UK Value Investor

2017 Investment Lessons

Real world lessons from a dividend-focused value investor

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Introduction

Investment lessons from 2017

One of your primary goals as an active investor should be to extract as much educational value from each investment so that the lessons learned can be used to create additional financial value in the future.

That's why I always carry out a post-sale review as soon as I make the decision to sell an investment.

However, not every investment provides new lessons. Typically the worst investments are the best teachers, which is one reason why the occasional duff investment isn't necessarily a bad thing.

In 2017, four of the six investments sold contained useful lessons. There was also a change to the rule about how many cyclical stocks stocks my defensive value portfolio can hold. In summary, these lessons were:

- **Standard Chartered:** Use a variety of metrics to assess bank balance sheet strength
- **Morrisons:** Beware of massive capital investment sprees which are funded by debt
- **Braemar Shipping:** Be careful with companies that are exposed to the capital investment cycle
- **Rio Tinto:** Only invest in highly cyclical companies at extremely low valuations
- **Cyclical stocks:** Don't excessively focus on defensive stocks at the expense of attractively valued cyclical stocks

Personally I really enjoy this process of self assessment and continual improvement, and hopefully you'll find these lessons and this process as useful as I do.

John Kingham

Standard Chartered and the importance of a strong bank balance sheet

Over the last few years Standard Chartered has not turned out to be a good investment, with shareholders being hit by both a rights issue and a suspended dividend.

The root cause was the bank's balance sheet, which was not able to withstand significant loan impairments caused by a delayed aftershock of the financial crisis.

Having sold my Standard Chartered shares just a few days ago, I think now is a good time to look back at what happened. However, rather than simply crying over spilt milk, I want to focus on why the milk was spilt in the first place and how I (and perhaps you) can try to avoid this sort of unpleasant situation in future.

But before I get into the details, here's a quick snapshot of the results of this investment:

- **Purchase price and date:** 1,215p on 07/07/2014
- **Sale price and date:** 744p on 06/03/2017
- **Holding period:** 2 years 8 months
- **Capital gain:** -40%
- **Dividend income:** 7%
- **Annualised gain:** -15 %

Overview: "Only when the tide goes out do you discover who's been swimming naked" – Warren Buffett

When Standard Chartered joined the UK Value Investor model portfolio it was one of the only UK-listed banks to have survived the initial phase of the global financial crisis completely unharmed.

That was mostly down to the fact that the majority of its business was and is conducted in Asia, Africa and the Middle East, rather than in the West where most of the causes and effects of the crisis were centred.

In fact, Standard Chartered didn't just survive the financial crisis; it sailed through it almost without blinking. It quickly settled back into its previous pattern of almost monotonously regular double digit growth, but that happy picture was not to last.

Things started to go wrong in 2013 when growth in the emerging markets where Standard Chartered operates began to slow down, partly as a long-delayed reaction to the financial crisis. This reduced corporate finance activity which hurt the company's wholesale banking business, and there were more headwinds to come.

Increasing regulatory costs, persistent low interest rates and collapsing commodity prices all combined to create a "perfect storm" that stopped Standard Chartered's growth in its tracks and sent the company into reverse.

Eventually the dividend was cut and then suspended and a £3 billion rights issue was needed in order to strengthen the balance sheet.

Here's what the last couple of years looked like from the point of view of Standard Chartered's share price, including the points at which I bought and sold the shares:

When banks go wrong they tend to go very, very wrong

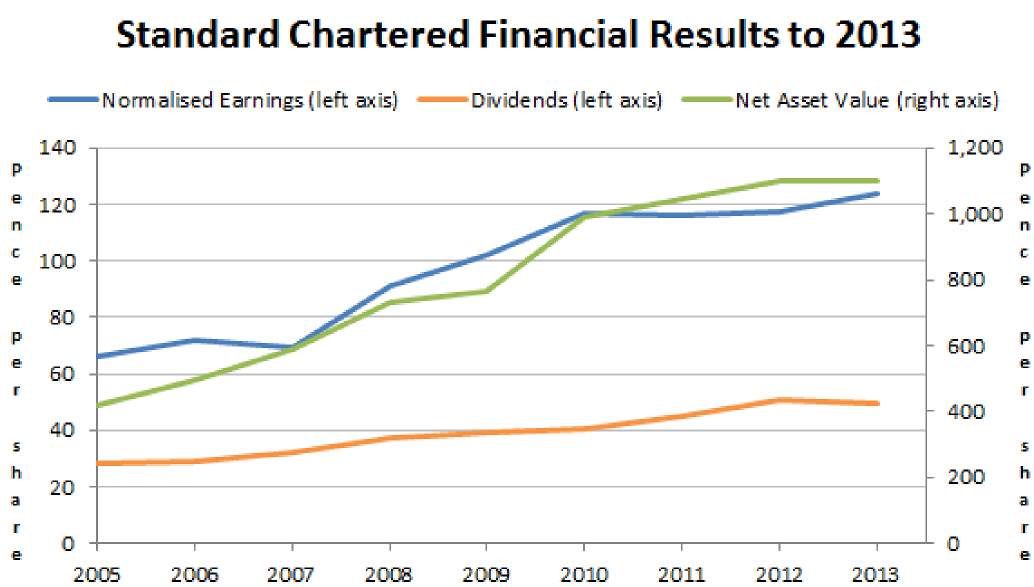
Buying: A "safe haven" bank facing normal, cyclical

headwinds

When I bought Standard Chartered in 2014 it had an almost perfect track record. Its 10-year growth rate was very high at more than 10% and return on equity had averaged 13% over the same period.

Its balance sheet also appeared to be strong, not only relative to regulatory minimums but also relative to most other UK-listed banks.

The chart below shows how attractive that track record looked:



Financial track records don't get much better than this

That track record looked no less impressive when compared to the FTSE 100's record over the same period. On top of that, the usual valuation premium associated with high quality, high growth companies was nowhere to be seen.

Thanks to the emerging market slowdown Standard Chartered's yield was above average, while its PE10 and PD10 ratios were also better than average, as highlighted in the table below:

July 2014	10-Yr Growth Rate	10-Yr Growth Quality	10-Yr Return on Equity	Dividend Yield	PE10	PD10
StanChart (at 1,215p)	10.4%	79.0%	13.0%	4.3%	11.5	31.1
FTSE 100 (at 6,750)	3.4%	58.0%	10.0%	3.4%	14.3	35.1

Standard Chartered beat the FTSE 100 across every one of my key metrics

By every measure Standard Chartered appeared to be an above average company trading at a below average price, which is exactly what I'm always looking for.

Of course, this argument would only makes sense if it was reasonable to assume that the company could maintain and grow its economic value - in other words its net asset value, earnings and dividends - over the medium to long-term.

There was a realistic chance that it wouldn't. After all, investors were worried about the impact the emerging market slowdown would have on the bank's earnings and, perhaps more importantly, on the value of its assets (i.e. the loans it had made to many thousands of businesses and individuals).

Having spent some time researching the potential impact, there appeared to be no strong consensus among analysts and commentators. Yes, there were risks and the company's performance was likely to be weak for a period of perhaps several years, but no, it was not obvious that a dividend cut, dividend suspension or rights issue was just around the corner.

It was on that basis that I decided to invest the usual three to four percent of my personal portfolio and the UKVI model portfolio into this most impressive-looking of banks.

Holding: Events prove that the balance sheet was not as strong as I'd hoped

The investment got underway more or less as expected. The economic situation deteriorated, bad loans started to mount up and the share price fell. This initial period of negative results is entirely typical of most value investments so I was not particularly worried, even when the share price fell by around 25%.

From a low point at the start of 2015 the share price recovered as management focused on balance sheet strength, cutting costs and reducing risk. The dividend was maintained at the 2014 annual results (published in March 2015) and this appeared to be a fairly standard "hunker-down" phase, with a pinprick of light visible at the end of the tunnel. Here's a comment from CEO Peter Sands:

> *"Trading conditions remain challenging and the actions we are taking to de-risk, cut costs and build capital are having an impact on near term performance. However, underlying business volumes generally remain strong. We remain confident in the strength of our franchise, the opportunities in our markets and in our ability to build returns to an attractive level in the medium term."*

However, the CEO's confidence was ill-founded and just a few short months after that comment was made a new CEO appeared in the shape of Bill Winters, along with a new management team. Shortly after that, the 2015 interim results announced a major decline in profits and a 50% dividend cut, and soon after that the company announced a £3 billion rights issue and then suspended the divided.

At this point I began to reassess my assumptions about what constitutes a strong bank balance sheet.

Measuring strength in a bank's balance sheet

Like other companies, the balance sheet of a bank if made up of assets and claims on those assets, otherwise known as liabilities. The major assets of a bank are the loans it provides while the liabilities are money it borrows in order to fund those loans.

The liabilities can be split into two main types: debt and equity, where equity is often referred to as capital in the banking world. Debt comes mostly in the form of deposit accounts, while equity or capital is money owed to shareholders, including retained profits.

The critical thing to understand when it comes to measuring bank balance sheet strength is that capital acts as a buffer to protect depositors when many of the bank's loans are not repaid in full.

As a simplified example, imagine a bank that has £95m in deposits and £5m of shareholder capital.

That £100m of liabilities is then loaned out as a series of loans (which are assets to the bank) totalling £100m. However, many of these borrowers do not repay their loans in full, so the value of those loans (the bank's assets) falls by £10m to £90m. Since assets and liabilities must balance, the bank's liabilities must also be reduced to £90m.

It is the role of capital to take the first and hopefully full hit of any declines in asset values, and in this case the first £5m of the £10m asset write-down can be borne by shareholder capital, but after that first £5m there is no capital left.

Unfortunately the bank's depositors must now take the remaining £5m hit, leaving depositors out of pocket and the bank insolvent. At this point a rights issue, nationalisation or the failure of the bank are the only routes available.

It is therefore imperative that banks have enough capital to absorb loan losses without serious risk of failure, because bank failures can lead to systemic runs on banks, which of course most societies and their governments want to avoid.

This is why banking regulation makes a big deal out of capital ratios, which measure the ratio between the amount of risk taken on by a bank and the ability of its capital to absorb losses on those risks.

For a deeper and better explanation of bank balance sheets, have a look at Bank Capital and Liquidity (PDF) from the Bank of England.

The most prominent capital ratio is the Common Equity Tier 1 (CET1) ratio, an evolution of the previous Core Equity Tier 1 ratio. This is the ratio between a banks risk-weighted assets and its "highest quality" capital and it's the ratio I originally used to conclude that Standard Chartered was well-capitalised.

Current regulation requires banks to have a CET1 ratio of between 4.5% and 9.5%, depending on various factors, so my initial assumption was that a ratio of 10% could be described as adequate.

This seemed reasonable as the major UK banks all had CET1 ratios of less than 10% during the pre-crisis banking boom (where – with hindsight – they obviously didn't have enough capital to absorb losses on their loans) whereas by 2013 (after years of rights issues and much strenuous effort to strengthen their balance sheets) they all had CET1 ratios of more than 10%.

In fact Standard Chartered was already targeting a CET1 ratio of 11% to 12% in 2014. This turned out not to be enough, so the target was moved upwards to 12% to 13% during 2015, a target which was subsequently achieved by suspending the dividend and raising £3 billion of additional capital through a rights issue.

Given these negative events I decided about a year ago to up my minimum CET1 ratio requirement to 12%, or more specifically that it should have averaged more than 12% over the last five years.

Now that I've sold Standard Chartered at a loss I've decided to raise that requirement even further. Here's my new CET1 rule of thumb:

- **Only invest in a bank if its Common Equity Tier 1 (CET1) ratio has been above 12% in every one of the last five years**

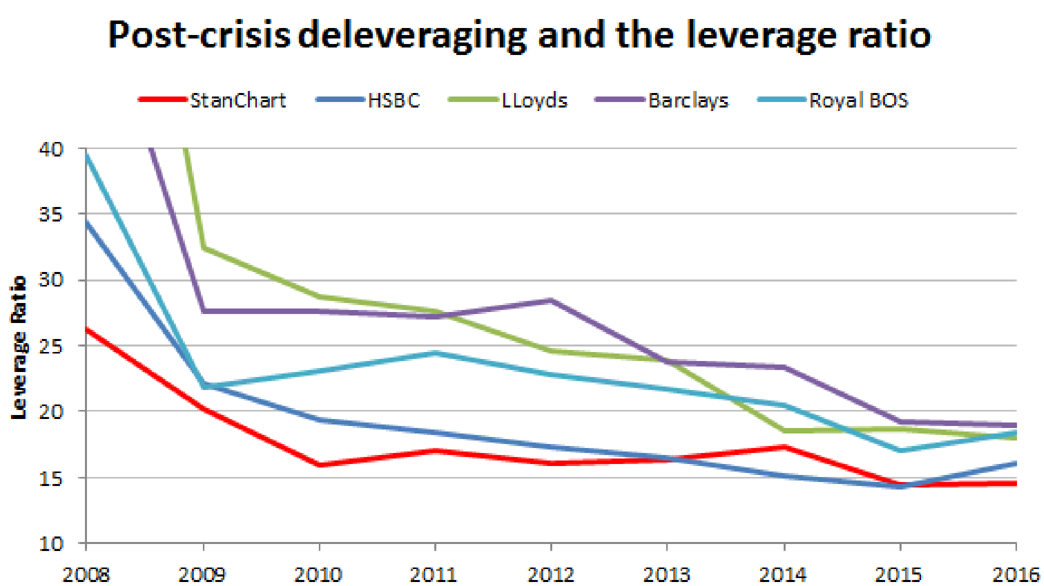
However, rather than simply relying on a slightly more demanding requirement for the CET1 ratio I have also decided to include two additional capital ratios in my bank analysis process.

The Leverage Ratio (or the assets-to-capital ratio)

The leverage ratio is very similar to the CET1 ratio in that it compares assets to capital. But in the version of the leverage ratio that I'll be using, assets are not risk-weighted and capital is taken to be total capital rather than common equity tier 1 capital.

This leverage ratio is easy to calculate. It's simply tangible assets (total assets minus intangible assets) divided by tangible capital (tangible assets minus total liabilities), which is slightly confusing because the CET1 ratio is capital divided by assets rather than assets divided by capital.

Here's a chart showing the leverage ratios for many of the UK's major banks. The general trend towards less leverage and stronger balance sheets is obvious.



Returning from the excessive leverage of the pre-crisis banking bubble

In 2008 at the peak of the pre-crisis banking mania, Standard Chartered, HSBC, Lloyds, Barclays and the Royal Bank of Scotland had leverage ratios that were far higher than they are today. Lloyd's in particular was way "off the chart" with a leverage ratio of more than 80. Fast forward to 2016 and after a decade of capital building those leverage ratios are now all below 20.

As you can see, by this measure Standard Chartered (in red) was for much of the period the least leveraged and best capitalised bank out of this group of admittedly seriously over-leveraged and under-capitalised banks. So investors were right to think that Standard Chartered's balance sheet was relatively robust, but being robust relative to a collection of fragile banks is not the same thing as being robust in an absolute sense.

Since I'm going to use the leverage ratio when analysing banks in future, I need to set an absolute (rather than relative) hurdle rate. Since the rights issue Standard Chartered's leverage ratio has been slightly below 15, so I'm going to use that as my hurdle rate.

In my opinion 15 is probably close to the perfect leverage ratio for banks that are under stress (and as a value investor I'm typically investing in companies that are under a not insignificant amount of stress).

Why? Because when companies raise capital through a rights issue in order to strengthen their balance sheet, they tend to "kitchen sink-it". In other words, management works out how much extra capital the company actually needs and then they try to raise that much plus an additional significant safety buffer.

They do that because if they don't raise enough capital first time round and end up having to go back to shareholders to raise even more capital, they will definitely lose their jobs.

So here's my leverage ratio rule of thumb:

- **Only invest in a bank if its leverage ratio (tangible assets / tangible capital) has been below 15 in every one of the last five years**

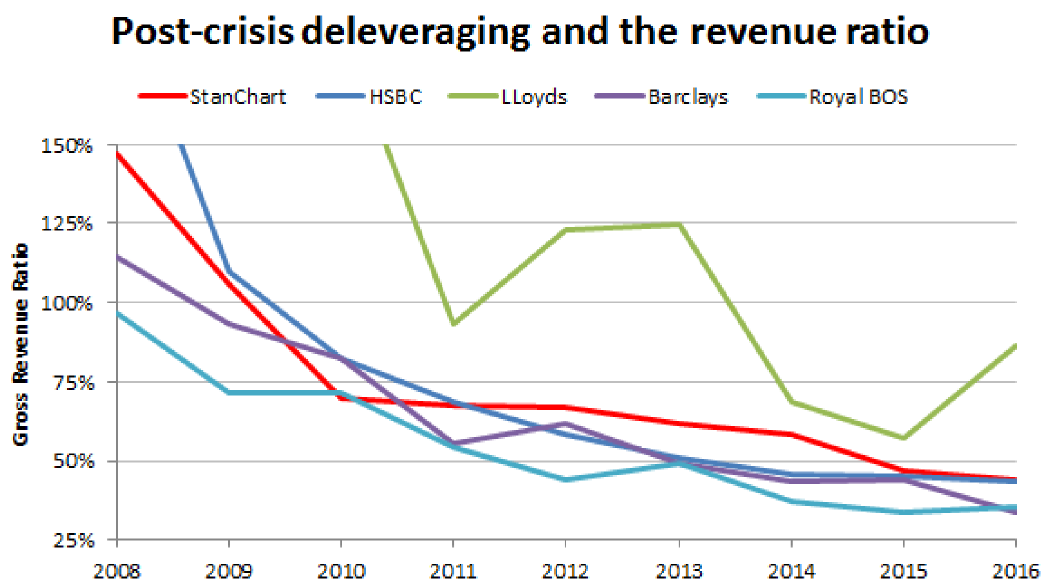
This currently rules out every UK bank, but that's a price I'm willing to pay in the name of risk reduction.

The Gross Revenue Ratio (or the revenue-to-capital ratio)

In this capital ratio the measure of risk is gross revenue. The idea is that if two banks have the same total value of tangible assets (a reasonable proxy for the value of their loans), the bank with higher risk loans will generate more interest income, so measuring gross revenue is a simplistic way to differentiate between banks with higher and lower risk loans.

Again, the ratio is easy to calculate. It's simply gross revenues (interest income plus other income) divided by tangible capital (tangible assets minus total liabilities), expressed as a percentage.

Here's another chart, this time showing the revenue ratios for those same major UK banks. As before, the deleveraging trend is easy to see.



More evidence of the huge deleveraging that has occurred in recent years

All of the banks generate far less revenue (i.e. take on far less risk) per pound of capital today than they did before the banking crisis. This is of course a very good thing, for both the banks and society in general.

Gross revenue for most of the big banks is now less than 50% of tangible shareholder capital and my initial thought was to use that 50% figure as the maximum allowable gross revenue ratio.

However, some smaller banks are able to generate much higher margins on their loans than the big banks, mostly because they provide a much more bespoke service to smaller companies that the big banks are not interested in.

Higher margins give these banks a gross revenue ratio of more than 50% because they charge more interest per loan, but these banks are nowhere near being overleveraged according to the leverage ratio.

So as a compromise I'm going to set the maximum gross revenue ratio at 100%, i.e. gross revenues should not exceed tangible capital, and as usual I want this to be true over the last five years. Hopefully this rule will be tight enough to exclude reckless banks whilst being open enough to not rule out prudent but high margin banks.

Here's the rule of thumb:

- **Only invest in a bank if its gross revenue ratio (total revenue / tangible capital) has been below 100% in every one of the last five years**

Most of the big banks now pass this test, partly because they generate such low returns from their loans. But that's okay because a) it would have ruled them out before and during the financial crisis and b) they still fail the leverage ratio rule.

If you want to know more about these ratios you could do worse than read Capital Ratios as Predictors of Bank Failure (PDF), from the Federal Reserve Bank of New York.

Selling: A suspended dividend is an automatic sell signal

As a result of Standard Chartered failing to pay a dividend for more than a full financial year, it has dropped out of the UKVI stock screen, which requires all companies to have an unbroken record of dividend payments going back at least ten years. This means Standard Chartered can no longer be compared with the other holdings in the model portfolio, or at least compared according to my investment strategy.

This – along with the fact that it is not at all obvious when the dividend will reappear – makes the bank an automatic sell, which is why I chose to sell it at the start of March, removing it from both my personal portfolio and the model portfolio.

The proceeds will, as usual, be reinvested next month into a hopefully more successful investment.

Read the full pre-purchase review of Standard Chartered in the July 2014 issue of UK Value Investor (PDF) or read other back issues in the newsletter archive.

Why I've finally decided to sell Morrisons

Like banks, supermarkets were once seen as super-defensive investments, capable of delivering steady growth regardless of the economic environment.

That was still the mainstream viewpoint when Morrisons joined my model portfolio in 2013, and even the great Warren Buffett owned a significant slice of Tesco.

Of course, we now know that supermarkets are not quite as low risk as we thought.

Tescos, Sainsburys and Morrisons have all cut or suspended their dividends in recent years and Buffett sold all of his Tesco shares while wishing the company the best of luck for the future.

The problem was not so much that supermarkets are not defensive, because they are. Instead, these supermarkets ran into trouble because of a “perfect storm” of:

1. Self-induced weakness following a long period of easy growth
2. A tough economic environment following the financial crisis
3. Rapid changes to shopping habits which perfectly suited the up and coming German discounters, Aldi and Lidl

After several years in my portfolio, Morrisons is still in turnaround mode and I am not especially enthusiastic about its future. However, the share price has largely recovered so I have decided to sell and move on to better things.

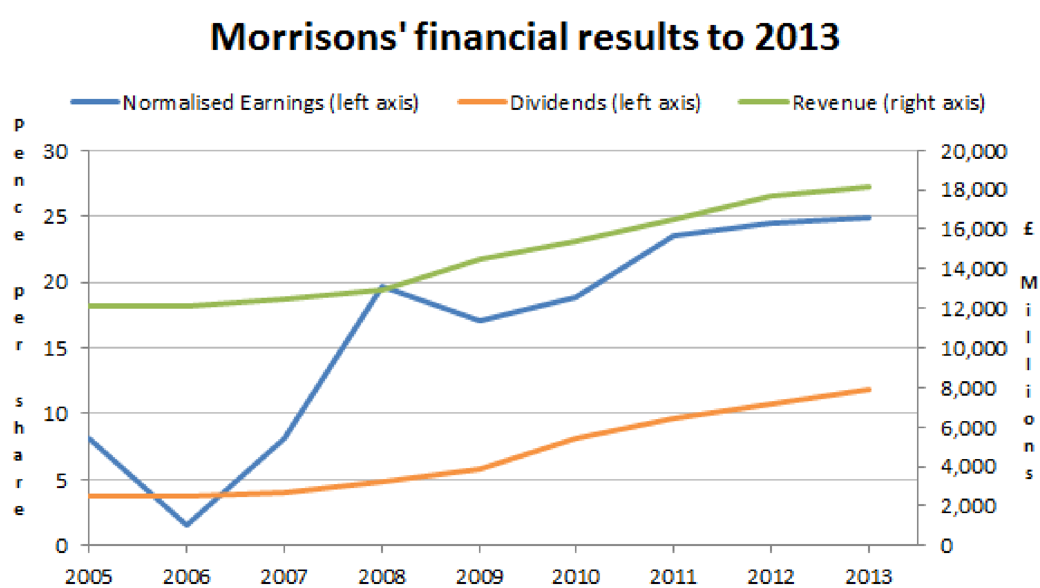
- **Purchase price:** 293p on 07/05/2013
- **Sale price:** 239p on 07/07/2017
- **Holding period:** 4 years 2 months
- **Capital gains:** -19.8%
- **Dividend income:** 17.6%
- **Annualised return:** -0.6%

Morrisons problems were bigger than I thought and the investment has provided many lessons (but sadly, little in the way of profits)

Buying what appeared to be a defensive company at a good price

Although supermarkets may seem like slow but dependable blue-chip companies, the period leading up to the financial crisis saw all of the major UK supermarkets growing rapidly. When I looked at Morrisons in May 2013 it had a ten-year growth rate of 17.5% and growth quality of 90%.

This made the company very attractive at first glance, as the chart below shows.



Steady long-term growth (if you ignore the blip in 2006)

During that period, the company's earnings and dividends almost tripled, which is very impressive. However, revenue growth was much slower at 6% per year, which was perhaps a more realistic long-term growth rate for this sort of company.

Overall, Morrisons' fundamentals were impressive (or at least they were as I interpreted them back in 2013), and its valuation ratios weren't bad either:

May 2013	10-Yr Growth Rate	10-Yr Growth Quality	Dividend Yield	PE10	PD10
Morrisons (at 293p)	17.5%	90%	4.0%	18	42.3
FTSE 100 (at 6,430)	4.0%	74%	3.4%	14.1	34.2

Above average growth combined with an above average dividend yield

Low profitability was a sign of weakness that I missed

One thing that's missing from the table above is profitability, i.e. ten-year average returns on capital employed. This is an important metric for me today because high profitability is a common feature of high quality businesses, but in 2013 I didn't use it at all.

Looking back at Morrisons' results, I've calculated its 2013 ten-year average profitability to be 7.6%, which is quite low. In fact, it's only just above my minimum acceptable value of 7% and is some way below the FTSE 100 average of 10%.

This isn't necessarily the end of the world, but this sort of low profitability is usually found in companies that have weak or non-existent competitive advantages, and I think that's a good description of all the UK supermarkets.

Although this low profitability wouldn't have been enough to stop me from investing, it would have pushed Morrisons down my stock screen and away from the top ten or 20 stocks where I typically select investments from.

To get back into the top 20 stocks, Morrisons' share price would have to have been much lower, as the lower (and more attractive) valuation would have offset the company's relatively low (and less attractive) profitability.

This means that **if I had been looking at profitability in 2013, then I would only have bought the company at a significantly lower price than the 293p I actually paid.**

That one small change would have massively improved the returns from this investment.

Sadly I don't have a time machine so I can't go back and change the purchase price, but I can stick to investing in higher profitability stocks in future (as I've already been doing for a couple of years now).

Massive debt-fuelled capital investment was the real killer

In the years leading up to 2013, Morrisons had repeatedly made enormous capital investments (capex) in order to expand and modernise the business.

Unfortunately I didn't look at capex back then, but I do now and Morrisons' capex record raises at least two red flags.

The first red flag was that Morrisons spent more on capex during the ten years leading up to 2013 than it made in post-tax profits.

Having a capex/profit ratio of more than 100% is not necessarily a bad thing, but in most cases it means the company has to invest lots of cash up front (to build factories, supermarkets, infrastructure and so on) before it can generate a penny of profit.

This is a risk because it makes expansion more expensive and, once built, these capital assets often come with unavoidable fixed costs, such as maintenance. Fixed costs are then a further risk because they make it harder to cut costs if there's a fall in revenues.

The second red flag was that Morrisons' capital investment was consistently more than twice the amount of capital depreciation.

In order to expand and modernise itself, Morrisons spent more than £5 billion between 2009 and 2014 on opening new stores, updating IT systems and improving other operational infrastructure.

In contrast, its capital asset depreciation over that period (which can be used as a rough estimate of the investment required to maintain the company's existing assets) came to just £2 billion.

So not only was the company investing more in capital assets than it made in profits (capex/profit ratio over 100%), it was also investing more than double the amount required to replace its existing assets (capex/depreciation ratio over 200%).

Clearly this was a period of massive expansion, modernisation and (hopefully) improvement. These are all things that we usually want, but there are risks.

To much expansion can lead to oversupply, especially if everyone else (Tesco, Sainsbury etc.) are expanding as well. These days everybody moans about there being too many supermarkets, and the result is an expensive asset which generates weak returns on the capital invested.

Today I have a rule of thumb which says:

- **Don't invest in a company if its capex/profit ratio is over 100% and its capex/depreciation ratio is over 200%**

This would have stopped me from investing in Morrisons because the risk that the company (and the whole sector) was expanding too rapidly was too great.

This situation is made even worse if much of the capital investment is paid for with borrowed money, which is exactly what Morrisons did as it tripled its borrowings from £0.9 billion in 2008 to £3.0 billion in 2014.

Massive capital investment and high debts may be just about sustainable if the economic environment remains helpful, but if the economy falters and sales fall then those high fixed costs will demolish profits in no time at all.

If things get really bad then the dividend and the CEO will get the chop, and that's precisely what happened at Morrisons.

Holding on as Morrisons begins to repair the damage

Of course, hindsight is a wonderful thing, and if I'd known in 2013 what I know now about profitability, debt and capex, I wouldn't have bought Morrisons in the first place.

But I did buy the company, and this is what happened:

Initially, things seemed to be going okay as the company focused on its expansion into convenience stores and developing an online presence and delivery capability. These were two areas where Morrisons lagged significantly behind the other big supermarkets, so getting up to speed here was important.

However, by early 2014 it was clear that **Aldi and Lidl were benefiting massively from two key changes to the way people did their grocery shopping:**

1. Shoppers were feeling the pinch from the great recession and becoming more value conscious

2. They were making more frequent, smaller shopping trips to convenient local stores rather than doing the traditional "big weekly shop" at the weekend

This squeezed all of the big supermarkets, forcing them to reduce prices aggressively to maintain sales volumes, and this squeeze eventually led to dividend cuts at Morrisons, Tescos and Sainsburys.

To some extent then, Morrisons was a victim of external events rather than the perpetrator of an unforced error.

But the previous management team (which were replaced in early 2015) are not entirely innocent, in my opinion.

Some say their biggest error was in trying to go upmarket during the great recession, offering customers misted asparagus when all they wanted cheap baked beans.

That may be true, but for me **there were two big avoidable mistakes:**

1. Going too far too fast with the capital investment program
2. Loading up on debt so that the dividend could continue to grow at 10% per year

I can understand the desire to improve and expand the company through a program of heavy capital investment, but the dividend policy really stumps me.

Why on earth did Morrisons' dividend grow from 5p in 2009 to more than 13p in 2015, almost tripling in just six years?

After all, this is a mature supermarket, not a high growth tech stock like Amazon.

Morrisons' operations were simply not generating enough cash to keep up with the growing dividend and the massive capital investments being made, so the gap was filled with borrowed money.

Of course increasing borrowings levers up the balance sheet, lumps the company with a growing interest expense and puts power in the hands of lenders, none of which are good.

Having briefly crunched the numbers, I think a more reasonable dividend policy of 2% growth per year from 2008 all the way to today would have been sustainable.

The company would have held on to more than £1 billion of cash, rather than handing it over to shareholders. Debts could have been more than £1 billion lower and the dividend cut could have been avoided. The CEO and Chairman could also have remained in their jobs.

But the dividend policy wasn’t cautious, the debts did pile up and a large divided cut was required.

Selling because the shares have re-rated while the recovery is far from over

Here's why I'm selling:

Aldi and Lidl have worked out a way to open smaller stores in the middle of town that still benefit from economies of scale. This local and cheap combination perfectly suits the modern convenience shopper, and undermines the local monopoly of the traditional big supermarket.

This means that **supermarket margins could be depressed for years, which would not be good for future profits, dividends and share prices.**

Clearly, I'm somewhat gloomy about Morrisons' future, but the market disagrees. The company's share price has increased by 70% since 2015, despite profits that continue to decline.

This increase in price without an increase in profits has driven Morrisons down my stock screen to where it is now one of the least attractive and lowest ranked holdings in the model portfolio.

And that's why I sold the shares earlier today.

Sadly, Morrisons did not provide me with any direct profits. However, like Tesco, it did provide lessons which can be used to generate indirect profits through improved future investment decisions (you can read my post-sale review of Tesco here).

As usual, I will be reinvesting the proceeds of this sale into a new holding next month.

Read the full pre-purchase review of Morrisons in the May 2013 issue of UK Value Investor here (PDF) or read other back issues in the newsletter archive.

Selling Braemar Shipping Services: Important lessons from a volatile investment

Braemar Shipping Services PLC joined my model portfolio way back in early 2011, just a couple of months after the portfolio's inception.

Although substantially different in detail, my investment strategy in 2011 was based on the same basic principles that I use today. In other words, I was looking for high quality dividend growth stocks which are available to buy at attractive prices.

On that basis Braemar Shipping Services certainly fit the bill, with its consistent record of dividend growth, historic growth rate of more than 16% and dividend yield of 5.4%.

Unfortunately, that attractive combination of high yield plus high growth did not turn into high returns for the model portfolio. Instead, Braemar's financial results began to decline almost immediately.

There was a brief recovery in 2015/2016 but more recently things have taken a turn for the worse. The full-year dividend has now been cut by almost 50% and the share price responded accordingly, as the chart below shows:

The ups and downs of owning a highly cyclical business

Selling on bad news is something I generally try to avoid. In this case, I was reluctant to sell Braemar as its main shipbroking and oil and gas services businesses are probably somewhere near the bottom of their respective cycles.

However, I think Braemar could struggle to generate attractive long-term growth even when the oil and gas industry does recover, largely because the commodity super cycle seems to be well and truly over.

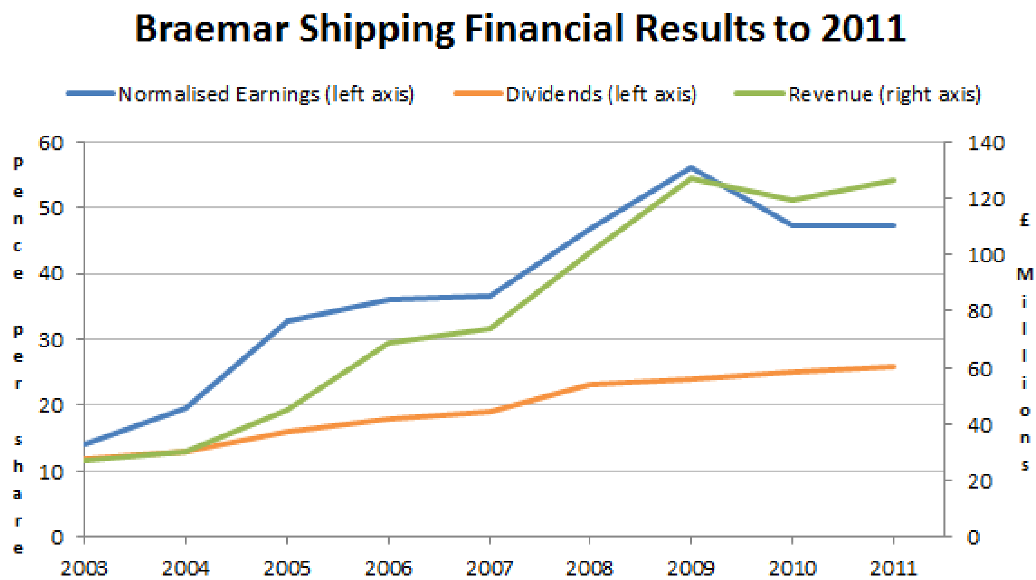
Overall then, this was not a great investment; but it wasn't a complete disaster either. And more importantly, learning lessons from the occasional poor investment is the best way to improve an investment strategy.

But before I start talking about lessons learned, here are the bare bones results from my investment in Braemar Shipping Services:

- **Purchase price:** 479p on 13th May 2011
- **Sale price:** 300p on 7th September 2017
- **Holding period:** 6 years 4 months
- **Capital gain:** - 38.0%
- **Dividend income:** 33.3%
- **Annualised return:** - 0.9%

Buying a cyclical company at the top of its cycle (this is generally a bad idea)

In 2011, Braemar had a fantastic track record of consistent growth across revenues, profits and dividends, with a growth rate of more than 15% per year over the previous decade:



Solid growth during the commodity super-cycle boom

The company's results had stalled somewhat after the financial crisis of 2008/2009, but even there things didn't look too bad. As the chart shows, revenues had quickly bounced back to an all-time high and the dividend continued to go up.

Investors were cautious, as implied by the 5.4% dividend yield, but the dividend cover was over two and so I wasn't desperately worried about a dividend cut.

This combination of high growth plus high yield made Braemar look far more attractive than an investment in the FTSE 100 (at least on paper and ignoring the risk of investing in a single company rather than a diverse index).

The table below shows how Braemar beat the FTSE 100 across all of the key metrics which I use today, so even though I didn't use these metrics in 2011, if I did I would still have been very interested in the company.

May 2011	10-Yr Growth Rate	10-Yr Growth Quality	10-Yr Return on Cap. Emp.	Dividend Yield	PE10	PD10
Braemar (at 479p)	16.4%	92%	21.0%	5.4%	12.8	24.5
FTSE 100 (at 5,926)	3.0%	59%	10.0%	3.0%	15.1	34.3

High growth, profitability and yield plus a low valuation, what could possibly go wrong?

Those are the raw numbers, but what about Braemar as a business?

In short, it's a shipbroker which generates revenues by bringing together those who want tankers and other large cargo vessels, and those who have them.

During the commodity super-cycle, which lasted from around 2000 to 2014, Braemar did exceptionally well as demand outstripped supply for tankers and other ships and their cargoes.

The volume of transactions and the profit per transaction were at record highs, but Braemar's management were sensible enough to realise that this wouldn't last forever. To counteract the potentially enormous cyclicality of its core business (which I did not fully appreciate in 2011), the company diversified into the related areas of technical and logistics services.

The company also had no debt and no defined benefit pension scheme, which is exactly what I'd want to see in a highly cyclical business.

Overall then, Braemar appeared to be a high quality, high growth and high yield stock, so I added the company to my model portfolio and my personal portfolio as well, with a weighting of around 4%.

Holding on as the commodity super-cycle came to an end

There was only one significant event in this investment's history, and that was the ending of the commodity super-cycle around 2014. But even before that Braemar's performance had begun to suffer.

The first major problems came in 2012.

As is typical in capital intensive industries, there can be a long delay between an increase in demand and an increase in supply. Oil tankers, for example, do not simply materialise out of thin air. This delay also works in the other direction. Once there is a sufficient amount of supply, there may still be much more supply in the pipeline which is impossible to turn off. Again, you can't easily stop building an oil tanker just because you realise that the world already has enough of them.

This imbalance between supply and demand can lead to massive price and profit volatility for companies within the affected sector, and that's essentially what happened to Braemar in 2012 when its shipbroking profits (which at the time made up more than 80% of the company's total profits) fell by 50% in a single year.

Following years of construction and a slowing global economy after the financial crisis, there were too many tankers in the world. That led to depressed tanker values and chartering rates and therefore depressed profits for Braemar's shipbroking business.

Today, more than six years later, those shipbroking profits have yet to fully recover.

Fortunately the company's policy of diversifying away from shipbroking worked. It's non-shipbroking profits increased from £2.7m in 2011 to £5.6m in 2012, somewhat softening the £7.2m decline in profits from shipbroking.

Investors were far from convinced though and the share price fell to 300p, giving the company a 9% dividend yield. That was a nice entry point for those who were brave enough to buy, because the dividend was sustained and the share price recovered massively.

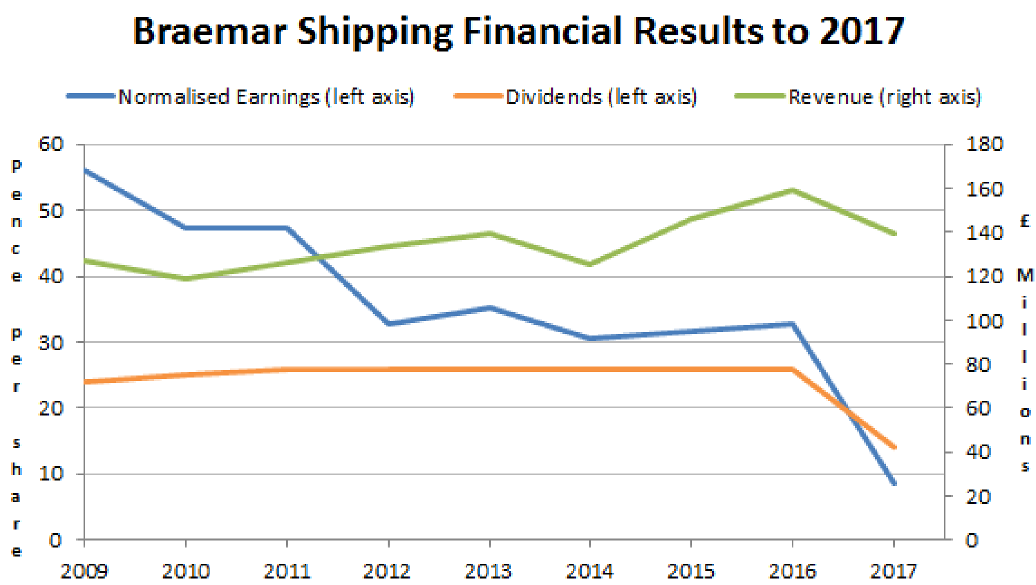
For a while, the company's fortunes recovered too. Although the shipbroking business never seriously recovered, the technical services business had a fantastic run from 2014 to 2016, eventually becoming the largest profit generator for the company. But it didn't last.

Many of the company's technical services are provided to the oil and gas industry, and when the oil price collapsed in 2014/2015 Braemar's customer's were hit. The reaction wasn't immediate, but eventually companies across the sector started to cut back and Braemar's technical services were one of the things that got cut. In 2017 the technical division made a £3m loss.

So with the shipbroking profits on the ropes and no technical services profits to take their place, Braemar's overall profits collapsed. The dividend became unsustainable and was sensibly cut.

Of course, this is not a happy story, but I think Braemar did a reasonable job of keeping its dividend going for several years, despite the cyclicality of its end markets.

But in the end the cyclicality of its end-markets determined the company's fate, and as the chart below shows, the company's track record is no longer one of impressive success:



With highly cyclical businesses, what goes up must always come down.

Reluctantly selling because the risk/reward trade-off is no longer attractive

In an ideal world I would like to hold on to Braemar just to see how the company fairs once the cycles for its shipbroking and oil & gas technical services businesses turn upwards.

Will it be able to generate record profits and dividends once again, as it did at the top of the previous cycle? Or was that a once-in-a-generation commodity boom, the like of which we or Braemar may never see again?

Who knows? I certainly don't, and from where I'm sitting today it isn't obvious why an investment in Braemar should beat the market over the next five or ten years.

I don't think it's obviously likely that Braemar will grow its revenues, earnings and dividends faster than the market average, and I don't think it's obvious why the share price should outperform the market either (although of course, it could).

At its current price of 300p, Braemar's valuation ratios are slightly attractive relative to the market average, as is its post-cut dividend yield of 4.5%. But the company's low rank on my stock screen implies that the combination of very weak financial results and only slightly attractive valuation are no longer worthy of a place in the portfolio.

Overall, I think there are better places to invest the model portfolio's capital.

Having removed Braemar from the model portfolio and my personal portfolio yesterday, I'll be looking to redeploy that cash into a hopefully better investment at the start of next month.

Lessons learned from investing in a highly cyclical business at the top of the cycle

The subtitle above is a less than subtle hint at the main lesson from this investment. Braemar had an impressive track record of steady growth, it had good profitability, no debt and no defined benefit pension scheme.

But none of that mattered because at the end of the day Braemar was like a rudderless ship, almost entirely at the mercy of two key industry winds:

1. **Tanker supply/demand:** When tanker supply exceeded demand, tanker values and charter rates fell and so did Braemar's shipbroking fee and profits
2. **Oil & gas supply/demand:** When oil & gas supply exceeded demand, Braemar's oil & gas technical services revenues collapsed and the business unit made a loss

There are two separate issues here.

The first is the capital investment cycle (or capital cycle for short), the second is the commodity cycle. The is often some overlap between the two, but they're not the same thing.

I've already described the capital cycle, which is caused by the extended time it takes to increase or reduce the supply of many types of capital asset.

In this case, the supply of tankers (a capital asset) can only be increased through massive capital investment over many years, and once that supply is brought to market, it can remain in place for years even if supply eventually exceeds demand.

Following bad investments in other companies affected by the capital cycle (such as Balfour Beatty), I came up with the following rule:

- **INVESTMENT RULE: Don't invest in a company if its 10yr capex/profit ratio is above 100% and its 10yr capex/depreciation ratio is above 200%**

This rule is designed to pick up companies that 1) have to invest heavily in new capital assets (capex/profit ratio) just to stay in business and 2) have recently gone through the expansion phase of the capital cycle (capex/depreciation ratio).

Regardless of price I will avoid these companies. There's a good chance they're either at the peak of their capital cycle or are climbing up towards it, and beyond the peak it can be downhill all the way (or at least, downhill for a very long time).

However, Braemar does not have to invest heavily in capital assets. As a shipbroker all it needed was some desks, some telephones and some brokers with excellent contacts, and none of those are capital assets.

But capital assets (those tankers) were still a key part of its shipbroker business. It's just that they were on another company's balance sheet.

The lesson here is to think about the capital cycle not only in terms of the company's own capital expenses, but those of the markets and sectors it serves and is affected by.

As for the commodity cycle, I already have a rule:

- **INVESTMENT RULE: Be wary of a company if it is sensitive to commodity prices**

I didn't have this rule back in 2011, but if I did then it would have flagged Braemar up as a high risk cyclical stock because both its shipbroking and technical services businesses are affected by commodity prices.

But the rule doesn't suggest avoiding these companies. It just says "be wary", which means being extra careful with debt levels and similar risk factors, none of which were a problem with Braemar.

Given these issues with how I look at commodity and capital cycle-sensitive companies, **I think now is a good time to introduce a specific rule to limit any purchases of highly cyclical companies to somewhere near the bottom of the cycle.**

Before I tell you the rule, here's some context:

Currently I have another rule (as you can tell, I love rules) which says that I shouldn't invest in a company if its PE10 ratio (ratio of price to 10yr average earnings) is more than 30.

From experience I've found that this is a reasonable cut off, beyond which almost all companies will be just too expensive (except for the Amazon's of this world, but they're so rare that they're not worth considering).

Of course, investors don't really want to buy companies cheap relative to past earnings, they want to buy companies cheap relative to future earnings, so looking at 10yr average earnings is simply a way to estimate future earnings.

In other words, if a company is priced at more than 30-times its average earnings of the last ten years (which is a pretty high PE multiple) then today's price is probably going to be high relative to the company's average earnings over the next ten years.

The only exception to this would be companies that are highly likely to more than double their earnings over the next decade, in which case the future earnings might be high enough to justify the current price.

A typical example of this sort of stock would be Reckitt Benckiser (RB), which currently has a PE10 ratio of 32.5. Investors think RB can keep doubling in size every ten years, so they're happy to pay a premium price which may (or may not) be justified.

The problem with this rule of PE10 being below 30 is that I apply it to all companies, including cycle-sensitive companies like Braemar, BP, BHP Billiton or Rio Tinto, all of which are in my portfolio.

During the upwards phase of the commodity or capital cycles these companies can generate very impressive multi-year growth rates, such as 15% in the case of Braemar, 18% for BHP and 14% for Rio Tinto. This can make it seem like a high PE or high PE10 ratio is justifiable.

But can highly cyclical companies generate sustainable growth in the same way that Reckitt Benckiser probably can?

I think not.

Most cycle-sensitive companies can only produce high growth rates for relatively short periods of time, by which I mean not much more than a decade, and usually less.

When the cycle turns, their profits collapse, or at the very least decline for several years.

This means that above average PE10 ratios are unlikely to be justified because future earnings are unlikely to keep going up in a straight line.

Perhaps more importantly, when the cycle turns downwards these cycle-sensitive companies can fall to incredibly low valuations.

As a defensive value investor, if I'm going to buy highly cyclical companies I want to buy at the bottom of the cycle, not at the top.

In the case of the cycle-sensitive companies that I currently own, they all fell substantially from my purchase price.

In every case their PE10 ratios fell well below 10 at the point of maximum market pessimism in 2016, and most of them have since recovered strongly.

Having lived through these ups and downs, I think it would be a good idea to have a far more cautious PE10 rule for highly cyclical companies. Something like this:

- **INVESTMENT RULE: Only invest in a company that is sensitive to capital or commodity cycles if its PE10 ratio is below 10**

This is a much stricter rule than the one I currently use. It would have forced me to buy companies like BP or BHP Billiton at much lower prices and much closer towards the bottom of their cycles.

And if it means that I miss out on investing in some highly cyclical companies, then so be it.

In addition to the PE10 rule, I also use a PD10 ratio rule (price to 10yr average dividend rule). The rule is not to buy a company if its PD10 ratio is above 60 (i.e. double the PE10 ratio limit, implying a typical dividend cover of about 2).

Because highly cyclical companies often cut their dividends it's important not to get too excited about high dividend payouts, especially close to the top of the cycle as they may not be sustained.

In order to be extra cautious with highly cyclical companies, I'm going to use a bespoke PD10 ratio rule to go alone with the bespoke PE10 ratio rule:

- **INVESTMENT RULE: Only invest in a company that is sensitive to capital or commodity cycles if its PD10 ratio is below 20**

Again, this is double the related PE10 ratio limit. This rule would have resulted in me investing in BP, BHP Billiton and other highly cyclical companies at much lower prices than my actual purchase prices.

To be slightly more explicit, it might be a good idea to automatically apply these lower PE10 and PD10 rules to specific sectors that are most likely to be highly cyclical:

- **3 Highly cyclical sectors:** Mining - Oil & Gas Producers - Oil Equipment, Services & Distribution

Doing that will make the previous rules easier to apply, and will probably pick up most of the highly cyclical but overpriced stocks.

Why I've sold my Rio Tinto shares

In this blog post I review my decision to buy Rio Tinto shares in 2012, and my decision to sell them last week.

Here's the executive summary:

Rio Tinto was a volatile investment with some extreme ups and downs, but when I eventually sold its shares the returns were okay.

The investment also rammed home the importance of buying highly cyclical companies at extremely low valuations, which is something I recently learned from my investment in Braemar Shipping.

Overview: One of the world's leading mining companies

Back in 2012, Rio Tinto had all the qualities I like to see.

It had high and consistent growth, a long and unbroken track record of dividend payments and little in the way of debt. The share price was also reasonable, as was the dividend yield.

It was (and is) one of the world's leading mining companies, with a history stretching back almost 150 years and mining operations that span the globe. There were some problems though, two of which stood out:

- First, the company had made a massive acquisition in 2007. The acquisition was paid for with huge amounts of debt which subsequently had to be paid off by raising cash from shareholders through a rights issue.
- Second, Rio Tinto was a miner, and miners are highly cyclical. I, on the other hand, am a defensive value investor.

At the time, I thought these problems were not particularly serious. I also though an investment in Rio Tinto could teach me more about miners whilst potentially making a reasonable return.

In the end it did more of the former than the latter, but I still think it was a worthwhile investment.

Here's a quick summary of the results:

- **Purchase price:** 2988p on 07/09/2012
- **Sale price:** 3782p on 06/11/2017
- **Holding period:** 5 years 2 months
- **Capital gain:** 24.7%
- **Dividend income:** 22.4%
- **Total return:** 47%
- **Annualised return:** 8.4% per year

An 8.4% annualised return isn't particularly brilliant, but it isn't a disaster either. And as I've mentioned, there were important lessons learned, which I'll get to in a minute.

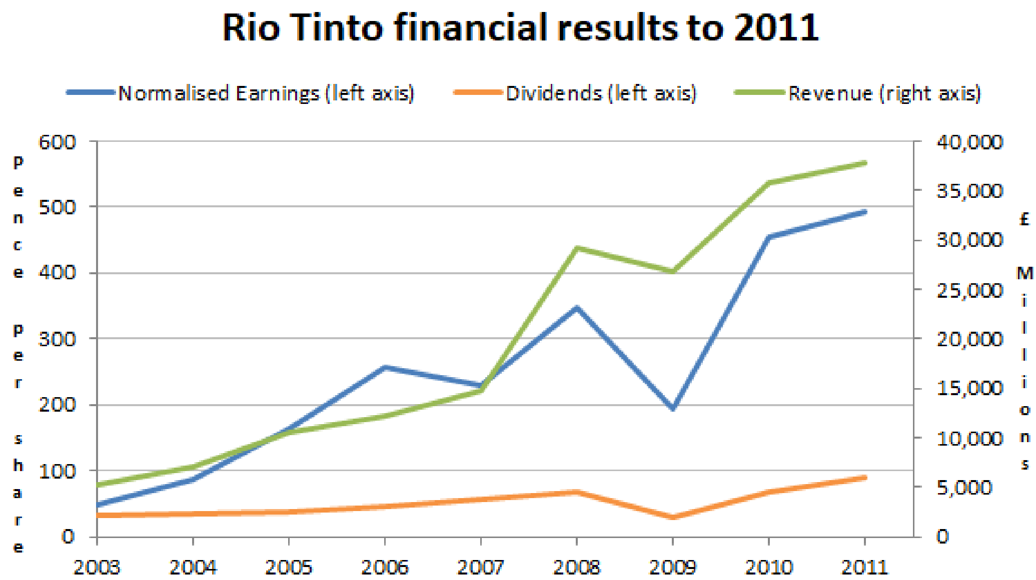
Here's what the investment looked like from the share price's point of view:

Even this level of volatility is easy to handle if your portfolio is well diversified

Buying a cyclical company at the top of its cycle (again)

The late 2000's were a time when Rio Tinto was riding high on the back of the commodity super-cycle, much like Braemar Shipping which left my portfolio a couple of months ago.

In fact, when Rio Tinto joined the portfolio is was pretty much at the absolute peak, although of course I didn't know that at the time.



Steady growth or cyclical boom?

As the chart above shows, Rio's growth over the previous decade was astonishing.

Its annual growth rate over that period was 21%, averaged across revenues, earnings and dividends, but even that fails to capture the true pace of its expansion. Annual revenue growth was close to 30% and annual earnings growth wasn't far behind at 25% per year. Those are seriously jaw-dropping figures.

However, when I reviewed the company in 2012 I was well-aware that such rapid growth was not sustainable. Instead, it represented only the boom phase of Rio Tinto's business cycle, in this case perhaps the biggest commodities boom in history.

Despite this rapid growth, the company's valuation ratios were relatively low, partly because investors were worried about a slowdown in China and its impact on commodity prices.

As you can see from the table below, in 2012 Rio Tinto's combination of growth and value metrics were, for the most part, much more attractive than the market index.

Sep 2012	10-Yr Growth Rate	10-Yr Growth Quality	10-Yr Return on Cap. Emp.	Dividend Yield	PE10	PD10
Rio Tinto (at 2988p)	21.1%	83%	12.0%	3.0%	11.8	58.6
FTSE 100 (at 5,700)	4.7%	79%	10.0%	3.6%	13.3	31.8

Excellent growth and at a reasonable price (or so it seemed)

From a purely quantitative point of view, the numbers stacked up. But as I've already mentioned, there were some problems.

The first was the 2007 acquisition of Alcan, a large Canadian supplier of Aluminium. This was a very large acquisition, paid for with enough debt to take Rio's debt ratio to 9, more than double my preferred maximum for cyclical companies of 4.

To me this shows a willingness by management to take on an unacceptable level of risk in the pursuit of rapid growth. Today, this would place a serious question mark over whether I would buy such a company, but in 2012 I was much less experienced and much more forgiving.

The second problem was that Rio Tinto is highly cyclical while my approach is to look for relatively defensive companies. In a nutshell, my investment strategy is not well-suited to analysing highly cyclical stocks.

Still, I chose to invest in Rio because I wanted to learn from the experience, to improve my strategy and yes, to hopefully make some money as well.

Holding on as the commodity super-cycle came to an end

After I bought the shares in September 2012, it didn't take long for things to start going wrong.

By January 2013, Rio Tinto was announcing **asset write-downs of 14 billion dollars and the replacement of the CEO,** mostly in relation to the previously mentioned acquisition (summary: the company massively overpaid at the peak of the cycle, which is precisely why I don't like large acquisitions).

Oddly enough, I think this disaster was good for the company, at least in the long-term.

The new CEO appeared to be much more focused on squeezing maximum cash out of the company's existing mining assets, rather than simply looking to expand its assets by acquisition or capital expenditure.

The company's 2013 annual results were a mixed bag, with revenues and dividends going up as profits went down. It was, in effect, the calm before the storm.

And let's be clear - This was not a storm of Rio Tinto's making. As a miner of commodities, Rio is like a supertanker crossing the Atlantic ocean. **Massive storms are**

simply an unavoidable part of its business.

In this case, the storm was the ending of the commodity super-cycle.

In terms of prices, the commodity super-cycle started to decline in 2008, during the financial crisis. But even after the crisis, China continued to build what seemed like a new city every other day, so demand for all sorts of commodities like coal and aluminium was outstripping supply.

But by 2013 that supply/demand imbalance was turning around. China's breakneck pace of development slowed, and following years of strenuous effort and heavy investment from miners and other commodity extractors, supply eventually exceeded demand.

And that, of course, had a negative impact on commodity prices which was very bad news for miners like Rio Tinto.

Although the company's efforts to reduce costs, reduce capex and increase cash flows managed to offset falling prices in 2013, **further commodity price declines in 2014 were just too much to absorb.**

The result was falling revenues and a steep decline in earnings.

Ever the optimists, Rio Tinto's board decided not only to raise the dividend but to also begin a 20 billion dollar share buyback program.

This may seem foolish, but the company's debts were not excessive and returning cash to shareholders may well have been the sensible thing to do.

By the end of 2015, commodity prices had more or less hit rock bottom and, as you might expect, so had Rio Tinto's revenues and earnings.

In just a few short years the company's ten-year track record had changed completely.

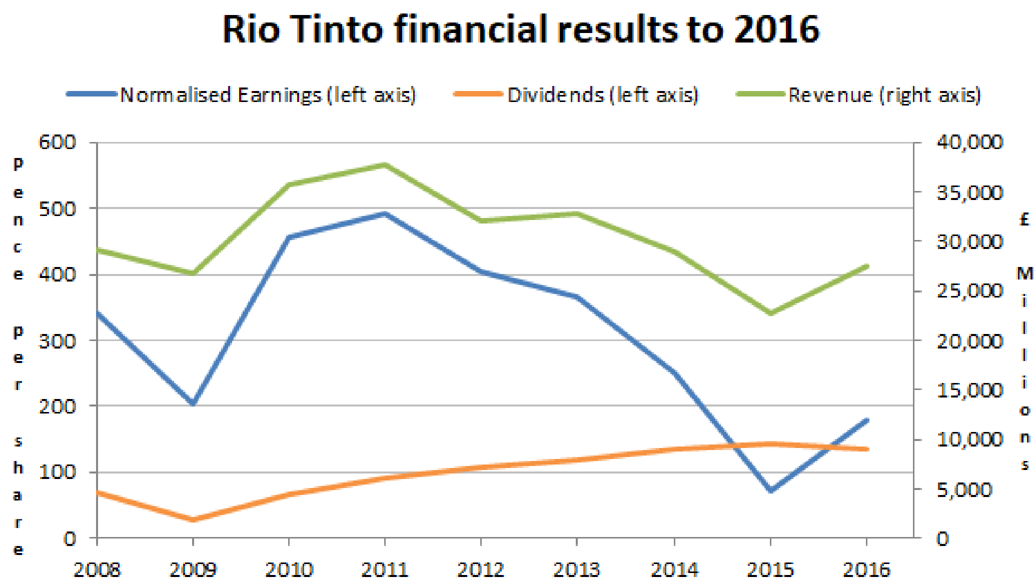
In 2011, Rio Tinto's track record showed nothing but incredibly rapid growth. By 2017, it showed almost nothing except rapid decline.

This sort of boom to bust story is, of course, what you should expect from highly cyclical companies and I don't think these results reflect badly on Rio Tinto at all.

More recently, commodity prices have stabilised. The problem is they've mostly stabilised at very low levels.

Despite this headwind, Rio Tinto managed to increase revenues and earnings in 2016.

Perhaps more importantly, the dividend was only cut very slightly which has helped the share price to recover dramatically.



Boom and bust are an inescapable part of the mining sector

Selling near the bottom of the cycle, but aiming to do better next time

Commodity prices are still generally very low and it seems as if we're still close to the bottom of Rio Tinto's cycle.

Surely this is a bad time to sell a mining company, when commodity prices and mining company valuations are depressed?

It could well be. However, I have a well-developed investment strategy and I intend to stick to it. I don't want to start making ad-hoc investment decisions, such as hanging onto Rio Tinto, when my stock screen and portfolio management rules are telling me to get rid of it.

So as with every stock I sell, **Rio is being sold primarily because it has one of the lowest stock screen ranks of any holding in the portfolio.**

It has a low rank because its:

- ten-year growth rate is 1%
- ten-year growth quality is a mere 54%
- ten-year profitability is an unexceptional 11.5%
- PD10 ratio (price to ten-year average dividend) is not attractively low

As far as the stock screen is concerned, Rio Tinto is a slow growth company at a middling valuation, which is not a particularly attractive combination.

Of course, we humans are much smarter than a stock screen and we know that Rio's current growth rate of 1% is probably temporary.

When the commodity cycle turns upwards, Rio Tinto's growth rate will probably turn upwards as well.

But I have no idea whether the commodity cycle will turn a year from now or ten years from now. For me, having an opinion about where commodity prices will go is pure speculation, and speculation is something I try hard to avoid.

I would rather stick to Plan A, which is to trust the stock screen and not my opinions about commodity prices.

Lessons learned from a highly cyclical company

However, the stock screen is not perfect and one of the reasons I invested in Rio Tinto was to learn about highly cyclical companies, and learn I have.

I have learned that Rio Tinto is a good but highly cyclical company and that my stock screen is not very good at valuing highly cyclical companies.

The stock screen overestimated how attractive Rio was in 2012 and it is probably underestimating how attractive Rio is today.

This is not a satisfactory state of affairs, so something needs to change.

I could simply refuse to invest in commodity-related companies. This is something that Warren Buffett has often spoken about. He calls it the circle of competence. Here's a quote from the man himself:

> *"You don't have to be an expert on every company, or even many. You only have to be able to evaluate companies within your circle of competence. The size of that circle is not very important; knowing its boundaries, however, is vital."*

My circle of competence is defensive value investing; finding relatively defensive companies and buying them at attractive valuations. Highly cyclical companies like Rio Tinto do not fit that description and so they sit outside my circle of competence.

Avoiding all commodity-related sectors is therefore a reasonable choice. But there is an intermediate step, which is to only buy them when their valuations are at absolute rock-bottom levels.

Only buying mining companies (and other commodity-related companies) at extremely low valuations should improve the odds that I'll buy them towards the bottom of the cycle rather than near the top.

My current rule on maximum valuations is this:

- **INVESTMENT RULE: Only buy a company if its PE10 and PD10 ratios are below 30 and 60 respectively**

PE10 and PD10 are basically price relative to ten-year average earnings or dividends. Anything above 30 and 60 respectively is unlikely to be attractively valued in my experience, no matter how wonderful the company.

However, a PE10 ratio of 30 and a PD10 ratio of 60 are not rock-bottom valuations.

They are in fact quite generous limits because many of the companies I invest in are high quality steady growth companies. These are companies like Reckitt Benckiser, which command reasonably high valuation ratios even when they're attractively valued.

But mining companies are not steady growth companies. Instead, boom is typically followed by bust, and I want to buy them during the bust, not the boom.

So from now on I will follow this additional rule for commodity-related stocks:

- **INVESTMENT RULE: Only invest in a commodity sector company (Mining, Oil & Gas Producers, Oil Equipment, Services & Distribution) if its PE10 and PD10 ratios are below 10 and 20 respectively**

Those valuation limits are just one third of my standard maximums and I think they could reasonably be described as "rock bottom".

Having such strict rules on valuation will be limiting of course, and I expect my future investments in commodity stocks to be few and far between.

But when I do invest in them, I'm hoping for much better results, and in the case of Rio Tinto, **its share price has more than doubled since falling below those rock-bottom valuations in early 2016.**

So buying Rio Tinto at rock-bottom prices in 2016 would have been a very profitable move, and hopefully that's something I can pull off next time around.

How many defensive shares should you hold?

If you're a relatively defensive investor like me, you probably like to have a decent number of defensive shares in your portfolio.

But what number should that be? Or more correctly, what proportion of your portfolio should be invested in defensive shares?

One entirely reasonable answer would be to invest 100% of your portfolio in defensive shares. If you valued defensiveness and low risk above all else then that might be a good strategy.

But that could also be a bit restrictive as there are currently only 81 defensive companies in the FTSE All-Share out of a total of 626.

My approach to being defensive is a little more balanced. Yes, I want my portfolio to be less risky than the market, but I also want a market-beating dividend yield and market-beating capital gains as well.

In order to simultaneously achieve those three goals of low risk, high yield and high growth, I am willing to invest in cyclical companies because they can add a bit of rocket fuel to an otherwise dull portfolio. However, rocket fuel is dangerous stuff, so I wouldn't want to overload on cyclical shares because they might explode during the next inevitable recession.

So what is the right balance between defensive and cyclical shares for an investor who wants to combine low risks with high yields and high growth?

An initial guess: At least 50% of a defensive portfolio should be in defensive shares

In 2014 I decided to start tracking my portfolio's allocation to defensive shares. I also decided to set a minimum defensive allocation, in order to prevent the portfolio from becoming too cyclical.

My initial conclusion was that at least 50% of the portfolio should be in defensive shares, largely because a 50% minimum meant the portfolio would be more defensive than it was cyclical, which sounded about right.

To identify defensive shares I use the FTSE Industry Classification Benchmark "sub-sectors" (which I usually just refer to as sectors). You can find a company's ICB sector on many investment data websites, such as the London Stock Exchange or SharePad.

You can find a list of these sectors on my stock screen, grouped as either defensive or cyclical (you'll have to scroll down the page a bit).

Those defensive and cyclical definitions come from the Capita Dividend Monitor, which a free quarterly newsletter and well worth a read.

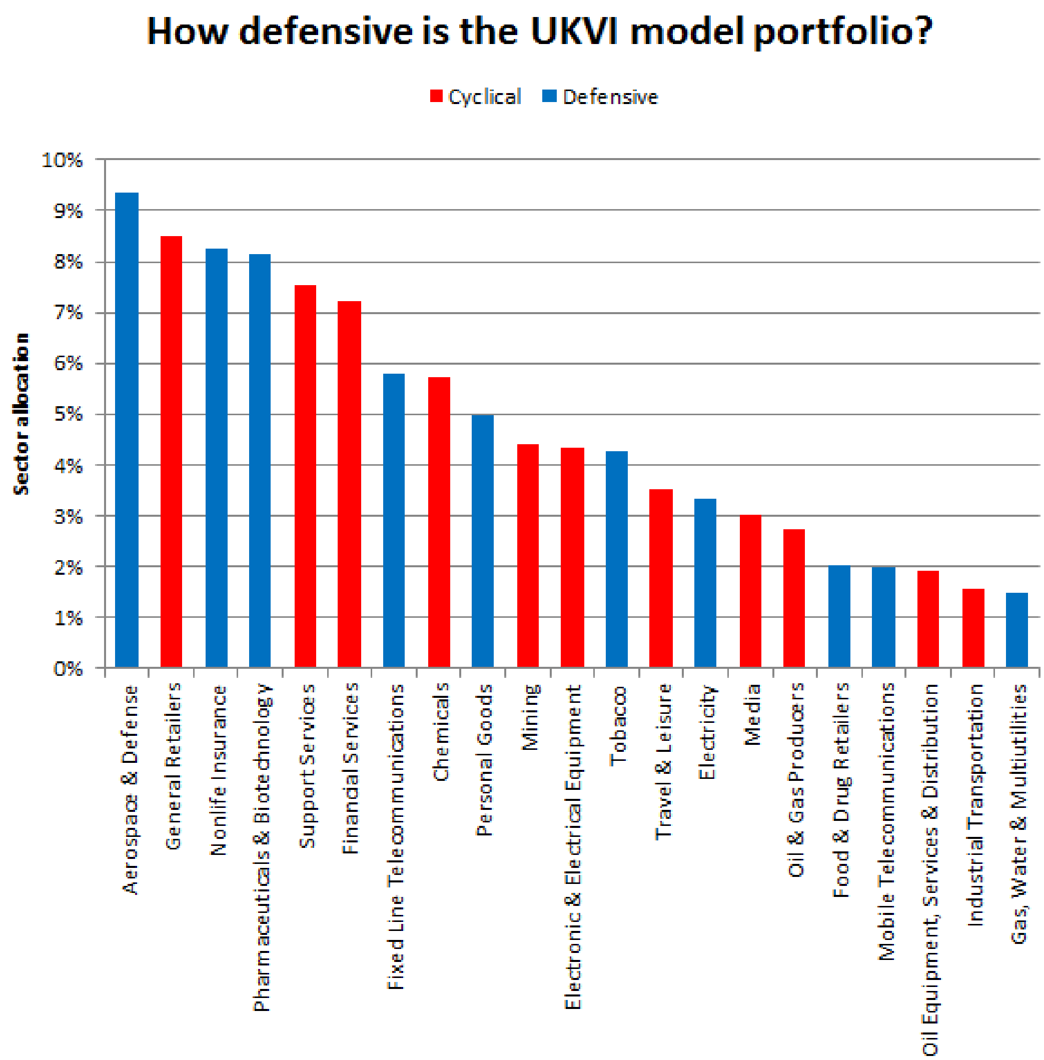
If you want to work out your portfolio’s exposure to defensive shares, there are a couple of ways to do it:

- Count the number of holdings of each type (cyclical and defensive) and calculate each total as a percentage of your portfolio's total number of holdings (e.g. 15 defensive holdings out of 30 would be a 50% defensive allocation), or
- Calculate the total capital value of each type and then calculate each as a percentage of your portfolio’s total value (e.g. £15k in defensive holdings in a £30k portfolio would be a 50% defensive allocation)

The first approach is simpler and I’ve used it in the past, but from now on I'm going to use the second approach as it’s more accurate and is still relatively easy to calculate (especially with a spreadsheet). If your holdings all have fairly similar position sizes then it won’t make much difference either way.

When I started tracking my defensive share allocation in 2014, the model portfolio just happened to be split about 50/50 between defensive and cyclical shares. No initial adjustments were necessary after I introduced the minimum 50% defensives rule, and currently the portfolio is still bang on that same 50/50 split.

Here's a chart showing how the portfolio looks today, viewed through the lens of its cyclical and defensive sector weightings:



Three of the portfolio's top four sectors are defensive

As you can see, there's a nice balance between cyclical and defensive sectors, with no one sector having more than 10% of the portfolio allocated to it.

However, recently it has been difficult to maintain a minimum 50% exposure to defensive shares, which has made me think that perhaps 50% in defensives is a bit excessive. And a 50% minimum could be especially restrictive in a bear market, when many of the best bargains will be cyclical stocks.

But if a minimum target of 50% in defensive shares is not optimal (at least given my goals of low risk AND high yield AND high growth), what should it be?

As luck would have it, an insightful reader recently asked me more or less the same question, but in a different way:

> *How does your model portfolio's target of being more than 50% invested in defensive shares compare to the FTSE 100, 250 and small-cap indices?*

Of course! If the goal is to build a portfolio which can outperform the stock market but is also less risky than the stock market, then the stock market's allocation to defensive shares is an appropriate benchmark; not a ballpark guess such as 50%.

So a few days ago I crunched the numbers and now I have a much better idea about how defensive the UK stock market is. I also have a new opinion about how much a portfolio should have in defensive shares before it can reasonably be described as defensive.

Let’s start with the FTSE 100.

The FTSE 100 has a high weighting to defensive shares

Intuitively I would have guessed that the FTSE 100 is the most defensive out of the UK's large, medium and small-caps indices, and that intuition was correct.

Why? Because defensive companies operate in sectors such as electricity, telecoms and pharmaceuticals, and these sectors are well-suited to large companies. In fact, within the FTSE All-share the average market cap of defensive companies is £10 billion while the average market cap of cyclical companies is £3 billion.

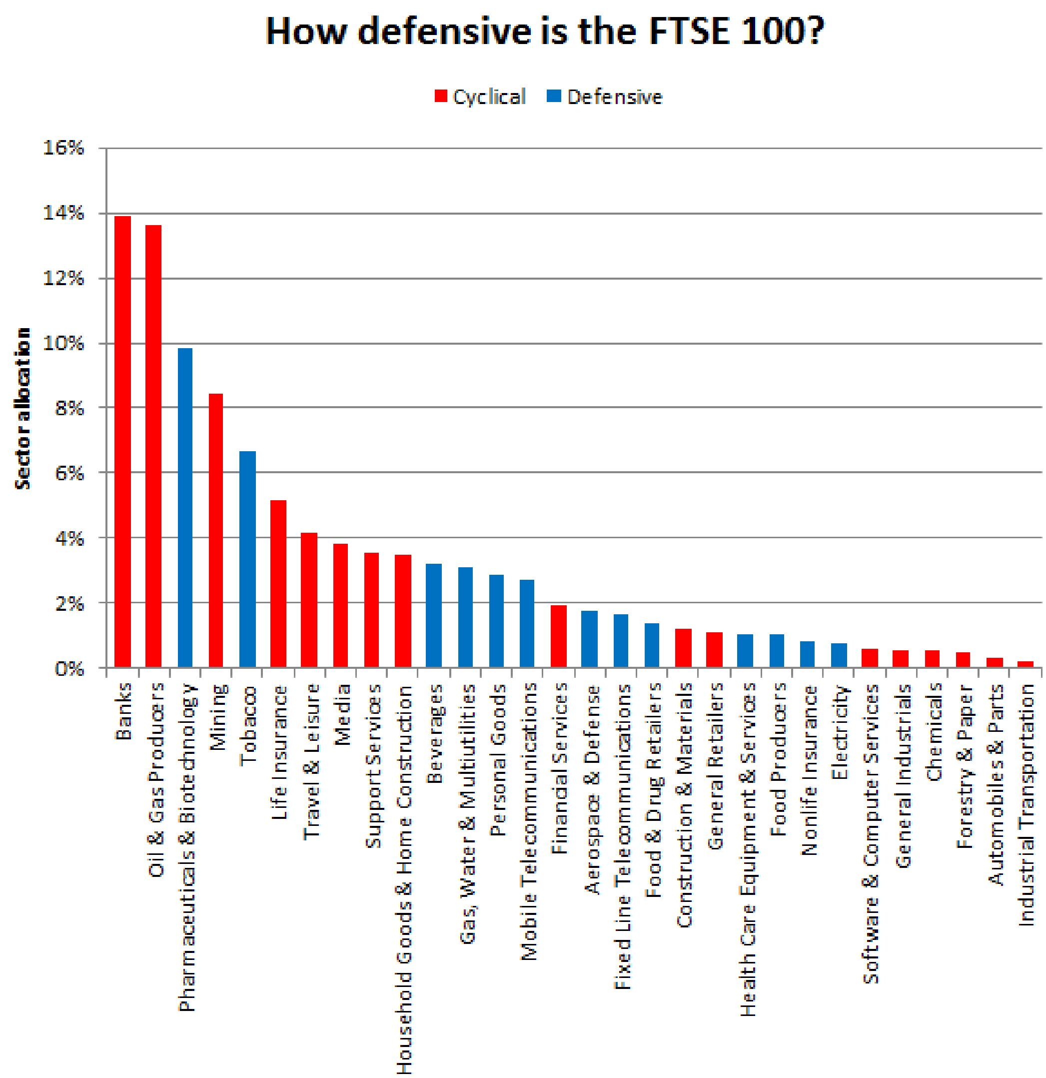
So how defensive is the FTSE 100, the most defensive of the major UK stock market indices?

- **Currently the FTSE 100 has a defensive share weighting of 37%**

(This figure excludes investment trusts, as do the figures for the FTSE 250 and Small-Cap indices)

Obviously 37% is significantly less than my current target defensive share allocation of 50%, so it's beginning to look like my 50% rule really is excessive.

Here’s another chart, this time showing the FTSE 100's cyclical and defensive sector weights:



Only one of the FTSE 100's top four sectors is defensive

The FTSE 100 is clearly less defensive than my model portfolio and has almost 30% in total across two very cyclical sectors (banks and oil & gas producers).

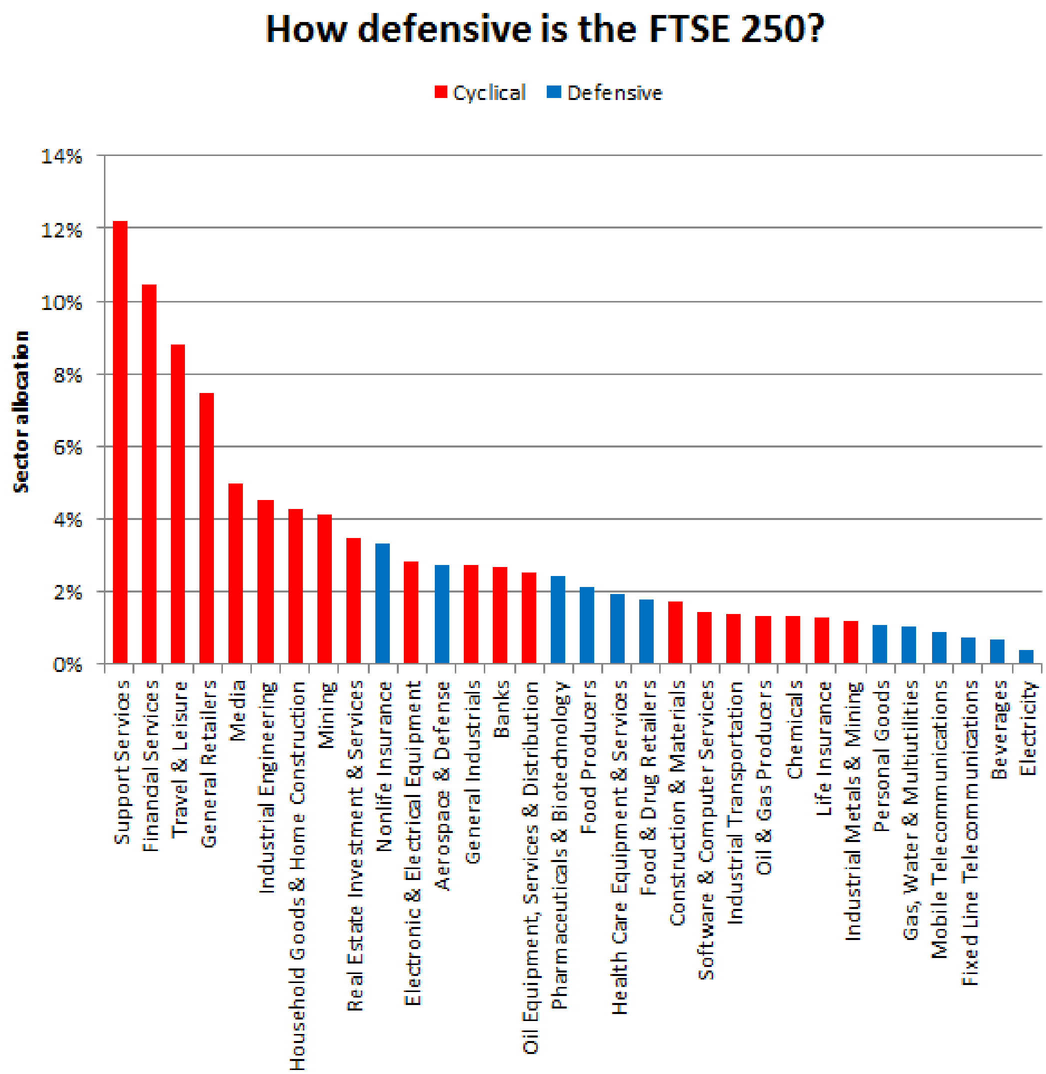
However, as we'll see it is still more defensive than the FTSE 250 or Small-Cap indices. I would probably say that the FTSE 100's allocation to defensive shares is a reasonable minimum for a portfolio describing itself as defensive.

The FTSE 250 has a medium weighting to defensive shares

I thought the FTSE 250 would be less defensive than the FTSE 100, but I was surprised by how much less defensive it actually is. Here's the headline number:

- **Currently the FTSE 250 has a defensive share weighting of 19%**

A picture is worth a thousand words, so here are the FTSE 250's cyclical and defensive sector weightings in more detail:



Only one of the FTSE 250's top ten sectors is defensive

The lack of defensives is much more evident here, with sectors such as beverages and electricity having almost no exposure at all.

I think the FTSE 100's 30-odd percent defensive allocation is minimal for a defensive portfolio, so I would definitely not call the FTSE 250 a defensive index.

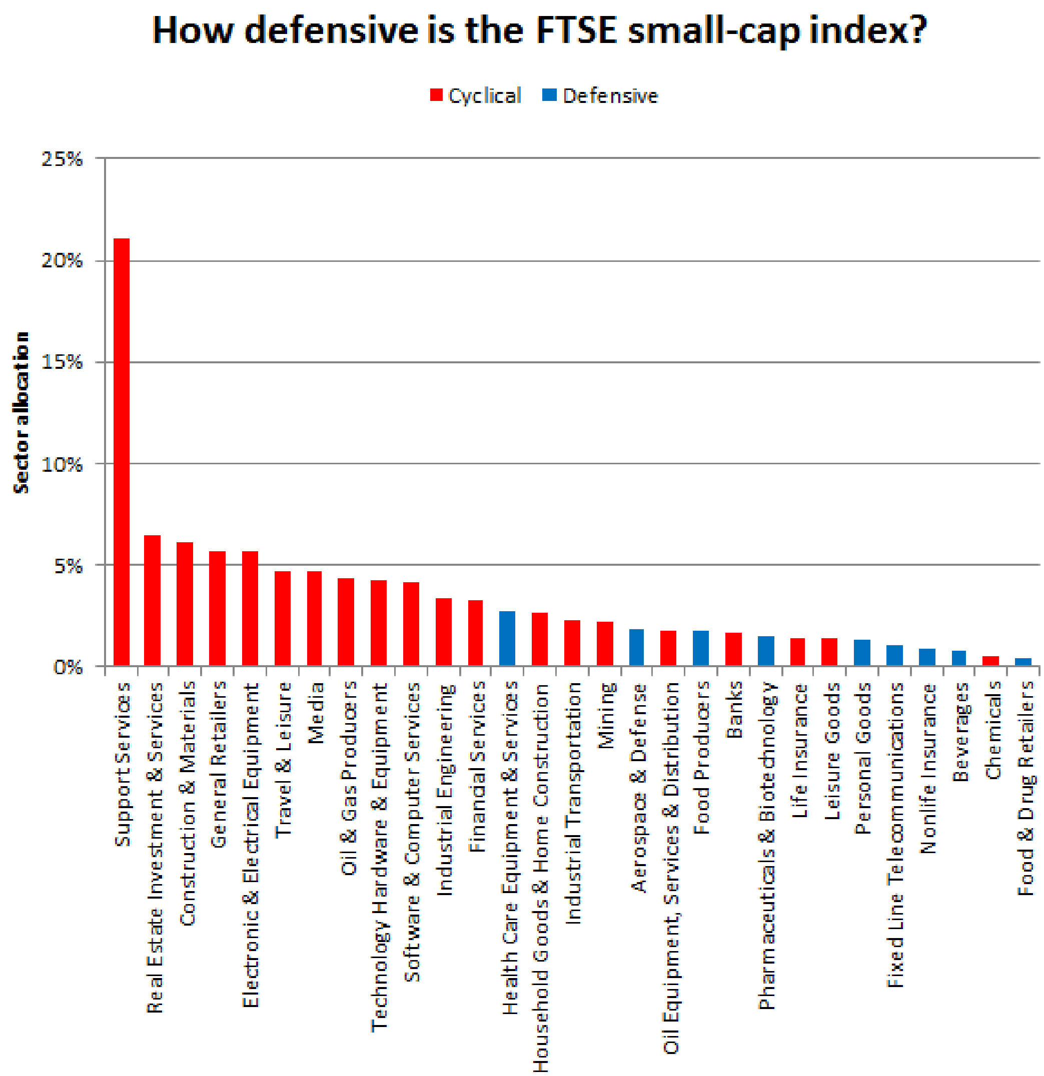
The FTSE small-cap index has a low weighting to defensive shares

Moving down in size to the small-cap index also brings a further reduction in the proportion of defensive shares.

Here's the headline result:

- **Currently the FTSE Small-Cap index has a defensive share weighting of 12%**

And here's the chart:



None of the Small-Cap index's top ten sectors are defensive

With just 12% in defensive shares and more than 20% allocated to a single sector (support services), I would describe the small-cap index as almost completely cyclical. The allocation to health care companies, the largest defensive sector in this index, is just 3%.

Having said that, I don't think defensive investors should just automatically rule out investing in small-caps. There are some good companies in there, although I would be surprised to see much more than a minimal small-cap allocation in most defensive portfolios.

How many defensive shares should you hold?

This is, of course, a subjective and personal question that only you can answer. However, I hope that some of this article will at least prompt you to think about the answer to this question.

Personally, given my goals of generating a higher income and higher growth from my portfolio as well as lower risk, I think my rule of having at least 50% in defensive shares is probably overkill.

Yes, I want my portfolio to be less risky than the overall market, but I'm not obsessed with defensiveness to the exclusion of everything else.

Also, I am willing to have a majority allocation to cyclical shares. That's because the cyclical companies I invest in are likely to be significantly lower risk than the average cyclical company, thanks to my many investment rules.

With all that in mind, I have decided to tweak my defensive share rule of thumb to this:

- **Always have at least 33% of the portfolio invested in defensive shares**

Hopefully that will be enough to maintain the portfolio's record of being less risky than the market.

It should also give me the flexibility to load up on cyclical shares (to a controlled extent) when they're far more attractively valued than their defensive counterparts, such as during the next bear market.