

The Efficacy of Gearing Strategies for Retail Clients in Australia

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Report for Tropicoffs:
The Independent Financial Planners

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1.0 Introduction

Investors are presented with many paradoxes, few of which seem to make the task of putting funds aside for retirement any easier. Consider: 'look before you leap' versus 'the early bird takes the worm'. Should investors analyse the financial markets and taxation environment before investing for their retirement, or jump in and invest as soon and as often as possible? Coupled with financial illiteracy, the move from state to self-funded retirement, increased longevity and a desire to live a more active and affluent life in retirement, the job of the investor is increasingly challenging and the need to accumulate a large retirement nest egg is clear. The obvious question is how does the typical investor achieve this?

Investment practice and theory tells us that some basic strategies can assist investors in this regard and get a fair amount of the job done, all other things being equal. Such approaches include dollar-cost-averaging (Brennan, Li, & Torous, 2005), time value of money, adopting a long term investment horizon, diversification, quality assets/managers and professional advice. Indeed, enhancing one's knowledge and capability and making use of accumulation principles (time and compounding) will also assist. For many reasons however, things can get off track. Be it relationship breakdown, poor decision making, fraud, employment loss, illness/injury or one of many other factors, plans may not be achieved, or the target may move. Indeed, as one progresses through life goals, aspirations, needs and wants may change, perhaps leading to a higher required retirement capital base. Either way, the reality of underperforming the retirement glide path leads to difficult decisions – essentially lower expectations, increased contributions/savings/income and/or seeking a higher return through a different investment approach.

Even for investors who are on track and have avoided the myriad of pitfalls and ills, other factors can influence investment, and thus retirement, outcomes. For example, systemic, political, regulatory, geo-political and environmental risks can influence outcomes. The impact of such 'events', particularly towards the end of the accumulation cycle (referred to as the retirement risk zone ((Basu, Doran, & Drew, 2013)), manifest themselves as sequence risk – the risk of lower (or negative) returns occurring at a time when withdrawals are made/relied upon from one's capital base. Essentially, it is argued that the sequence, or order, of returns over an investor's life time is as impactful as the investments made (Vora & McGinnis, 2000). For example those who suffer a market correction (or more than a 20% drop in the price of shares overall (SOURCE)) around retirement time may have to significantly adjust their plans (via lower retirement income or work longer). Previous research has considered sequencing risk relative to retirement (Basu et al., 2013), strategies to avoid sequencing risk (Basu, Byrne, & Drew, 2009; Basu & Drew, 2007), and default investment options (Bodie & Treussard, 2007). The Life-Cycle Model of investing has also been discussed widely in the literature because it is a strategy which helps to ensure minimally engaged investors have an adequate portfolio (Bodie & Treussard, 2007). This is because the life-cycle model is easy to explain (Antolin, Payet, & Yermo, 2010) and helps to address the human capital trade-off which occurs as capital from labour reduces in line with capital from investment returns increasing (Viceira, 2007). However, authors have found that there are lower long term investment returns from switching to 'safe' investments in the last part of the investment term (Basu et al., 2009), further complicating decision making.



For those needing or seeking higher returns, a somewhat controversial (yet often recommended) investment strategy that is used in an attempt to improve investment performance is gearing, or margin lending¹ by individual investors. This refers to the use of borrowed funds to increase invested capital on the assumption that the income and capital returns from the investment made will be greater than the borrowing costs. This, is mathematically and theoretically sound in a simple theoretical scenario and will magnify returns in theory, however should the underlying investment underperform it can also magnify losses and the losses taken on the borrowed capital must be borne by the investors capital. Thus, an actively monitored approach is usually prescribed for those using this strategy. This was further noted by McKay (2009) who suggested that a longer investment horizon reduces the chance of negative returns and that while borrowing to invest can increase returns, investors need to be aware of the risk accepted in doing so and adjust their gearing strategy to suit this.

Unfortunately, recent history provides various examples of market scenarios which result in gearing going wrong. A prime example is the use of such strategies in the Storm Financial failure where 'double gearing'² was used for the majority of clients, even for those who would not be deemed sophisticated or active investors. The broader GFC also had impacts on many geared investors. The effects of gearing in a market correction are magnified when applied to riskier investments, such as was seen in the collapse of Opes Prime (Steele, 2008). For example it was also noted in Kim (2006) prior to the GFC that Citigroup clients were using gearing facilities to invest in artwork and boats.

In Australia, margin lending peaked in December 2007 at \$41.5 billion (RBA, 2016) and has declined to \$10.6 billion in December 2016 (similar to levels in 2002).³ Such high profile failures have had far reaching consequences for the investment and advice communities, however the impact on individual investors, some clients of financial advisers, has been nothing short of catastrophic (Brown and Davis, 2008). While the advice industry was reluctant to utilise these strategies in the years following the GFC (Pokrajac, 2012; Faherty, 2014), it was not long before commentary in the trade press began to emerge suggesting advisers considered it as a viable strategy to again recommend to clients (Purnell, 2013; Haill, 2013; Tsanadis, 2013, McKay, 2014). Gathering the views of financial planners, Munro (2013) concluded that planners do not see gearing as a large part of their business, but a strategy that can be used to accelerate wealth accumulation if the circumstances are correct. As we have discussed, those circumstances often rely on the 'correct' future of equity market performance, rather than anything concretely determinable in the present.

¹ In this paper we refer to 'gearing' as strategy and 'margin loans' as a financial product used to implement a gearing strategy.

² 'Double gearing' refers to a scenario where clients withdraw additional funds from their home mortgage (using the home as security), in order to invest in a geared investment strategy.

³ These figures do not include other forms of geared lending such as use of mortgage equity.



This paper examines gearing in the context of equity investment and seeks to model the impact of this on investment performance by modelling long term past performance. Making assumptions around investment parameters, we examine the performance of 413 geared portfolios over the March 1976 to July 2015 period. Underpinning this approach is that the majority of investors and financial advisers are not active investors and thus will usually adopt a naïve or passive approach. Indeed, evidence suggests that few in the market, including investment professionals (analysts, investment managers, etc.), are able to predict movements in the market and the ongoing passive versus active debate continues to underscore this.

We also examine gearing in the context of sequence risk. The effect of sequencing risk on gearing investment returns is not only an issue for geared investors, it is also an issue for financial consumer protection, and government funding of retirement pension schemes. This is an important topic for regulators because the negative effects of wide-spread gearing in the event of a crisis (such as the GFC) have the potential to significantly increase the financial burden or welfare commitments if a portion of society who were previously self-sufficient, become government reliant.

Thus, we build on the work of Basu et al. (2013) to apply a similar methodology to a geared portfolio of assets. This strategy allows the current paper to leverage off previously validated methodology to develop an understanding of the effects of sequencing risk on investment assets exposed to leverage. As the last decade has shown, the topic of gearing does not apply exclusively to high net wealth individuals with many unsophisticated investors, including many in a financial advice relationship, have found out the dangers of gearing the hard way. We seek to examine the efficacy of gearing in this context.

We find that, under the portfolio construction assumptions made, gearing increases investment risk dramatically and the volatility of path dependant returns highlights this. Gearing is also shown to increase sequence risk at the start of the investment horizon. This suggests that gearing should be the domain of the sophisticated investor and/or only on marginal levels of capital, the loss of which would not compromise either liquidity or the capital accumulation targets of the client. Given the state of retirement savings for many, the levels of financial illiteracy and the evidence of difficulty in predicting market, we conclude gearing is a low efficacy strategy for most investors. Indeed, given it is clear that the facilitators (lenders, brokers, etc.) always 'get paid first'⁴ and, with the exception of complete market collapse, do not share the capital risk. Investors should seek professional independent advice before considering such strategies.

The remainder of this paper is set out as follows. The next section provides a brief overview of the relevant literature followed by the method and data in section three. The fourth section presents the results with discussion in section five. Section six contains concluding comments and discussion of limitations and possible future research directions.



2.0 Background Literature

Margin lending has been in decline in Australia since the GFC (RBA, 2017). This is largely due to investor sentiment, concerns about the efficacy of the strategy (given its use in advice scandals), risk of margin calls, and financial advisers being reluctant to recommend the strategy (best interests duty, PI insurance limitations). Only 34% of advisers suggest gearing is a 'safe' investment strategy, (Purnell, 2013; Mackay, 2014; Faherty, 2011, Pokrajac, 2012). Interestingly, Purnell (2013) suggests that Gen X and Y investors are taking up margin lending in greater numbers than older investors, with the desire to grow capital for future housing investment cited as a cause. This article also suggested that more self-directed investors (up to 40% of new margin lending facilities) were making new applications, possibly driven by technological advances which make it easier for investors to take up such products directly from financiers. Purnell (2013) also noted that gearing levels appeared to have dropped from averages well above 50% in 2008 to around 40% for larger facilities and 30% for smaller accounts.

It is also interesting to note the warnings contained in articles published prior to the GFC. For example in 2001 it was noted that margin loans "have long been associated in the popular mind with instability in security markets" (Fortune, 2001, p3) and that such facilities had been critical in the 1929 crash (by exacerbating share prices in the late 1920's). Further, the 1987 crash and the historically high levels of margin lending in 2000 led to a congressional review in the US into margin requirements (Kim, 2006). The study concluded that margin loans 'aggravate' share price changes in either direction. Closer to the GFC, Kim (2006) argued that financial services were heavily promoting margin loans and noted that brokerage firms played down the risks of these facilities, including the likelihood of margin calls.

Previous research regarding gearing has tended to focus on institutional gearing, which is a widely accepted concept, such that companies are able to profit when they undertake operations which yield a higher return than the cost of delivering those operations (which includes the cost of capital). Authors have discussed the potential risk posed to economies when financial institutions (e.g. insurance companies and banks) lend to each other, creating a double-gearing situation (Fukao, 2002). Of direct relevance to this study, researchers have addressed predatory lending and the role regulation can have in reducing over-indebtedness of borrowers within communities (Agarwal, Amromin, Ben-David, Chomsisengphet, & Evanoff, 2014). Although most geared investment portfolios in Australia are not the result of predatory lending practices by financial institutions, this is worthy of consideration in order to generalise the results of this paper to the wider community.

⁴ Regardless of investment returns or market corrections, clients make payments for interest and account fees, hence the intermediaries or facilitators, always get paid first.



The regulation around gearing broadly mirrors the regulation around other loan products in that the main concern is that the client is 'suitable' for the product ("Corporations Act," 2001 (Cth)), such that they are able to make ongoing repayments. The Corporations Act (2001) Cth, through amendments in 2011 includes extra requirements for double geared investment products, illustrating that it is an issue which requires clear articulation in the regulation. Further, ASIC have released ongoing updates regarding their monitoring of margin lenders, with a particular focus on double gearing practices (ASIC, 2016). The regulation around margin lending was increased post GFC with the Federal Government taking over responsibility for the regulation of these products from the States on 3 July 2008, followed by the June 2009 introduction of the Corporations Legislation Amendment (Financial Services Modernisation) Bill which defined margin lending as a financial product. As a result, ASIC, in the second half of 2009, conducted a number of consultation processes resulting in new financial product provisions for margin lending becoming operational. This resulted in:

- The Corporations Act defines three categories of margin lending facilities (standard, non-standard and any other facility that ASIC declares to be a margin lending facility).
- An AFSL being required to issue or provide advice on these products with the provision of margin lending advice included (thus existing AFSL's had to apply to vary their license to include this) with general license obligations compensation, external dispute resolution, advice/AR competence and training, appropriate disclosures and explanations in Financial Services Guides and Product Disclosure statements in relation to margin lending.
- Advisers need to be authorised by an AFSL with coverage of margin lending and complete relevant training under RG146 on margin lending.
- Financial service providers subject to responsible lending obligations in relation to margin lending including (under the Corporations Act):
 - o Assess whether the margin lending facility will be unsuitable for the retail client if the facility is issued or the limit is increased; and
 - o Before making the assessment, make reasonable inquiries about the retail client's financial situation, and take reasonable steps to verify the retail client's financial situation.
 - o In determining whether a margin lending facility is unsuitable, at the time of the assessment, the financial service provider must consider whether the client would:
 - Be able to comply with their financial obligations under the terms of the facility, or
 - Suffer substantial hardship if a margin call was made.



This was extended with the credit licensing rules (set out in ASIC RG203) which cover those who provide credit for, or advise on margin lending. Thus for AFSL's with geared investment portfolios, suitability applies not only to the ongoing interest rate (which is generally interest only, variable), but also a potential contribution if the value of the underlying assets fall to the extent that the pre-determined proportion of loan to valuation is too low (this is a margin call) (Lu & Putri, 2016). This is of particular importance for understanding which investors are more suitable for geared portfolios, as research has found that the repayments are more important than the overall level of debt undertaken (Weller, 2007). The regulation also generally applies to financial planners providing personal advice, and product providers, particularly the best interest duty (BID) and disclosure regulations in relation to products and advice. The regulation for financial planners is particularly relevant to the current discussion because it is reflective of the potential influence financial planners have over client portfolios. Interestingly Purnell (2013) notes that the BID has reduced adviser willingness to recommend these strategies.

The current study is primarily concerned with the impact gearing has on investment returns over a series of potential investment periods, and as such the underlying investment is worthy of discussion. Authors have found that shares are 'safe' long term investments, and that cash is a 'risky' long term investment (Viceira, 2007). This perspective underlies the strategy often undertaken regarding long term equities exposure in investment portfolios. Authors have also considered the relationship between the housing market and the equities markets (Lustig & Van Nieuwerburgh, 2006), however, it is difficult to draw causal conclusions from this research. There is a large body of literature which considers the asset allocation of a portfolio over a long period of time, and has found that asset allocation is the key driver of pension outcomes (Byrne, Dowd, Blake, & Cairns, 2006). Further research has considered the asset allocation required for female investors is much larger because of the disadvantage regarding investment balances (Basu et al., 2009). Basu et al. (2013) analysed Morningstar data within a six-asset-class model portfolio to illustrate the unequal effect of a crisis on an investment portfolio depending on when the crisis occurs. Further, authors have found that the life-cycle investment strategy is inherently flawed because a significant amount of the growth in investment values occurs in the last few years of the investment term (Basu & Drew, 2007).

This paper addresses the above issues regarding investments, gearing, and time issues by examining all of the potential portfolios over the last 40 years to determine the real impact of gearing on investment returns, relative to volatility and the market portfolio without gearing. The time-horizon of investments is particularly relevant because it has been found that long term investments in risky assets are a sound investment (Viceira, 2007). However, authors have also found that time diversification (over multiple periods) is critical for positive investment returns (Guo & Darnell, 2005). Although this seems to indicate that dollar-cost-averaging is the best model to achieve this strategy, the research does not support dollar-cost-averaging as a strategy to reduce volatility or increase returns (Brennan et al., 2005; Vora & McGinnis, 2000). Throughout the research on time-horizon it is emphasised that it is critical to match the risk profile of the investor to the time-horizon (Bodie & Treussard, 2007). Thus, a one-size-fits-all approach



to the asset allocation of investors, even of the same ages, is not supported in the literature. This is directly relevant to the current study, which considers geared investment portfolios within the context of a long term retirement plan. In order to ensure the results of the current study are generalizable within the context of the literature discussed above, a series of investment portfolios will be presented, investing in a single equities index over a long period of time. It is expected that the results from the current research will inform practice, policy and investment decisions on this topic.

3.0 Data and Portfolio Construction

Data is obtained from DataStream for Australian market variables from 1976 to 2015 and credit data is obtained from the RBA Bulletin Statistics. Portfolios are formed for a five year investment period starting at February 1976 to July 2015 with a one month forward roll, resulting in 413 portfolios with the last portfolio starting in July 2010. End of month data is used to calculate the monthly returns with interest rates and fees applied to the end of month balance also, thus we assume no tracking error. Following consultation with practitioners, the geared portfolios are constructed with an upfront \$100,000 capital investment and \$100,000 debt (50% leverage). A long position is taken with no ongoing contributions and all returns reinvested, and returns are calculated based on the performance of 'the market' – i.e. the ASX All Ordinaries. No entry or exit fees are applied, however a 1.5% MER is applied as well as an annual lending fee of \$500 and a monthly fee of \$10 on an interest only credit facility with interest compounded daily and charged monthly based on RBA lending rate data over the sample period. No adjustments for inflation or taxation are applied. Margin calls are tracked on an LVR of 70%, however are not executed – the portfolios are allowed to run. This provides a reasonable approximation of a typical geared facility, and this should be kept in mind as one considers the outcomes of the modelling.

4.0 Results

4.1 Geared Portfolio Outcomes

Summary statistics for the resultant portfolios are contained in table 1 and show that the average portfolio value (based on a \$200,000 investment) at the end of 60 months is \$218,803.39 with a resultant annualised net return on the initial capital investment of approximately 3.4%. The maximum end value was over \$660,000 representing a 35% plus return, while the minimum portfolio end balance was \$51,983, which represents a more than 100% loss of capital. Furthermore, 54% of the portfolios end up with a positive return (of over \$200,000), with 46% resulting in a negative overall return. This highlights the significant range of outcomes based on a contrarian approach to the timing of the initial investment.



This compares to the average performance of market portfolios (no gearing) of \$141,166 which is superior to the net average of the geared portfolios once the debt is repaid. While the maximum performance is inferior, it is important to note that no non-geared portfolio suffers a 100% loss of capital with the minimum end value being just over \$60,000 on the initial \$100,000 investment. Indeed the average annualised return on the non-geared portfolios is approximately 7%; double that of the geared portfolios. In terms of range of portfolio outcomes, 86% of non-geared portfolios produced a positive return (end balance greater than \$100,000).

Table 1: Descriptive Statistics

Descriptive Statistics	Average Portfolio	Weakest End Portfolio	Strongest End Portfolio	Market Portfolio (No gearing)
Average	218,803.39	159,223.73	291,734.28	141,166
Maximum	663,150.55	200,000.00	699,851.59	415,365
Minimum	51,983.92	51,983.92	200,000.00	60,425
Range	611,166.63	148,016.08	499,851.59	354,940
Median	208,233.84	163,354.58	251,627.19	133,177
Std Deviation	82,157.69	32,367.49	101,578.22	49,538
Calls made	3	75	0	0

Notes: This table contains descriptive statistics for the 413, 60 month geared portfolios that are formed across the 1973 to 2015 period.

To gain a better appreciation of the dispersion of returns across the portfolios (and to account for outliers) Table 2 reports the outcomes for portfolios that are ranked by end value and disaggregated into quintiles. This further illustrates the variability of returns with 62 of the 83 portfolios in the best performing quintile group of the geared portfolios (Panel A) dropping below the initial investment value (\$200,000) at least once (end of the month data) during the five year investment period. Furthermore, a quarter of the third quintile group produces an overall negative capital outcome. In comparison, the non-geared portfolios (Panel B), only the 5th quintile produces a negative capital outcome on average (less than \$100,000) with 33% of the portfolio's in that quintile producing a positive outcome. Furthermore the variability of outcomes in each quintile (standard deviation) is lower in four of the quintiles and the percentage of portfolios that drop below the invested capital at some point in the 60 month investment period is lower in all quintiles.



Table 2: Dispersion of Rates of Return by Quintiles

Panel A: Geared Portfolios

	Quintile 1 (Best Performing)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (Worst Performing)
Total number of portfolios	83	82	82	83	83
Average end value	339,667.98	243,489.70	207,180.81	175,485.50	128,417.45
Number of margin calls	1	1	6	26	75
Minimum below \$200k	62	69	82	83	83
Winners (value end > \$200k)	83	83	60	0	0
Losers (value end < \$200k)	0	0	22	82	83
Max Portfolio Value (at end)	663,150.55	265,393.76	224,152.68	189,973.67	160,995.94
Min Portfolio Value (at end)	265,566.18	224,233.78	190,662.90	161,525.39	51,983.92
Range of Portfolio Values	397,584.37	41,159.98	33,489.78	28,448.29	109,012.02
Median Portfolio Value	312,358.95	242,689.15	208,233.84	176,822.28	135,703.80
Standard Deviation	86,326.12	12,918.53	10,065.23	7,771.85	26,849.46

Panel B: Non Geared Portfolios

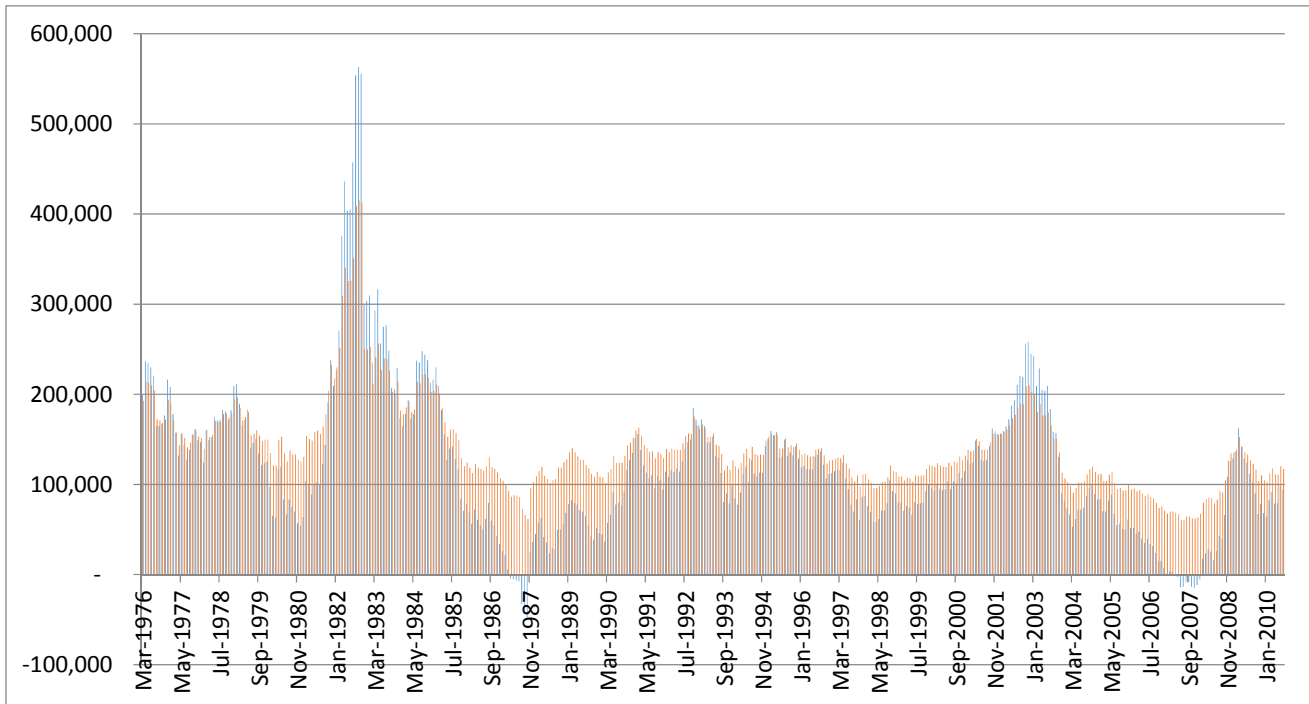
	Quintile 1 (Best Performing)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (Worst Performing)
Total number of portfolios	83	82	82	83	83
Average end value	214,569	152,995	131,176	117,428	89,455
Minimum below \$100k	57	56	74	76	83
Winners (value end > \$100k)	83	83	82	83	28
Losers (value end < \$100k)	0	0	0	0	55
Max Portfolio Value (at end)	412,055	166,674	140,083	123,877	106,597
Min Portfolio Value (at end)	169,200	140,487	124,202	107,480	60,751
Range of Portfolio Values	242,855	26,187	15,881	16,397	45,846
Median Portfolio Value	200,836	153,240	133,139	116,802	93,614
Standard Deviation	54,810	6,875	4,814	17,172	14,373

Notes: This table contains descriptive statistics for the 413, 60 month geared (panel A) and non-geared (panel B) portfolios that are formed across the 1973 to 2015 period split into quintiles based on end value of the portfolio.

These results highlight the significant increase in variance in returns and return profiles that gearing introduces to investment outcomes and thus the risk that investors assume when adopting this strategy. Thus, while the possibility of higher returns than the market is evident in 1 geared quintile this is contrasted with four of five quintiles making a positive return in the non-geared portfolios. Put differently, geared investors obtain a one in five chance of beating the market at the cost of moving to a two in five chance of losing capital rather than a one in five chance of making a loss (in the non-geared portfolios). We conjecture that while the lure of higher returns is strong, the risk associated with gearing is substantial. Figure one reflects this graphically and shows that the outperformance of the geared portfolios largely only appears at extremes of the markets, and on average they underperform the non-geared portfolios. The figure also illustrates that the potential returns in a portfolio have a high degree of variation depending on when the portfolio was initiated - more on this below), and the long term returns from gearing are relatively poor.



Figure 1: All possible portfolio returns



Notes: This figure presents portfolio performance for geared (blue) and non-g geared (orange) portfolios based on the year and month of first investment.

4.2 The Time Dimension

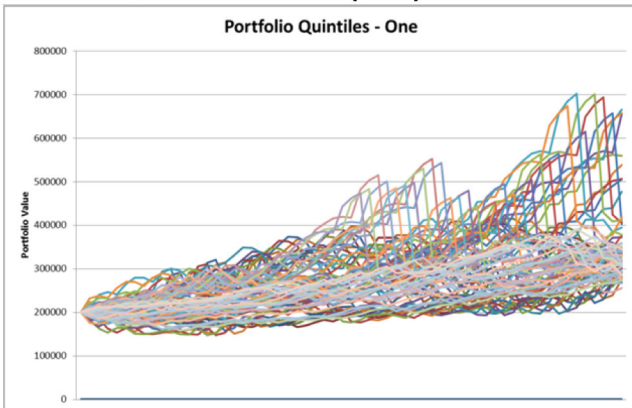
The dimension of time suggested in figure 1 is also worthy of further investigation. Firstly, from a glide path perspective, Figure 2 illustrates the time-based performance of each portfolio divided into quintiles. The best performing portfolios (quintile 1) illustrate a relatively consistent upward trend in performance with most volatility to the upside. What is noticeable as portfolio performance declines is that the distribution flattens, and turns to a negative time trend in quintile 5, and volatility expands across the distribution both in terms of occurring earlier in the investment timeframe and to the negative side of the distribution. Of particular note is the variance in returns in the first few months of each quintile (the left hand side of each panel) and how this escalates from quintile one to five. This provides evidence to suggest the emergence of sequence risk at the start of the distribution. Figure 3 illustrates this further with the quintile time data presented for the non-g geared portfolios.

Visual inspection of the non-g geared figures suggests there is a similar pattern of returns (note the scale difference however) for quintiles one and two (best performing) although with a more muted range of variance in return, however the last two quintiles begin to differ, particularly in the extremes of the distribution. Statistical analysis confirms the difference in initial portfolio variance with the standard deviation of returns in the first 12 months being on average 48% higher across the geared portfolios and 55% greater in quintile five (weakest performer). Furthermore, the variance in the first 12 months is a statistically significant predictor of geared portfolio end value (and particularly strongly for the quintile five group), but not for the non-g geared portfolio.⁵ Thus, gearing of portfolios (as per the parameters utilised here) introduces sequence risk at the start of the investment horizon.

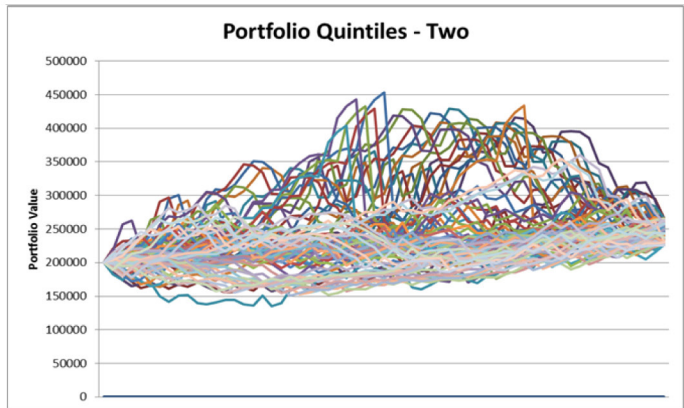


Figure 2: Geared Portfolio Return Paths By Quintile

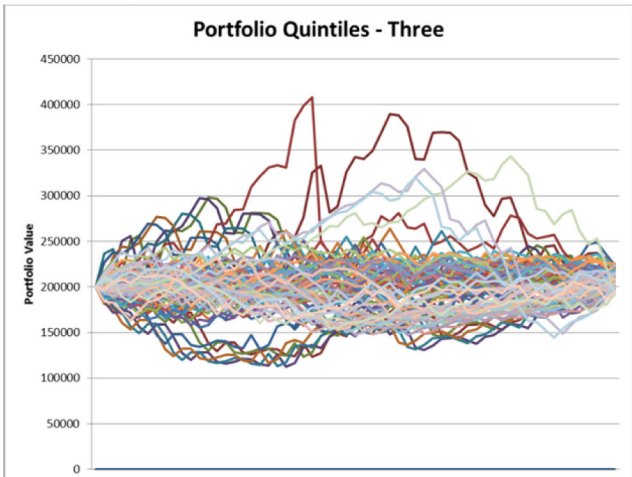
Panel A: Quintile 1 Returns (Best)



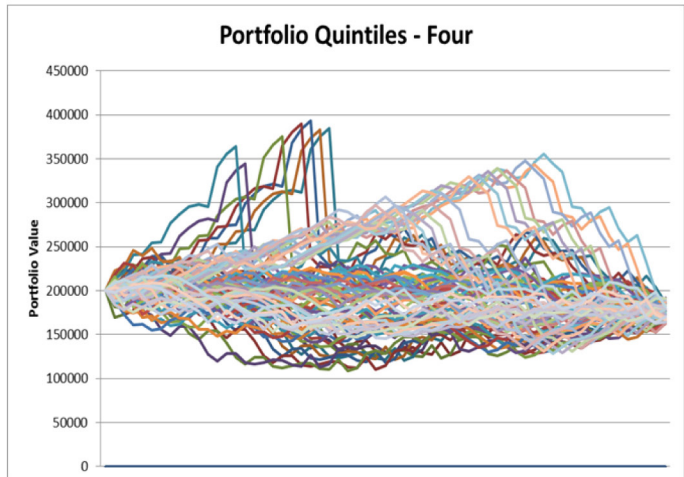
Panel B: Quintile 2 Returns



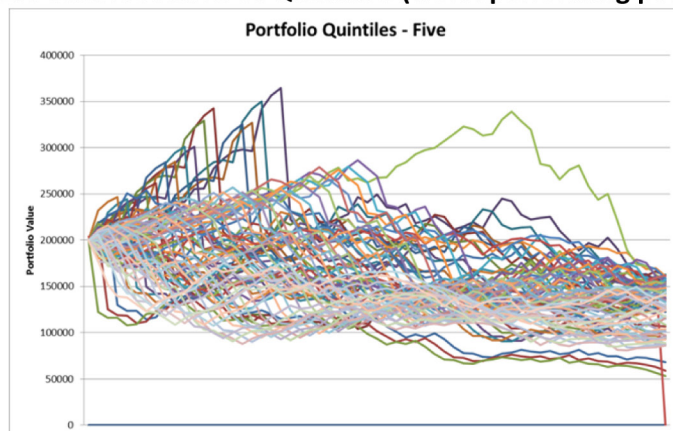
Panel C: Quintile 3 Returns



Panel D: Quintile 4 Returns



Panel E: Possible returns of Quintile 5 (worst performing portfolios)



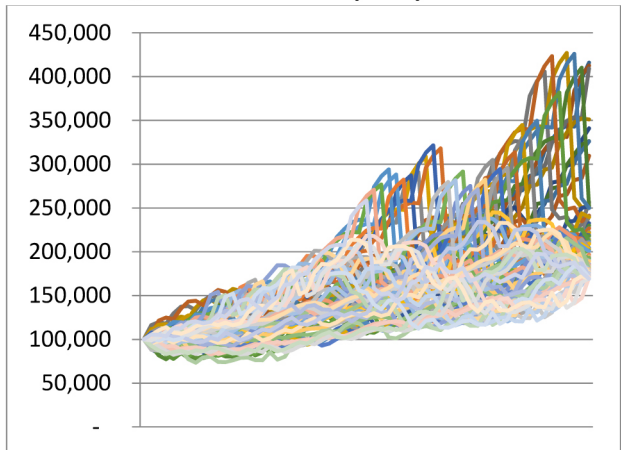
Notes: The above figure represents all of the possible portfolio value movements across the investment period for each of the geared portfolios, within each quintile grouping with quintile one being the highest performer and quintile 5 the lowest.

⁵ P-value of 0.05 for the pooled group and P-value of 0.00 for quintile 5 utilising OLS regression.

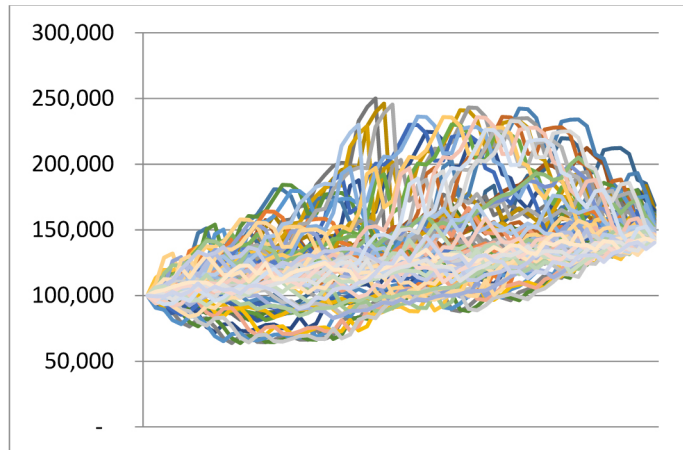


Figure 3: Non Geared Portfolio Return Paths By Quintile

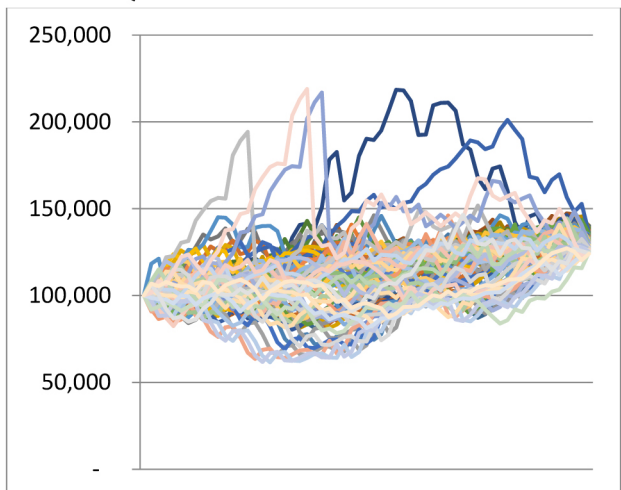
Panel A: Quintile 1 Returns (Best)



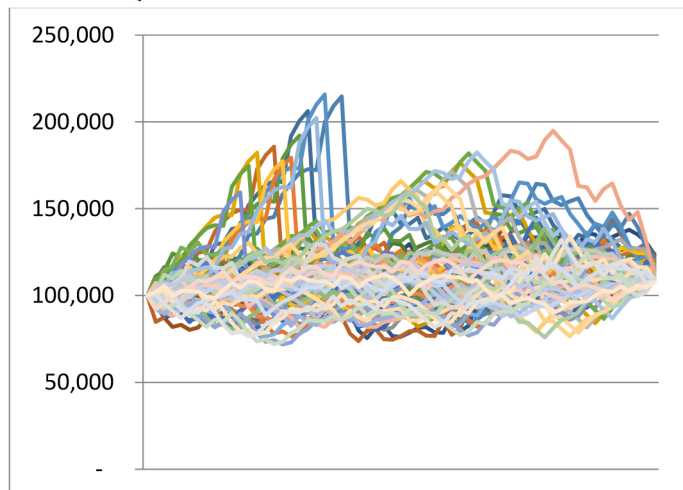
Panel B: Quintile 2 Returns



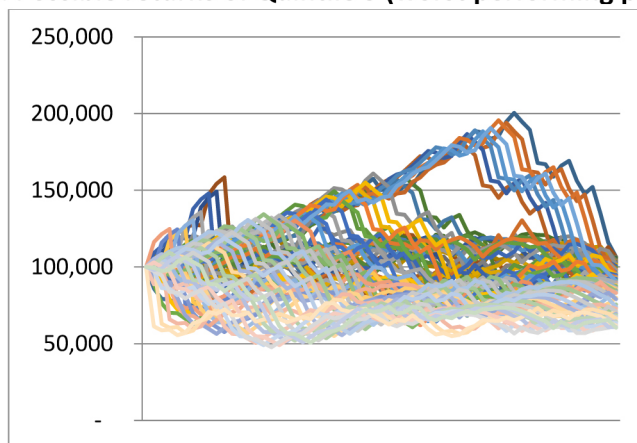
Panel C: Quintile 3 Returns



Panel D: Quintile 4 Returns



Panel E: Possible returns of Quintile 5 (worst performing portfolios)



Notes: The above figure represents all of the possible portfolio value movements across the investment period for each of the non-g geared portfolios, within each quintile grouping with quintile one being the highest performer and quintile 5 the lowest.



The heat map in Table 5 illustrates the pattern of returns over this period and highlights a degree of clustering of performance with the worst performing periods being those that occur around major market corrections (1987, 2001, and 2007/8). This reinforces the view that where gearing is used, an actively monitored and managed approach needs to be taken and caution should be applied as markets accelerate and indicators (for example 200 day moving average, P/E ratios, Shiller P/E, technical and fundamental analysis, etc.)⁶ suggest the market is expensive/overvalued. This is, however very easy to say in hindsight, but very difficult to predict moving forward, once again highlighting the risk of gearing for the average accumulator.

Table 5: Geared Portfolio Performance

	January	February	March	April	May	June	July	August	September	October	November	December
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2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												

Notes: This table presents a heat map summary of each of the 5 year geared investment portfolios with the combination of year (vertical axis) and month (horizontal axis) reflecting the first month of investment and the colour representing the portfolio performance as per the following: Quintile 1 (Green) is the highest performance, quintile 2 (yellow), quintile 3 (orange), quintile 4 (red), and quintile 5 (weakest performance) grey.

⁶ Further research is required to determine the statistical predictive and causal value of these variables



Clustering of performance is further illustrated in Table 6 which heat maps the excess return of the geared portfolios over the non-geared. This suggests that periods of sustained, multi-year market outperformance is required for gearing outperformance to persist. The period between the bottom of the market in 1994 through to the GFC (notwithstanding the somewhat minor correction in 2003 which was overcome due to the sharp 'v' shaped recovery) illustrates this. Indeed, this run up drove the growth in geared investment and perhaps fuelled the view that such high year on year returns were the norm. As history now tells us, this is not the case, and those who poorly invested in the lead up to the GFC wear the scars to show it. Once again, assuming the crystal ball is not at one's disposal, gearing for the average accumulator is a risky proposition.

Table 6: Excess Returns (Geared over Market)

	January	February	March	April	May	June	July	August	September	October	November	December
1976												
1977												
1978												
1979												
1980												
1981												
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2004												
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2009												
2010												

Notes: This table presents a heat map summary of excess returns of the geared portfolios over the non-geared with the combination of year (vertical axis) and month (horizontal axis) reflecting the first month of the five year investment and the colour representing the relative performance as per the following: Quintile 1 (Green) is the highest performance, quintile 2 (yellow), quintile 3 (orange), quintile 4 (red), and quintile 5 (weakest performance) grey.



5.0 Discussion

5.1 *The bank always wins*

When it comes to geared investment portfolios, it is clear that there is one winner: the lender. The payments to the provider of the loan capital are paid irrespective of performance, except in the worst case scenario, where they would either issue a margin call, sell securities (should the margin call not be met), and eventually recover losses from collateral if necessary. This perspective is clearly illustrated in the following table, where the average bank interest, MER, and end value (start value of \$200k) are provided in directly comparable form. The table shows that the returns to product providers are relatively stable across the quintiles and exceed the return to investors in all but the first quintile once the base loan and investment capital is acquitted.

Furthermore, given the interest rate on margin loans is typically 350 to 600 basis points above the cash rate (plus fees) and lenders share little of the investment risk, the most likely 'winner' from this strategy is the financial institution, not the individual client seeking an investment strategy to deliver above-market returns over the long term. Indeed, delivering consistent return of cash plus five percent return plus gearing costs (approximately 11%) seems difficult for the average investor, particularly in a low rate world. This imbalance is a key issue that should be considered when utilising these facilities and the promoters of them. We note the example of more 'equitable' models that exist in other domains of finance such as the equity and outcome sharing models found in Islamic Finance (Usmani, 1999; Vogel and Hayes, 1998) that may provide a fairer distribution of outcomes. Indeed, there is a call for innovation in the primary market in relation to technology, access, product flexibility, non-margin call accounts, margin calls replaced with payment programs, and penalties for under-diversification are also being discussed. This is particularly notable given the greater take up of margin lending accounts by self-directed and younger investors, in an environment of increased competition for investor business (Purnell, 2014).

Table 8: Bank Interest

Quintile	Average Bank Interest	Average MER	Average End Value
1 (Best)	60,198.80	20,377.15	339,667.98
2	49,243.23	17,587.54	243,489.70
3	46,619.82	15,074.32	207,180.81
4	49,531.60	14,794.00	175,485.50
5 (Worst)	56,221.21	12,143.58	128,417.45

Notes: This table presents summary data on the average interest rate cost and MER for the five year geared portfolios divided into quintiles based on end value. Note that MER is calculated as a percentage of the fund balance on a monthly basis and interest rates are calculated as per RBA data.

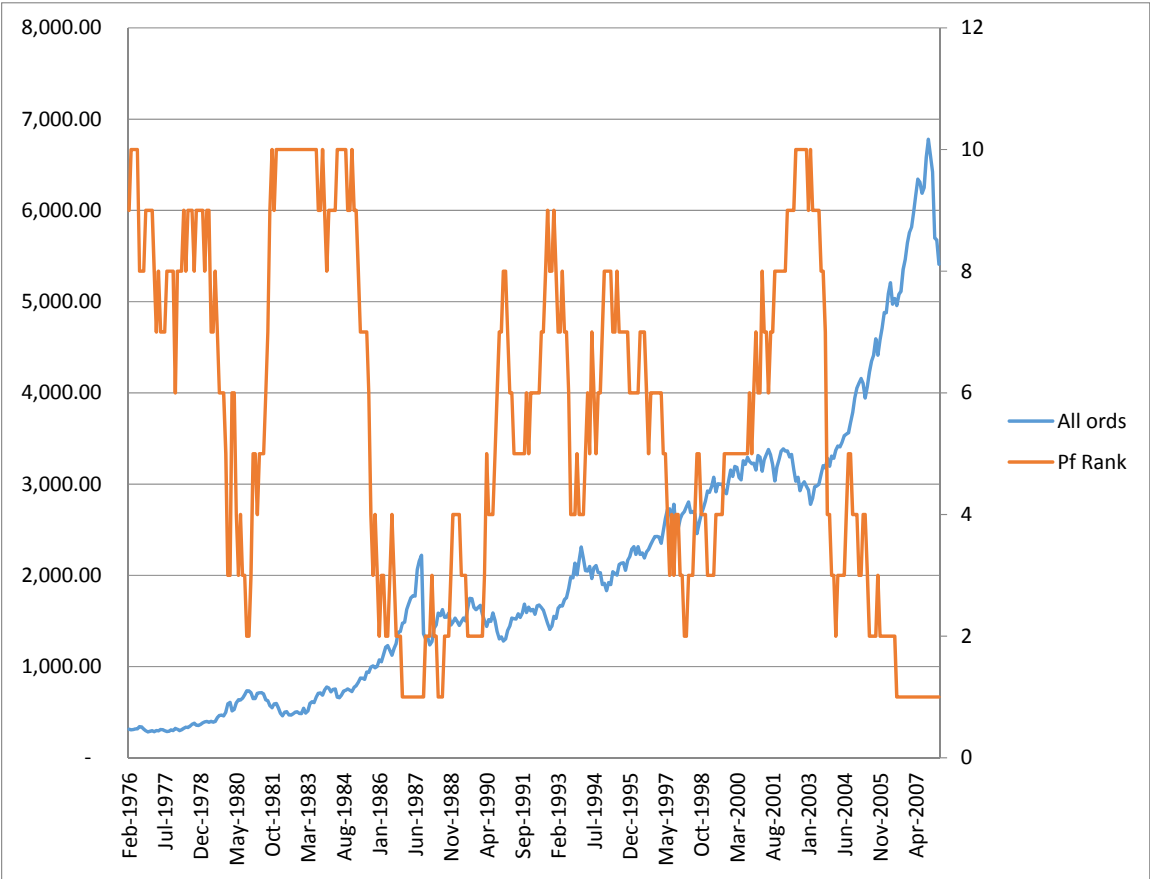


Table 8, above, illustrates that regardless of the performance of the portfolio, the bank receives a total of greater than \$46,619 over five years, and even more when the balance of the investment has higher volatility (such as in the portfolios for the worst performing quintiles. Even in the worst performing quintile, while the investors lost an average of around \$70,000 over five years, the bank received \$56,221 in interest alone. When we consider the cumulative effects of interest, MER's, and other fees, on a poorly performing portfolio it is clear that the bank does not suffer from the investment performance, but the investor suffers greatly.

5.2 High volatility outweighs potential returns

As discussed above, gearing increases the volatility of returns and introduces or accentuates a range of risks in relation to capital, liquidity, timing and providers (third parties). That is not to say that these are not evident in any potential investment decision, rather that gearing impacts on these while introducing an additional cost hurdle that the underlying investments must meet before delivering returns to investors. Figure 4 highlights this, showing the volatility in geared portfolio performance over time when portfolios performance is ranked in deciles. We suggest that the high volatility in such portfolios, on balance, is not acquitted by the potential for excess net investor returns.

Figure 4: Australian All Ordinaries Index vs Portfolio Performance





5.3 *Gearing increases sequence risk*

Gearing is often recognised as a financial tool to increase exposure to asset classes which have the potential to offer returns greater than the cost of the gearing mechanism. As such, gearing is well known as a tool to increase the risk of losses as well as potential gains to be magnified in line with increased market exposure, relative to the amount of personal capital invested. Gearing simultaneously increases the market risk the investor is exposed to as well as interest rate risk, given that the cost of a margin loan has the potential to reflect interest rate trends. This is compounded by the possible rapid fluctuations of equity markets matched with consistently increasing interest rates associated with a margin loan (in an increasing interest rate environment).

The above tables and graphs illustrate that gearing can produce positive investment returns over the long term, but whether or not this happens is not so much a result of time in the market, but rather the time of entry into the market. Thus, the benefits of long term exposure to risky assets are negated through the magnified importance of when the investment begins. As practitioners in the funds management industry are well aware, an attempt at timing the market is a futile task.

Thus, geared investments provide clients with increased exposure to risky assets, and whether there is a market downturn soon upon entering the market, or soon before exiting the market, will not only increase the sequencing risk that client is exposed to, but also systematically reduce the likelihood of positive investment returns over the life of the investment. For the average accumulating investor this risk does not seem to be adequately compensated with above market returns.

6.0 Concluding Remarks

Accumulating sufficient wealth with a view to funding a comfortable retirement lifestyle is a pressing challenge for Australians. Be it the need to be financial independent for longer, the desire to live a more active retirement, the desire to support children and grandchildren, or the rise of the cost of health care, accumulating a capital base into the millions is not a luxury, but a necessity for most. Along the path to retirement things can also go wrong; a broken relationship, a poor investment decision, a major market correction, or perhaps being defrauded. There are many reasons why one may find themselves below the retirement 'glide path' and thus need to either moderate retirement expectations, generate more excess cash to invest or take more risk (in hope of a larger return). One strategy that has been used to, and is often marketed as, providing larger returns is gearing. In the retail space, margin lending is somewhat out of vogue, with a marked decrease in product usage post GFC and caution exhibited by advisers due to higher profile failures that involved (usually heavy) gearing. The strategy is however, never far away from the pages of the media and product marketing machines and thus in this paper we seek to examine the efficacy of gearing for retail investors.



Analysing the performance of 413, 60 month geared portfolios from the 1973 to 2015 period, we conclude that when the theory of gearing meets the reality of market performance, the market wins. Gearing is shown to increase volatility across the investment horizon, increase the costs of investment and often underperforms the non-geared market portfolio. Notably, sequence risk is introduced at the start of the investment horizon, further complicating timing risks. Sequencing risk is something that affects the retirement planning of many Australians and people across the world. Sequencing risk is so important in retirement advice that advisers have established techniques such as 'bucketing'⁷ to ensure that clients are not disadvantaged by investment market fluctuations. However, in the specific context of gearing, sequencing risk becomes even more important. This is because if sequencing risk is introduced at the start of the investment term (i.e. a large loss occurs), the time required for recovery is long, and can impact the retirement plans of investors. In situations where gearing is part of the retirement planning strategy, sequencing risk is also introduced at the end of the investment term, where a negative return has the potential to eliminate the positive returns of the previous half decade, simply because of the geared nature of the portfolio.

We conclude that gearing should be utilised with the utmost caution by retail investors and their advisers and in a way that does not put essential capital at risk. Furthermore, such strategies must be actively monitored and managed by investors (and their advisers) with caution applied to end of cycle markets where possible to minimise these risk; we note again the evidence that this (active management) is often not a successful strategy. Thus, this is not a suitable strategy in our view, for the majority of retail investors. Advisers (and product providers) should be diligent in explaining the potential risks and low returns that such strategies expose investors to and ensure the BID is met in accordance with such advice.

As noted above, we adopt a particular set of parameters in constructing our geared portfolios. While this aims to take a 'median' position, different parameters may lead to different outcomes. This also represents opportunities for further research as well as investigating the market parameters of time periods related to better gearing outcomes, and understanding client financial literacy in relation to these strategies including the behavioural factors. These findings should be of use of investors, financial advisers, policy makers and product providers and inform the efficacy of investment decision making literature.

⁷ The term 'bucketing' refers to the standard practice of having two years' worth of income held in a cash equivalent investment to fund the immediate retirement income requirements. This allows that in market downturns, investments do not need to be sold to fund retirement income, because there is already a 'bucket' of cash set aside to provide that income. Once markets recover, the 'buckets' of cash can be replenished by selling now recovered risky assets.



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