Breaking Down Bucketing

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Summary

Bucketing is a widely used framework for managing retirement income, often justified on behavioural grounds and on the intuition that spending from low-risk assets allows growth assets time to recover. This paper tests whether bucketing provides financial benefits.

Using more than 150 years of data, we find that its apparent outperformance is largely driven by an unintended increase in growth-asset exposure. After adjusting for this growth drift, the remaining benefit is relatively small, inconsistent and dependent on mean reversion in returns. When return sequences are shuffled, modelled as IID, or exhibit momentum, bucketing offers no reliable advantage and may reduce returns.

The Promise of Bucketing

"Bucketing" is a commonly recommended approach to managing a diversified portfolio while withdrawing a stream of income. The idea is to hold a "bucket" of capital in a low risk investment to fund near-term income, while the remainder is invested in a higher risk "bucket" to provide long term growth. This provides clean mental accounting and certainty over the ability to meet expenses from safe assets.

There is also the common idea that this system allows the investor to avoid selling growth assets in a down market, as they can use their spending bucket to provide income, then the spending bucket can be "topped up" or rebalanced when markets are stable.

Putting aside the behavioural and peace of mind benefits of such a system, it does raise the question of whether the intuition of bucketing provides financial value to the investor.

Evidence From History

Let's run a quick horse race to compare bucketing to a simple static allocation. Both strategies start with an 80% allocation to a growth portfolio[1] and a 20% allocation to cash.

The bucketing strategy withdraws income[2] from the cash bucket, which is then rebalanced unless the growth portfolio has suffered a loss in which case the cash bucket is rebalanced once the growth portfolio has regained its all-time-high. The static allocation simply funds its income from both the growth and cash portfolios, and keeps these rebalanced every month.

Alternative bucketing rules and bucket size specifications exist, but most share the same key mechanism: spending from low-risk assets and delaying the sale of high-risk assets after losses. The findings here concern that mechanism, rather than any specific parametrisation. Likewise, the withdrawal rate assumes a proportion of the portfolio is withdrawn, rather

[1] Growth portfolio defined as a 80:20 stock-bond portfolio invested in US equities and US 10Y bonds.

[2] We assume that income is withdrawn from the portfolio by the minimum Australian withdrawal rates, which start at 5% and increase to 14% by age 95

than a fixed dollar value. This can blunt the impact of return sequencing but is in alignment with regulations and common rule-of-thumb withdrawal rules.

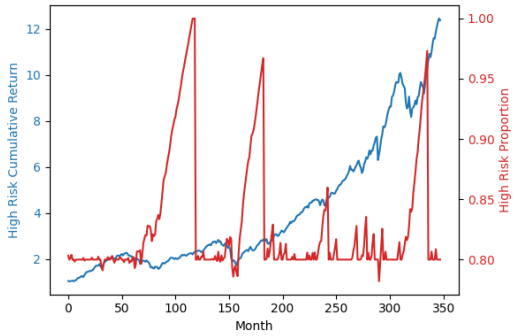

Figure 1: A simulated bucketing strategy, which shows how the proportion of the portfolio invested in the high-risk bucket climbs during market downturns as the cash bucket is used to fund expenses.

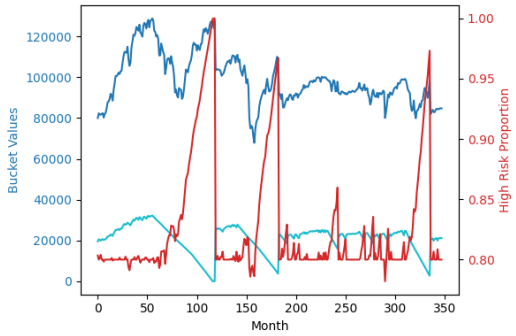

Figure 2: A simulated bucketing strategy, showing the size of each bucket and the proportion allocated to high-risk bucket

This race shows that the bucketing strategy provides 2.55% more income to the investor on average and outperforms the baseline in 100% of the 1509 historical cases tested[3].

[3]We use a rolling sample of monthly returns from 1/1871 to 9/2025

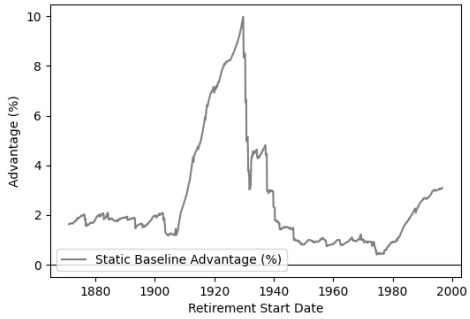

Figure 3: The income advantage of the bucketing strategy simulations over the historical dataset, shown as a percentage increase over the static allocation baseline.

Breaking Down the Performance Gap

Now let's try understand where that 2.5% outperformance is coming from.

The Growth Effect

Bucketing delays topping up the cash component of the allocation, which biases up the exposure to the high-risk bucket and its higher return assets. Perhaps this is driving the extra income?

We can test this by adjusting the benchmark so that its static allocation matches the average of the bucketing strategy's allocation over the specific return path tested. This removes the relative impact of biasing up the growth exposure while retaining the impact of timing when the higher growth allocation is taken. This adjustment reduces the income advantage from 2.55% to 0.95%. The bucketing investor is now better off in 75% of cases rather than the previous 100%. As is shown in the graph below, the benefit is also inconsistent over time and has been poor over the last 50 years.

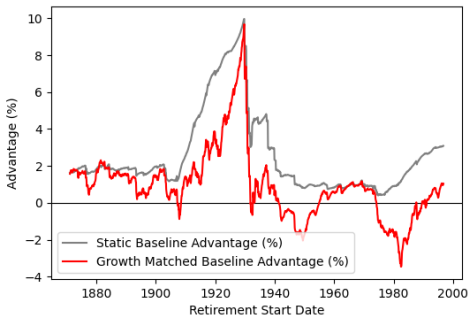

Figure 4: The income advantage of the bucketing strategy simulations over the historical dataset, for both static (grey) and growth-matched (red) benchmarks.

Return Dynamics

Another possible driver of the historical performance is the time series dynamic of market returns. We can test this by removing any time series dynamics by shuffling[4] the order of the observed returns then retesting the bucketing strategy against the growth-matched benchmark. This was repeated for 1500 samples, and completely removed the benefit of bucketing. The bucketing strategy provided 0.13% less income and was better than the benchmark in 51% of the tests.

IID Normal Returns

We can confirm these results through simulation, by generating random returns that have the same mean, volatility and correlations as the historical data. First lets generate random normally distributed returns, which are analogous to the shuffled historical data, without the fat tails.

The advantage of bucketing over a growth-matched benchmark is again zero in this test with almost identical results to the shuffled historical returns: An income advantage of -0.15%, with bucketing performing better in 53% of tests.

Putting it back together

Now that we have replicated the results of the shuffled historical returns, we can attempt to replicate the initial historical results by adding time series dynamics to the simulated data. This should illustrate the dynamics required for bucketing to produce financial benefits.

We can add a mean reversion dynamic to the simulated returns by biasing returns up when they are below the median expected cumulative return and vice versa. Adding this dynamic results in positive bucketing benefits again, with a 0.77% increase in income and outperformance in 99% of cases.

This aligns with the intuition of the strategy, which provides benefit by "waiting out" a market downturn and taking on more risk at depressed prices as a result.

Reversing the effect by adding a momentum dynamic[5] without any mean reversion results in the opposite impact, with the bucketing strategy decreasing income by 0.90% and only producing better results in 37% of cases.

The time-series models used to introduce mean reversion or momentum are deliberately simple. More complex return-generating processes could be tested, but the qualitative conclusion is unlikely to change: bucketing provides financial benefit when multi-year mean reversion dominates the return structure.

[4]This bootstrap approach used random sampling with replacement at a monthly frequency

[5]This is simply an AR(12) model with the coefficients adding to a positive number ¡ 1, and the mean calibrated to the expected return

What to do

Where does this leave bucketing as a portfolio strategy? After adjusting for the additional growth exposure that bucketing naturally introduces, its historical advantage becomes modest and uneven. Once the growth-tilt effect is removed, the strategy's remaining financial benefit appears only in environments with strong mean reversion. In markets that are closer to IID, or where momentum dominates, bucketing provides no reliable advantage and can even detract from outcomes.

This implies that any expectation of financial performance from bucketing rests on a fairly specific belief about market structure: that multi-year mean reversion is both present and persistent enough to offset opposing dynamics. With the limited number of independent long-horizon cycles available in historical data, that assumption cannot be confirmed with high confidence.

At the same time, bucketing does offer behavioural structure that some investors may find valuable. That may justify its use for certain cases, even if the financial benefit is uncertain or conditional.

Overall, bucketing should be seen less as a return-enhancing strategy and more as a behavioural tool. For investors where this benefit outweighs the costs of its implementation, bucketing may still play a role. For others, more transparent and financially robust withdrawal methods may be preferable.

Note:

Views expressed are the author's, and may differ from those of JANA investments. This material does not constitute investment advice and should not be relied upon as such. Investors should seek independent advice before making investment decisions. Past performance cannot guarantee future results. The charts and tables are shown for illustrative purposes only.

Details

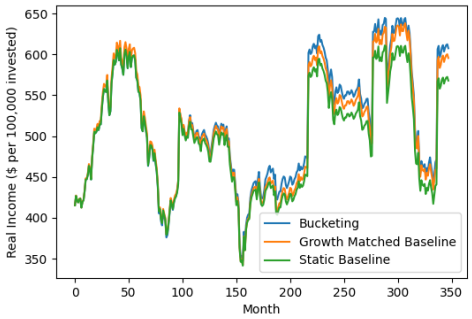

Figure 5: The income of each strategy in one of the simulations over the historical dataset

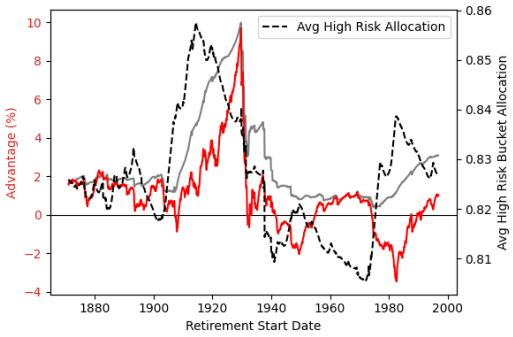

Figure 6: The income advantage of the bucketing strategy simulations over the historical dataset, for both static (grey) and growth-matched (red) benchmarks. The average growth exposure used in both the bucketing and growth-matched benchmark is shown in the dashed black line.

Returns dataset	Mean advantage (%)	Stdev advantage (%)	P(bucketing better)	Count
Historical	2.55	2.18	1.00	1509
Historical Bootstrapped	1.29	0.93	0.94	1500
Synthetic (IID)	1.39	0.91	0.93	1500
Synthetic (Mean Reversion)	1.43	0.31	1.00	1500
Synthetic (Momentum)	1.17	2.11	0.80	1500

Table 1: Results using a static benchmark

Returns dataset	Mean advantage (%)	Stdev advantage (%)	P(bucketing better)	Count
Historical	0.95	1.90	0.75	1509
Historical Bootstrapped	-0.13	1.47	0.51	1500
Synthetic (IID)	-0.15	1.52	0.53	1500
Synthetic (Mean Reversion)	0.77	0.31	0.99	1500
Synthetic (Momentum)	-0.90	3.23	0.37	1500

Table 2: Results using a growth-matched benchmark