Q-Series®

Why do smallcaps outperform?

Analysing the key drivers of smallcaps

Equities

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Smallcaps have outperformed large caps in past decades; we analyse why

It was not always the case, but for the past 25 years smallcaps have outperformed large caps. This trend has been consistent globally, across all continents, and not dependent on the starting year. Except for four years, smallcaps outperformed every single year. Using our proprietary database, which covers thousands of smallcaps, and third-party analysis from GMI and Morningstar Direct, we have identified the key drivers.

A good surprise: Smallcaps are not much more volatile than large caps

Given low liquidity, common wisdom would assume that smallcaps outperformed with a much higher degree of volatility than large caps. However, our analysis does not bear this out: risk/reward is more favourable for smallcaps across regions. In addition, we analyse smallcaps funds, which on average have consistently outperformed benchmarks – this is not the case for large cap funds. Adding alpha on smallcaps has been more consistent. We investigate the outperformance drivers, such as less research analyst coverage and sector weightings.

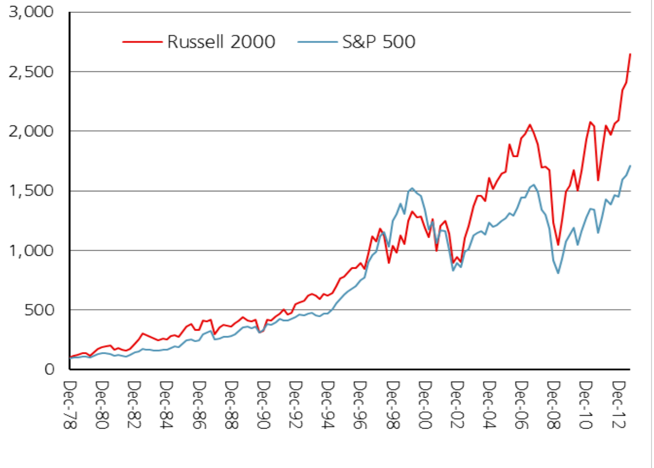
Growth, M&A and corporate governance are the key drivers

The outperformance has taken place in both growth and value styles. The key driver of outperformance is not so much the cycle, although macro recoveries play in favour of smallcaps; nor is it not driven by the interest-rate cycle, more active capex, higher ROEs or more flexible margins. The key driver is the better growth profile of smallcaps. In addition, M&A plays an important role. And one additional, if somewhat unexpected finding: corporate governance appears to be better at smallcaps.

Will it continue? We expect solid growth ahead. Stocks to play

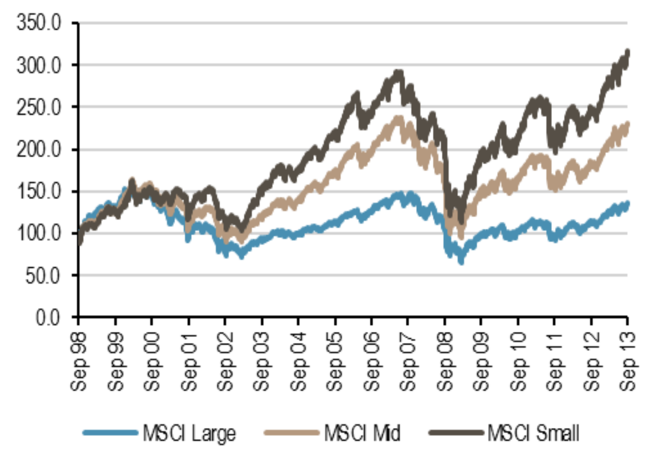
Global smallcaps trade on 14x PE – in line with the historical average. The US trades at a 13% premium, while European smallcaps trade in line. We expect solid EPS momentum in Europe to exceed that of large caps. We also see interesting opportunities. Our top 20 European smallcaps comprise: ams AG, Andritz, Arbonia, Ashtead, BES, Bilfinger, Booker, Domino Print, DS Smith, Eurotunnel, Flughafen Zurich, Hays, Halfords, Moleskine, Smurfit, TUI, Wincor, and ZON.

Figure 1: US perf. (Russell 2000 since 1978 vs S&P 500)



Source: UBS estimates, Thomson Datastream

Figure 2: Global performance MSCI large, mid and small



Source: UBS estimates, Thomson Datastream

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We would like to thank Rajiv Daga, an employee of Cognizant Group, for his assistance in preparing this research report.

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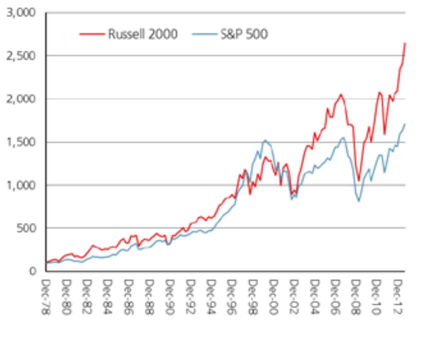
Why do smallcaps outperform?

Every year, global strategists on asset allocation and equities prepare their outlook reports, questioning themselves about the future of the stock market and investment styles. Without being too cynical, it is quite common to find that strategists expect the markets to have moderate upside for the next 12 months and large caps to outperform smallcaps. But, while consensus might have been right about the market, it has been consistently wrong in expecting smallcaps to underperform.

We consider smallcaps stocks below $1.5bn market cap, midcaps in the $1.5-$5bn range, and large caps of more than $5bn

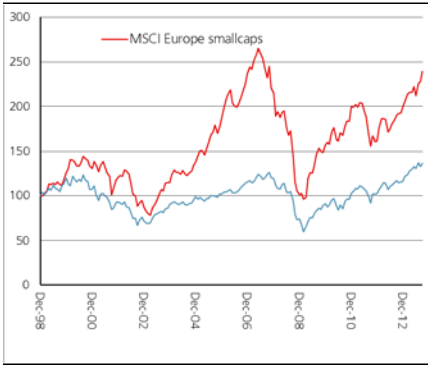
There are not that many smallcap indices with a long track record. Russell 2000 is the most common index in the US and was established in 1984. For European smallcap funds, the most common benchmark is the MSCI Euro Smallcaps, which was established in 1999, and in Japan, the TOPIX Small started in 1989. These three indices show that smallcaps have outperformed since their inception.

Figure 3: Russell 2000 vs. S&P500



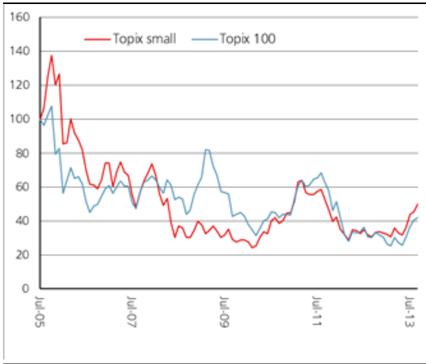
Source: UBS estimates, Thomson Datastream

Figure 4: MSCI EU small vs. Eur Stoxx



Source: UBS estimates, Thomson Datastream

Figure 5: Topix Small vs. Topix 100

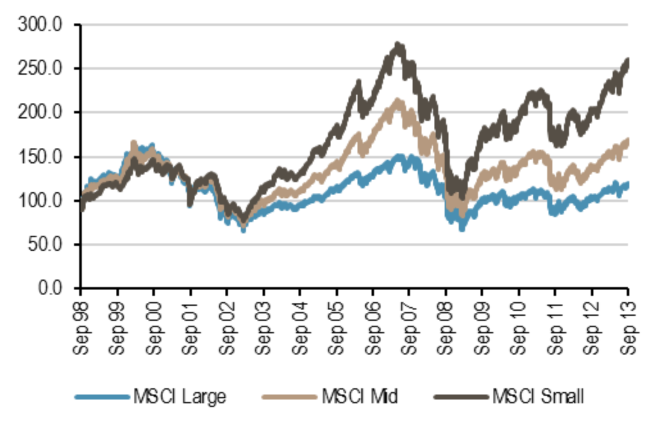


Source: UBS estimates, Thomson Datastream

For the purpose of this report, which analyses different areas, such as growth, risk, and returns, we have used 15 years as a reference period. Over this period, small and mid-cap stocks consistently outperformed large cap names. Note that this outperformance trend was not limited to any particular region or country, but was quite visible in all geographies. We have analysed the different periods, ranging from one to 15 years, for all the regions, and found that outperformance was visible right across the board.

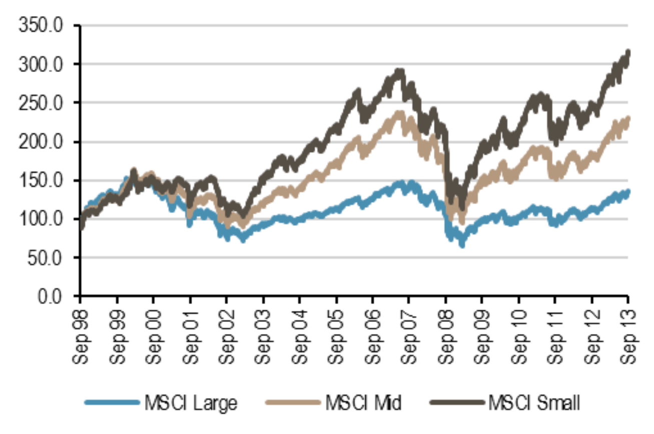
Small/midcap outperformance of large cap names is not limited to any particular region or country

Figure 6: Europe performance (15 years)



Source: UBS estimates, Thomson Datastream. Based on MSCI Europe indices.

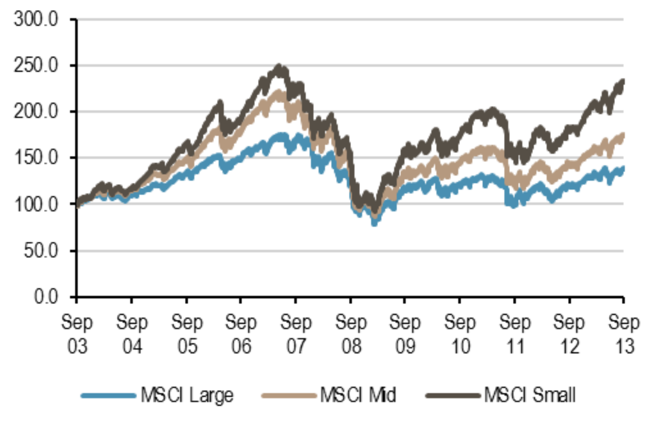
Figure 7: Global performance (15 years)



Source: UBS estimates, Thomson Datastream. Based on MSCI Global indices.

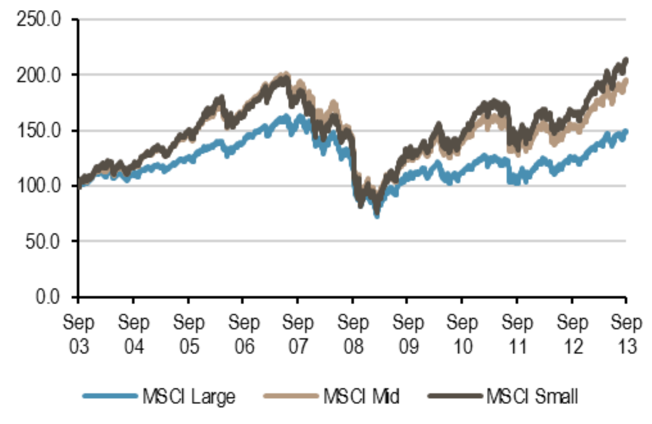
For a 15-year period in Europe, smallcaps have returned more than 150%, while midcaps have gained 68% – still surpassing the 19% gain of the large cap index. The global performance reflects the same picture. The data looks appealing to us, considering that we had two major recessions during this period.

Figure 8: Europe performance (10 years)



Source: UBS estimates, Thomson Datastream. Based on MSCI Europe indices.

Figure 9: Global performance (10 years)



Source: UBS estimates, Thomson Datastream. Based on MSCI Global indices.

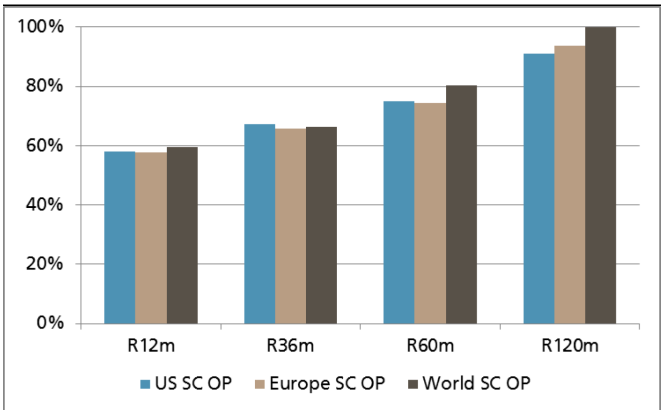
Not just a question of the entry point

Small/mid-cap stock outperformance has been consistent over time. Over rolling time periods, ranging from one to 10 years, small/midcaps have outperformed large cap names well over half the time. As we increase the time horizon, the percentage of time small/midcaps have outperformed large caps also increases. In rolling 10-year periods, they have outperformed large caps every single time (see Figure 10 below). The importance of the longer-time horizon is that it often captures both recessionary and expansionary periods. The most recent 10-year period includes the last recession of 2008/09, the previous recession of 2001, and the expansionary period in between.

Small/midcaps have outperformed large cap names well over half the time over rolling time periods

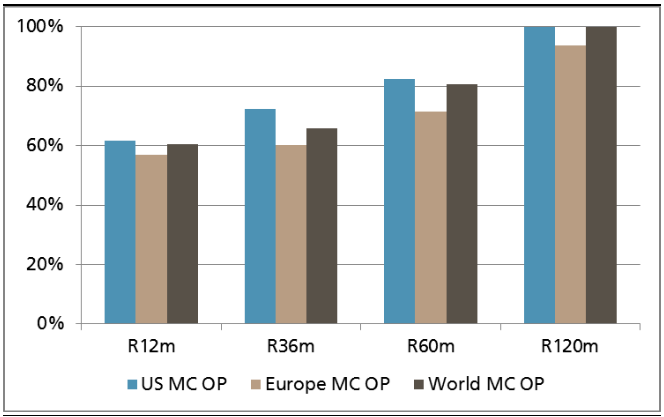
That said, the past few decades have been a peculiar period for equity markets, with central banks pursuing very aggressive expansionary policies, which could be relatively favourable for smallcaps. We analyse the impact of this factor later in the report, although it should be noted that our analysis is focused not so much on the outperformance itself, but on the drivers of the outperformance.

Figure 10: Regional smallcap outperformance as a % of time



Source: UBS estimates, Thomson Datastream

Figure 11: Regional midcap outperformance as a % of time

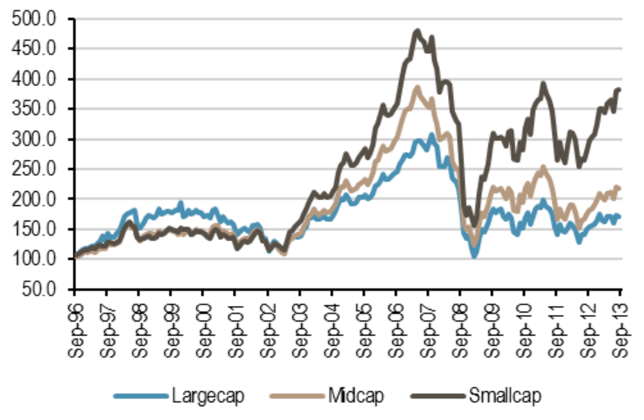


Source: UBS estimates, Thomson Datastream

Growth or value styles?

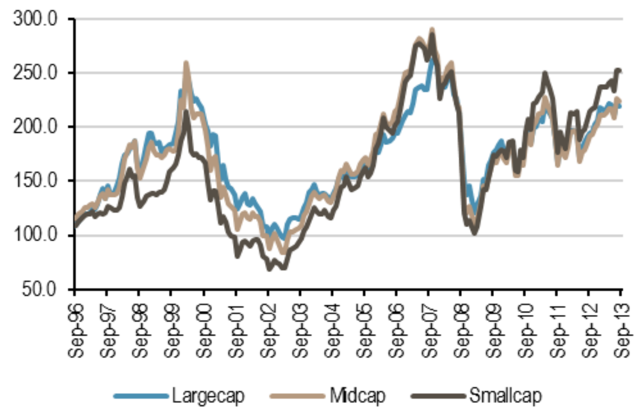
Actually, both. While we have seen small/midcap price indices outperforming large caps, the trend has also been visible to any style-biased investor as well, be it in terms of growth or value style across all regions. Later in this report, we analyse growth as a driver of performance, as this is a key issue. Meantime, it is interesting to note that smallcaps considered as value do offer a better growth profile, which explains a significant part of the outperformance.

Figure 12: Value stocks globally



Source: UBS estimates, Thomson Datastream

Figure 13: Growth stocks globally



Source: UBS estimates, Thomson Datastream

Small/midcaps have outperformed large caps in terms of both 'value' and 'growth' styles

As can be seen from the charts above, small/midcaps outperformed large caps in terms of both 'value' and 'growth' styles. The magnitude of the outperformance was slightly less in the 'growth' style, which is quite understandable, as we had three recession phases in the above time series. This is also interesting, in our opinion, since growth-style investing does yield good results, but over the time period analysed, it did not beat smallcaps value. Overall, even the smallcap value style has outperformed the large-cap growth style.

So, a quite natural question arises as to why small/midcaps outperformed large caps, and will this outperformance continue in the near future? Before answering this question, we will look at volatility.

Outperformance is good, but how about risk?

Small/midcaps present a very attractive risk/reward profile over a 20-year period

It is common wisdom that higher returns necessitate greater risk-taking, so investors have long believed that to generate such outperformance, investing in small/midcap stocks must also mean taking greater risk. Indeed, smallcaps by their nature may appear to be volatile. However, when we ran an analysis to capture the volatility (measured by standard deviation of returns), we were surprised to find that over a long period of 20 years, both smallcaps and midcaps present a very attractive risk/reward profile.

- **Liquidity – how important?** Large cap funds would argue that liquidity is a problem for smallcaps. It is certainly a problem when buying or selling a stock. But, is that problem creating excess risk through volatility? The answer is not that conclusive, in our view. Lower liquidity does not always turn into much higher volatility.

Overall smallcaps volatility is not much higher, despite somewhat inconclusive data

- **Long-term studies are difficult to analyse:** Long-term academic studies into smallcap volatility have traditionally highlighted that smallcaps entail higher volatility. However, we find some difficulty in reconciling the data for more than 50 years, given that most of the key smallcap indices had not been created. In addition, the increased access to information and improved liquidity of equity markets could have changed recent trends.
- **Short-term data is also quite complex:** We initially studied daily volatility using MSCI price index data for global and European large, mid and smallcaps. We highlight that our conclusion below seems very favourable for smallcaps (see the charts below).

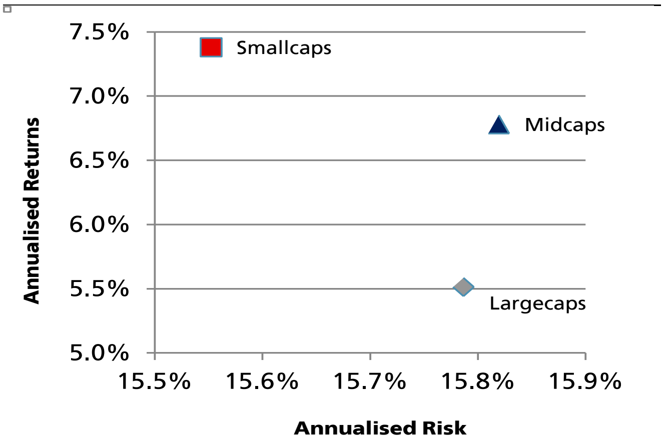
  However, given that the daily data could be distorted by different closing periods, we also investigated weekly and monthly periods, which show volatility to be higher, but not by much:

  Monthly: If we take five-year data and extract the end-month numbers, we get to standard deviations of 19.5%, 21.7% and 22.8% for large caps, midcaps and smallcaps, respectively.

  Weekly: If we take weekly data (Fridays), we derive 23.1%, 24.9% and 25.2%. So, larger (which we would probably expect), and still increasing as the bases of the indices get smaller. However, daily data gives 21.3%, 22.5% and 22.8%, which is actually smaller.

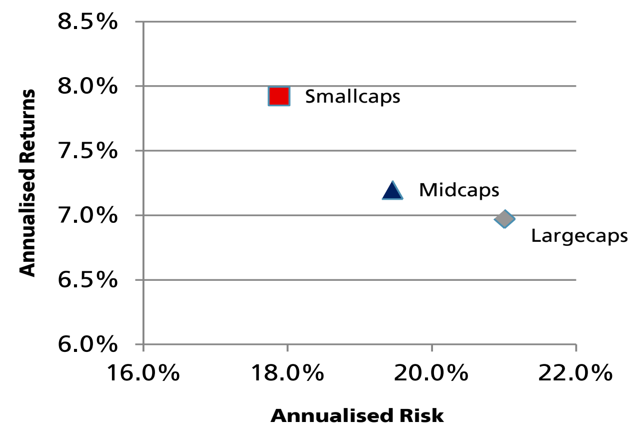
  Taking the 20-year numbers, we get to volatility figures of 16.0%, 16.2%, and 16.0% for large caps, midcaps and smallcaps, respectively. However, using 20-year numbers for month-end numbers, we get to 15.5%, 16.8% and 17.8% (L, M, S). Thus, our overall analysis seems somewhat inconclusive, except for the fact that volatility data overall does not seem much higher.
- We show below daily volatility data for MSCI large-cap, midcap and smallcap price indices, though we warn that volatility can be higher if using daily or monthly data, or possibly other indices.

Figure 14: Global – 20-year annualised risk/return



Source: UBS estimates, Thomson Datastream. Data based on MSCI daily indices.

Figure 15: Europe – 20-year annualised risk/return



Source: UBS estimates, Thomson Datastream. Data based on MSCI daily indices.

Globally, for a period of 20 years, MSCI smallcap indices have shown an annualised return of 7.4% with risk of 15.55%, while midcaps have yielded an annualised return of 6.8% with risk of 15.82%, and large caps have had slightly

less risk at 15.79%, posting an annualised return of 5.5% – much less than for both small and midcaps. Europe also paints the same picture in terms of risk/reward for the small/mid/large-cap indices.

Risk/reward profile for smallcaps

Risk/reward ratio positions are important deciding factors when making investment decisions. However, these are nevertheless somewhat distorted since volatility data seems quite variable, depending on time periods and indices.

Defying intuition that higher returns require higher risk

Using MSCI daily data, and the Sharpe Ratio (excluding risk-free rates) as a measure of risk/reward, small/mid-caps had a better ratio than large caps for each of the periods considered, which ranged from one to 20 years, signifying higher returns per unit of risk taken, and defying intuition that higher returns require higher risk.

Table 1: Sharpe ratio* over different time periods for Europe and Global

	GLOBAL			EUROPE		
Time periods	**Large caps**	**Midcaps**	**Smallcaps**	**Large caps**	**Midcaps**	**Smallcaps**
20 years	0.35	0.43	0.47	0.33	0.37	0.44
15 years	0.24	0.43	0.56	0.20	0.29	0.44
10 years	0.34	0.48	0.52	0.30	0.39	0.52
5 years	0.26	0.37	0.45	0.16	0.22	0.37
1 year	1.44	1.85	1.93	1.06	1.50	1.86

Source: UBS estimates, Thomson Datastream. Data as of September 2013. *We have not excluded risk-free rates.

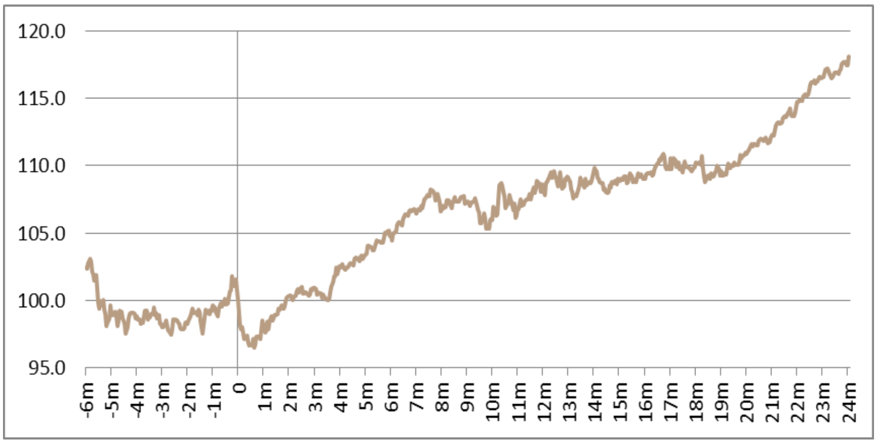
The above statistics appear to refute the presumption that market capitalisation is inversely proportionate to risk, which implies that large caps are less risky than midcaps, which in turn are less risky than smallcaps. However, this is somewhat distorted due to the previous comments on daily, weekly and monthly data. That said, the data show that the overall risk/reward profile was positive for smallcaps.

Better performance in market recoveries

Historically, there is strong evidence that whenever markets exhibit a positive inflection point, small/mid cap equities perform strongly.

Looking back on the past four bear-market lows, we conclude that small/midcap stocks performed quite strongly relative to bear market lows, or whenever there is a positive inflection point in the market.

Chart 1: Average rel perf of small/midcaps to large caps around bear-market lows



Source: UBS estimates, Thomson Datastream

Small/midcaps have progressively outperformed large caps as the economy recovers

The above chart shows that as the market approaches the bottom, small/midcaps have tended to underperform large caps, but once the market establishes a positive inflection point, small/midcaps have progressively outperformed large caps as the economy recovers. This illustration of the economic cycle suggests that small/midcap stocks tend to underperform large caps when investors are fearful and risk aversion is rising, but steadily outperform as investors regain confidence in the market.

Below, the table tries to quantify the performance 12 and 24 months after the dates of the bear market lows in Europe.

Table 2: Performance from bear market lows for Europe

Bear market low dates	Performance post 12m			Performance post 24m		
	Smallcap	Midcap	Large cap	Smallcap	Midcap	Large cap
Sep-01	4.4%	0.3%	-9.1%	44.1%	24.7%	12.5%
Mar-03	87.0%	64.4%	50.8%	146.9%	109.7%	81.4%
Mar-09	100.2%	79.4%	72.5%	151.8%	115.7%	89.9%
Sep-11	20.7%	19.5%	22.9%	57.5%	48.4%	44.1%

Source: UBS estimates, Thomson Datastream

Out of the eight time periods (both 12 and 24 months) in the above table, small/midcaps outperformed in seven periods. It is only in the 12-month period following the recent low in September 2011 that small/midcaps have underperformed large caps.

We have also tried to determine the level of outperformance for both smallcaps and midcaps relative to large caps for the period following the last four bear-market lows affecting the European market. The table below shows the changes in the ratio for both small to large caps and mid to large cap companies. The change in the ratio is calculated simply as the relative performance of small/midcaps to large caps over the defined time period from the bear market low. So, if the change in the small/large cap ratio for the six-month period after the September 2001 low comes to 5.8%, it simply means that small caps have outperformed large caps by 5.8% during that period.

Table 3: Performance after bear-market lows for mid/large and small/large caps

Bear market low dates	Mid/large cap ratio Change in ratio (%)			Small/large cap ratio Change in ratio (%)		
	6m later	12m later	24m later	6m later	12m later	24m later
Sep-01	3.9%	10.4%	10.9%	5.8%	14.9%	28.2%
Mar-03	5.1%	9.0%	15.6%	15.4%	24.3%	36.1%
Mar-09	3.2%	4.0%	13.5%	13.9%	16.0%	32.5%
Sep-11	-2.3%	-2.8%	2.9%	-2.1%	-1.8%	9.3%
MEAN	2.5%	5.2%	10.7%	8.3%	13.4%	26.5%

Source: UBS estimates, Thomson Datastream

We can conclude from the above that whenever investors perceive a positive inflection point in the market, small/midcaps is the place to play the recovery, with the magnitude of the outperformance increasing with time.

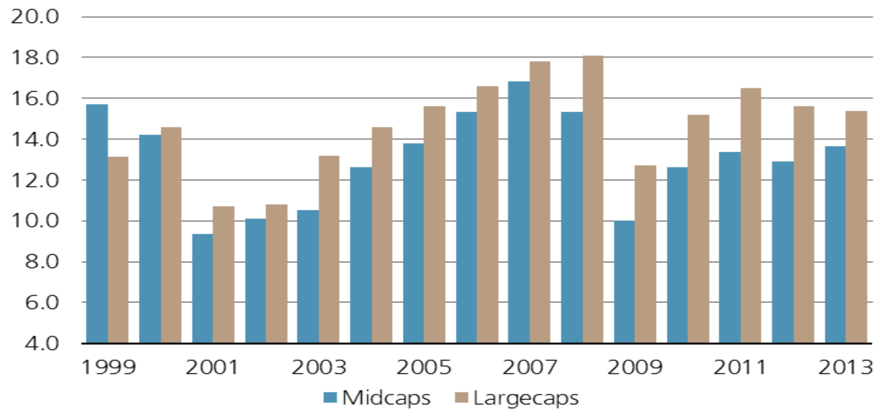
So, why do smallcaps outperform?

Is it that smallcap companies enjoy higher ROEs?

Large caps enjoy better returns on capital employed and returns on equity than smallcaps

One would think that smallcap stocks, many of them family owned or tightly controlled, might enjoy better returns than large caps where shareholder control is by nature more diluted. Well, it is not the case, as large caps enjoy better returns on capital employed and returns on equity than smallcaps. This is likely driven by several factors, with large caps possibly enjoying higher entry barriers or working in highly regulated sectors, or having more efficient return policies in place. It is also possible than smallcaps are willing to give up part of any extra return in exchange for increased growth or market share.

Figure 16: ROEs for midcaps vs. large caps

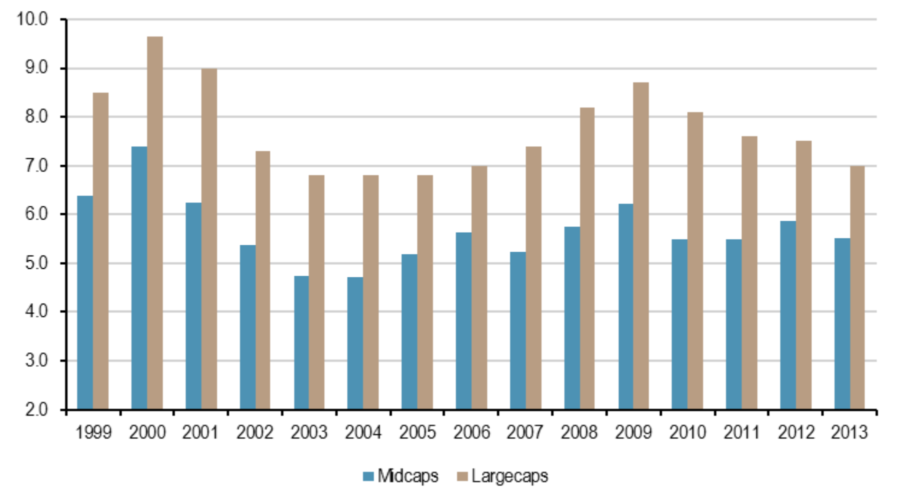


Source: UBS estimates

Is it that smallcaps invest more to grow?

No, smallcaps are less capital-intensive than large caps. As we show below, over the past 15 years, capex/sales for large caps has moved in a range of 7-10% compared with 5-7% for smallcaps. Given returns are higher for large caps, we cannot extrapolate that smallcaps use capital more efficiently than large caps. Possibly, smallcaps are more restrictive, but that is all.

Figure 17: Midcaps vs. large caps capex/sales



Source: UBS estimates

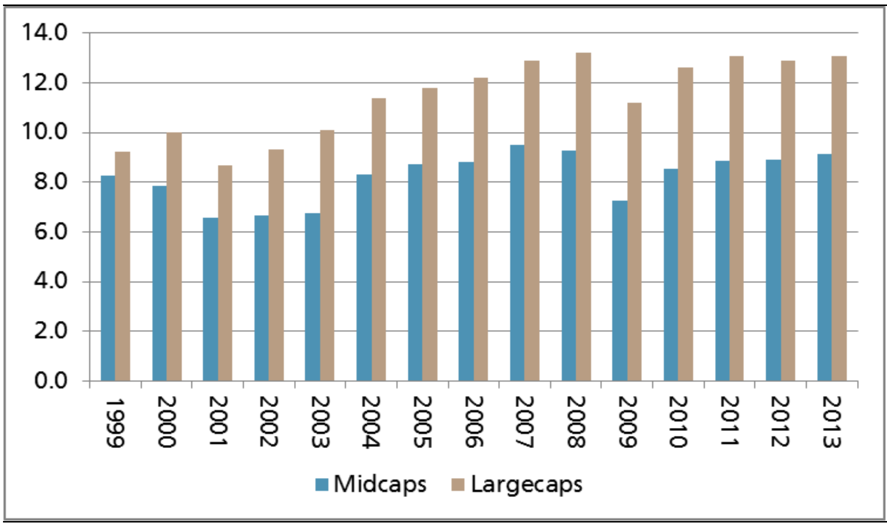
Is it the higher margins?

It is not the margins, either. As we show below, smallcap EBIT margins are consistently below those of large caps. Over the past 15 years, smallcap EBIT margins have been in the 7-10% range, while large caps have been in the 9-13% range.

Smallcap EBIT margins are consistently below those of large caps

Received wisdom would say that smallcaps are more agile than large caps, and, therefore, can adapt more easily to macro changes. However, the facts do not support the case. If we take 2001, for instance, as the bottom of the margin cycle, it took three years for smallcaps to recover compared with just two years for large caps. In fact, today, EBIT margins for smallcaps are below previous peak margin levels, while large caps are at historically high levels. However, this could be a negative feature for large caps, as it is often questioned whether in a cheap capital environment, the returns could fade and future margins somehow could be capped. In principle, there could be more margin downside for large caps than for smallcaps, although the latter have structurally lower margins.

Figure 18: EBIT margins in Europe – large caps vs. midcaps



Source: UBS estimates

How about the balance sheet situation?

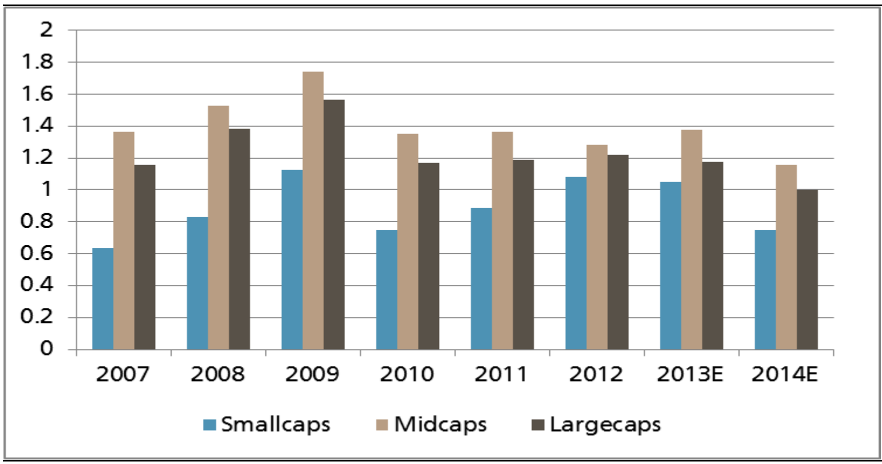
Smallcaps have been closing the leverage gap with large caps

Historically, smallcaps had lower financial leverage than large caps, which partly explains the lower ROEs, although not all of it, given that there is probably an element of structural cautiousness in family-owned groups, or simply limited access to debt (eg, absence of credit rating, lack of bond market development). However, as one would expect in the current cheap money world, smallcaps have increased leverage and closed the leverage gap. If we look at net debt/EBITDA, smallcaps have less leverage at 1.0x net debt/EBITDA versus large caps at 1.2x, but the gap has been closing over the past five years, with large caps reducing leverage and smallcaps increasing. While we address M&A later in this report, it should be noted that excess liquidity in large caps could anticipate a good cycle ahead for smallcaps.

Midcap companies are more leveraged than large caps

It is also worth noting that midcap companies (those between $1.5bn and $5bn) are more leveraged than large caps. In our opinion, it is quite likely that those companies that begin to access the debt market become more aggressive in terms of their capital structure. However, given the dispersion between smallcap and midcaps, we conclude that financial structure is not a real driver of stock performance and the outperformance of smallcaps.

Figure 19: Net debt/EBITDA at smallcaps, midcaps and large caps



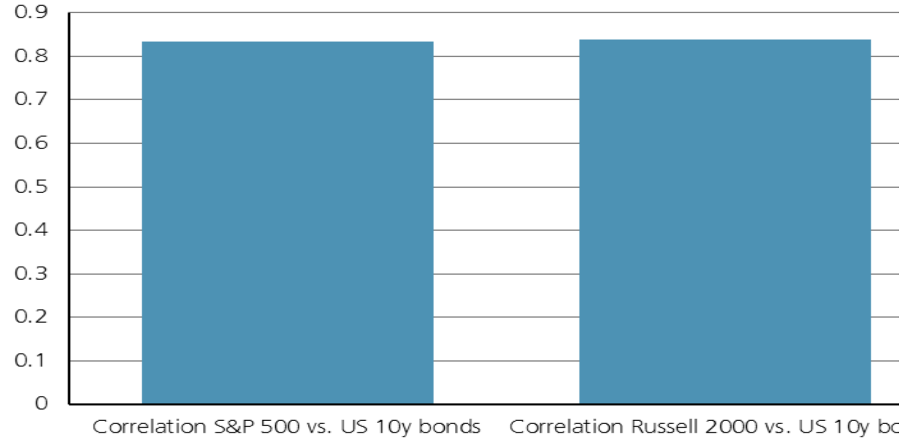
Source: UBS estimates

Is it the interest rate cycle?

As already flagged above, there is not that much history for many of the smallcap indexes, such as the Russell 2000 (1984), MSCI smallcaps (1999) or Topix Small (1999). Given the low interest rate environment of the past decade, it is possible that smallcaps are just riding the cheap money environment, with the result that we have tried to analyse the impact on interest rates and outperformance.

Initially, we looked at the correlation between the outperformance of smallcaps and the trend in interest rates. We took as a reference the Russell 2000 versus the S&P 500 and US 10-year bond yield. The stock market is highly correlated to long-term bond performance, but since 1979, the Russell 2000 and S&P have shared the same 0.83 correlation with the US 10-year bond yield.

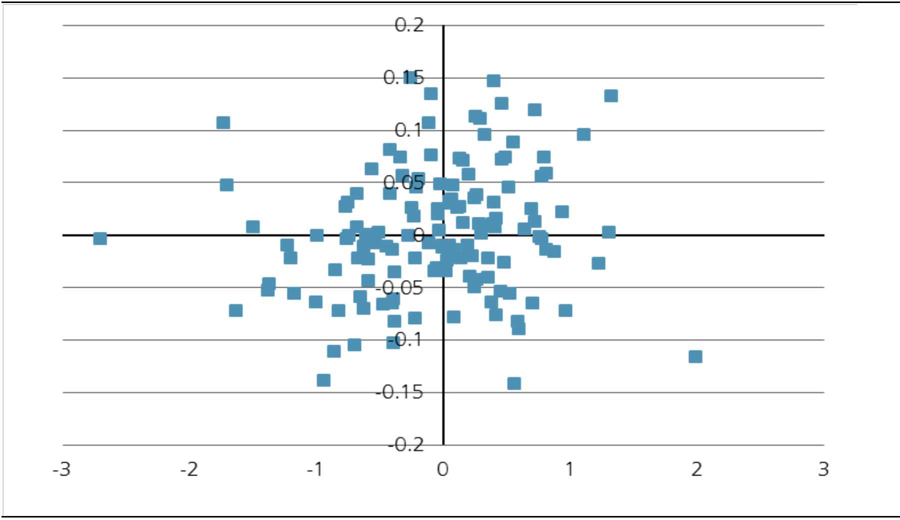
Figure 20: Correlation since 1979 of the S&P/Russell 2000 vs. US 10y bond



Source: UBS

Second, we looked at quarterly periods, and observed the trend in interest rates and the relative performance of the Russell 2000 versus S&P 500. Figure 21 below shows that usually when rates rise, smallcaps outperform.

Figure 21: Interest rates changes (X axis) vs. relative performance of Russell 2000/S&P 500 (Y axis)

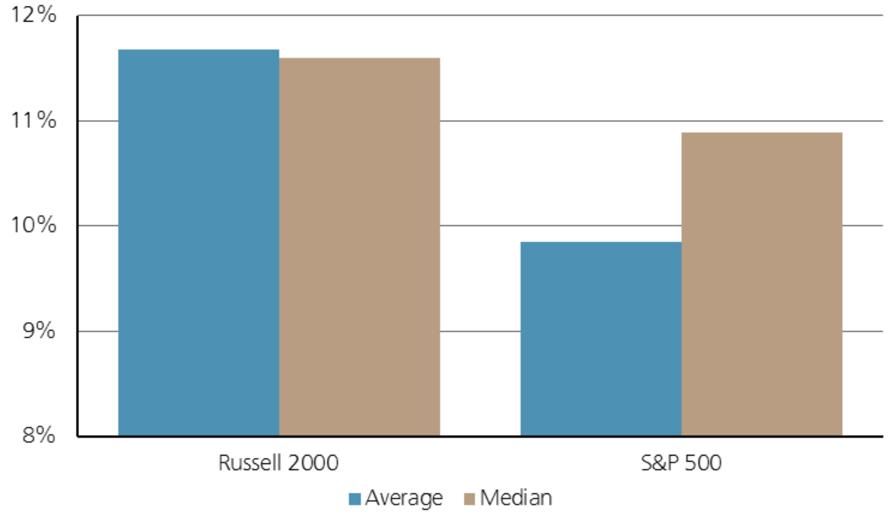


Source: UBS. X axis represents the quarterly changes in 10-year bond yields. Y axis is the relative performance of the Russell/S&P 500

Smallcaps tend to outperform after rates rise

Finally, we looked at what happened 12 months after a quarterly period in which interest rates increased. As the chart below shows, whenever interest rates rose, 12 months later the S&P 500 increased by 10% on average, while the Russell 2000 was 12% higher. Thus, smallcaps outperformed 12 months after the 10-year bond yield increased for the quarter. This does not indicate that higher interest rates are positive for the market, as usually rates and markets move in parallel, but after rates rise, smallcaps tend to outperform – or, at least, this is what has happened to the Russell 2000 and S&P 500 since 1979.

Figure 22: What happened 12m after interest rate hikes? Index performance



Source: UBS. Data as of 1979 indicates how index moved after a quarterly interest rate hike.

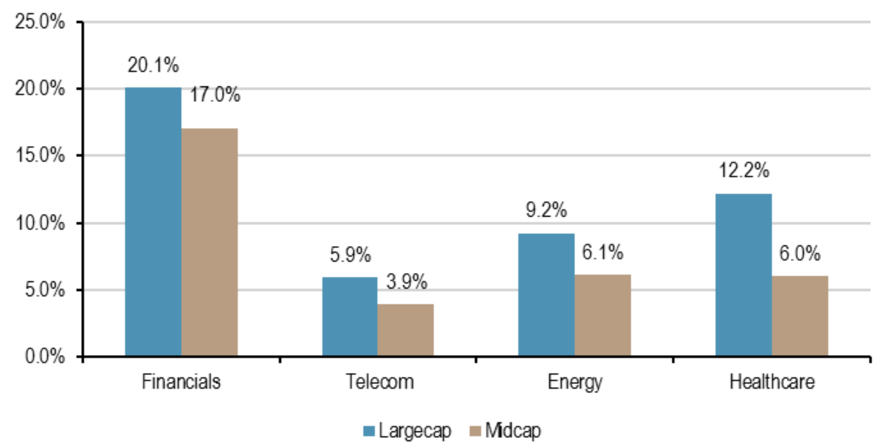
Is it the sector exposure that led to outperformance?

Part of the small/midcap outperformance over large caps over the past decade can be attributed to the sector exposure of the companies. In the US, the notion of outperformance due to sector exposure is more convincing: for example, the S&P 500 is much more heavily weighted towards a handful of names, with the top five names comprising 10% of the index, while the top five names in the Russell 2000 account for less than one percentage of the index and are comparatively less concentrated than in the large-cap indices. That said, the results are not that convincing when we analysed the European indices. Specifically, the top five names in the Euro Stoxx 200 Large-cap index, as well as the Euro Stoxx 200 Midcap and 200 Smallcap index, contributed around 10-15% to the total index weight. Thus, the extent to which some larger companies in an index can influence the direction of that index is somewhat limited in the European context.

Sector exposure does explain some (in the case of the US), but not all (in the case of Europe) of the smallcap outperformance

Furthermore, different sectors are often influenced by different macroeconomic factors. Thus, their weightings in an index can play a role in their performance.

Figure 23: Major sector weighting differences between large- and midcap index



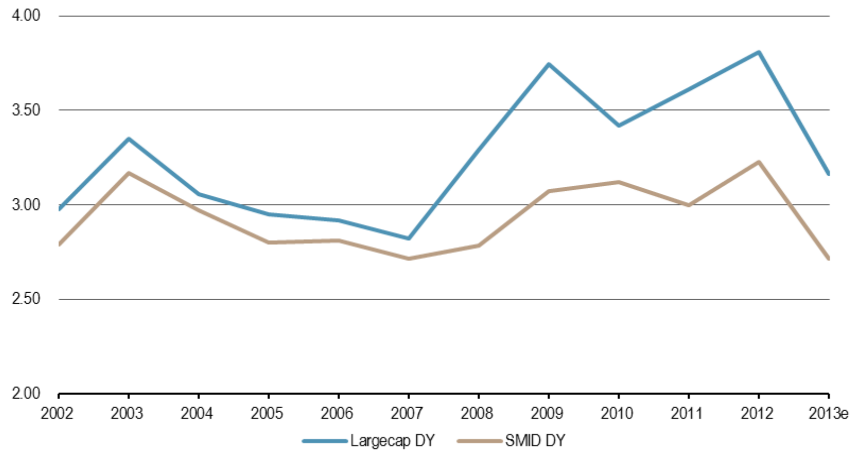
Source: UBS. Note: Euro Stoxx 200 large is large-cap index and Euro Stoxx 200 Mid is a mid-cap index

The chart above shows that the Euro Stoxx 200 large-cap index is more exposed to financials, telecoms, healthcare and energy relative to the mid-cap index. Hypothetically, a weakening financial/telecom/healthcare sector and rising energy prices would put downward pressure on the performance of the large-cap relative to the mid-cap index. During the past decade, these four sectors have underperformed, and the lower exposure of midcaps to these sectors (33% versus 48% for large caps) explains part of the outperformance in this period. Therefore, a recovery in European banks would be viewed as a slightly negative issue for relative midcap performance. On the other hand, the small-cap index is biased towards consumer goods and services, and industrials sectors. Consequently, improved consumer demand in Europe could weigh on the performance of the small/midcap index relative to the large-cap index. There is a risk that soft demand for industrial products (e.g. due to a slowdown in emerging markets) may be a negative.

Is it the dividend yield?

Not really. Dividend yields have been consistently lower in smallcaps than in large caps, although dividend growth has been higher. In 2014, we see the gap closing, particularly on midcaps – an indication of value.

Figure 24: Dividend yield on small, mid and large caps



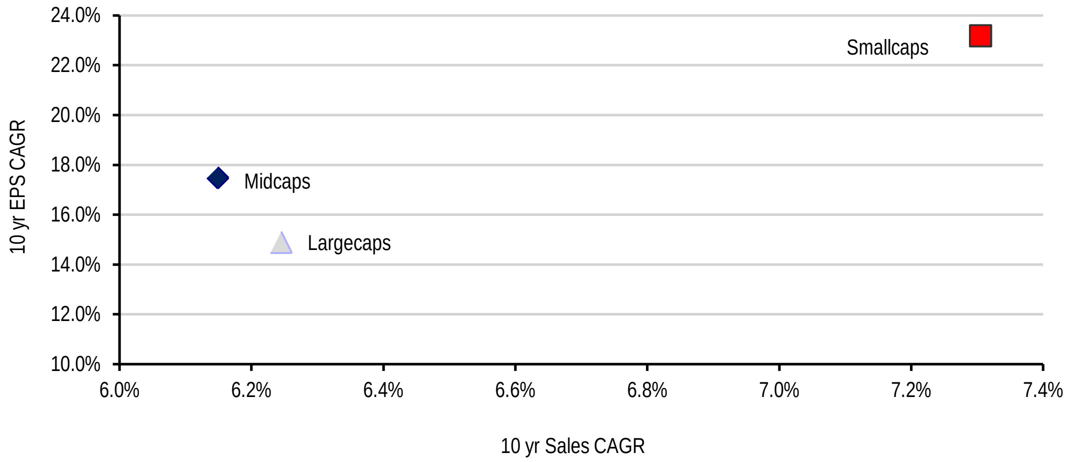
Source: UBS estimates

Growth – the key driver

Sales and earnings growth – the major driver of small/midcap outperformance

We believe the major driver of small/midcap outperformance was their strong earnings and sales growth over the period. We note that PE multiples have remained quite constant with smallcaps trading at a premium of 11% over a 20-year period. Therefore, the major outperformance driver has been core sales and earnings growth.

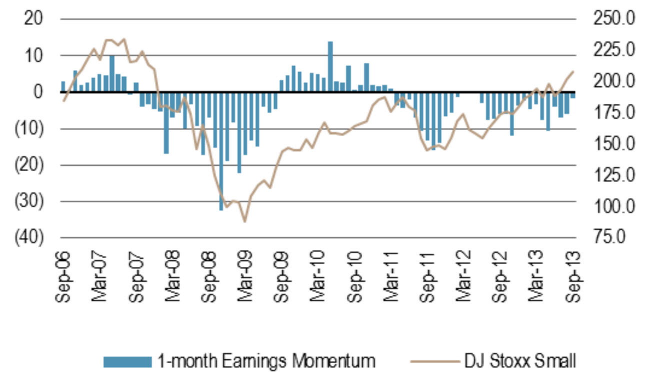
Figure 25: Sales and EPS CAGR for 10 years



Source: UBS estimates, Bloomberg. Note: Large caps = Stoxx large-cap index; midcaps =Stoxx mid-cap index; and smallcaps = Stoxx small-cap index. The period under review is 2003-13. Financials have been excluded from the index for the analysis. Historical sales and EPS numbers are for the current members of the respective indices.

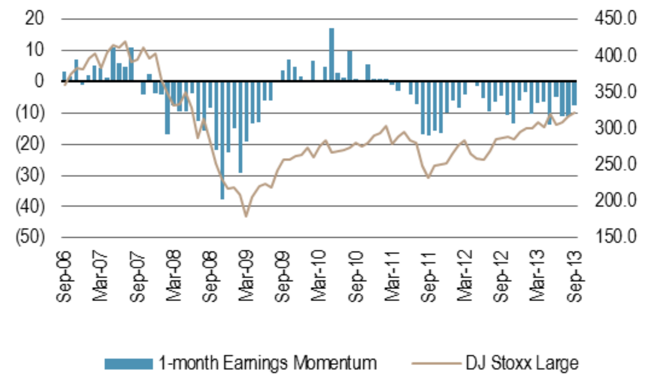
The above chart shows that for the 10-year period (2003-12), small-caps grew sales 7.3% CAGR and EPS 23.2% CAGR – far better than large caps where sales grew 6.2% CAGR and EPS 14.9% CAGR. Similar trends can be seen in case of midcaps, but with slightly lower sales CAGR of 6.1%.

Figure 26: Stoxx small – 1m earnings momentum vs performance



Source: UBS estimates, Thomson Datastream

Figure 27: Stoxx large – 1m earnings momentum vs performance



Source: UBS estimates, Thomson Datastream

The trend is similar in the above earnings momentum charts, which show an improving trend for smallcaps relative to large caps. Small and midcap companies can grow more quickly than their large-cap counterparts, potentially benefiting from less bureaucracy, fewer layers of management, and, generally, a more entrepreneurial spirit that can help speed decision-making, resulting in better top-line growth rates. This offsets problems such as lack of scale, which favours large caps.

Small/midcaps are attractive for their specific growth drivers whereas large-caps may have a more diversified business model with different growth drivers

Small/midcap companies, because of their inherent flexible structure, can quickly capitalise on a particular trend or market opportunity relative to large-cap companies. They are particularly attractive for their specific growth drivers whereas a large-cap company may have a more diversified business model with different growth drivers, which, in turn, depend on many economic factors for their performance. While this focus can create more variability in results since its

economic drivers are more explicit, it often provides a more effective way for investors to capitalize on a particular trend or market opportunity.

One interesting issue is that the value sectors in smallcaps grow ahead of the value sectors in large caps. Regional exposure to emerging markets does not differ much. One additional growth driver is the dynamic capabilities of smallcaps to access new growth activities. In the recent *The new global economy* report by UBS senior international economist Andrew Cates, he attempts to quantify the economic impact of certain transformative "general purpose" technologies, such as 3-D printing, widespread mobile computing, advanced robotics, and shale oil and gas extraction techniques. Smallcaps seem to have better access to those areas, and also M&A tends to involve smallcaps focusing on new growth activities.

Figure 28: Twelve potentially economically disruptive technologies

New technology	Description
Mobile internet	Increasingly inexpensive and capable mobile computing devices, and internet connectivity
Automation of knowledge work	Intelligent software systems that can perform knowledge work tasks
Internet of things	Networks of low-cost sensors and actuators for data collection, process optimization
Cloud technology	Use of computer hardware and software resources delivered over a network or the internet
Advanced robotics	Increasingly capable robots with enhanced sensors, dexterity and intelligence, used to automate tasks
Autonomous	Vehicles that can navigate and operate with reduced or no human intervention
Next-generation genomics	Fast, low-cost gene sequencing, advanced big data analytics, and synthetic biology ("writing DNA")
Energy storage	Devices or systems that store energy for later use, including batteries
3-D printing	Additive manufacturing techniques to create objects by printing layers of material on digital models
Advanced materials (nanotechnology)	Materials designed to have superior characteristics (e.g. strength, weight, conductivity, functionality)
Advanced oil and gas exploration	Exploration and recovery techniques that make extraction of unconventional oil and gas economical
Renewable energy	Generation of electricity from renewable sources with reduced harmful climate impact

Source: McKinsey Global Institute Analysis. See *Disruptive technologies: Advances that will transform life, business, and the global economy*, May 2013. From UBS, Andy Cates, *Global Economic Perspectives, The new global economy* (UBS, 26 July 2013)

M&A is also a driver of outperformance

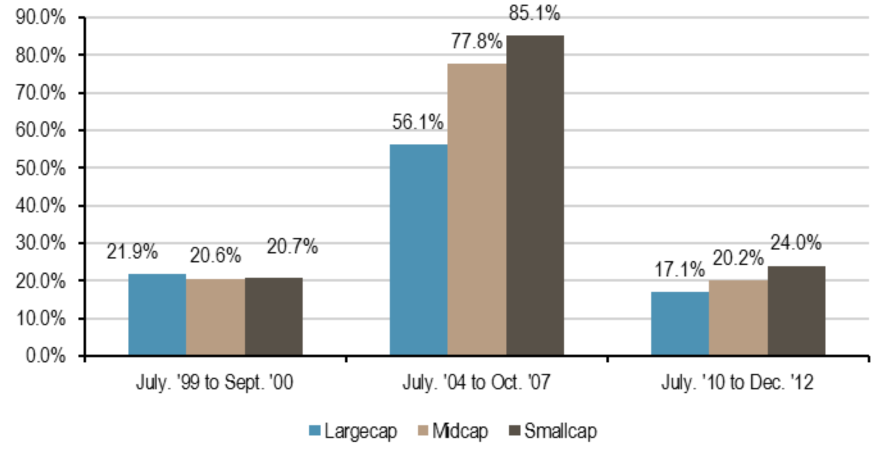
Large-cap companies find it harder to grow organically, so companies often target smaller rivals to increase their market opportunity, enhance their competitive positioning, and augment growth.

Large caps often target small/midcap companies

Small/midcap companies are often the targets of the large caps because of such factors as their unique franchise, growth-oriented business models, and unique market positioning. Consequently, they may serve as beneficiaries of increased M&A.

Historically, we have seen both small/midcaps outperforming large caps during periods of increased M&A activity.

Figure 29: Small/midcap cumulative returns in times of increased M&A activity



Source: UBS estimates, Thomson Datastream. Note: Cumulative returns are for Stoxx Large, Mid and Small indices

Over the past 10-15 years, smallcaps significantly outperformed during periods of increased M&A activity in Europe

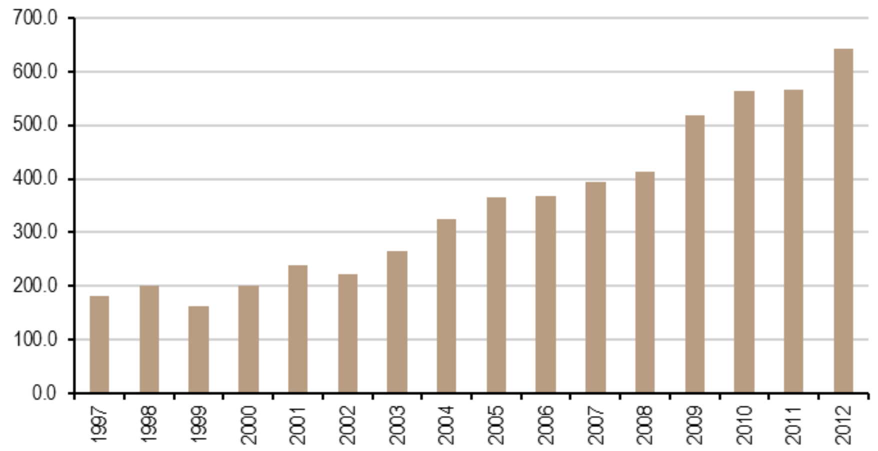
The chart above shows the cumulative performance of small/mid/large-cap indices during periods of increased M&A activity in Europe over the past 10-15 years. We can see that barring the period 1999-2000 when small caps performed in line with large caps, all other periods saw massive outperformance by smallcaps.

While it is too early to say if we will see M&A return on the scale of the previous waves in the early 2000s or 2006/07, we did see a meaningful uplift in global deal activity in the final quarter of last year. So far, 2013 has seen some pick-up in announced M&A activity (Dell, Heinz, Virgin Media, and Vodafone/Verizon etc).

Healthy balance sheets and cheap debt financing should support increasing M&A activity

We believe the positive catalysts are in place for an increase in deal activity in the near future, and we may see a renewed increase in M&A activity in the smallcap world. The combination of healthy balance sheets, along with cheap debt financing, should support increasing merger and acquisition activity.

Figure 30: Euro Stoxx 600 ex Financials corporate cash balances (€ billions)



Source: Bloomberg. Note: Cash balance history is based on historical year-end cash balances for current Euro Stoxx 600 companies excluding financials

In the next few years, an increase in M&A activity may benefit the performance of small/midcap stocks

Expansionary monetary and fiscal policies have created a supportive environment for smallcap M&A. Periods of negative real interest rates are usually the product of a broader crisis, during which large-cap companies will seek to cut costs and preserve cash, potentially leaving them with huge cash reserves. During the following quarters, many of these companies unload their cash by acquiring smallcaps, which explains a portion of the outperformance of smallcaps in such circumstances. Corporate balance sheets have become particularly robust following a period of aggressive cost-cutting and deleveraging, resulting in companies now having sizeable cash balances. Currently, year-end corporate cash balances for the Euro Stoxx 600 companies ex financials sit at a 15-year high, at €640bn – almost 50% more than at year-end 2007. Based on the above historical evidence of outperformance, we believe that an increase in M&A activity may benefit the performance of small/midcap stocks in the next few years.

Corporate governance is key

Small and midcaps in the US and Western Europe score better than large caps in terms of governance

It is commonly perceived that corporate governance risks are higher for small and midcap companies, often because of the risks posed to minority shareholders by more concentrated ownership structures. In principle, one would think that large caps, which invest a lot of money and resources on branding, advertising and social responsibility, would be more transparent and compliant when it comes to corporate governance issues than smallcaps. It is not the case. Leveraging data from GMI ratings, we found that in the US and Western Europe, small and midcaps actually score better than large caps in terms of governance. Once again, it seems as if the risk profile of smallcaps may be misunderstood.

Emphasis is often placed on the risk posed by large or controlling shareholdings to minority shareholders. That said, we believe that this is only one part of the story. Maybe less emphasized is the ability of large shareholders to better align company management with shareholders' interests. Also, and possibly as important, concentrated or family ownership may remove some of the short-term market pressures, and allow companies to make strategic decisions on a longer-term basis.

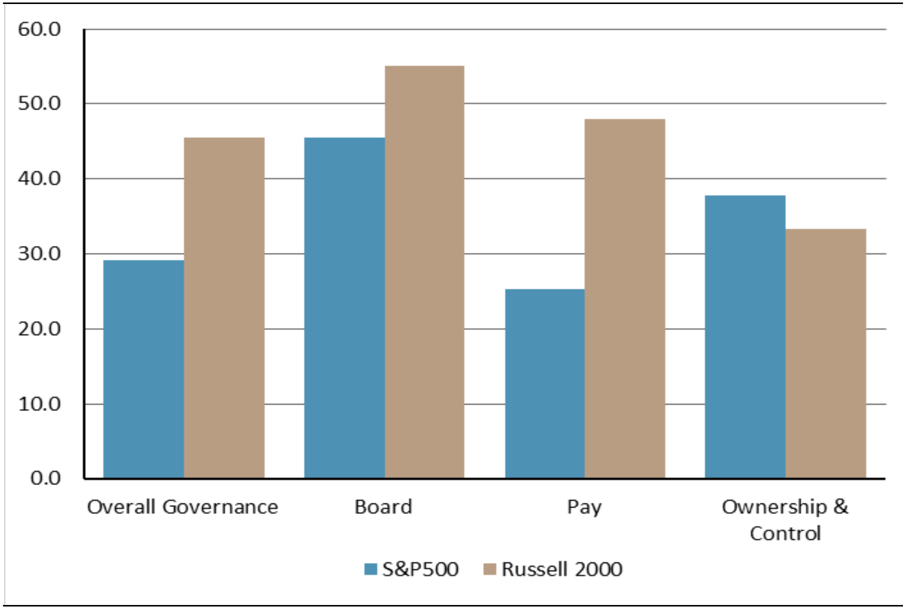
In the US, for instance, overall governance is far better for smallcaps than large caps. Specifically, the scores for the board and pay are better for smallcaps, although not for ownership and control, but not by much. Smallcaps might be controlled by family groups concerned about M&A, but overall, smallcaps governance is quite good.

Figure 31: GMI scores on corporate governance in the US

	Overall governance	Board	Pay	Ownership and control
S&P500	29.1	45.5	25.2	37.7
Russell 2000	45.6	55.1	47.9	33.3

Source: GMI. GMI scores are from 1 to 100 – 100 being the best governance practices. The overall governance score is split into three components: board, pay and ownership and control

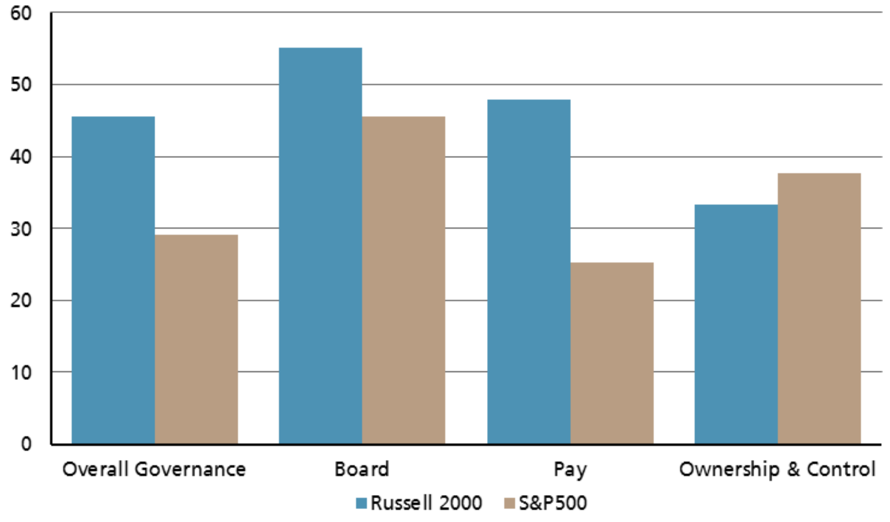
Figure 32: GMI corporate governance scores for S&P500 vs. Russell 2000



Source: GMI. GMI scores are from 1 to 100 – 100 being the best governance practices. The overall governance score is split into three components: board, pay and ownership and control

We analyse Europe as a whole and the conclusion is the same: corporate governance is better in smallcaps than large caps, and also in terms of ownership and control.

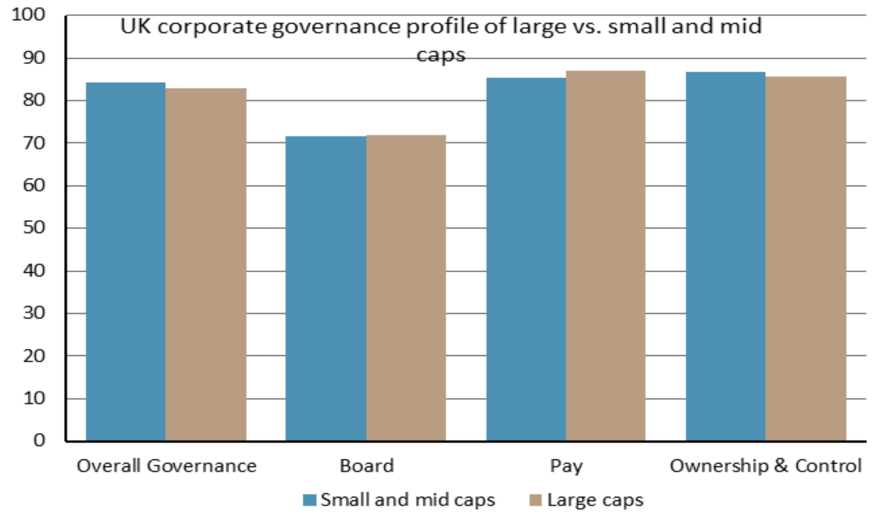
Figure 33: Western Europe governance metrics – large vs. small/midcaps



Source: GMI. GMI scores are from 1 to 100 – 100 being the best governance practices. The overall governance score is split into three components: board, pay and ownership and control

While global trends for smallcaps for performance are reasonably aligned, it is not so much the case for corporate governance where some countries have very good or very poor scoring. For instance, UK smallcaps do not differ too much from large caps, with both rated as high on governance metrics (smallcaps is just a bit ahead).

Figure 34: UK corporate governance on large caps vs. smallcaps



Source: GMI. GMI scores are from 1 to 100 – 100 being the best governance practices. The overall governance score is split into three components: board, pay and ownership and control

Figure 35: UK corporate governance metrics on large vs. small and midcaps

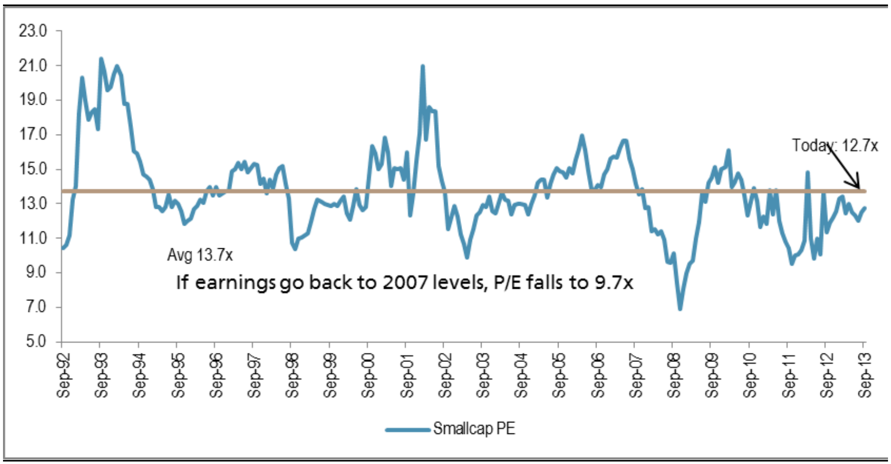
	Overall governance	Board	Pay	Ownership and control
Small and midcaps	84.2	71.7	85.2	86.7
Large caps	82.8	71.8	87.1	85.7

Source: GMI. GMI scores are from 1 to 100 – 100 being the best governance practices. The overall governance score is split into three components: board, pay and ownership and control

Outperformance is all fine, but is it expensive now?

After such a strong period of outperformance, it is only natural to ask: will this outperformance continue and is it expensive now? To answer the question, we examine the historical valuations of the European smallcap companies on an absolute basis as well as on a relative basis to large caps.

Figure 36: European smallcap companies' PE still below historical levels



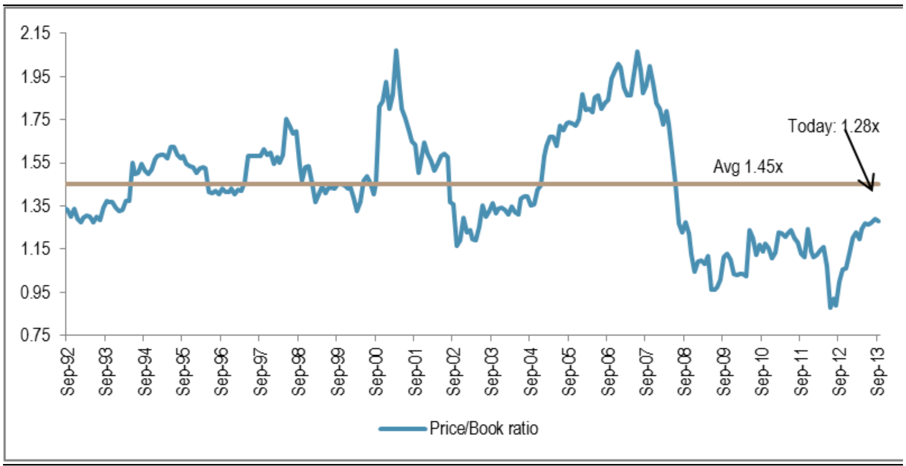
Source: UBS estimates, Thomson Datastream

Valuations look attractive on an historical basis

Currently, European smallcaps are trading at a PE multiple of 12.7x. While the PE multiple might portray a big move from the crisis levels, it is not as rich as it might look, as the current PE is still c7% below the 20-year historical average PE of 13.7x. If we just return to the earnings level of 2007, the PE falls to 9.7x – 30% below its long-run average of 13.7x. So, valuations look attractive on an historical basis.

Considering the price-to-book (P/B) ratio, the historical valuation confirms the same conclusion. Currently, European smallcaps are trading at a P/B multiple of 1.28x versus a 20- year historical average of 1.45x – c12% below their historical valuations.

Figure 37: European smallcap companies' P/B still below historical levels

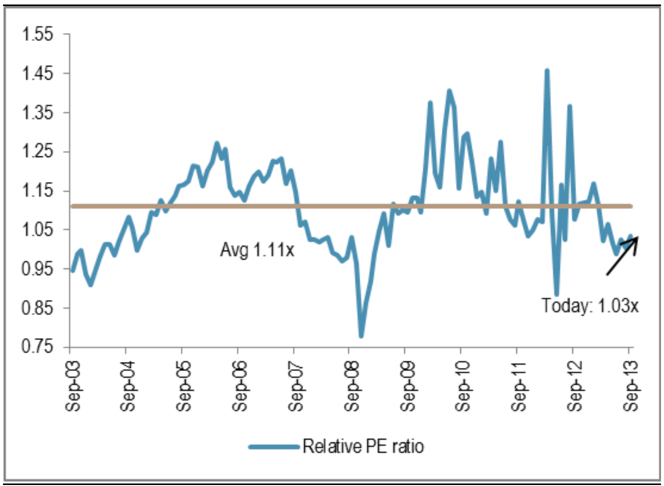


Source: UBS

Valuations remain reasonable relative to large caps as well. We have analysed the 10-year period 2003-13 to see how smallcap valuations have fared relative to large caps. We conclude that on both valuation metrics (PE and P/B), smallcaps look reasonable even after such a strong outperformance over the period. We

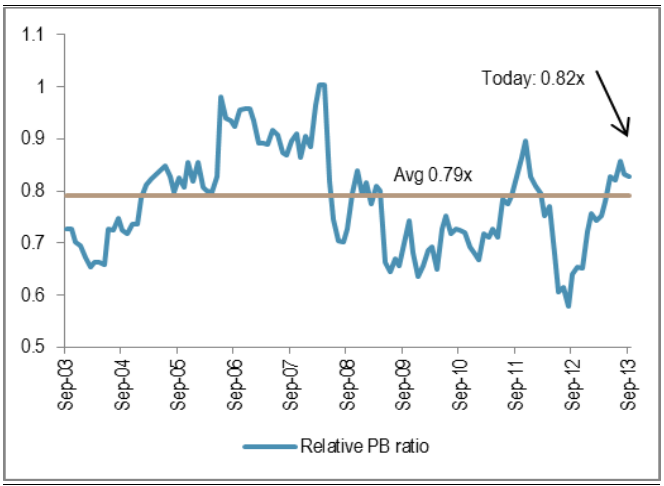
deliberately selected a 10-year period that excluded the effects of the mega-cap rally of the 1990s, and captured the full effect of the smallcap outperformance in the past 10 years.

Figure 38: European smallcap PE relative to large caps



Source: UBS estimates, Thomson Datastream

Figure 39: European smallcap P/B relative to large caps



Source: UBS estimates, Thomson Datastream

Over a 10-year period, smallcaps have generally traded at an 11% premium to large caps; currently, the premium is 3%. Thus, we believe there is room for smallcaps to catch-up, which may begin if we continue to see real signs of improvement in Europe's economy. This should provide some comfort to smallcap investors possibly thinking about taking profits following the recent outperformance, by providing a positive historical backdrop to the smallcap space.

2014/15 growth prospects are better for smallcaps

As the table below shows, we expect a notable recovery in smallcap earnings for 2014 and 2015, significantly exceeding that for large caps.

Figure 40: UBS European forecasts

		Smallcap	Midcap	Large cap	Allcap
Core sales growth	2013E	-1.50	1.80	0.40	0.40
	2014E	3.20	3.70	2.80	2.80
	2015E	2.60	3.90	3.10	3.20
EBITDA growth	2013E	1.90	2.50	0.50	0.60
	2014E	17.30	10.00	7.80	8.00
	2015E	10.90	10.00	6.10	6.40
EPS growth ex loss	2013E	6.90	1.70	2.20	2.20
	2014E	18.30	13.70	14.30	14.30
	2015E	16.00	16.90	11.30	11.70
		Smallcap	**Midcap**	**Large cap**	**Allcap**
Ex loss PE	2013E	16.10	15.40	14.50	14.50
	2014E	14.00	13.90	12.70	12.80
	2015E	12.40	11.90	11.40	11.50
Pre-ex PE	2013E	20.60	17.50	14.80	15.00
	2014E	14.80	14.20	12.70	12.80
	2015E	12.50	12.00	11.40	11.50

Source: UBS estimates

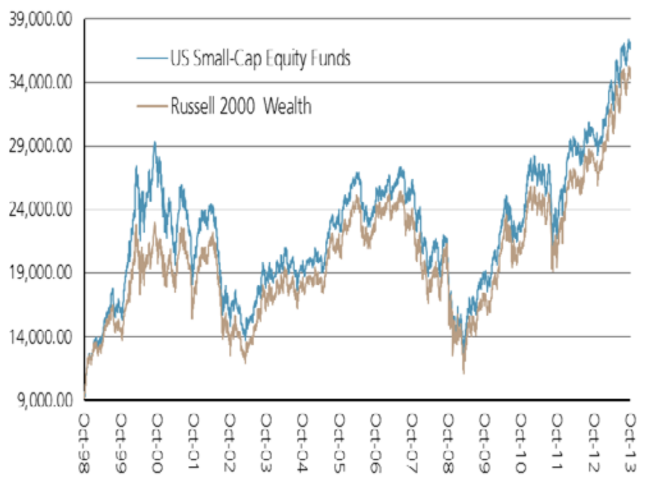
Analysis of large versus smallcap funds

Smallcap funds is one of the few categories to have outperformed on average its respective benchmarks over a long period. This is not the case for many funds, including fixed income or large caps. Much of the outperformance might be explained by two factors: (1) there is more capacity to select from among thousands of smallcaps, which determine the universe of the funds; and (2) the capacity to add alpha, and lack of proper coverage by analysts and markets of the smallcap space, which, by its nature, is more difficult to follow, given that many companies form the category.

Smallcap funds – one of the few categories to have outperformed on average its respective benchmarks over a long period

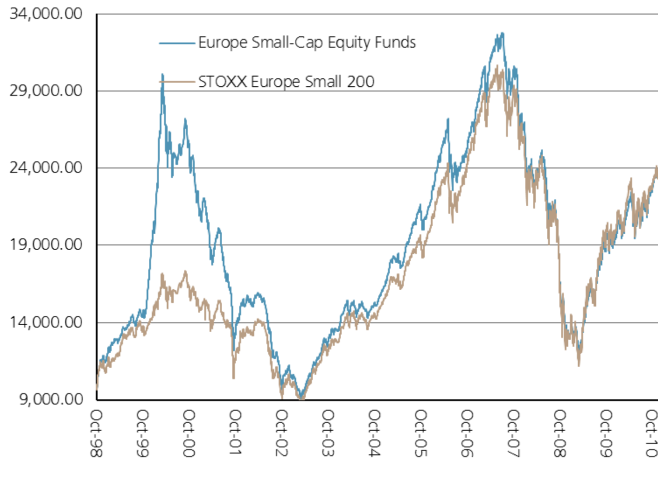
There is quite a lot of literature on this topic, so our analysis on this area is limited. That said, we have selected a few charts that reflect how smallcap funds have outperformed their benchmarks, which has not always been the case for large caps.

Figure 41: US smallcap funds vs. Russell 2000



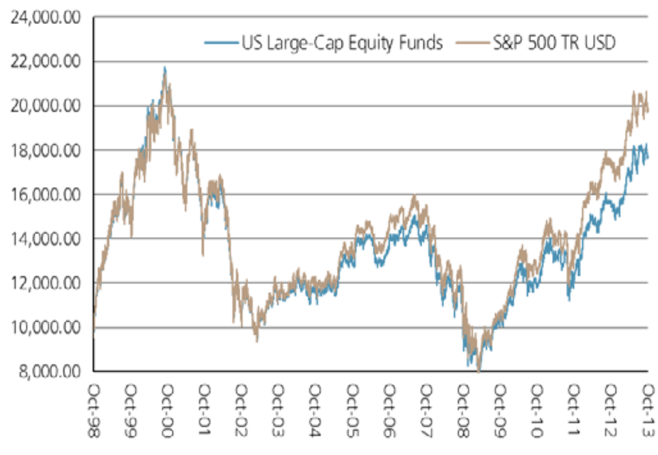
Source: Morningstar Direct

Figure 42: European smallcap equity funds vs. Stoxx SMID



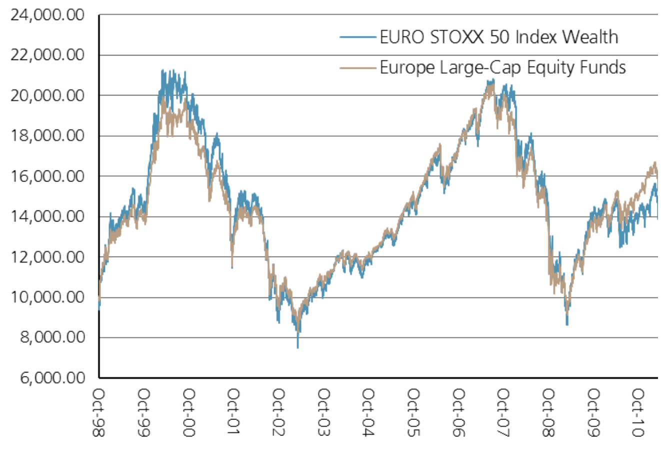
Source: Morningstar Direct

Figure 43: US equity large cap funds vs. S&P 500



Source: Morningstar Direct

Figure 44: European large cap funds vs. Euro Stoxx 50

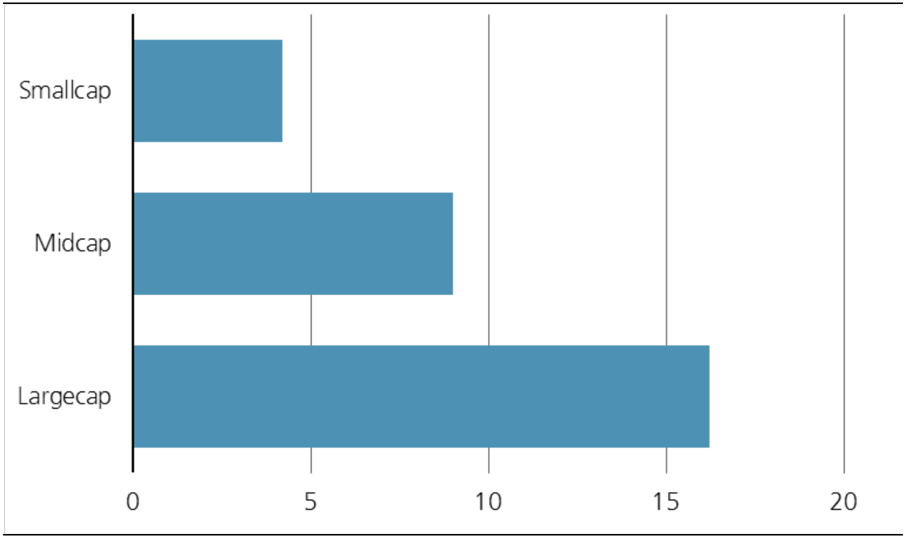


Source: Morningstar Direct

Alpha generation potential as under-covered

The small and midcap segments often have less analyst coverage relative to their larger peers, providing an environment for price anomalies, which potentially results in alpha generation of active investors.

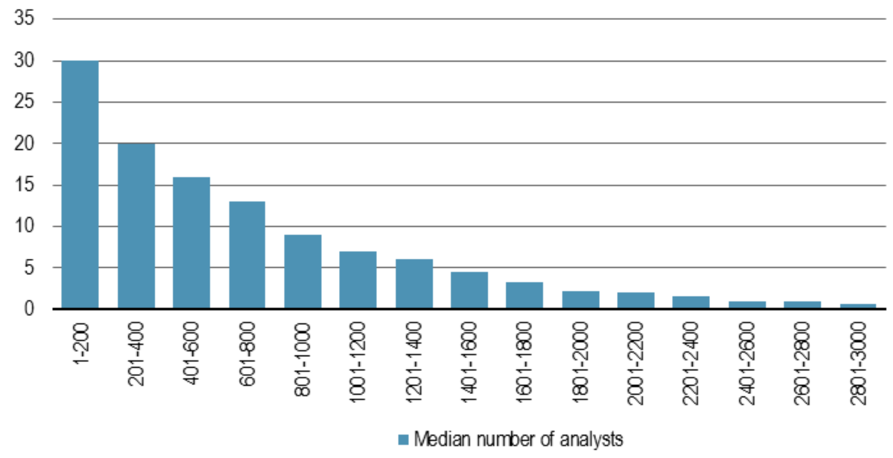
Figure 45: Average number of sell-side analysts by market capitalisation



Source: Bloomberg. Note: The data reflects the average number of sell-side analysts assigned to large-cap stocks with a market capitalisation of more than €5bn, midcap stocks with a market capitalisation between €1.5bn and €5bn, and smallcap stocks with a market capitalisation between €200m and €1.5bn from a database of 3,000 European companies. We have adjusted the numbers to reflect distant coverage factors.

The average number of analysts covering smallcap stocks in Europe is four, which is a quarter of the average number of analysts covering large-cap names. The same is true for mid-cap companies where the average number of analysts is nine (c45% fewer than for large-cap companies). The lower number of analysts covering a stock potential means that there is an opportunity for information inefficiencies to be exploited through active management, resulting in alpha generation.

Figure 46: Median number of analysts – in deciles



Source: Bloomberg. Note: From a database of 3,000 European companies, ranked by ascending order of market capitalisation and then divided at regular intervals of 200 companies

As can be seen from the above table, the lower the decile, the fewer the median number of analysts covering these companies, highlighting their lack of coverage and the potential for availing of market inefficiency.

UBS top 20 performance

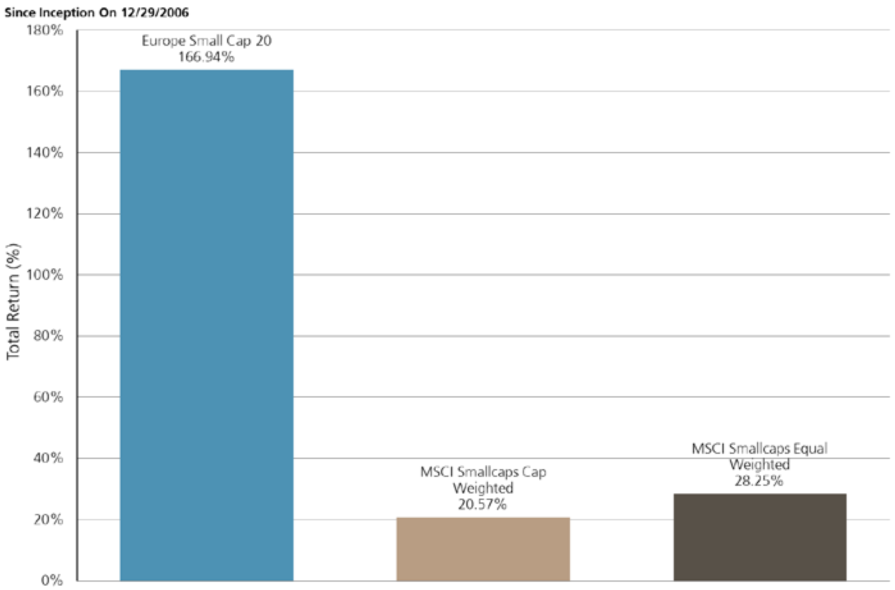
We show below how smallcap analysts can create alpha by selecting smallcap stocks. UBS covers around 450 pan-European small/midcaps. Our top 20 is a bottom-up selection of our top picks in the small/midcap universe. We show the performance of our top 20 in the chart below, relative to the MSCI Pan-European small cap index on an equal-weighted basis. Since inception in December 2006, the UBS top 20 is up by 170%, and up 27% YTD 2013.

Figure 47: Summary of UBS Europe top 20 performance

	2008	2009	2010	2011	2012	2013 YTD	Since inception on 29/12/2006
UBS Europe Small Cap 20	-38%	89%	47%	-11%	29%	27%	170%
MSCI Europe Small Cap (€)	-52%	60%	30%	-17%	28%	23%	21%
MSCI Europe Small Cap (€ total returns) (equal)	-47%	65%	22%	-18%	23%	16%	28%
Europe Small Cap 20 - MSCI Smallcaps (cap)	14%	30%	16%	6%	2%	3%	149%
Europe Small Cap 20 - MSCI Smallcaps (equal)	9%	24%	25%	8%	6%	11%	142%

Source: UBS. Note: The indicated performance returns are based on capital appreciation, excluding dividends and transaction costs, such as commissions, fees, margin interest and interest charges. Actual transactions adjusted for such transaction costs will result in reduced total returns. Prices of stocks in this performance reflect closing prices. Since its inception on 29 December 2006, the portfolio has had 336 stocks, of which 194 advanced and 143 declined while on the list. A complete record of all the recommendations upon which the report is based is available from UBS upon written request. Past performance is not an indication of future results.

Chart 2: Top 20 performance relative to MSCI Europe smallcap since inception



Source: Abacus Solutions, MSCI. See Note Figure 34.

Current top 20 selection

Our top 20 comprises ams AG, Andritz, Arbonia-Forster, Ashtead, Banco Espirito Santo, Bilfinger, Booker, Domino Printing, DS Smith, Eurotunnel, Flughafen Zurich, Halfords, Hays, Moleskine, Smurfit Kappa, TUI AG, Wincor Nixdorf and ZON.

As of October 14th we have published the Small and Midcap Key calls compendium. The new Research template includes a view on the investment case on each of the Top 20 companies, company description, upside/downside

scenarios (by flexing the key assumptions driving the investment case) and key catalysts. You will also find the breakdown of revenues by region and divisional forecasts.

Figure 48: Small and Midcap Top 20 Key calls

Stock Name	RIC	Sector	Mkt cap (US$ bn)	Rating	Current Price	Price Target	Analyst
ams AG	AMS.S	Semiconductors	1.2	Buy	CHF83.2	CHF100	David Mulholland
Andritz	ANDR.VI	Electric Components & Equipment	6	Buy	€42.4	€53	Sven Weier
Arbonia-Forster	AFGN.S	Building Materials	0.6	Buy	CHF31	CHF35	Torsten Wyss
Ashtead	AHT.L	Industrial Services	5.1	Buy	630.5p	760p	George Gregory
Banco Espirito Santo	BES.LS	Banks, Ex-S&L	5.9	Buy	€1.08	€1	Ignacio Sanz
Bilfinger SE	GBFG.DE	Industrial Services	4.7	Buy	€79.2	€82	Gregor Kuglitsch
Booker	BOK.L	Food Retailers & Wholesalers	3.8	Buy	137.3p	141p	Benjamin Peters
Domino Printing	DOPR.L	Industrial, Diversified	1.2	Buy	659.5p	700p	Robbie Capp
DS Smith Plc	SMDS.L	Containers & Packaging	4.2	Buy	283.5p	320p	Catriona O'Grady
Eurotunnel	GETP.PA	Railroads	5.1	Buy	€6.85	€7.8	Denis Moreau
Flughafen Zürich	FHZN.S	Transportation Services	3.3	Buy	CHF485	CHF540	Alex Brignall
Halfords Group	HFD.L	Retailers, Specialty	1.2	Buy	381.1p	435p	Adam Cochrane
Hays	HAYS.L	Industrial Services	2.7	Buy	121.6p	140p	William Vanderpump
Moleskine	MSK.MI	Household Products, Non-Durable	0.5	Buy	€1.8	€2.75	Eva Quiroga
Smurfit Kappa Group	SKG.I	Paper Products	5.2	Buy	€16.9	€19	David Hallden
TUI AG	TUIGn.DE	Recreational Products & Services	3.1	Buy	€9.23	€12.5	Alex Brignall
Wincor Nixdorf	WING.DE	Advanced Industrial Equipment	1.8	Buy	€45.03	€52	Sven Weier
Zon Optimus	ZONOP.LS	Broadcasting	3.4	Buy	€4.80	€5.4	Bosco Ojeda

Source: UBS estimates. Rating / PT as at October 11, 2013

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UBS Investment Research: Global Equity Rating Definitions

UBS 12-Month Rating	Definition	Coverage[1]	IB Services[2]
Buy	FSR is > 6% above the MRA.	44%	32%
Neutral	FSR is between -6% and 6% of the MRA.	46%	32%
Sell	FSR is > 6% below the MRA.	10%	19%
UBS Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	less than 1%	less than 1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	less than 1%	less than 1%

Source: UBS. Rating allocations are as of 30 September 2013.
1:Percentage of companies under coverage globally within the 12-month rating category. 2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
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Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
ams AG[5, 13, 18]	AMS.S	Buy	N/A	CHF83.25	11 Oct 2013
Andritz	ANDR.VI	Buy	N/A	€42.42	11 Oct 2013
Arbonia-Forster[5, 13, 18]	AFGN.S	Buy	N/A	CHF31.05	11 Oct 2013
Ashtead Group[4, 6, 14]	AHT.L	Buy	N/A	631p	11 Oct 2013
Banco Espirito Santo SA[2, 4, 5, 16]	BES.LS	Buy	N/A	€1.08	11 Oct 2013
Bilfinger SE[5, 12, 16]	GBFG.DE	Buy	N/A	€79.24	11 Oct 2013
Booker Group	BOK.L	Buy	N/A	137p	11 Oct 2013
Domino Printing Sciences PLC	DOPR.L	Buy	N/A	660p	11 Oct 2013
DS Smith Plc[13]	SMDS.L	Buy	N/A	284p	11 Oct 2013
Flughafen Zürich AG[2, 4, 5]	FHZN.S	Buy	N/A	CHF485.00	11 Oct 2013
Groupe Eurotunnel SA	GETP.PA	Buy	N/A	€6.85	11 Oct 2013
Halfords Group	HFD.L	Buy	N/A	381p	11 Oct 2013
Hays[4, 14, 16]	HAYS.L	Buy	N/A	122p	11 Oct 2013
Moleskine SpA[2, 4]	MSK.MI	Buy	N/A	€1.80	11 Oct 2013
Smurfit Kappa Group[6]	SKG.I	Buy	N/A	€16.90	11 Oct 2013
TUI AG	TUIGn.DE	Buy	N/A	€9.23	11 Oct 2013
Wincor Nixdorf AG	WING.DE	Buy	N/A	€45.03	11 Oct 2013
Zon Optimus SGPS SA[16]	ZONOP.LS	Buy	N/A	€4.80	11 Oct 2013

Source: UBS. All prices as of local market close.
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