We look under the bonnet of the big five banks listed on the London Stock Exchange – Barclays, HSBC, Lloyds Banking Group, RBS and Standard Chartered – and highlight the key things to look at when weighing them up. SharePad's **Phil Oakley** reports

MAKING SENSE OF THE BANKS

Banks are among some of the hardest companies for investors to understand. I know of many professional investors who will not buy the shares of banks because they do not understand them. By that I mean that they do not fully understand their assets and their liabilities – what they own and what they owe.

Once upon a time, banks were relatively simple and boring businesses. They took money from savers (deposits) and lent them out to borrowers. By charging borrowers a higher rate of interest than they paid to savers, banks were able to make a profit. At the same time, they were conservatively financed and able to withstand difficult times.

The 2008 financial crisis exposed many banks for how complicated they had become. Even the banks themselves didn't really know how much they owned and how much they owed. Shareholders found out to their cost that the value of bank assets was often a lot less than they thought and their liabilities were often bigger. In many cases there was little or no money left over for them.

Many banks had to be rescued by governments or shareholders in order to stop the financial system from collapsing. Billions of pounds were pumped into them in order to shore up their shaky finances. Since the dark days of 2008, banks have had to change their ways and start obeying lots of new rules. They have had to cut back on risky and complicated financial transactions and hold more money to protect themselves if things go wrong again in the future.

In many cases, these new rules have made banks less risky investments than they were before. But they have also made banks less profitable. So where does this leave bank shares as potential investments today?

How banks make money

Banks make money from five main areas of activity:

1. Providing services such as loans, current accounts, savings products and mortgages to retail customers in high-street banks or through internet banking.
2. Commercial banking services to businesses.
3. Consumer finance, such as the provision of credit cards and finance for motor cars.
4. Insurance – house and life insurance policies, investment and income protection products.
5. Investment banking activities such as helping governments and companies raise money, mergers and acquisitions and the trading of securities on capital markets.

Let's now take a look at how that money shows up in a bank's financial statements and how you can make sense of the numbers.

Net interest income

This is the difference between the interest income the bank receives from loans it has granted to customers and the interest expense paid out to savers and other lenders. It is a key measure of a bank's profitability and is very similar to a non-financial company's gross profit. Ideally you want to see this number growing every year.

Net interest margin

A bank's net interest income can be used to gather more information about its financial performance by calculating the net interest margin. This compares the bank's net interest income with the average value of its interest-bearing assets (loans).

This is the key driver of a bank's profits from lending money. The higher it is, the more profitable the bank tends to be. You can see values in the table (above right).

> 'In many cases, new rules have made banks less risky investments than they were before. But they have also made banks less profitable'

Net interest margin of the big five banks

Name	Net interest margin (%)
Standard Chartered	2.8
Barclays	2.9
HSBC Holdings	3.2
Lloyds Banking Group	2.3
RBS	2.6

Source: SharePad

The 2008 financial crisis exposed many banks for how complicated they had become

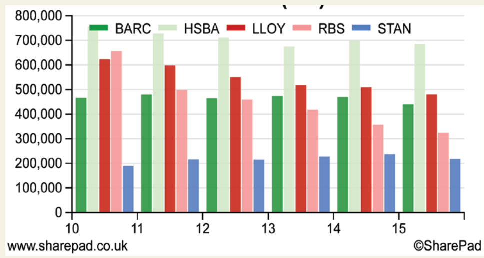
Since 2008, interest rates have been coming down and this has reduced banks' net interest margins slightly. Banks have been able to protect their net interest margins by cutting the interest rates paid to depositors, but this has probably reached its limits.

What is frightening investors is the prospect of interest rates going negative as this would squeeze net interest margins further; rates on loans would have to be cut, but it would be more difficult to charge depositors to save money.

Unless interest rates rise – which seems unlikely given the fragility of many economies – then it seems that it is going to be difficult for banks to increase their net interest margins and their overall profitability from lending.

This is especially true if the banks are not growing their loan books, as has been the case for the past few years. Instead, they have been getting rid of dodgy and underperforming loans to improve the quality and risk profile of their loan books. This can help improve profits in the short term, but does not lay the foundation for long-term profits growth. An uncertain outlook for economic growth means that companies and consumers may not be that keen to borrow nor banks to lend.

1. Loans (£m)



Other sources of income, such as insurance, remain very competitive, but fees from investment banking have picked up recently due to some big mergers and acquisitions.

Banking costs

If banks struggle to grow their income then cutting costs has to become the source of maintaining or increasing profits. All the banks have been attacking their cost bases.

Like all companies, banks have to incur costs to generate their income. The biggest costs – after interest – are wages and other staff costs along with items such as rent, IT costs, advertising and regulatory costs. A large chunk of these costs are fixed and do not vary with a bank's income. In recent years there have also been substantial costs such as provisions for fines like those to do with the mis-selling of payment protection insurance (PPI) as well as fines imposed by regulators for misbehaviour.

Another big cost has come from the fall in value of loans and investments, which are known as impairments. These occur when a bank realises that the total amount of a loan or outstanding investment cannot be recovered in full and has to be written down to its recoverable amount.

This writing down of value is shown as an expense in the income statement. Following the financial crisis, banks incurred some big impairment expenses, but the value of these has fallen significantly in recent years as bad loans have gradually disappeared from some bank balance sheets. **RBS (RBS),** however, still has a lot of remaining problems in this area.

Insurance companies have to pay out against claims each year. In some years, the value of claims can be bigger than the insurance premium income earned and a loss can be made from insurance activities.

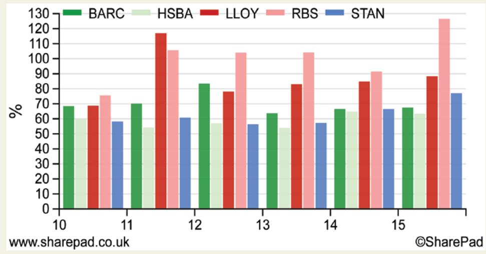
Cost-to-income ratio

Cost control is another key driver of a bank's profitability, even more so when growing income is quite difficult. The cost-to-income ratio is an important measure of how good a bank is at controlling its costs.

Cost-to-income ratio = Operating costs/ Income net of insurance claims

The lower this number is, the better.

2. Costs to income ratio



The cost-to-income ratio can be distorted by one-off fines and impairments but, even on an underlying basis, many of the banks still have costs that are too high relative to their income. The exception to this rule is **Lloyds Banking Group (LLOY)**, which has an underlying cost-to-income ratio of less than 50 per cent.

Barclays (BARC) and **HSBC (HSBA)**, which have lots of highly paid investment banking staff, face a more challenging task to get their costs under control and seem to be relying more on rising income to get their cost-to-income ratios down to respectable levels (60 per cent or less).

How safe are banks?

Investors have learnt to their cost that banks can be very risky investments. This is because of the way banks finance themselves. In the past, banks have taken on too much debt as well as the wrong types of debt (known as wholesale financing), which is why some of them needed to be bailed out by the taxpayer in 2008-09.

The main form of financing for a bank comes from customer deposits, which tend to be quite stable even though they can be withdrawn at very short notice. Banks can also borrow from other banks, from investors, and on the wholesale money markets.

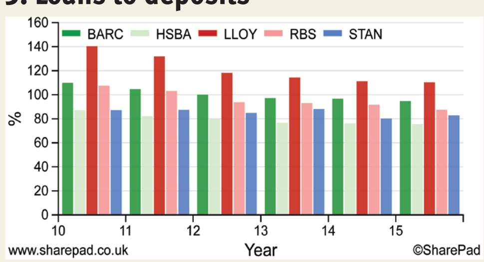
There are two main ways of checking out a bank's financial position.

Loan-to-deposits ratio

The more a bank's loans are financed by deposits, the safer a bank's financial position is deemed to be. A loan-to-deposit ratio of comfortably less than 100 per cent is the ideal position to be in.

Lloyds' loans-to-deposit ratio has been coming down, but is still over 100 per cent. This is telling you that the company is reliant on some outside borrowing to fund its loans. This is not ideal as wholesale funding has to be repaid on demand (one of the reasons why Northern Rock ran into trouble in 2007), but the bank says in its annual report that it has liquid assets (things it can turn into cash quickly) to pay off its wholesale financing if needed.

3. Loans to deposits



On this measure, HSBC and **Standard Chartered (STAN)** look to be the safest banks.

Assets-to-equity ratio

Banks talk a lot about something called the equity tier-one capital ratio as a measure of financial strength. This compares the amount of equity – and equity-type funding – as a percentage of a bank's risk-weighted assets.

Tier one ratios are somewhat complicated and can be quite daunting for investors. They have also proved to be misleading and have made banks look safer than they ultimately turned out to be.

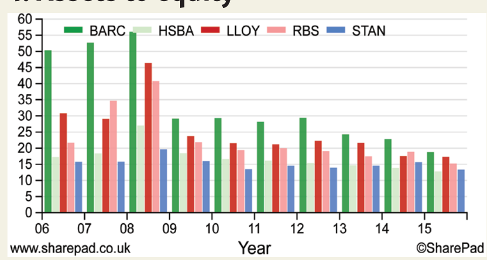
A simpler measure of safety is the assets-to-equity ratio, which compares the value of total assets with the value of total equity. The bigger the ratio the more debt a bank has to support its assets, and therefore the more risky it might be.

While not as sophisticated as the tier-one ratio, it is simple to calculate and understand. One of the best ways to understand it is to compare it with buying a house with a mortgage. Let's say that you buy a £100,000 house with a £95,000 mortgage and £5,000 of your own savings.

Your asset-to-equity ratio is 20 (100/5) or you might be said to be 20 times geared.

The major reason why banks got into trouble in the middle of the last decade is that they had too much debt – their asset to equity ratios were far too high as shown clearly in the chart, below.

4. Assets to equity



Barclays, Lloyds and RBS stand out here and have been substantially reducing debt and boosting equity since the financial crisis. That said, compared with non-financial companies, banks still have a lot of debt.

Lower debts have made banks safer than a decade ago, but this has come at a cost as we shall see.

Less leverage means lower returns for shareholders

The simple truth of the matter is that banks are not very good businesses compared with the many options available out there for investors. I say this because banks don't make very high returns on their assets (profits after tax/total assets).

'Banks are not very good businesses compared with the many options available out there for investors'

0.1%
LLOYDS' RETURN ON ASSETS (10% IS CONSIDERED GOOD)

Lloyds' return on assets (ROA) was just 0.1 per cent in 2015 or 0.98 per cent if all the one-off expenses are ignored. There are many good businesses out there with ROAs of more than 10 per cent. RBS has made no money over the past decade.

Banks' return on assets

Name	ROA (%)	ROA 10-yr avg (%)
Standard Chartered	-0.2	0.7
Barclays	0.009	0.1
HSBC	0.5	0.6
Lloyds Banking Group	0.1	0.1
RBS	-0.2	0

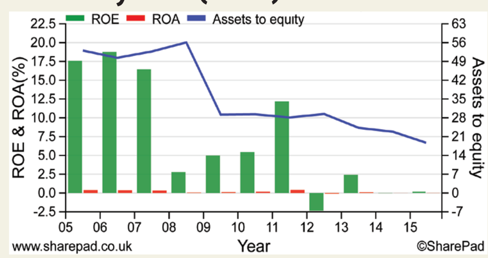
The only way that banks have been able to make acceptable returns for shareholders – the return on equity – is to take on lots of debt and gear up. By increasing the assets-to-equity ratio, the tiny returns on assets can be multiplied into much higher returns on equity.

If you multiply a company's ROA by its assets-to-equity ratio then you get a company's return on equity (ROE) as a bit of simple school maths below proves.

$$\frac{\textit{profit after tax}}{\cancel{\textit{Total assets}}} \times \frac{\cancel{\textit{Total assets}}}{\textit{Equity}} = \frac{\textit{profit after tax}}{\textit{Equity}}$$

You can see in the Barclays chart, below, how Barclays' ROE was juiced up by high leverage and how it has collapsed as leverage has come down.

5. Barclays PLC (BARC)



How to value bank shares

Most professional analysts value bank shares based on their net asset value (NAV) per share. The approach is very similar to valuing housebuilders' shares as shown in my article a few weeks ago.

The key to valuing banks is to try to determine the right P/NAV multiple for a share by estimating a company's sustainable return on equity and comparing it with the returns required by shareholders to invest in the company – known as the cost of equity (COE).

This required return or cost of equity is one of the most hotly debated topics in finance. There's no right answer to what number it should be. I'm not going to get into this topic right now, but most professional investors assume that it is around 8 per cent. For banks, you might want to add on a little bit extra to say 10 per cent given the risks involved

Getting back to the P/NAV multiple, the logic here is that a share is only worth its NAV per share if the company can produce an ROE that is equal to or more than the cost of equity. So if the sustainable ROE is 10 per cent then the estimated P/NAV is worked out by dividing the ROE by the COE:

P/NAV = ROE/COE = 10%/10% = 1.0

If the sustainable ROE was 16% P/NAV would be:

16%/10% = 1.6

If the sustainable ROE was only 4% it would be:

4%/10% = 0.4

So we now have some simple rules:

- ROE >COE then P/NAV >1.0
- ROE=COE then P/NAV = 1.0
- ROE < COE then P/NAV <1.0

So if you were looking at a share with a sustainable ROE of 12 per cent and a cost of equity of 10 per cent and a NAV per share of 100p this is how you would work out a value for the share:

Implied P/NAV = 12%/10% = 1.2
Value per share = NAVps x P/NAV = 100p x 1.2 = 120p

You get a value by multiplying the NAV per share by the estimated P/NAV.

The tables below show that the big banks are trading at values below their NAV per share. You could read this as the stock market saying that it doesn't believe that they are capable of making good, sustainable returns on equity. It's not hard to understand why this gloomy outlook has been factored into share prices given the sector's recent history and current troubles. But could the market be treating some bank shares too harshly?

Big banks trading at values below their NAV per share

Name	Close	ROE	ROE 5-yr avg	ROE 10-yr avg	Price to NAV	NAV ps
Standard Chartered	711.9p	-2.8	7.8	11.1	0.6	992.3
Barclays	190.3p	0.2	2.5	6.1	0.5	355.9
HSBC Holdings	616.2p	7.3	8.9	10.1	0.9	646.2
Lloyds Banking Group	57.26p	2.4	1.5	3.7	0.9	65.3
RBS	189.1p	-3.6	-3.8	-0.7	0.4	459.6

Source: SharePad closing prices as of 31.10.2016

Name	Underlying ROE	Cost of equity	Implied P/NAV	NAVps	Implied price	Price	Difference
Barclays	10.70%	10%	1.07	287	307.09	190	61.63%
HSBC	9.30%	10%	0.93	566	526.38	616	-14.55%
Lloyds Banking Group	13.60%	10%	1.36	54.9	74.664	57.3	30.30%
RBS	-0.60%	10%	-0.06	338	na	189	na
Standard Chartered	2.10%	10%	0.21	1032	216.72	712	-69.56%

Source: SharePad closing prices 31/10/2016

Standard Chartered was once the darling of the UK banking sector, but has since fallen on hard times

If – and it might be a big if – the banks' current returns on equity were sustainable then Barclays' and Lloyds' shares might be substantially undervalued at current prices.

Outlook

That said, the sector continues to face a lot of uncertainty. Lloyds' recent results saw profits fall slightly. There was another big provision for PPI mis-selling although underlying costs fell again. The bank's heavy exposure to the UK economy – and the housing market in particular – is a source of considerable investor concern, as is its ability to grow.

There are some pockets of growth in areas such as small business loans, credit cards, motor finance and bulk annuities, but overall Lloyds' loan book is not growing, with income growth being driven predominantly by cost-cutting.

However, if concerns about the UK economy prove to be overdone then there is a case for arguing that the shares are cheap based on its current returns. A big forecast dividend yield of 6.8 per cent looks tempting and relatively safe at the moment.

'RBS still looks to be in a mess. The bank is struggling to make any meaningful profit and remains plagued by lots of toxic assets that it has still to get rid of'

Standard Chartered was once the darling of the UK banking sector. It got through the financial crisis relatively unscathed given its large exposure to Asian economies, but the company has since fallen on hard times. It has been struggling with regulators in the US and bad loans. Last year it slashed its dividend and had to ask shareholders for more money.

A new chief executive is trying to turn the bank around. Progress has been made on cutting costs, but it is still a long way from making acceptable returns on equity.

HSBC is not without its problems either as half-year profits fell by 29 per cent, dragged down by a weak performance at its investment and private banking units. Bulls will point out that two-thirds of its profits come from Asia, but concerns about the sustainability of Chinese economic growth could make this a weakness rather than a strength. The bank has also said that it is struggling to find profitable investments in Asia.

Another area for concern is the safety of the company's dividend. The shares offer a big dividend yield of over 6 per cent, but dividend cover is expected to be thin in 2016.

Barclays' fortunes seem to be improving. The bank is cleaning itself up and getting out of non-core areas and countries. The UK banking business is doing well, while its investment bank has benefited from buoyant trading conditions in the bond markets.

Bad debts and restructuring costs are still holding the company back, but its recent results saw profits increase modestly.

Barclays wants to be predominantly a UK/US bank and this simpler structure could make it more appealing to investors. Its problem remains the volatility of investment banking profits, which have the potential to drag down returns on equity.

RBS still looks to be in a mess. The bank is struggling to make any meaningful profit and remains plagued by lots of toxic assets that it has still to get rid of. It still faces lots of issues, such as mis-selling mortgage-backed securities in the US and selling off Williams & Glyn. A dividend payment still looks a long way off given that the bank has said it will not meet its 2019 profit targets.

What's in store for the big five?

Name	Close	Forecast PE	Forecast yield	Forecast dividend cover
Standard Chartered	711.9p	24.4	1.7	2.5
Lloyds Banking Group	57.26p	8.7	6.8	1.7
Barclays	190.3p	21.6	1.6	2.9
HSBC	616.2p	13.4	6.3	1.2
RBS	189.1p	17.2		

Source: SharePad closing prices 31/10/2016

Phil Oakley is a stock analyst for Ionic Information, maker of SharePad and ShareScope investment software. Read more from Phil, including his excellent Step-by-Step Guide to Investment Analysis at www.sharepad.co.uk/philoakley.