

EQUITY VALUATION ACADEMY

Value for money

One of the most important questions investors can ask is: how can we identify the best value opportunities? In this report we combine a deep dive into the academic literature in this area with our own analysis to try to identify the best approach to value screening.

Value outperforms growth over the long run: In line with academic studies¹ we find that value outperforms growth over the long term, and the outperformance is primarily through re-rating. While the average value stock rerates positively relative to low earnings expectations; growth stocks rerate negatively as companies consume their growth opportunities. Given enough time (12 months or more) value tends to outperform.

Value and growth react differently to earnings news: The average value stock reacts positively to earnings and is largely rewarded for beating consensus. Growth names are punished for misses and are typically only rewarded for earnings markedly above forecasts.

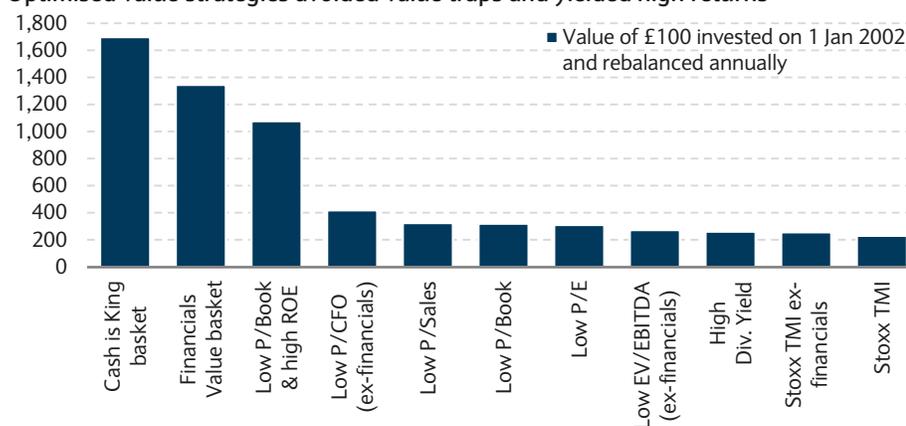
Value traps can be avoided: Academic research shows that cashflow and book value ratios minimise accounting uncertainties and are superior methods to screen for value². We find that combining P/B with ROE and P/CFO with Debt/Assets avoids value traps and maximises performance.

Value risks: One of the main risks of a value strategy is that value names are often out of favour stocks undergoing a difficult period. Hence, they require time to reverse this trend. A short investment horizon can wipe out the outperformance of a value strategy.

'Cash is King' and 'Financials Value' screens: We distil our key conclusions into the *Cash is King* (ex-financials) and the *Financials Value* screens. Stocks that screen well include Munich Re, Catlin Group, Swiss Re, ENI, Valeo and Statoil.

FIGURE 1

Optimised value strategies avoided value traps and yielded high returns



Source: Barclays Research, DataStream. ¹E. Fama and K. French, *The Anatomy of Value and Growth Stock Returns*. Working paper, 2007. ²K. Hou, A. Karolyi and Bong Khob, *What Fundamental Factors Drive Global Stock Returns?* Review of Financial Studies, 2011.

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PLEASE SEE ANALYST(S) CERTIFICATION(S) AND IMPORTANT DISCLOSURES BEGINNING ON PAGE 29.

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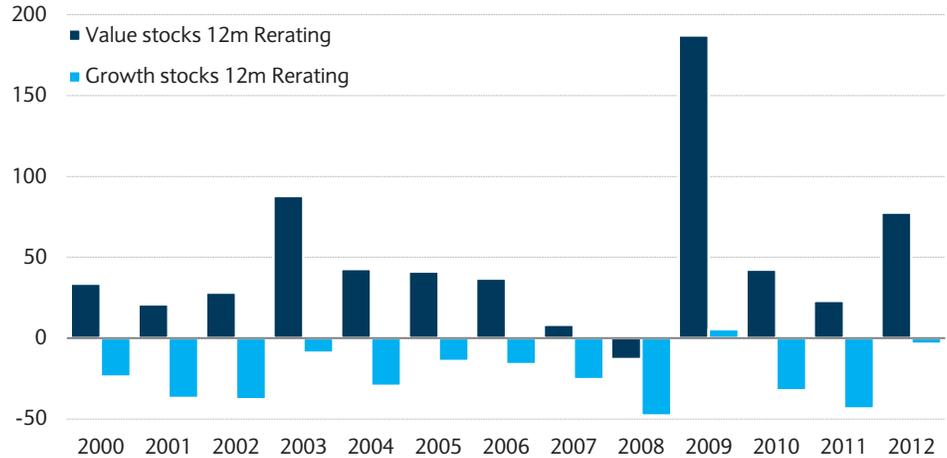
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Equity Valuation Academy – 3 key charts

Re-rating dilutes the returns of growth and boosts returns of value stocks. (For academic research on this effect see The Anatomy of Value and Growth Stock Returns, Fama & French, (2007))

FIGURE 2

Value stocks related significantly in excess of growth stocks in all of the past 13 years

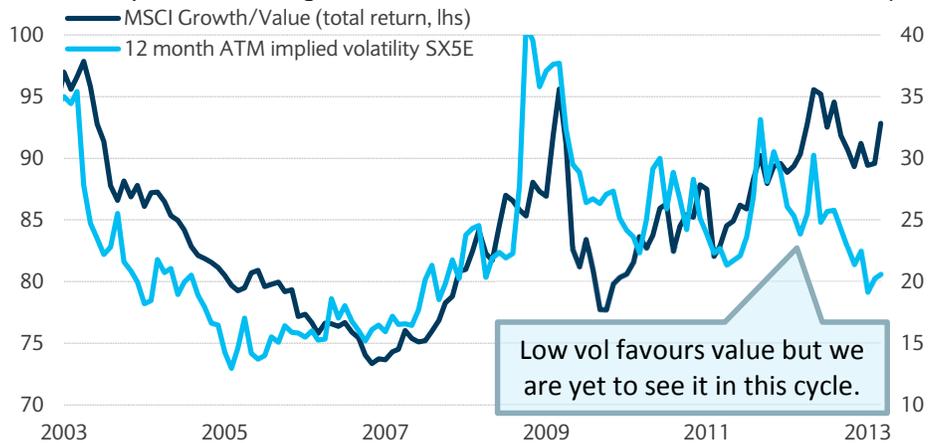


Source: Barclays Research, DataStream. Value/growth defined as top and bottom P/E quintile stocks within Stoxx 600.

How much longer can the divergence between market volatility and value/growth performance last?

FIGURE 3

The relative performance of growth/value stocks moves in line with market volatility



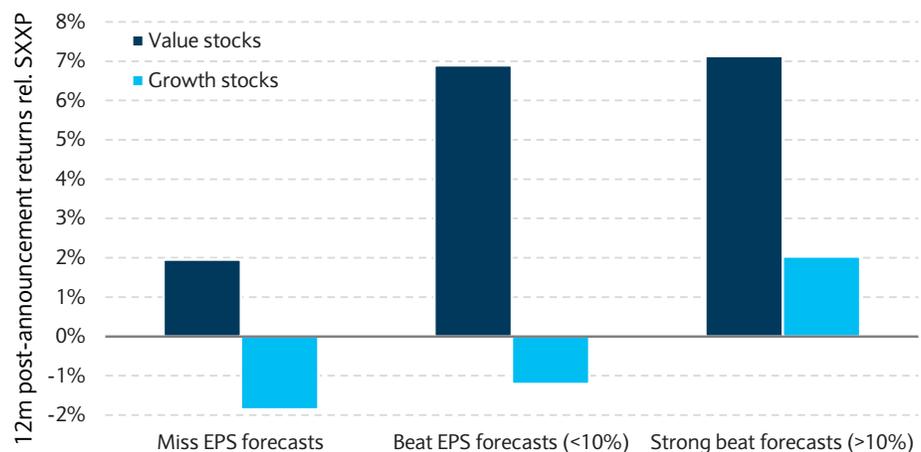
Low vol favours value but we are yet to see it in this cycle.

Source: Barclays Research, DataStream

Value stocks outperformed after marginally beating consensus. Growth stocks were only rewarded for beating consensus by a large margin. (see academic paper Good News for Value Stocks: Further Evidence of Market Efficiency, La Porta et al. (1997))

FIGURE 4

Value and growth stocks behave differently around earnings announcements



Source: Barclays Research, DataStream. Tests based on the Stoxx 600 universe between 01 Jan 2000 and 01 Jan 2013.

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SECTION 1: THE ‘WHY’ AND ‘HOW’ OF VALUE INVESTING

Three key lessons on value investing

“The critical investment factor is determining the intrinsic value of a business and paying a fair or bargain price.”¹

Academic research has investigated the relationship between company valuation and stock market returns in great detail. The debate surrounding value stretches from the findings of *Fama & French (1992)*², namely, that the price to book ratio explains a large portion of future stock returns, to recent papers such as *Angelini et al. (2012)*³, who conclude that the cyclically adjusted P/E is a powerful predictor of future index returns.

In this note we focus on the analysis of ‘value’ versus ‘growth’ stocks. The first group of stocks can be broadly defined as “bargains”, or stocks that trade at a low price relative to their fundamentals (ie, a stock with a low P/E ratio, low P/Book ratio, etc). Value investors often believe that the market has mispriced these companies and a correction will move prices up and generate returns. On the other hand, investing in growth stocks implies paying a premium price (ie, a high P/E, high P/Book, etc) for a stock that offers large growth potential. Investors who follow this route generally believe that the future growth will lead to stock outperformance.

We have examined the academic literature and added our own tests to identify the likelihood and causes of value outperformance and the best approaches to value screening. We highlight three main lessons from our analysis:

- **Value outperforms in the long run.** This has been shown in a variety of academic studies⁴ and our own tests in Section 2 support this conclusion. The main reason is the different rerating of value and growth stocks. **For most value stocks the valuation ratios grow after they are identified as value stocks. For the average growth name the opposite is true, as these companies tend to de-rate after they are identified as growth stocks.** Value stocks experienced a positive P/E rerating in all but one of the past 13 years. On the other hand, growth names rerated negatively in 12 of the past 13 years. In relative terms the rerating of value stocks was higher than that of growth stocks in all years.
- Value and growth react very differently to earnings news due to the different growth expectations of each class of stock. **Value stocks, on average, still show positive returns even after missing earnings forecasts.** On the other hand **growth names are punished by the market for missing consensus forecasts and only get rewarded when the company beats consensus by a large margin.**
- Value is not necessarily riskier than growth. **The volatility of value stocks is more often than not lower than that of growth names.** In addition, the volatility of negative movements in price is higher in growth stocks in all of the past 13 years.

In addition to the above, we would highlight our view that the current environment is promising for value stocks. With central bank reflation efforts driving investors up the risk curve, easing policy uncertainty and a stretched premium for defensive growth. **We believe we could be approaching a tipping point for value stocks.**

¹ Quote attributed to Warren Buffett.

² Eugene Fama and Kenneth French, *The Cross-Section of Expected Stock Returns*. The Journal of Finance, Vol 47,1992.

³ Angelini, Natascia, Borretti, Giacomo, Marmi, Stefano and Nardini, Franco, *Value Matters: Predictability of Stock Index Returns*, Working Paper, 2012.

⁴ See for example: a) Josef Lakonishok, Andrei Shleifer and Robert Vishny, *Contrarian Investment, Extrapolation, and Risk*. The Journal of Finance, Vol. 49, No. 5, 1994.

b) Joseph Piotroski, *Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers*. Journal of Accounting Research Vol. 38, 2000.

“What sets value investors apart is the goal of paying a bargain price for the assets the company has in place; as opposed to growth investors, who aim to identify exceptional growth opportunities.”⁵

Academic research highlights that value outperforms growth in the long run. And we believe the current market is favourable for value stocks.

The yields of value investing appear more consistent than the earnings growth of growth names.

Why does value outperform?

As far as heated debates in the halls of investing academia go, this is a serious contender for top spot. The general academic consensus is that value outperforms over the long run. However, one question remains: is the outperformance of value driven by a simple risk/reward story? (ie, investors take more risk when investing in value and to compensate for this risk are rewarded with larger average returns). Or are the returns of value and growth investment strategies a consequence of mispricing? (i.e. the market often overreacts when value names fall out of favour and excessive hype is built around growth names).

Our view is that the latter is more likely the answer. But whether the reader concurs with us does not change the conclusion that value investing has delivered higher returns in the long run.

Re-rating drives the returns of value stocks

Diving deeper into the performance of value stocks, we start by breaking down returns on a single stock into its components:⁶

Returns can be divided into *Dividend Yield* and *Capital appreciation*. And the capital appreciation, by its turn, can be divided into *earnings growth* and *earnings rerating*.

We can see that by:

$$\left(1 + \text{Returns}_{\text{over the period}}\right) = \frac{\text{Dividends}_{\text{over the period}}}{P_{\text{start of the period}}} + \frac{P_{\text{end of the period}}}{P_{\text{start of the period}}}$$

$$\left(1 + \text{Returns}_{\text{over the period}}\right) = \frac{\text{Dividends}_{\text{over the period}}}{P_{\text{start of the period}}} + \left[\frac{\text{Earnings}_{\text{end of the period}}}{\text{Earnings}_{\text{start of the period}}} \times \frac{P/E_{\text{end of the period}}}{P/E_{\text{start of the period}}} \right]$$

Hence:

$$(1 + \text{Returns}) = \text{Dividend Yield} + [(1 + \text{Earnings Growth}) * (1 + P/E Rerating)]$$

In Figures 5, 6 and 7 we look at each of these components individually. Value stocks, almost by definition, are expected to have higher dividend yields and in Figure 5 we show that the dividend component of returns alone has consistently been higher for value names.

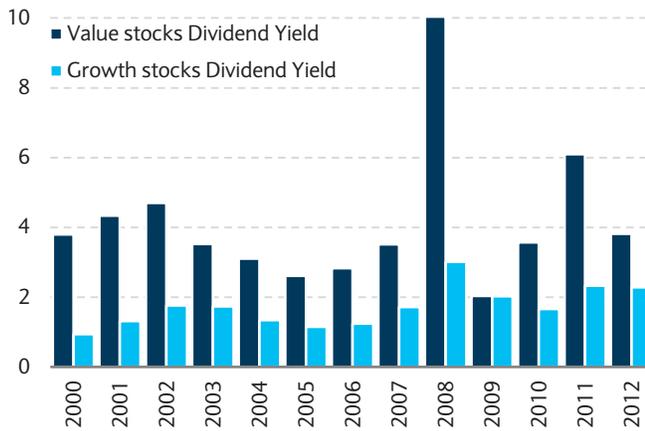
The second component of returns yields more surprising results. Growth names, again almost by definition, are expected to have higher earnings growth. And in general that is what we found: in 11 of the past 13 years growth stocks had higher EPS growth than value names (Figure 6). However, the expectation of growth is the main reason for the premium investors pay for these stocks. And looking at the 12m ahead earnings growth over the past years, the results only partially support that the premium paid for growth was “money well spent”. We can see that the EPS growth advantage that investors received for growth stocks is not as consistent or high in magnitude as the dividend yield advantage value investors received for their investments.

⁵ Damodaran, Aswath, *Value Investing: Investing for Grown Ups?* Working Paper, 2012.

⁶ For the tests in this section, unless stated otherwise, Value and Growth stocks are defined as the lowest and highest quintile of P/E measured at the first trading day of each financial year. The universe used on the tests is the Stoxx 600.

While investing in value stocks implies paying for the dividend yield and investing in growth stocks implies paying for strong future earnings, should not come as a surprise, what is often ignored is the P/E rerating component.

FIGURE 5
Unsurprising: dividend returns consistently higher in value than in growth stocks over the past 13 years



Source: Barclays Research, DataStream.

FIGURE 6
Surprising? Earnings growth is not consistent in growth stocks and is at times lower than in value



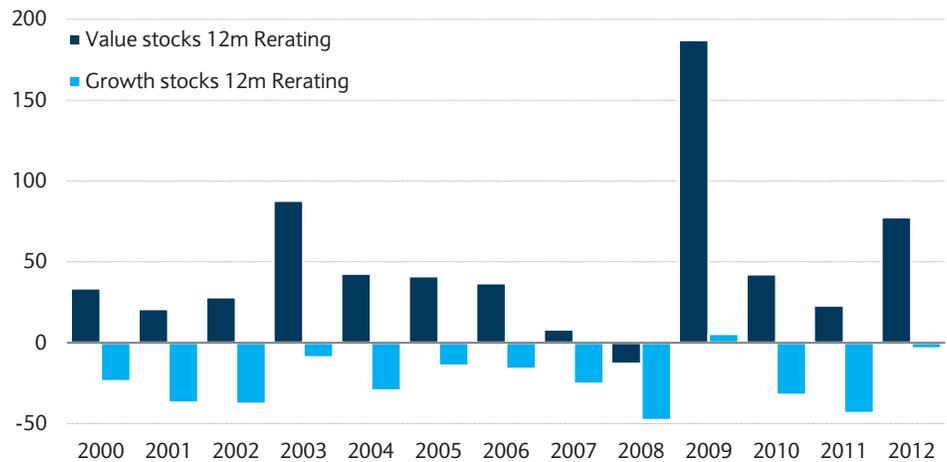
Source: Barclays Research, DataStream.

The P/E rerating works as a multiplier which defines how much the earnings growth affects the capital appreciation/depreciation of the investment. So, for example, let us suppose that an investors buys £1000 of a stock and holds it for one year; and when the position is opened the stock has EPS = £10 and trades at a P/E = 10x. Now let us assume this stock doubles its EPS over the year. In this case the invested capital will only double if P/E stays put at 10x. But if the stock's P/E rerates to 15x the capital will actually treble (i.e. when the position is closed: EPS £20 * P/E 15x = £3000) while, if the P/E de-rates to 5x the capital appreciation will be zero (i.e. when the position is closed: EPS £20 * P/E 5x = £1000).

With that in mind, we looked at the rerating of value and growth stocks over the same 13 year period. In Figure 7 we see that the rerating has magnified the returns of value names in all of these years except for 2008. While the returns on growth stocks were diluted by de-rating in all but one of the past 13 years.

Rerating boosts the returns on value stocks and dilutes the returns on growth stocks.

FIGURE 7
Value stocks rerated significantly in excess of growth stocks in all of the past 13 years



Source: Barclays Research, DataStream

Hence, while growth stocks benefit from stronger EPS, **growth stocks tend to rerate negatively**. In other words, as their earnings grow, the value the market attaches to these earnings is constantly falling. It appears that growth companies consume their growth opportunities quickly causing PEs to fall, so limiting the returns on investing in growth names.

The reverse is true of value names, which show (often strong) positive rerating in most years. Hence, even in the face of the weaker earnings growth shown by these stocks, the rerating adds to the higher yield and generally translates into outperformance of value stocks.

This type of analysis was suggested in *The Anatomy of Value and Growth Stock Returns (by Fama & French)*⁷. In this paper the authors conclude that value portfolios generate large capital gain returns via rerating. By contrast, growth stocks re-rate negatively causing the P/E ratios of growth and value portfolios to converge over time.

⁷ Eugene Fama and Kenneth French, *The Anatomy of Value and Growth Stock Returns*. 2007. CRSP Working Paper.

Value and growth stocks behave very differently around earnings announcements. Value names tend to outperform after any small beat to consensus. Growth stocks do not.

Growth stocks are punished for missing consensus and only rewarded when earnings significantly beat consensus!

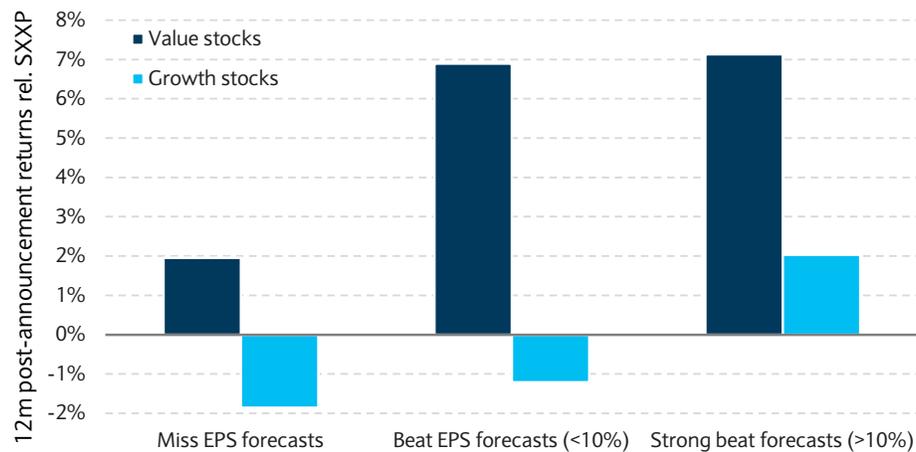
The analysis above begs a follow-up question:

How do value and growth stocks react to earnings news?

Given that value stocks appear to carry the expectation of low earnings growth, what happens to those value stocks where there is upside surprises on earnings? And if the price of growth stocks already implies high earnings expectations, are they still rewarded for reporting high earnings? To answer those questions, we look at the returns of value and growth stocks when they miss/beat analyst expectations.

In Figure 8 we plot the average 12m post earnings announcement returns of value and growth stocks since 2000. We can see that these two types of stocks react in very different ways depending on what was disclosed in the earnings announcement. It appears that the price investors pay for growth stocks on average already carries strong earnings expectations; so much so that unless the company beats consensus by a significant margin, the share price reaction is negative.

FIGURE 8
Value stocks are rewarded for beating consensus and not punished for misses



Source: Barclays Research, DataStream. Tests based on the Stoxx 600 universe between 01 Jan 2000 and 01 Jan 2013.

We note a few other interesting conclusions from the above chart: firstly, **value stocks appear not to be punished by the market for missing analyst forecasts.** These stocks seem to already carry the expectation of poor earnings in their valuation. Secondly, for value names even a small beat to consensus is largely rewarded by the market. Even more startling are the conclusions for growth stocks. Firstly, **for growth stocks, missing analyst forecasts results in average negative returns.** Secondly, the average growth name is not rewarded for a small beat to analyst forecasts, only strong surprises (>10% above forecast) result in positive returns.

Supporting the argument that the different reaction to earnings news drives much of the difference between the returns of value and growth stocks academic research (*Good News for Value Stocks: Further Evidence of Market Efficiency – by La Porta, Lakonishok, Shleifer & Vishny*⁸) has found that “the earnings announcement returns are substantially higher for value stocks than for glamour (growth) stocks”. In other words, as it is clear from Figure 8, positive reaction to earnings announcements are consistently more common for value names than for growth names.

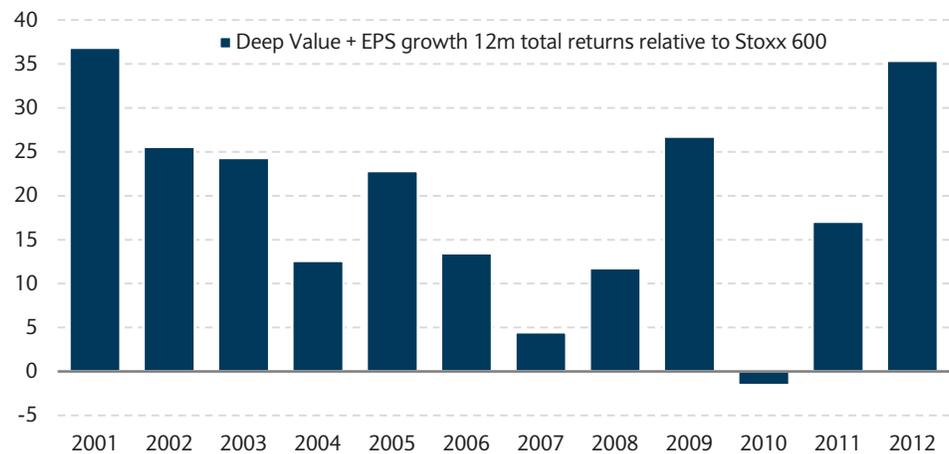
⁸ Rafael La Porta, Josef Lakonishok, Andrei Shleifer, and Robert Vishny. *Good News for Value Stocks: Further Evidence of Market Efficiency* Journal of Finance. VOL 52, No 2, 1997.

This can also be seen by looking at a particular class of stock: value names that report earnings growth. Those value stocks that manage to grow earnings on a given year tend to yield very strong market performance as well. If we look at value stocks that grew earnings in the year after being selected as a value name (Figure 9) the returns are exceptionally strong.

In other words, the “holy grail” of value/growth investing appears to be investing in value names that will grow earnings/beat earnings expectations during that period. The question then becomes: **how do we identify those value stocks with potential to surprise on earnings?** These are truly the companies where the market has underestimated the potential of the assets in place, i.e. they are currently mispriced. We try to answer this question in Section 2 where we attempt to identify the best ways to screen for value and to avoid value traps.

Companies that trade at cheap valuations and manage to grow earnings have outperformed in the past. Could the European banks be in that position now?

FIGURE 9
Value stocks with subsequent EPS growth showed large outperformance most years



Source: Barclays Research, DataStream. Deep Value and EPS growth indicates companies in the bottom decile of P/E which managed to grow earnings in the 12m after being classified as a deep value stock.

Is value riskier than growth?

We believe that the outperformance of value is not simply a reward for risk.

Now we turn back to the initial question of whether the outperformance of value is driven by risk or mispricing. As we wrote above, our view is that mispricing may play a larger part. First, the results we saw in Figure 8 above point in the direction of the mispricing theory. It appears that market earnings expectations about growth stocks are so high that even when earnings are marginally above analyst forecasts this does not translate into positive returns. To further explore this we look at the volatility of value and growth stocks. These tests also imply that risk is not the determinant of value returns since in 8 of the past 12 years growth stocks showed higher volatility than value stocks (Figure 10).

Academic research is inconclusive on which carries more risk, value or growth.

The academic research answer to this question is still unclear and there is no consensus in the literature concerning this topic. On one side of the debate, a classic paper, *Size and Book to Market Factors in Earnings and Returns (by Fama & French)*⁹, argues that in the same way that value stocks yield higher price returns they also display higher risk. So these authors defend that the greater returns to value stocks are the result of this risk/reward trade-off.

⁹ Eugene Fama and Kenneth French, *Size and Book to Market Factors in Earnings and Returns*. The Journal of Finance, Vol 50, No 1, 1995.

The results from the tests of Fama and French indicate that the beta of the CAPM model alone is not capable of explaining the variation in returns across companies and that valuation and size play an important part in explaining returns. Fama and French frame their arguments along the lines of the Fama and French (FF) 3 factor model which is an expansion of the CAPM model¹⁰.

The results of the FF 3 factor model show that value explains much of the future returns of stocks.

$$\text{CAPM model: } R_s - R_f = \alpha + \beta^*(R_m - R_f)$$

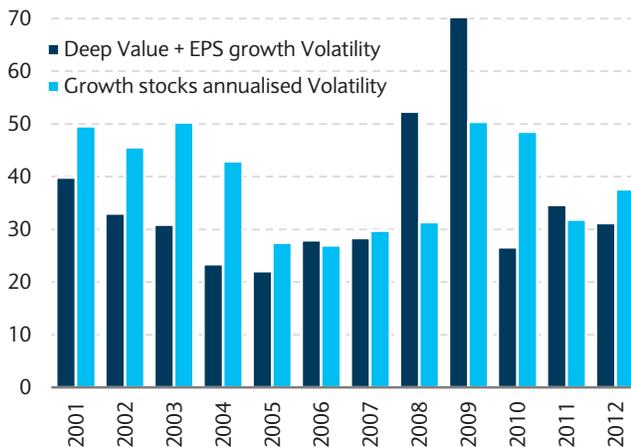
$$\text{FF 3 Factor model: } R_s - R_f = \alpha + \beta^*(R_m - R_f) + H^*HML + S^*SMB$$

Where: R_s is the return on a portfolio, R_m is the market return, R_f is the return on the risk free rate, HML is the ‘high minus low’ book to price factor (which is measured based on the historic outperformance of low P/B over high P/B stocks) and SML is the ‘small minus large’ size/liquidity factor (which is measured based on the historic outperformance of small cap over large cap stocks). So, while the CAPM argues that beta and the excess return on the market alone are able to explain single stock returns; the FF 3 factor model states that valuation (as captured by the price to book ratio) and stock liquidity/size also impact returns. Fama and French try to categorise the P/B and size factors along the same lines as beta; i.e. as factors that capture risk. However, their research fails to provide a sound economic rationale for why low P/B names would intrinsically carry greater risk.

Future research argues that this explanatory power is driven by mispricing.

This led other researchers (as well as Fama and French themselves) to question the risk explanation for the outperformance of value companies. In the paper, *Contrarian Investment, Extrapolation, and Risk* (by Lakonishok, Shleifer & Vishny)¹¹ argue that market participants “consistently overestimate future growth rates of growth stocks relative to value stocks” and that “value strategies appear to be no riskier than growth strategies”. This implies that the returns to value stocks are a consequence of mispricing.

FIGURE 10
8 out of the past 12 years show higher vol in growth stocks



Source: Barclays Research, DataStream. Deep Value and EPS growth indicates companies in the bottom decile of P/E which managed to grow earnings in the 12 months after being classified as a deep value stock.

FIGURE 11
But in the 4 years of higher vol, value outperformed growth



Source: Barclays Research, DataStream. Deep Value and EPS growth indicates companies in the bottom decile of P/E which managed to grow earnings in the 12 months after being classified as a deep value stock.

¹⁰ See Eugene Fama and Kenneth French, *Common risk Factors in the Returns of Stocks and Bonds*. Journal of Financial Economics, Vol 33, 1993.

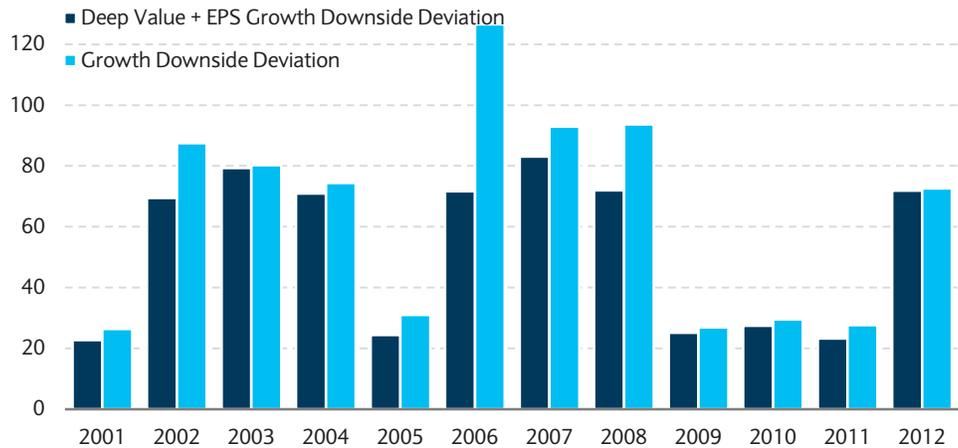
¹¹ Josef Lakonishok, Andrei Shleifer and Robert Vishny, *Contrarian Investment, Extrapolation, and Risk* The Journal of Finance, Vol. 49, No. 5, 1994.

The periods when value showed higher volatility were years of value outperformance.

Another important point is that the 4 years when value showed higher volatility were also years in which value stocks significantly outperformed growth stocks. This suggests that the volatility we are looking at even in those 4 years is a “good volatility”, i.e. prices increasing fast rather than falling.

We investigate this “good volatility” theory further by looking at the downside deviation (i.e. the standard deviation of negative movements only). What we find is that value names have shown lower downside deviation, and hence lower downside risk, in all of the past 12 years (Figure 12).

FIGURE 12
The volatility of negative movements only has been lower in value every year since 2001¹²



Source: Barclays Research, DataStream. Deep Value and EPS growth indicates companies in the bottom decile of P/E which managed to grow earnings in the 12m after being classified as a deep value stock.

Another academic study that explores this question head on is: *Is Value Riskier Than Growth? (by Petkova & Zhang)*¹³. Their conclusion is that risk does help explaining the discount at which value stocks trade, but that the risk pricing effect is far too small to explain the excess return of value stocks. The authors look at the beta of value and growth stocks in different market periods and find that that the risk of value stocks moves in line with market risk. Growth stocks, on the other hand, tend to behave as defensives and become less risky when the market as a whole becomes riskier.

Growth stocks tend to be defensive and therefore less risky during market downturns.

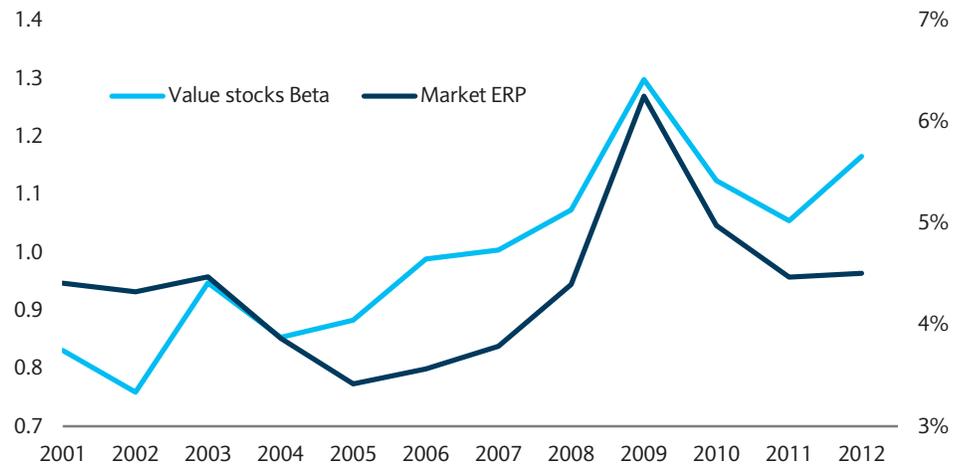
To illustrate that point we look at the beta of value stocks and the European equity risk premium (Figure 13). We can see that the beta of the value names has moved in line with the risk premium. We wrote previously that we expect a contraction in the equity risk premium in Europe (*European Strategy Elements - Next catalyst: Bottoming of profitability 21 March 2013*). If that contraction in risk premiums materialises it should follow that the risk of value stocks reduces. This is clear in the example of the financials sector which is perceived as risky given the uncertainty in Europe but should be seen as a much safer investment as soon as macroeconomic and political uncertainty diminishes.

¹² Clearly a caveat of this test is that we are looking at a special class of value stock (those that manage to grow earnings over the year) and comparing with all growth stocks. However, our tests and conclusions in Sections 2 and 3 aim to identify precisely this special class of value stock.

¹³ Petkova, Ralitsa and Zhang, Lu, *Is Value Riskier Than Growth?* Journal of Financial Economics, Vol 78. 2005.

When market risk is high a value screen will generally be composed of higher beta stocks.

FIGURE 13
The beta of value stocks tends to move in line with the equity risk premium



Source: Barclays Research, DataStream

Is this the moment for value?

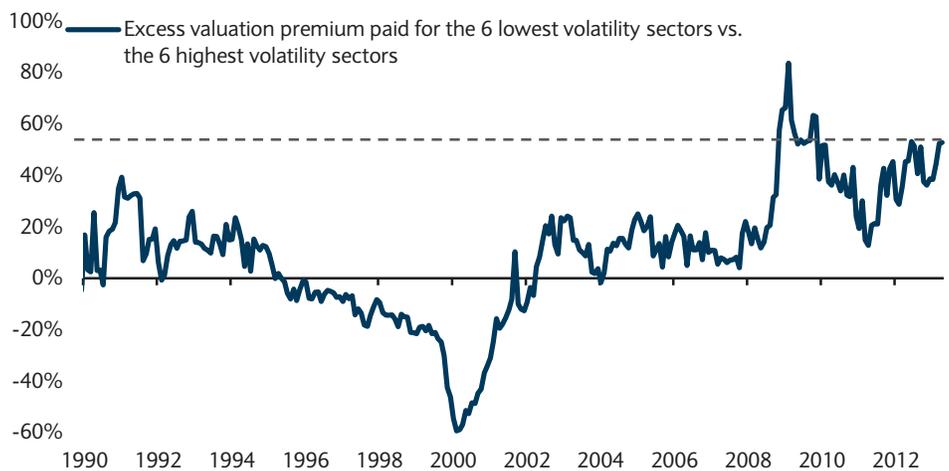
We previously wrote about our belief that the bull market since 2009 has been one hounded by fear and that a reduction in tail risks in 2013 could be the tipping point which starts a bull market based on greed (*European Strategy Elements: A brave new world*).

With high levels of implied volatility (Figure 15) and elevated inter stock correlations, investors have favoured growth and defensive stocks over value names. However, what we have observed recently is a continued decline in implied volatility. This could be the catalyst that investors need to start diving into the value currently latent in European stocks.

Is the defensive growth run nearing its peak?

We recently highlighted that the outperformance of defensive stocks may be approaching (*European Strategy Elements: Is the outperformance of defensive sectors here to stay?*, 3 May 2013).

FIGURE 14
Premium paid for low volatility sectors in Europe remains significantly elevated



Source: Barclays Research, DataStream. Note: Volatility measures on a realised basis over last 12 months. Valuation premium measured using the CAPE calculated as sector price/ 5 year average of sector earnings – monthly rebalance.

We believe there are three main reasons for this: 1) Central bank reflation efforts have mainly benefitted defensive sectors year-to-date. However, this has not been the case in neither the credit markets nor the Japanese equity markets in the recent past. 2) The premium for safety to us looks too high (Figure 14); the outperformance of the safer-haven defensive growth sectors has moved the valuation premium paid for safety to what we see as stretched levels. Such a high premium for safety was last seen in March 2009 and June 2012. In hindsight, both were good times to switch out of safety and into risk. 3) With policy uncertainty starting to decline, support for pro-growth measures increasing and peripheral bond spreads falling, we feel that the point of maximum economic pain in Europe may be near.

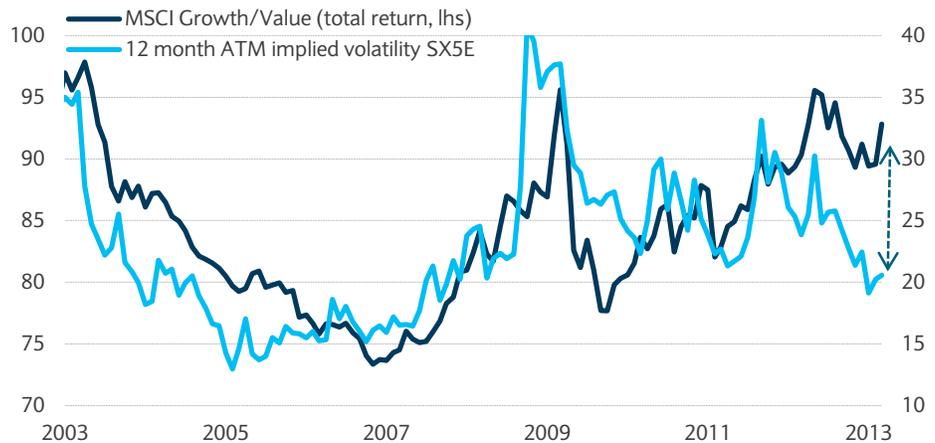
Increased central bank put protection may accelerate yieldfall. This would benefit value stocks.

Central bank actions could accelerate ‘Yieldfall’.

In addition, the expansion in central bank put protection on the back of the BoJ’s QE is likely to continue to suppress investors’ reaction function to economic data and policy uncertainty. While in the previous cycle volatility moved in line with economic policy uncertainty; that has changed post 2008. We believe the current gap between policy uncertainty and implied volatility can at least be partially attributed to the put-protection offered by loose monetary policy. This should result in what we call ‘Yieldfall’, a re-rating of European equities towards more expensive levels (*European Strategy Elements: 2013 - Equities to benefit from Yieldfall*). This movement is likely to benefit equities and more specifically value stocks in 2013.

The outperformance of value was held back by the renewed uncertainty.

FIGURE 15
For how much longer can the outperformance of growth resist this lower volatility world?



Source: Barclays Research, Barclays Equity Derivatives Strategy, <http://www.policyuncertainty.com>

As tail risks continue to reduce and central bank put protection is expanded we expect value to outperform.

So, while we expect the slow and gradual reduction in European tail risk to continue to drive Yieldfall, the effect of the BoJ’s QE could accelerate this movement as bond investors move away from historically low JGB yields and push yields lower in other markets and asset classes. This is in line with our asset allocation team’s view that the search for yield in bonds should be felt in equities going forward as the markets are only starting to price in the actions of the BoJ (*Global Asset Allocator: BoJ QE: A delayed ‘risk on’ response*, 11 Apr 2013).

SECTION 2: SCREENING FOR VALUE

Three key lessons on value screens

After going through what the academic literature has to offer on value screening and analysing the results of our own tests of different value ratios and screening methods we arrive at a number of lessons. The main ones are:

“Value investing strategies have worked for years and everyone’s known about them. They continue to work because it’s hard for people to do, for two main reasons. First, the companies that show up on the screens can be scary and not doing so well, so people find them difficult to buy. Second, there can be one-, two- or three-year periods when a strategy like this doesn’t work. Most people aren’t capable of sticking it out through that.”¹⁴

- **Value investing requires time.** Value names are often stocks that are out of favour and going through a difficult period. Hence, **short-term investing in value rarely works** since it does not allow enough time for the companies to overcome these difficulties.
- **Value traps can be avoided.** When screening for value often investors will be attracted to firms that are cheap for very good reasons. These companies, the so called “value traps”, will either remain cheap or go out of business. But there are ways to avoid them. **By combining quality and leverage metrics with value, investors can steer clear of most value traps.**
- A valuation ratio is just as good as its numerator/denominator and not all valuation ratios work the same and say. A P/E ratio, for instance, will be insignificant if earnings are distorted. **Ratios that minimise the uncertainty behind some of the accounting estimates that go into earnings tend to work better. Our analysis shows that cashflow based ratios and the price to book ratio tend to outperform.**

Below, we look at each of these lessons in detail and analyse the performance of a range of different value ratios in search of the best tools to screen for value.

How to capture value?

Different value ratios can capture very different types of stocks.

We prefer cashflow related ratios and price to book.

P/E is the most often used ratio. But not necessarily the best when screening for value.

*Benjamin Graham and David Dodd’s Security Analysis*¹⁵ was probably the first work to look at value screens in a systematic way. Since then investors have explored many different ways to identify undervalued stocks.

There are clearly numerous ways to measure value, from the common P/E, EV/EBITDA and Dividend Yield to less common cashflow ratios and sales ratios. Although some of those may look similar, and it is tempting to think that all value ratios will pick the same stocks, different ratios may actually yield very different names and look at value in very different ways. So, we start this section by looking at each individual measure, how it has performed and some of the key issues and main health warnings investors should bear in mind when looking at them¹⁶. (For academic research assessing and comparing different value ratios see *Value Investing: Investing for Grown Ups? (by Damodaran)*¹⁷. For an accounting and valuation perspective on value ratios see the “Multiples challenges” section of *Barclays European Accounting & Valuation – GAAP Matters 2013*, 25 Jan 2013).

Price to Earnings – simple and effective, but investors can do better

This ratio is the first in Ben Graham’s list of investment screens and possibly the one used most often by investment professionals. The ratio is simple to calculate and use, and has the advantage that it can be applied across all sectors. It also performed well on backtests with low P/E outperforming the market by 2.4% annualised and high P/E stocks by 5.9% annualised (Figure 16). But there are caveats:

¹⁴ Quote attributed to Joel Greenblatt - Columbia University professor and founder of Gotham Capital.

¹⁵ Graham, Benjamin and David Dodd’s, *Security Analysis*, McGraw-Hill 1934.

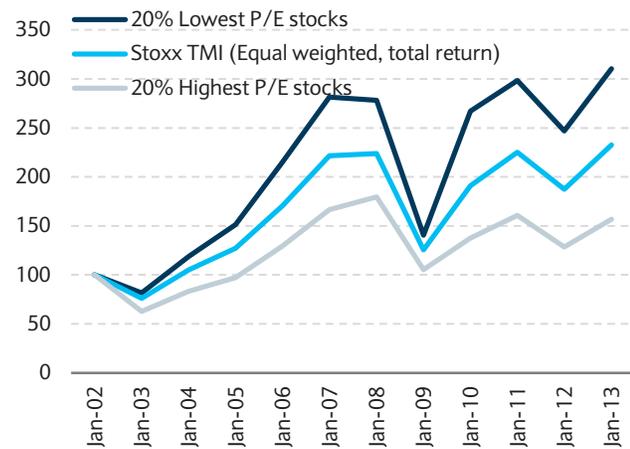
¹⁶ All tests in this section are based on the Stoxx Total Market Index universe and, unless otherwise stated, compare the top and bottom quintiles (top and bottom 20%) in each ratio.

¹⁷ Damodaran, Aswath, *Value Investing: Investing for Grown Ups?* Working Paper, 2012.

- The ratio is distorted when earnings are too close to zero, and cannot be used when the company is making a loss.
- Portfolios of low P/E stocks usually include companies where there is great uncertainty about future earnings. So a company with a low P/E but feeble or volatile earnings may end up proving themselves to be value traps.
- Accounting earnings vary in quality from company to company. A low P/E may be a consequence of low quality earnings to which the market does not attach any confidence.

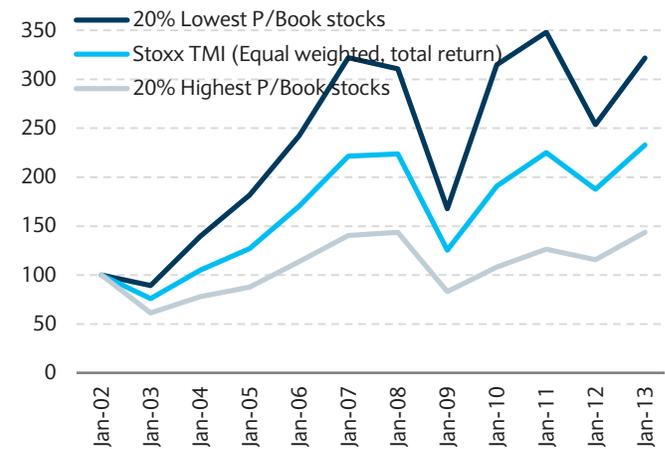
So when screening stocks using P/E it is important to also include measures of earnings quality and/or persistence such as cash flow conversion ratio (CFO/Earnings).

FIGURE 16
Low P/E stocks outperformed high P/E by 5.9% annualised



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

FIGURE 17
Low P/B stocks outperformed high P/B by 7% annualised



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

The P/Book backtests are promising but it is important to combine it with ROE to avoid selecting low return firms.

Price to Book – strong backtest performance and fundamental support

*The Cross-Section of Expected Returns (by Fama & French)*¹⁸ concludes that the price to book ratio explains stock returns more than any other fundamental variable. The ratio also bodes well in our tests as the low P/B stocks outperform the market by 2.7% and the high P/B stocks by 7% (Figure 17). The health warnings are:

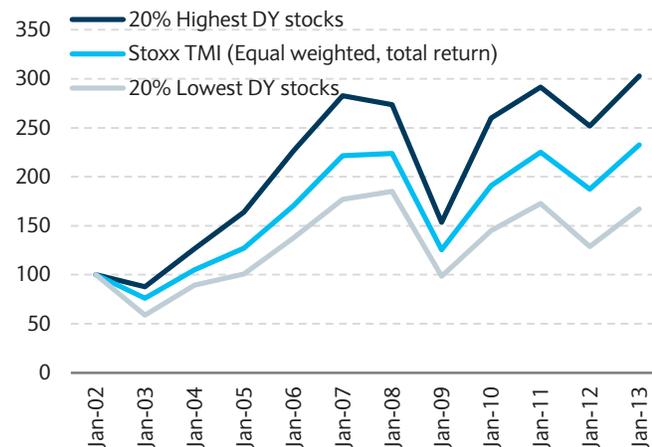
- It can also be influenced by accounting rules, so some of the accounting related caveats mentioned on the P/E section apply to P/B too. However, the P/B ratio is much more stable and less exposed to the uncertainties in estimates necessary to calculate the earnings number.
- Price to Book can be rearranged as:

$$P/B = \frac{ROE - growth}{cost\ of\ capital - growth}$$

This means that a company with low P/Book may simply be a company that generates a very low return on equity. So, when screening using P/B ratios it is important to also test the ROE of the names selected.

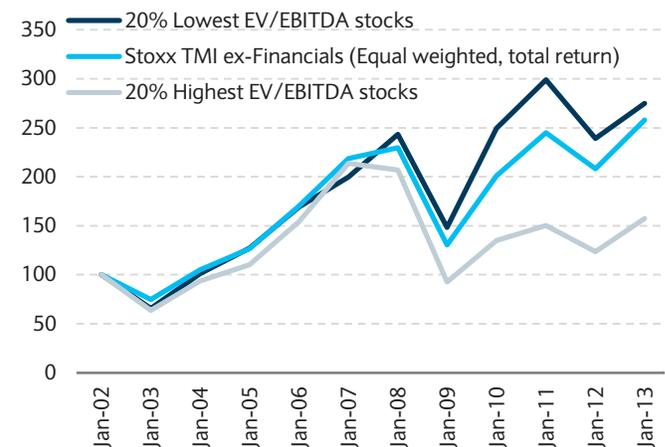
¹⁸ Eugene Fama and Kenneth French, *The Cross-Section of Expected Stock Returns*. The Journal of Finance, Vol 47, No 2, 1992.

FIGURE 18
High DY stocks outperformed low DY by 5.1% annualised



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

FIGURE 19
Low EV/EBITDA outperformed high EV/EBITDA by 4.8%



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

Dividend yield involve less uncertainty than most other ratios as it is not based on accounting estimates.

Dividend Yield – looks directly at returns to investors

While earnings and book value are subjective numbers over which estimates and accounting choices may have a strong impact, the dividend yield is a ratio based on a much “harder” number. However, when screening stocks using dividend yields one should bear in mind:

- Many companies do not pay dividends and therefore the ratio will screen a smaller universe of companies. This reduction in the applicable universe in a quantitative screen can be costly in terms of performance.
- Tax considerations need to be taken into account when looking at the dividend yield across different regions and markets since, in some markets, dividends and capital gains are taxed at different rates.
- It is of no use to pay high dividends if the company cannot afford it and are under risk of dividend cuts. So when looking at dividends it is important to always combine it with the payout ratio or a measure of cashflow generation to gauge the probability that the company will continue to pay that level of dividends.

In our backtests high dividend yield names have outperformed low yielding stocks by 5.1% annualised since 2002 and the market by 1.0% (Figure 18).

Results on EV/EBITDA are not very promising.

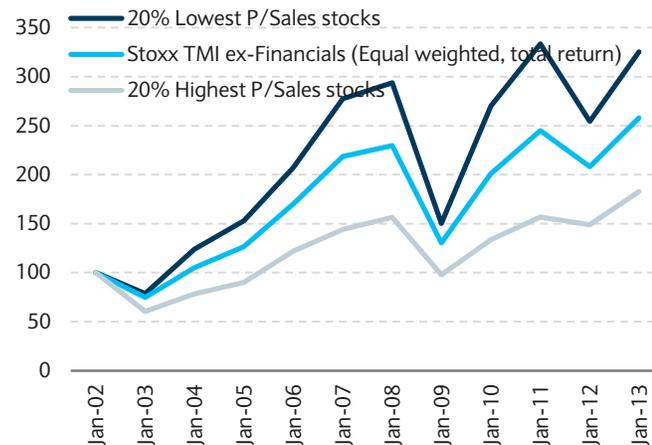
EV to EBITDA – focuses on operating activities but ignores leverage

Earnings reflect not just the profit from operations but also other forms of income that may have no relationship with the core business of the company. A ratio such as EV to EBITDA has the advantage of focusing on the profit from operations and not taking other forms of income that are not the company’s main business into account. On the other hand it ignores leverage, so there are caveats:

- Distorted when EBITDA is close to zero and cannot be used when EBITDA is negative.
- Ignores capex and working capital investment so companies with very large reinvestment needs may look cheap on EV/EBITDA.
- Cannot be used for financial firms.

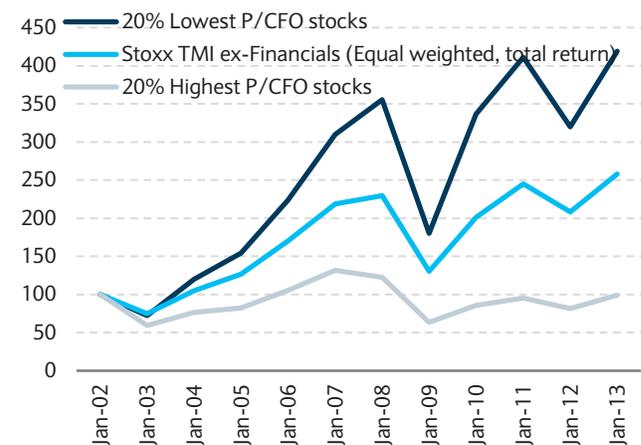
The returns of EV/EBITDA are not the most promising when backtested and are the lowest of the ones tested here. Low EV/EBITDA outperformed the market by 0.5% only and the high EV/EBITDA by 4.8% (Figure 19).

FIGURE 20
Low – high P/Sales outperformance was 4.8% annualised



Note: past performance is not necessarily indicative of future results
Source: Barclays Research, DataStream

FIGURE 21
Low outperformed high P/CFO by 13.4% annualised



Note: past performance is not necessarily indicative of future results
Source: Barclays Research, DataStream

Price to sales has the benefit of avoiding some of the estimates that go into earnings.

Price to Sales – avoids accounting issues but ignores margins

Price to Sales is another ratio whose use is commonly justified by saying that it is less susceptible to accounting issues than the P/E ratio. However academic research has found that although the ratio outperforms the market it does not outperform the P/E ratio (see *The Relative Performance of the PSR and PER Investment Strategies (by Senchack & Martin)*¹⁹. This is also what we found in our tests as the low price to sales companies outperformed the market by 1.9% and the high price to sales companies by 4.9% (Figure 20). Other caveats include:

- Ignores leverage. So highly leveraged companies often look cheap on P/Sales.
- Firms that operate in very low margin businesses may trade at low P/Sales ratios. This does not mean that the company is cheap since it is not capable of turning the high top line sales into high return for investors.

¹⁹ A. J. Senchack, Jr. and John D. Martin *The Relative Performance of the PSR and PER Investment Strategies* Financial Analysts Journal Vol. 43, No. 2, 1987.

The P/CFO is the best performing ratio in our tests. But it is important to add leverage and returns to it.

Price to cashflow from operations – outperforms on backtests

Cash is said to be king. And the returns on the ratio of price to cashflow from operations seem to support that. Using CFO avoids the greater subjectivity of earnings numbers but does not ignore everything that happened below the top line in the profit and loss account, such as price to sales ratio does. Low price to CFO has outperformed high price to CFO by 13.4% annualised and outperformed the market by 4.1% annualise (Figure 21). This is over twice the performance of the P/E ratio. But when using the P/CFO ratio investors should bear in mind that cashflow is often very volatile so the portfolio turnover may be high.

Also important is the fact that the price to CFO ratio does not give us much information about the returns the company is generating nor about the level of risk or leverage that the company is exposed to. So when looking at the price to CFO ratio it is important to also analyse these issues for the companies that are picked up by the screen.

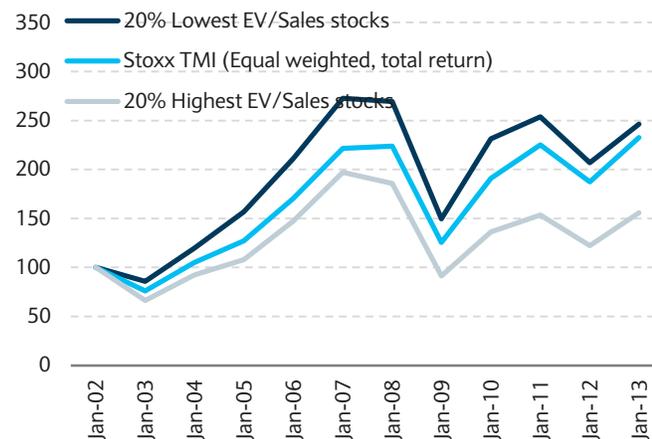
EV to Sales – includes leverage but still excludes margins

Since the sales number ignores leverage it is worth trying to capture leverage in the denominator; i.e. use EV to sales instead of price to sales. However, the results are not very promising as low EV to sales companies only outperformed the market by 0.5% annualised and outperformed the market by 3.9% annualised (Figure 22).

Free Cash Flow Yield – better at spotting underperformers

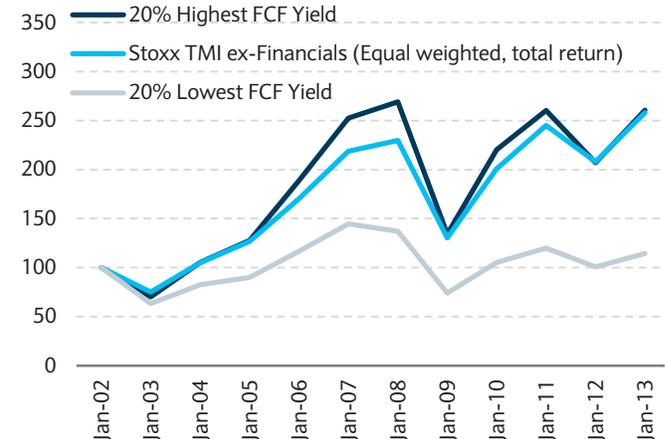
Another important ratio is the FCF yield. While the high FCF yield stocks outperformed the low FCF yield by a large margin: 7% annualised this performance was mainly driven by the underperformance of the low FCF yield group. The high FCF Yield only outperformed the market by 0.1% annualised (Figure 23).

FIGURE 22
Low EV/Sales outperformed high EV/Sales by 3.9%



Note: past performance is not necessarily indicative of future results
Source: Barclays Research, DataStream

FIGURE 23
High FCF yield outperformed low FCF yield by 7% annualised



Note: past performance is not necessarily indicative of future results
Source: Barclays Research, DataStream

Value stocks are often going through a difficult period. And it may take long to reverse.

Not for the faint hearted – value needs a longer horizon

Value investing often means contrarian investing. When buying companies that are trading at cheap valuations investor must be ready to weather the storm and continue to hold companies for longer time horizons.

Companies in a value basket will often be companies about which there are no good news for extended periods, companies that disappoint on earnings, companies being affected by economic or political turmoil, etc. Hence, holding value stocks for a longer time horizon is necessary since many of these stocks will need a significant amount of time for the reasons that made them cheap to reverse.

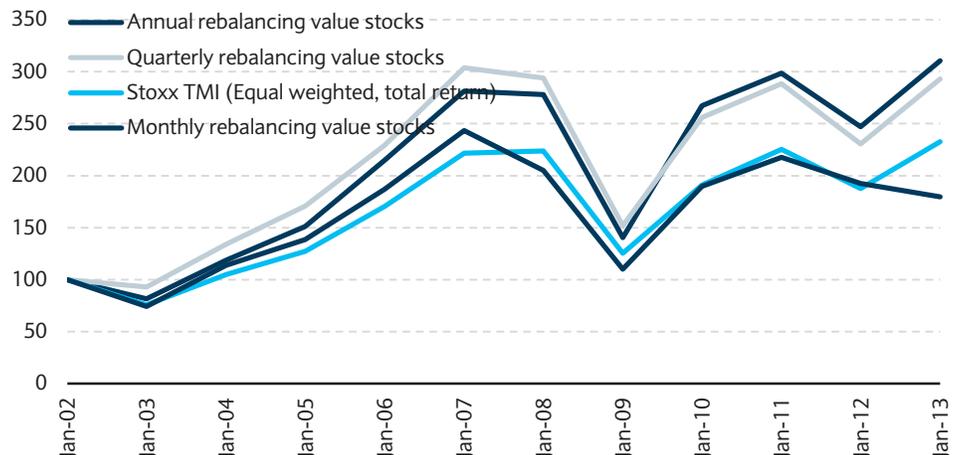
In Figure 24 we look into this in more detail and test whether the returns of value (low P/E) stocks are affected by the frequency of portfolio rebalancing. While the value screen outperforms the market by 2.4% annualised when rebalanced every 12 months, the same strategy underperforms the market by 2.1% annualised when rebalanced every month.

Looking at an intermediate holding (quarterly rebalance) we still see underperformance relative to the 12 month rebalancing. The annual rebalance strategy outperforms the quarterly rebalancing basket by 0.5% annualised.

The same P/E strategy outperforms with a 12 month holding period and underperforms the market with a 1 month holding period.

FIGURE 24

Investing in value requires time! 12m rebalancing outperforms 1m by 4.7% annualised



Note: past performance is not necessarily indicative of future results. Source: Barclays Research, DataStream

So not only does the screen rebalanced every month underperform the screen rebalanced every year, but the quick rebalancing turns a winning strategy into one that underperforms the general market as well.

Combining information on profitability, leverage and earnings quality optimises value screens.

It's a (value) trap! But you can avoid it

When investing in value stocks, avoiding value traps is imperative. Especially in periods of economic crises, a large number of value firms have the potential to end up proving to be value traps and never rerating to higher valuations.

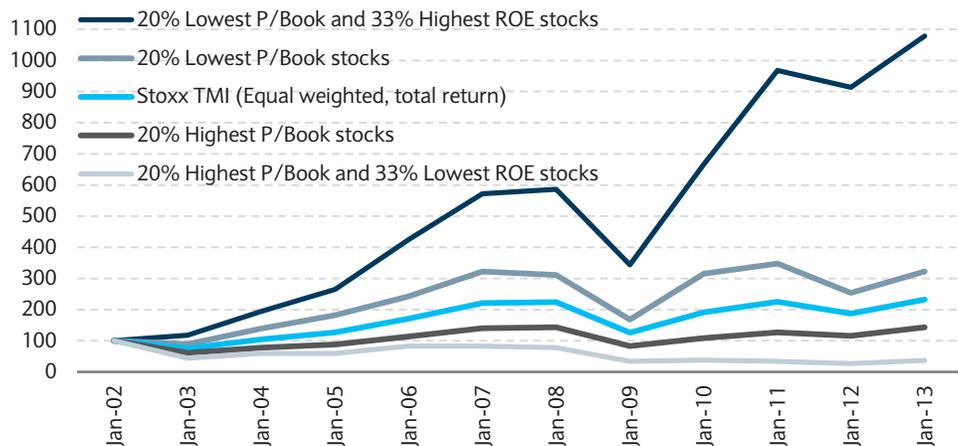
*Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers (by Piotroski)*²⁰ starts with a P/B value screen and tries to use accounting information to separate the value traps from the bargains in the P/B screen. The conclusion is in the form of a set of accounting-based fundamental metrics which significantly improve the returns on the value screen. These metrics, or “F Scores”, focus on the returns on business assets, leverage and the quality of the earnings that the business generates²¹.

One problem with this analysis is that it tends to work much more effectively on small and mid cap firms. This is because the large visibility and comprehensive analyst coverage that large caps enjoy makes screens based on past accounting information less relevant for these companies. But the main take away from the study is that investors can avoid most of the value traps in a value basket by using accounting ratios to control for leverage, returns, etc.

To test this theory we add ROE (return on equity) to the price to book screen shown above. As discussed in the price to book section, adding ROE should complement the information in P/B and ensure that the screen avoids companies that have low P/B simply because they produce poor returns. The inclusion of ROE should complement the ratio of price to book value of assets by adding information on whether these assets are generating returns in the operation of the business. The results are striking; the combined low P/B and high ROE screen outperforms the high P/B, low ROE screen by 32.3% annualised and the market by 13.6%.

FIGURE 25

Combining P/B and ROE massively improved the returns of P/B alone



Note: past performance is not necessarily indicative of future results. Source: Barclays Research, DataStream

²⁰ Joseph D. Piotroski *Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers*. Journal of Accounting Research Vol. 38, 2000.

²¹ The F Scores are: 1) Return on assets; 2) 1 year change in return on assets; 3) 1 year change in gross margins; 4) Cash flow from operations / total assets; 5) Current ratio (current assets/current liabilities); 6) Debt to total asset ratio; 7) Asset turnover (sales/total assets); 8) Accounting accruals (Earnings – cash flow from operations)/total assets; 9) Equity offering indicator (a yes/no variable indicating whether the company issued equity in the past year)

This begs a further question. Why does the combination of P/B and ROE outperform the P/E by such a large margin? Clearly the earnings yield (the inverse of the P/E) is a combination of the price to book and ROE ratios; i.e.:

$$\frac{\textit{Earnings}}{\textit{Price}} = \frac{\textit{Book value of equity}}{\textit{Price}} \times \frac{\textit{Earnings}}{\textit{Book value of equity}}$$

Hence, it seems feasible that the P/E or earnings yield should contain all the information in P/B and ROE. However, based on our tests and on the many academic papers which find that P/B explains stock returns better than P/E, this is clearly not the case.

This illustrates an important issue with value screening: **'the sum of the parts may be greater than the whole'**. While the P/E is a very volatile ratio which carries much uncertainty contained in the estimates the company has to make to calculate the earnings number, the price to book ratio is much more persistent and appears to convey more information about future returns. The ROE when used separately simply works as a filter to avoid value traps; i.e. avoid the companies that have low P/B simply due to low returns.

SECTION 3: INVESTMENT CONCLUSIONS

The analysis in this report leads to a number of key investment conclusions:

- **Value outperforms growth over the long run.** This is mainly driven by the fact that the average value stock rerates positively given low earnings expectations. The average growth stock, on the other hand, rerates negatively as the market attached less value to the earnings as they grow. Identifying the value stocks that surprise on earnings leads to strong outperformance.
- **Value stocks and growth stocks react differently to earnings news.** Positive reaction to earnings announcements is more frequent in value than in growth names. Value stocks, on average, show positive returns even after missing earnings forecasts. On the other hand growth names are punished by the market for missing consensus forecasts and only get rewarded when the company beats consensus by a large margin.
- **We prefer the P/CFO ratio and the P/Book ratio.** To identify value stocks that have the potential to surprise on earnings, we believe ratios that avoid much of the uncertainty contained in accounting estimates work best.
- **Profitability and leverage ratios can complement value.** The use of a simple value ratio without care for what information that ratio contains can easily steer investors into value traps. To avoid value traps investors should combine different value ratios and use complementary profitability and leverage ratios when screening for value. It is important to combine P/Book with ROE, P/CFO with leverage measures and P/E with earnings quality measures.
- **Value investing requires time.** The average value stock is an out of favour name going through a difficult period. Hence, the short term outlook is rarely upbeat. A short investment horizon can easily turn an outperforming value strategy into an underperforming one.
- **The volatility of value names is more often than not lower than that of growth names.** Hence, even with a difficult short term outlook, value is not necessarily riskier than growth.
- **We believe that the macroeconomic environment in 2013 is beneficial to value stocks.** The performance of value stocks was held back by renewed political uncertainty. Growth has outperformed in recent periods despite a fall in volatility that usually translates into value outperformance. Going forward, as tail risks continue to diminish and central bank put protection is expanded we expect value to outperform growth.

In addition, we combine the lessons from academia and the conclusions from our tests into a financials and an ex-financials value screen. We believe these screens are strongly positioned to benefit from the rerating that we expect to see in European equities.

Cash is king screen (non-financials)

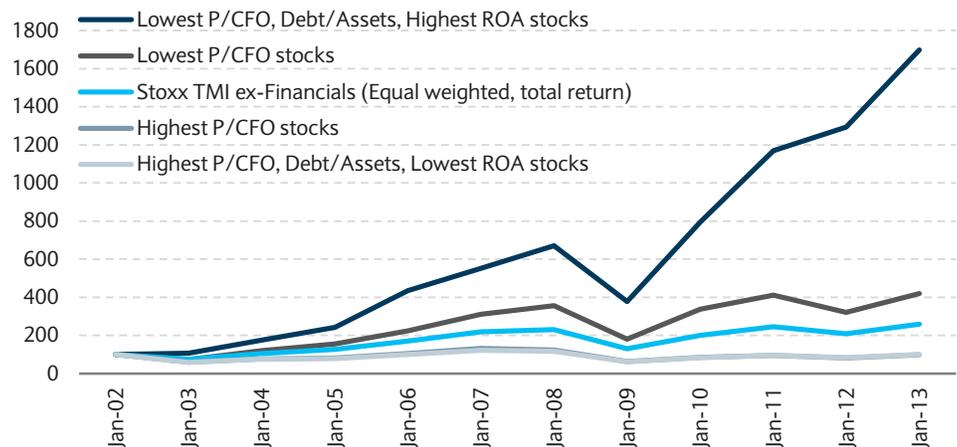
For our preferred screen we started with the most intuitive and best performing ratios shown in Section 2 and tested a large number of combinations intended to improve performance. The price to CFO ratio was the best performing ratio when used in isolation. However the ratio does not account for the returns the company generates nor for the amount of leverage the business is exposed to.

To create our Cash is King screen, we apply the following filters to the STOXX TMI ex-financials universe:

- High P/CFO – Lowest quartile of price to cashflow from operations in the Stoxx TMI.
- Highest return on assets – ROA above Stoxx TMI mean ROA.
- Low Debt/ Assets ratio – Net debt to total assets ratio below Stoxx TMI mean.

FIGURE 26

Cash is King! Combining P/CFO, Debt/Assets and ROA generated strong outperformance



Note: past performance is not necessarily indicative of future results. Source: Barclays Research, DataStream

Testing the performance of this combination over the past 10 years yielded impressive returns. £100 invested in 01 January 2002 on the preferred screen (lowest quintile of Price to CFO ratio, lowest half of debt/assets and highest half of return on assets) and rebalanced every year would result in £1699 today (Figure 26). While the same £100 pounds when invested in the least preferred screen (highest quintile of Price to CFO ratio, highest half of debt/assets and lowest half of return on assets) would be £99 pounds today. Figure 27 shows the current components of the Cash is King screen.

The Cash is King screen outperformed the Stoxx TMI ex-financials by 17% annualized.

FIGURE 27

The Cash is King screen combines cashflows, return on assets and leverage

Name	Country	Sector	Price(lc)	MV(€m)	P/CFO	ROA	Debt/Assets
Antofagasta	United Kingdom	Basic Materials	926.00	10,808	4.9x	8.9%	(19.2%)
Amag Austria Metall	Austria	Basic Materials	23.41	826	5.7x	11.2%	1.5%
Barco New	Belgium	Industrials	66.73	851	5.2x	11.9%	(11.7%)
Boliden	Sweden	Basic Materials	95.30	3,044	5.4x	9.6%	11.1%
Dragon Oil	Ireland	Oil & Gas	7.54	3,689	5.5x	16.9%	(55.8%)
Eni	Italy	Oil & Gas	18.49	67,196	4.3x	5.9%	11.5%
Eurasian Nat. Res. Corp.	United Kingdom	Basic Materials	264.10	4,026	2.2x	13.2%	6.2%
Go-Ahead Group	United Kingdom	Consumer Services	1549.00	789	5.5x	6.7%	7.6%
Greggs	United Kingdom	Consumer Services	410.70	492	5.9x	15.0%	(6.5%)
Hochschild Mining	United Kingdom	Basic Materials	249.00	997	2.8x	10.2%	(27.4%)
Icelandair Group	Iceland	Consumer Services	12.70	401	3.8x	7.0%	2.1%
Impregilo	Italy	Industrials	3.41	1,372	1.1x	14.9%	(12.2%)
Kazakhmys	United Kingdom	Basic Materials	351.70	2,181	2.6x	8.2%	(0.2%)
Lenzing	Austria	Basic Materials	62.00	1,646	5.8x	7.9%	14.5%
Michelin	France	Consumer Goods	70.97	12,956	5.4x	8.6%	5.3%
OMV	Austria	Oil & Gas	38.86	12,718	3.5x	5.2%	14.3%
Opap	Greece	Consumer Services	8.27	2,638	4.3x	31.4%	(12.3%)
Royal Dutch Shell	Netherlands/UK	Oil & Gas	26.33	100,001	5.1x	7.7%	5.4%
Sma Solar Tech.	Germany	Oil & Gas	22.41	777	3.0x	12.9%	(31.4%)
Statoil	Norway	Oil & Gas	129.30	54,967	3.2x	9.0%	4.6%
TGS - Nopec Geophs.	Norway	Oil & Gas	215.90	2,978	4.6x	19.4%	(20.6%)
Total	France	Oil & Gas	39.34	93,489	4.1x	6.6%	9.6%
Valeo	France	Consumer Goods	50.36	4,002	4.1x	5.9%	7.7%

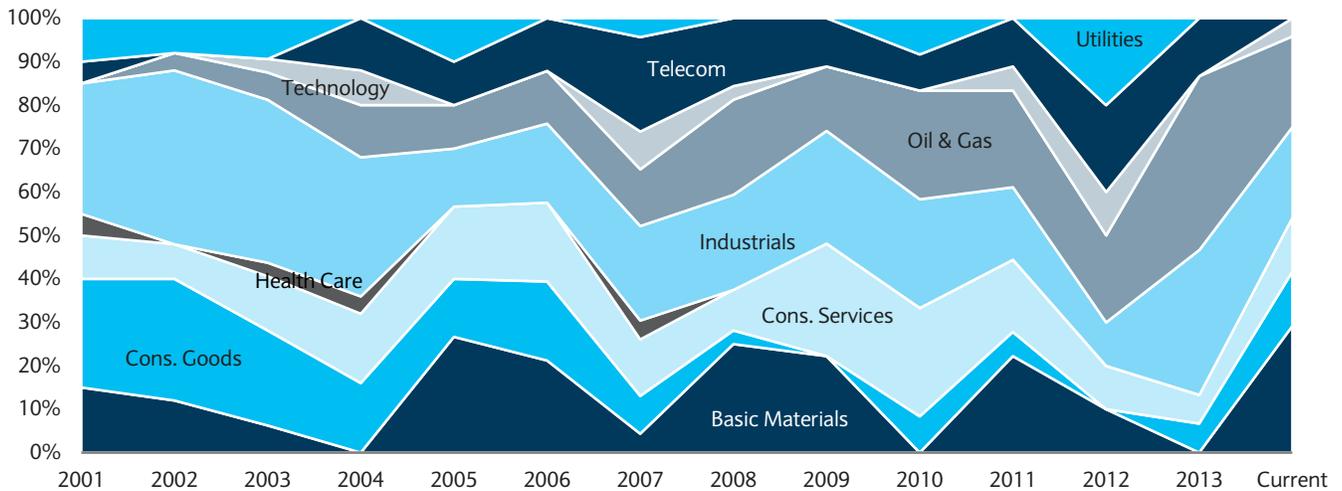
Source: Barclays Research, DataStream. Price as of 20 May 2013.

One potential caveat of the Cash is King screen is that its reliance on cash flow from operations may bias the basket towards mineral extraction companies. These companies tend to generate large cash flows but also have large reinvestment needs. When looking at the above screen c.21% of the members are Oil & Gas companies and 29% are basic materials companies. However, it is important to highlight that these sectors are also trading at relatively low valuations and the Oil & Gas sector has underperformed the Stoxx 600 by c.6.5% in 2013 YTD and the Basic Resources sector has underperformed the Stoxx 600 by c.20.8% over the same period. Hence, although there are certainly biases in any type of screen as the one we propose here, the large proportion of basic materials and oil & gas names on the Cash is King reflects cheap valuations of these sectors and not simply a bias of the screen.

To see this more clearly we show the sector composition of the Cash is King screen over time in Figure 28. While oil & gas names have been a significant component of the screen in recent periods, this was not the case before 2005. The weight of basic materials names on the other hand appears to be cyclical varying from 0 to 20% every few years. Industrials appear to be the most consistent sector accounting for between c.10 and 30% consistently.

FIGURE 28

Oil & gas names have become more common on the screen in recent years while utilities have dropped out



Source: Barclays Research, DataStream

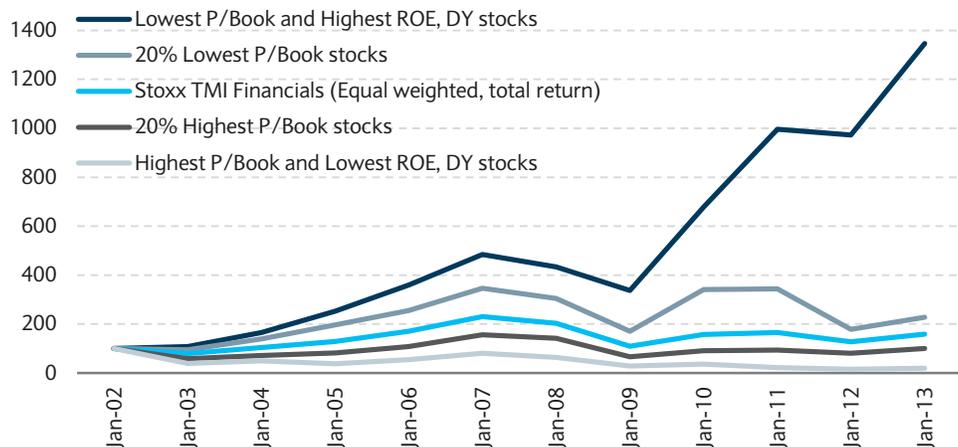
Financials Value screen

The limitation of the Cash is King screen is the fact that it cannot be applied to the financials universe. Hence, we have also produced a financials only screen. Starting from the price to book ratio, the second best performing ratio on its own, we tested combining it with a range of different ratios that complement the information embedded in the price to book ratio. The financials value screen is the result of this exercise.

First as mentioned in Section 2, it is crucial to combine the price to book ratio with return on equity since a low price to book ratio can very often be driven by low returns on equity. Second, we also included dividend yield as this should complement the information in the price to book ratio by providing information about the quality and stability of the profits generated by the business.

FIGURE 29

Combining P/Book, Return on Equity and Dividend Yields allows for screening the financials sectors and generates strong outperformance



Note: past performance is not necessarily indicative of future results. Source: Barclays Research, DataStream

The Financials Value screen outperformed the Stoxx TMI Financials by 19.5% annualized.

In Figure 29 we show the performance of the Financials Value screen over the past 10 years. £100 pounds invested in the preferred screen (P/B lower than the mean for European financials, ROE higher than the mean and dividend yield higher than the mean) in 01 January 2002 would be worth £1346 today. While £100 invested on the same date in the least preferred screen would be worth £20 today.

To create our Financials Value screen, we apply the following filters to the STOXX TMI Financials universe:

- Low price to book ratio – P/B lower than European financials sector mean.
- High ROE - Return on equity above European financials mean ROE.
- High dividend yield – Dividend yield above European financials mean dividend yield.

In Figure 30 we show the current components of the Financials Value screen.

FIGURE 30

Financials value screen combines price to book ratio, return on equity and dividend yield

Name	Country	Price(1c)	MV(€m)	Price to Book ratio	ROE	Dividend Yield
Aviva	United Kingdom	339.40	11,841	0.94x	12.5%	4.9%
Axa	France	15.13	36,183	0.71x	10.1%	5.2%
Baloise-Holding Ag	Switzerland	93.90	3,772	0.89x	9.5%	5.0%
Bbv.Argentaria	Spain	7.32	40,496	0.90x	10.1%	5.7%
Catlin Group	United Kingdom	532.50	2,281	0.94x	11.8%	5.7%
Delta Lloyd Group	Netherlands	15.85	2,801	0.90x	16.5%	6.7%
Helvetia Holding	Switzerland	398.50	2,771	0.88x	9.3%	4.4%
Klovern	Sweden	30.60	595	0.81x	8.7%	5.1%
Compagnia Assicurazione Milano	Italy	0.52	962	0.92x	9.7%	3.8%
Muenchener Ruck. (MunichRe)	Germany	148.10	26,560	0.91x	10.5%	4.8%
Scor Se	France	22.24	4,269	0.79x	9.5%	5.7%
Segro	United Kingdom	302.80	2,660	1.00x	8.7%	4.9%
Sparebank 1 Nord-Norge	Norway	40.00	353	0.79x	12.2%	3.7%
Swiss Re	Switzerland	72.20	21,505	0.81x	9.2%	6.2%

Source: Barclays Research, DataStream. Price as of 20 May 2013.

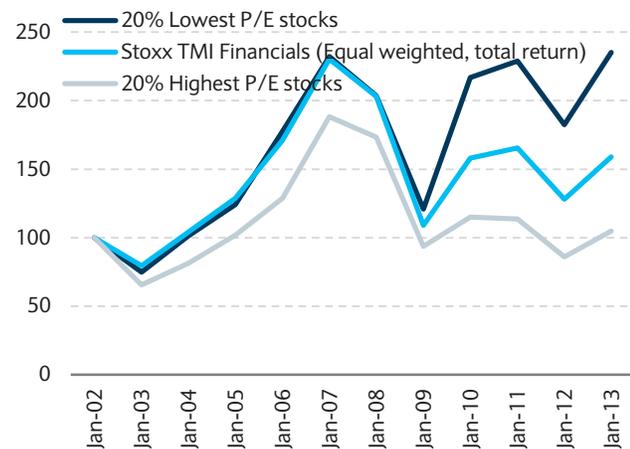
APPENDICES: FINANCIALS-ONLY TESTS AND IMPORTANT NOTES

To produce our Financials Value screen we replicated the tests showed in Section 2 for the Stoxx TMI and Stoxx TIM ex-financials for the Stoxx TMI Financials universe. This appendix contains the main findings of these tests.

Financials tests

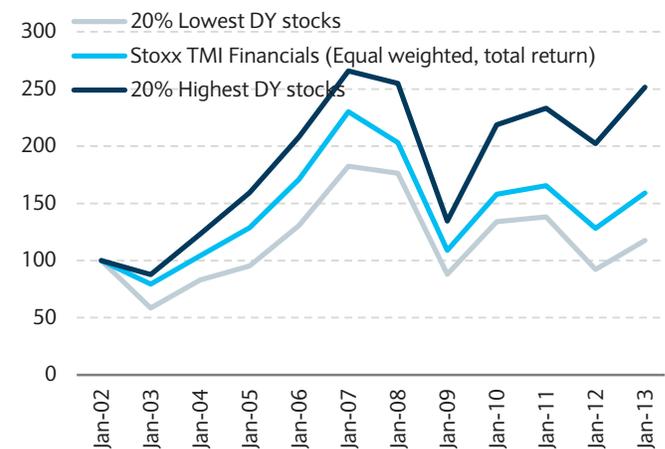
Within the financials universe low P/E firms outperformed the Stoxx total market index financials by 3.3% annualised over the past 10 years. However, this outperformance only materialised from 2009 (Figure 31). Dividend yield outperformed the market by 3.9% annualised and that outperformance was fairly consistent since 2002 (Figure 32).

FIGURE 31
Low P/E financial stocks outperformed high P/E by 6.9% annualised. Low P/E outperformed the market by 3.3%.



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

FIGURE 32
High DY financial stocks outperformed low DY by 6.6% annualised. High DY outperformed the market by 3.9%.

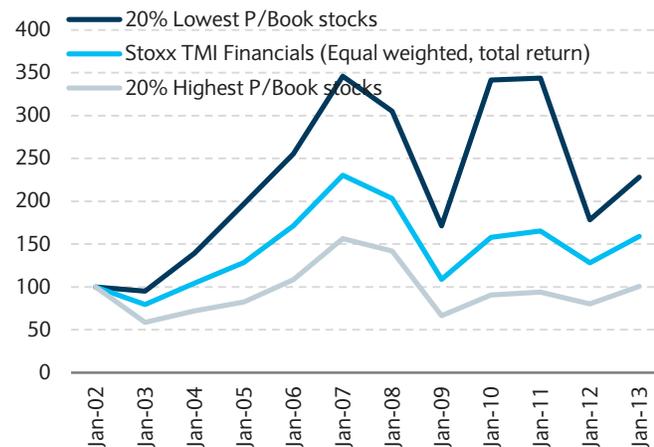


Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

The low price to book stocks yielded the best performance relative to their counterparts (high P/B). However, the performance of the low P/B stocks against the market was slightly lower than that of the low P/E and high DY stocks (Figure 33).

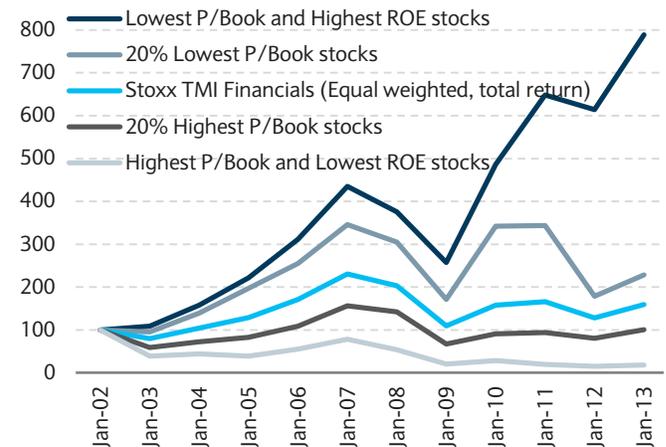
We reemphasise that low P/B stocks are very often low return on equity stocks, therefore the P/B ratio must be combined with ROE information to avoid producing a screen of low return stocks. Once the P/B ratio is combined with the ROE the outperformance performance jumps to 37% relative to the high P/B, low ROE stocks and to 14.3% relative to the equal weighted Stoxx TMI Financials (Figure 34).

FIGURE 33
Low P/B financial stocks outperformed high P/B by 7.1% annualised. Low P/E outperformed the market by 3.0%.



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

FIGURE 34
Combining P/B with ROE is essential. The outperformance improves from 7.1% to 37.0%



Note: past performance is not necessarily indicative of future results
 Source: Barclays Research, DataStream

Important notes on our backtests

Backtests are no more than an estimate of how the same strategy would perform had it been applied in the past and in no way offer any guarantees of future returns. Therefore, our backtests should be viewed in this context.

When examining the backtest results in this report please note:

- Transaction costs are not taken into account in the backtests.
- All data is based on DataStream data and is as of 20 May 2013.
- The screens are based on the latest financial data at the relevant data vendors and take no account of other qualitative information.
- Rebalancing is made at the first trading day each year or month depending on the rebalancing frequency stated.

In each backtest we use the historical constituents of the index in question, as opposed to the current constituents. This helps us control for survivorship bias.

On the rebalancing day, we recreate an equal weighted portfolio of stocks based on the criteria that we want to test. The performance of each of the stocks through the month is measured on a total return, common currency basis.

All constituents of the screen are sold after one year (or one month when monthly rebalancing is applied). We then re-run the set of criteria on the benchmark to select the new components for the next period and the process is repeated.

The accounting numbers are based on Worldscope datatypes. Hence, they may differ from the amounts shown on the face of the financial statements, due to accounting adjustments. All variables are based on annual numbers relating to the most recent financial year ends available at the data vendor.

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