

The power of compound interest – an investor’s best friend

EDITION 23 – 16 JULY 2014



Key points

- > Compound interest is an investor's best friend.
- > The higher the return, the greater the investment contribution and the longer the time period the more it works.
- > To reap maximum advantage from it, ensure an adequate exposure to growth assets, contribute early and often to your investment portfolio and find a way to avoid being thrown off by the investment cycle.

Introduction

I reckon the first wonder of the investment world is the power of compound interest. My good friend Dr Don Stammer even goes so far to refer to it as the “magic” of compound interest because it almost is magical. Compound interest can be the worst nightmare of a borrower as interest gets charged on interest if it is not regularly serviced. But it’s the best friend of investors. Unfortunately for a variety of reasons some miss out on it.

Compound interest – what is it?

But what is it and why is it so powerful? Compound interest is simply the concept of earning interest on interest. Or more broadly, getting a return on past returns. In other words any interest or return earned in one period is added to the original investment so that it all earns interest or a return in the next period. And so on. Its best demonstrated by some examples.

- Suppose an investor invests \$500 at the start of each year for 20 years and receives a 3% annual return. See Case A in the next table. After 20 years the investment will have increased to \$13,838, for a total outlay (or \$ Flow in the table) of \$10,000. Nice, but hardly exciting as the return was only low at 3% pa.
- But if the investor put the same flow of money in an asset returning 7% a year, after 20 years it will have grown to \$21,933. See Case B. Not bad given the same total outlay of \$10,000. And in year 20, annual investment earnings are now \$1435, more than three and a half times the investment earnings in the same year in Case A of \$403.
- Finally, if the whole process was kicked off by a \$2000 investment at the start of the first year, with \$500 each year thereafter and still earning 7% per annum then after 20 years it will have grown to \$27,737. Case C. By year 20 in this case the annual investment earnings will have increased to \$1815.

These examples have been kept relatively simple in order to illustrate how compounding works. Obviously all sorts of complications can affect the final outcome including inflation (which would boost the results as the table uses relatively low returns for both the low and high risk asset), allowance for the more frequent compounding which actually occurs in investment markets as opposed to annual compounding in the table (which would also boost the final outcome) and the timing of the return

from the high growth asset through time in that it won't be a steady 7% year after year.

Compound interest

Year	Case A \$500 pa, 3%		Case B \$500 pa, 7%		Case C \$2000 upfront, then \$500 pa, 7%	
	\$ Inv	\$ Flow	\$ Inv	\$ Flow	\$ Inv	\$ Flow
1	515	500	535	500	2140	2000
2	1046	500	1108	500	2825	500
3	1592	500	1720	500	3558	500
4	2155	500	2375	500	4342	500
5	2734	500	3077	500	5181	500
6	3331	500	3827	500	6078	500
7	3946	500	4630	500	7039	500
8	4580	500	5489	500	8066	500
9	5232	500	6408	500	9166	500
10	5904	500	7392	500	10343	500
11	6596	500	8444	500	11602	500
12	7309	500	9570	500	12949	500
13	8043	500	10775	500	14390	500
14	8800	500	12065	500	15932	500
15	9578	500	13444	500	17583	500
16	10381	500	14920	500	19348	500
17	11207	500	16500	500	21238	500
18	12058	500	18190	500	23259	500
19	12935	500	19998	500	25423	500
20	13838	500	21933	500	27737	500
Total		10,000		10,000		11,500

Source: AMP Capital

However, the power of compound interest is clear. From these examples, it is evident that it has three key drivers:

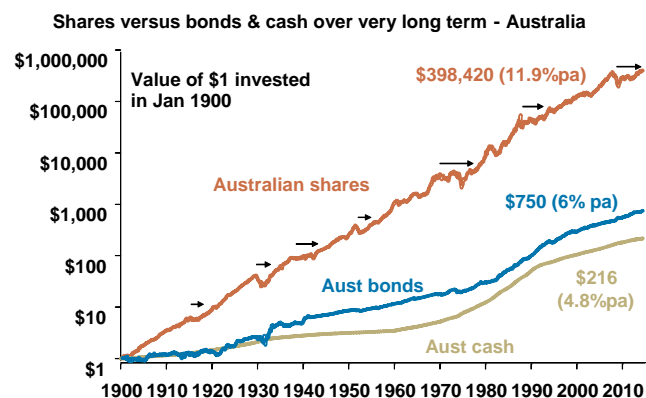
- The rate of return – the higher the better.
- The contribution – the bigger the better because it means there is more for returns to compound on. The \$2000 upfront contribution in Case C boosted the outcome after 20 years by an extra \$5804 compared to Case B. Not bad for just an extra \$1500 investment.
- Time – the longer the better because it means the longer the compounding process of earning returns on returns has to run. Time will also help smooth out any year to year volatility in returns. After 40 years the investment strategy in Case A will have grown to \$38,832 but Case B will have grown to \$106,805 and Case C will have grown to \$129,267.

Compound interest in practice

This all sounds fine in theory, but does it really work in practice? It's well-known that growth assets like shares and property provide higher returns than defensive assets like cash and bonds over long periods of time. This is because their growth potential results in higher returns over long periods of time which compensates for their higher volatility compared to more stable and less risky assets.

The next chart is my favourite demonstration of the power of compound interest in action for investors. It shows the value of \$1 invested in 1900 in Australian cash, bonds and shares with earnings on each asset reinvested along the way. Since 1900

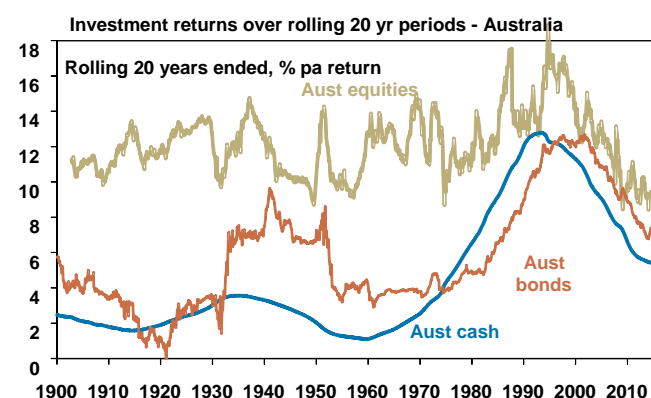
cash has returned 4.8% per annum, bonds have returned 6% pa and shares returned 11.9% pa.



Source: Global Financial Data, AMP Capital

Shares are clearly more volatile than cash and bonds. The arrows in the chart show periodic, often long bear markets in shares. However, the compounding effect of their higher returns over time results in much higher wealth accumulation from them. Although the return from shares is only double that of bonds, over 114 years the \$1 invested in 1900 will have grown to \$398,420 today, whereas the \$1 investment in bonds will only be worth \$750 and that in cash just \$204.

Now of course, investors don't (usually) have 114 years. But the next chart shows rolling 20 year returns from Australian shares, bonds and cash and it's evident that shares have invariably outperformed cash and bonds over such a period.



Source: Global Financial Data, AMP Capital

Note that while the return gap between shares on the one hand and bonds and cash on the other has narrowed over the last 20 years this reflects the relatively high interest rates and bond yields of 20-30 years ago, which provided a springboard to relatively high returns from such assets. With bond yields and interest rates now very low such bond and cash returns are very unlikely to be repeated in the decade or so ahead.

Some issues

What about property? Over long periods of time Australian residential property has generated similar total returns (ie capital growth plus income) for Australian investors as Australian equities. For example since 1926 Australian residential property has returned 11.1% pa, which is similar to the 11.5% pa return from shares over the same period.

What about fees? Fees on managed investment products will clearly reduce returns over time, but less so for cash and fixed income products and for equities the fee impact will be offset by the impact of franking credits in the case of Australian shares (which amount to around 1.3% pa) and which has not been allowed for in the last two charts.

Are these returns sustainable going forward? This is really a separate topic, but the historical returns from the three assets likely all exaggerate their future medium term return potential. Cash rates and bank term deposit rates are likely to hover around 3-4%, current ten year bond yields around 3.4% suggest pretty low bond returns for the decade ahead (in fact just 3.4% for an investor who buys a ten year bond and holds it to maturity). And the Australian equity return may be closer to 9% pa, reflecting a dividend yield around 4.5% and capital growth of around 4.5%. But for shares this sort of return is still not bad and leaves in place significant potential for investors to reap rewards from the power of compounding over the long term.

Why investors often miss out

But if the power of compound interest is so obvious, what can cause investors to miss out. There are several reasons:

- First investors may be too conservative in their investment strategy, opting for lower returning defensive assets like cash or bank term deposits. This may avoid short term volatility but won't build wealth over the long term if that's the objective.
- Second, they leave it too late to start contributing to an investment portfolio or don't contribute much initially. This makes it more difficult to catch up in later life and leaves investors more at the whim of financial market fluctuations during the catch up phase. Fortunately the Australian superannuation system forces Australian's to start early in life, albeit the contribution rate is too low.
- Third, they can adopt the right strategy to benefit from compound interest over the long term only to get thrown off during a bout of market volatility. This usually occurs after a steep slump in investment markets and sees the investor switch to cash only to return, if at all, after the market has already had a good recovery.
- Finally, some investors have been sucked in over the years by promises of a "free lunch", eg the 10% pa yield funds that were floating around prior to the GFC which then ran into trouble once the GFC hit and proved to be more risky than equities.

Implications for investors

There are several implications for investors looking to take advantage of the power of compound interest.

First, if you can take a long term approach, focus on growth assets like shares and property with a long term track record.

Second, start contributing to your investment portfolio as much as you can as early as possible.

Third, find a way to manage cyclical swings. For example, invest a bit of time in understanding that the investment cycle is a normal part of investment markets and partly explains why growth assets have a higher return in the first place. Or invest in funds that undertake dynamic asset allocation to help manage the investment cycle. Or both.

Finally, if an investment sounds too good to be true – implying some sort of free lunch – and/or you can't understand it, then stay away.

Dr Shane Oliver
Head of Investment Strategy and Chief Economist
AMP Capital