoothed returns), compared with daily valuations required under the current AE regime.” (Page 25)

Comment
Agree. Less frequent valuations, for example yearly, might be considered in the best interests of all stakeholders, for behavioural and other reasons. Watching stock markets go up and down all the time is considered difficult even for professional investors, so enabling AE members to do the same might not be sensible.

Assertion 27 – “0.2% of AUM can be transferred to the buffer account each year.” (Page 25)

Comment
This is addressed elsewhere.

Assertion 28 – Discussion of the Buffer Account on pages 25 and 26.

Comment
This is addressed elsewhere.

Assertion 29 – “A fixed return of 4.5% a year is assumed for the smoothed fund28, implying a return of 2.05% a year on the LIF.” (Page 27)

Comment
Further work needed. The post-retirement part of the alternative proposal is likely feasible and there are various options that would work, albeit further work would be needed to determine the best approach.

Assertion 30 – “The analysis in Appendix 1 indicates that the breakeven point for a young contributor is c170% of market value (assuming a 4% ERP) and is lower for older contributors.” (Page 30)

Comment
This is discussed elsewhere.

Assertion 31 – “This paper assumes that the experience of the Japanese market from 1990 is an outlier and can be ignored in contingency planning”. (Page 30)

Comment
Agree. Japanese economic and financial history is an extreme outlier over the last 1000 years and is not an appropriate comparison.

Assertion 32 – “However, this conclusion must be thoroughly stress-tested.” (Page 30)

Comment
This is discussed elsewhere.

Assertion 33 – “members can trust that the formula is tamper-proof.” (Page 30)

Comment
This is discussed elsewhere. Sound governance by individuals of appropriate character is a prerequisite to achieving this result.

Assertion 34 – "in theory, the chosen value of "i_t" should be the trustees' best estimate of the expected long-term return at time t, composed of the expected risk-free return plus the expected Equity Risk Premium (ERP)." (Page 31)

Comment
Clarification is useful. Projections are made with a fixed assumption, and it is potentially confusing for the reader. The cost of hiring professionals to set such an assumption each year needs to be borne in mind because it would increase the costs of the AE scheme and reduce the expected size of the pensions payable.

Assertion 35 – "This paper assumes a constant total return of 4% a year in the smoothing formula. Table 8 below shows how the charts of market and smoothed indices would have looked if the formula assumed a total return of 5% a year instead of 4% ("p" = 1% in both cases)." (Page 32)

Comment
Agree. Historical ERP for US equities over the last 50-70 years is about 7-8%.

Assertion 36 – "Therefore, the scheme as a whole sacrifices return by investing a significant proportion of its assets in lower-yielding bonds and cash." (Page 33)

Comment
Agree. As discussed elsewhere.

Assertion 37 – "On these assumptions, the smoothed approach delivers almost 70% better value for a young contributor, falling to 50% better value for someone in mid-career, and to 33% for a contributor five years from retirement." (Page 37)

Comment
Agree (on balance). These were found to be understatements.

Assertion 38 – "Contributors may retire at any age, without actuarial adjustment for "early" or "late" retirement: they just start drawing from their pension accounts." (Page 39)

Comment
Clarification is needed versus comment on page 15 of "most members will be lower paid and will have little choice on date of retirement." The issue of selection against the scheme due to "ill-health" retirement is discussed elsewhere.

Appendix C - About the Assessment Author

Short Biography – Dr. Colm Fitzgerald FSAI FIA

His PhD involved investigating the impact of human behaviour, at an individual and societal level, on long-term investment returns. His primary expertise is in investing and trading. He was a top-performing bond investment manager (outperforming his peer group by over five standard deviations) and he finished a successful trading career as Head of Quantitative Trading in Bank of Ireland Global Markets.

Colm is an actuary with more than 20 years of experience and has about 15 years of experience as an economist, as a member of the Bloomberg Survey of Economists. He holds a first-class-honours MA in Economics from University College Dublin.

He is an active volunteer in the actuarial profession. He is currently Chair of the Data Science Syllabus task force in the Actuarial Association of Europe (AAE), the representative of the Institute & Faculty of Actuaries (IFoA) on the Education Committee of the AAE and was recently a member of the Strategy Steering Group of the Society of Actuaries in Ireland.

He is currently a lecturer in Actuarial Science in University College Dublin, where he teaches Investment & Trading, Professional Ethics, Economics and Finance; and he is the founder of Classic Actuarial Education which provides tuition for the professional examinations of the IFoA.

He worked for what is now Willis Towers Watson in their investment consulting practice for approximately three years to help them improve their investment manager research.

Colm is the primary author of the education materials for the Finance & Investment Fellowship subject of the IFoA and has been a member of the IFoA Board of Examiners for 15 years. He was also an original author of the IFoA Enterprise Risk Management educational materials.

He has previously conducted similarly novel research to this feasibility assessment. For example, he was the first actuary hired by the IFoA to conduct climate change research in 2010. He conducted research funded by the Society of Actuaries in Ireland into quantifying psychological capacity for risk-taking and risk management, and before that into producing the Society's Financial, Economic and Investment Dataset.