



## Opportunity Knocks

### Quantitative macro and micro forecasts for this month

In this report we present our latest small cap quantitative forecasts for the coming month. Our models are designed to generate both bottom-up stock selection ideas as well sector rotation and market timing calls.

### The market has recently dipped

Equity markets have had a strong run up since the beginning of 2013. However, recent unsettling news about events in Syria and looming international intervention has rattled markets.

### This may be an opportune time for investors

This sudden dip in the market may also be an opportune time for investors to pick up undervalued stocks or sectors. We analyze various industries to determine which sectors are currently undervalued or overvalued.

### Investors should consider valuations alongside stock selection opportunity

We also look at the level of stock selection opportunity within each sector. By analyzing the stock selection opportunity in combination with relative sector valuations, opportunistic investor can get a better sense of what sectors may be relatively attractive and what is the level of stock selection opportunity for skilled investors.

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Source: [gettyimages.com](http://gettyimages.com)

Deutsche Bank Securities Inc.

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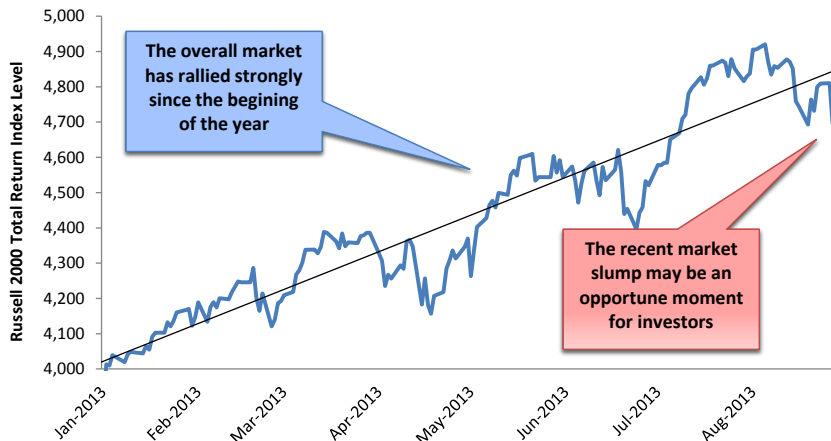
# Opportunity for Skilled Investors

## Attractive valuations alongside stock selection opportunity

### The market has recently dipped

The US equity market has had a strong run up since the beginning of 2013. The Russell 2000 total return index is up almost 20% YTD (Figure 1). However, recent unsettling news about the events potentially looming in Syria has shaken the markets. As the events in Syria unfold, the Russell 2000 has dropped almost 5% (Figure 1) since August 5th. The recent pullback in the market has no doubt, rattled investor confidence. However, this sudden dip in the market may also be an opportune time for investors who have a longer-term investment focus to potentially pickup some undervalued stocks or sectors. As such in this month's Quantview, we analyze various industries to determine which sectors are currently undervalued or overvalued. We also look at the level of stock selection opportunity within each sector. By analyzing the stock selection opportunity in combination with relative sector valuations, opportunistic investors can get a better sense of what sectors may be relatively inexpensive and what is the amount of stock level differentiation or opportunity within the sectors.

Figure 1: Performance of Russell 2000 total return index YTD



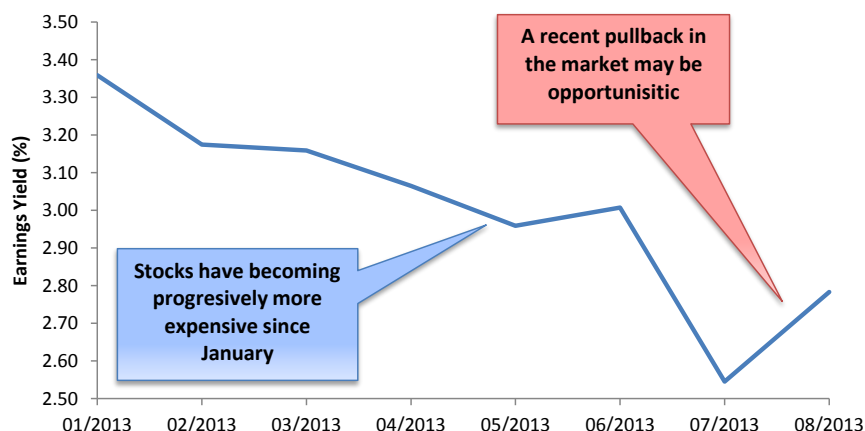
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

### Valuations are relatively attractive

To get a sense of the valuation of the overall market, we first look at the time-series of monthly earnings yield for the Russell 2000 YTD (Figure 2). We compute the Russell 2000 earnings yield by dividing total earnings by market cap for the constituents within Russell 2000. We can see that stocks have become relatively expensive since the beginning of the year as the market rallied. However, the recent slump in the market has caused valuations to become relatively cheaper. Again this pullback in the market as well as valuations may present an opportunity for longer-term investors.



Figure 2: Russell 2000 aggregate earnings yield

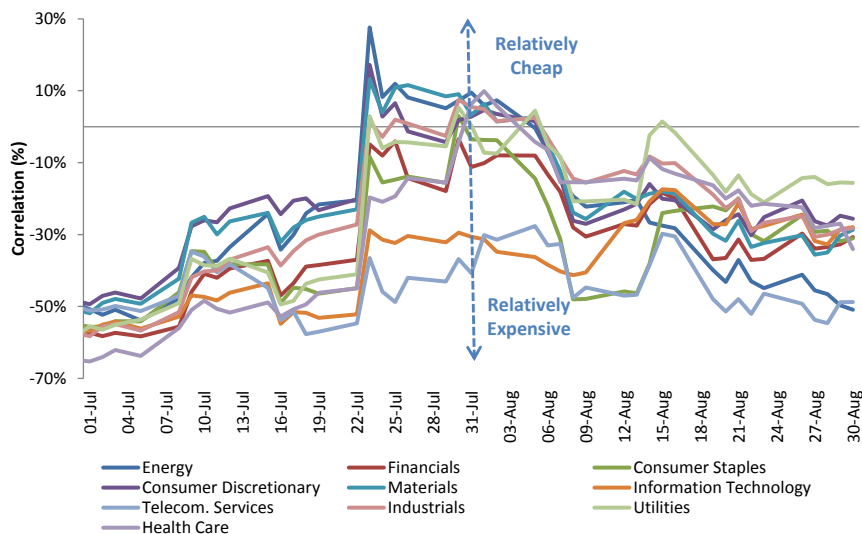


Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

### Which sectors are most attractive in terms of valuation?

Digging deeper, we gauge which sectors are relatively inexpensive by calculating the correlation of the S&P 600 sector indices with a standard value portfolio. Figure 3 shows the 21 day rolling time-series correlation of the S&P 600 sector indices with a long/short value portfolio based on earnings yield. Sectors more correlated with the value portfolio are relatively cheap. Conversely, sectors less correlated with the value portfolio are relatively more expensive. Based on this analysis, aside from Utilities, we currently find that information technology and consumer discretionary sectors are cheap relative to other sectors. But this is not the entire story. Opportunistic investors looking to take advantage of the recent market dip must not only look at relative sector valuations, but they must also determine which sectors have the most opportunity for skilled stock pickers.

Figure 3: Correlation between S&P 600 sector indices and value portfolio



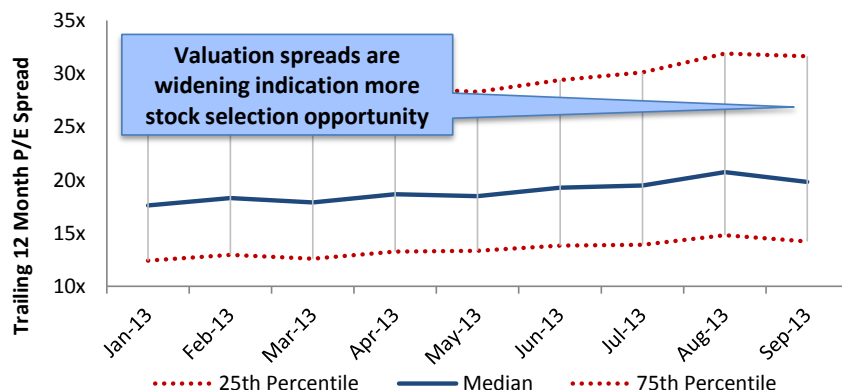
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



### But don't forget about stock selection opportunity

Valuation spreads allow investors to gauge the level of stock selection opportunity in the market<sup>1</sup>. Widening valuation spreads typically indicate more stock-level differentiation and therefore a better environment for stock selection. On the other hand, narrowing valuation spreads are indicative of lower levels of stock differentiation. Figure 4 shows the median, 25th percentile, and 75th percentile of trailing price to earnings for the Russell 2000 constituents. Interestingly, we see that valuation spreads for the overall market are slowly widening.

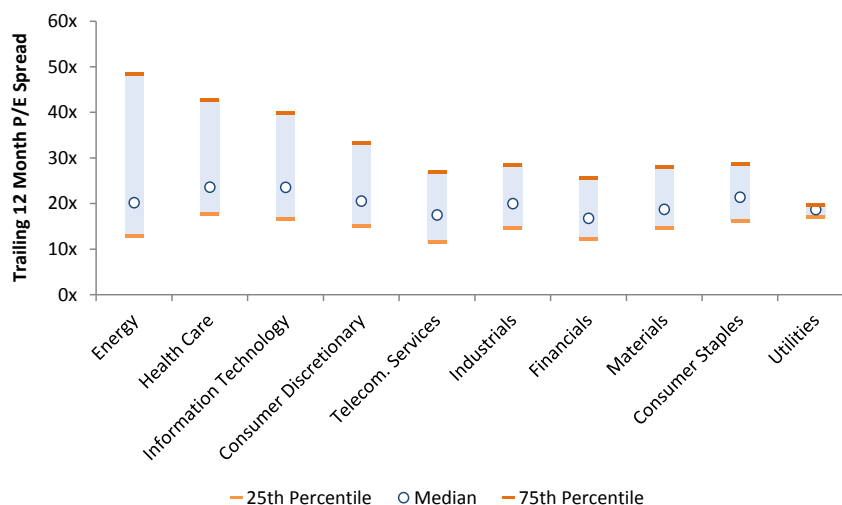
Figure 4: Valuation spreads for the Russell 2000 constituents



Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

But what about stock-selection opportunity at the sector level? Figure 5 shows a box plot of the valuations spreads for each sector as of the end of August sorted by the width of the valuation spread. The results show that energy, health care, information technology, and consumer discretionary sectors currently show the most opportunity for stock selection.

Figure 5: Valuation spread for each sector within the Russell 2000



Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

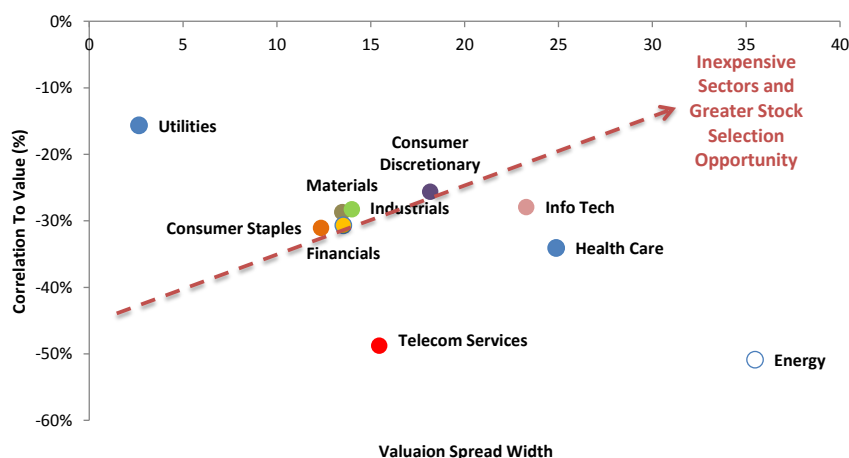
<sup>1</sup> For other measures of stock-selection opportunity see Alvarez *et al*, 2012, "Portfolios Under Construction: Correlation and Consequences".



### Comparing valuation and stock selection opportunity in unison

Combining our analysis on relative sector valuations with stock selection opportunity, can likely tell us what sectors are cheap and at the same time which sectors have strong stock selection opportunity. To see this, we simply form a scatter plot between sector valuation and stock selection opportunity as of the end of August (Figure 6). Essentially, this scatter plot compares the sector correlation with the value portfolio against the width of the valuation spreads. Sectors situated in the top right hand side of the chart are relatively inexpensive and have good stock selection opportunity. From our analysis we find these sectors to be information technology and consumer discretionary. Investors with a longer term perspective may want to focus on these sectors for stock selection or sector rotation.

Figure 6: Tradeoff between valuation and stock selection opportunity



Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Note that investors have various analytical methods at their disposal to calculate valuation and opportunity. Aggregate earnings yield, valuation spreads, the opportunity set, and pairwise correlations are among a few of the methods we have discussed in our past research. Overall, we want to point out that irrespective of the method you choose, investors should consider stocks or sectors that present attractive valuations alongside stock selection opportunity.



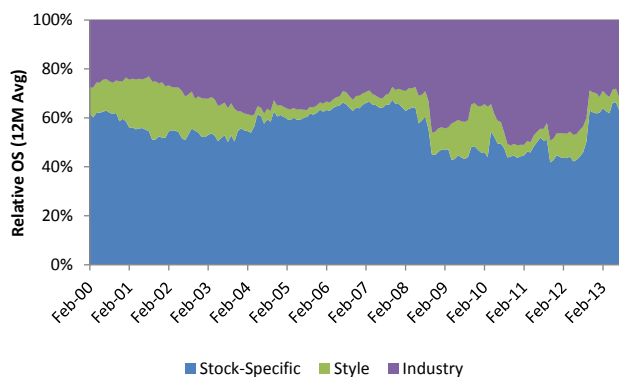
# Small caps, big opportunity

In this month's "The Quant View: Small Cap Edition" we analyze various quantitative and fundamental models to show that there is greater stock level differentiation among smaller cap stocks, which presents alpha opportunities for investors. This monthly publication will also point out the various noteworthy observations from our models specifically for small cap stocks. For this report, we will use the Russell 2000 index to define our small caps universe. Where we compare to large caps, we will use the Russell 1000 as our proxy.

## The small cap opportunity set

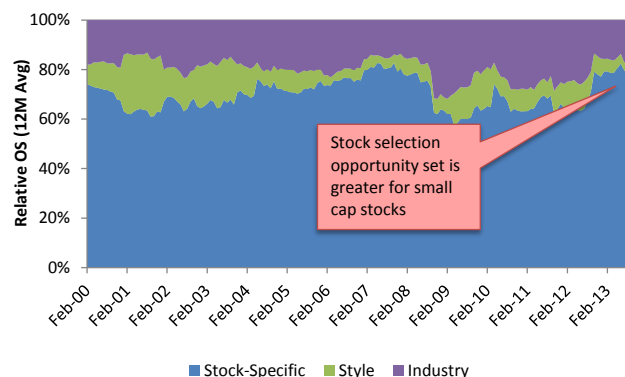
We think of the opportunity set as the total available alpha on the table. Our main interest is to understand what is driving that opportunity, because this can allow us to position our strategies to pick in the orchard with the juiciest fruit. In Figure 7 we show the opportunity set for the large cap universe, and in Figure 8 we show the opportunity set for the small cap universe.

Figure 7: Large cap opportunity set



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 8: Small cap opportunity set



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Both charts actually tell a similar story. The key result is the size of the blue portion relative to the other colors. The blue represents the opportunity explained by stock selection, whereas we can think of the other colors as representing the opportunity from top-down calls like picking industries and styles. When the financial crisis exploded in 2008, we moved into a much more macro-dominated world. As a result, the portion of overall opportunity that could be explained by individual company characteristics (e.g., valuation, growth profile, earnings quality, etc.) shrunk sharply; no one cared if a stock looked good on fundamentals if it was exposed to Europe for example. Needless to say, such an environment was challenging for quants and non-quants alike, since both camps tend to use stock specific information to differentiate between stocks.

However, the good news is that both charts show that bottom-up stock picking is making a strong comeback. The blue area in both charts has reached levels last seen in 2007. The crucial observation is that the relative opportunity coming from stock selection is higher for small cap stocks. In other words, this universe is particularly fruitful for managers with skill in picking individual stocks. Note that the relative opportunity set has remained relatively steady during the past month for small caps.



## Valuation spreads

Similar to the opportunity set, valuation spreads allow investors to gauge the level of stock selection opportunity in the market. Widening valuation spreads typically indicate more stock-level differentiation and therefore a better environment for stock selection. On the other hand, narrowing valuation spreads are indicative of lower levels of stock differentiation. Figure 9 and Figure 10 show the median, 25th percentile, and 75th percentile of trailing price to earnings for the Russell 1000 and 2000 index constituents. Interestingly, we see that valuation spreads are wider on a more consistent basis for small cap stocks. This reinforces the earlier evidence we saw in the opportunity set; the small cap space is rich with opportunity for skilled stock pickers. Note that during the past month, valuation spreads have remained fairly consistent within small caps.

Figure 9: Large cap valuation spreads

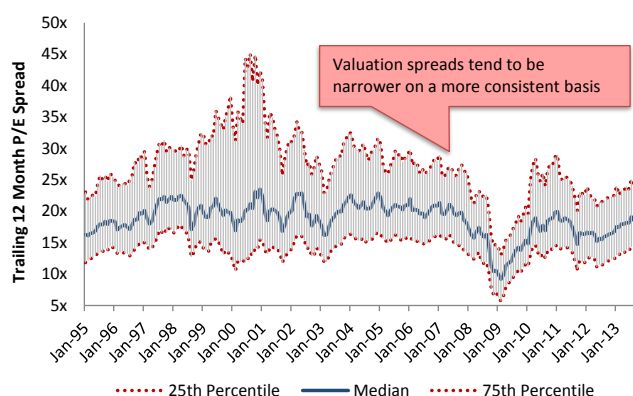
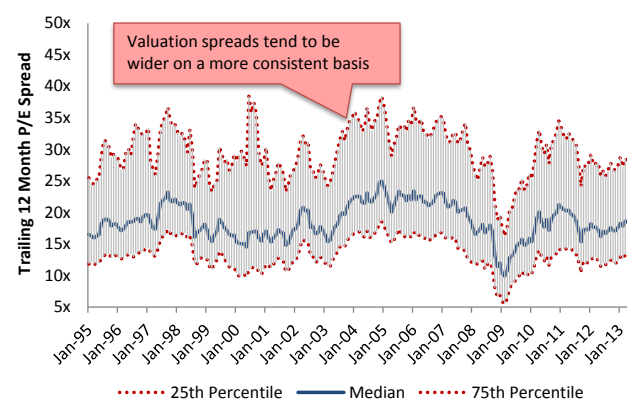


Figure 10: Small caps valuation spreads

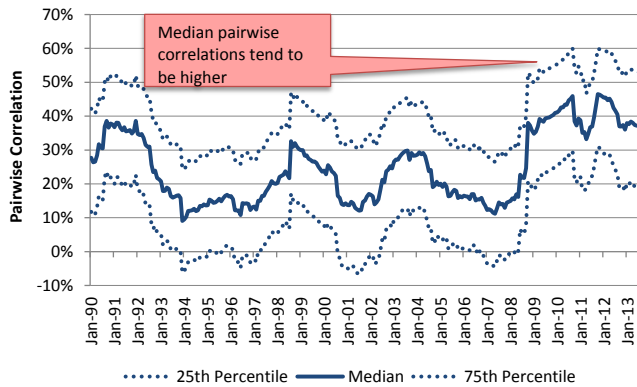


## Keeping an eye on correlations

Closely related to the opportunity set and valuation spreads is the median pairwise correlation among stocks in the market. This is calculated by taking every possible pair of stocks, and computing the correlation of their monthly returns based on the past 24 months of data, and then taking the median across all the pairs. Figure 11 shows the median pairwise correlation for large caps. While it has come down from the peak in the financial crisis, it is still relatively high compared to its long-term average, so investors are not yet completely out of the woods. Interestingly, in general median pairwise correlations for small cap stocks (Figure 12) tend to be lower when compared to large cap stocks. This tells us that small cap names tend to trade more on their own merits, rather than being driven by common factors. Note that during the past month, median pairwise correlations have remained relatively steady within small caps.

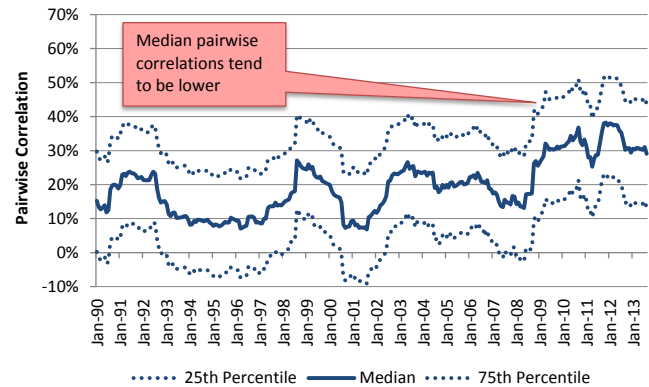


Figure 11: Median pairwise correlation for large caps



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 12: Median pairwise correlation for small caps



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

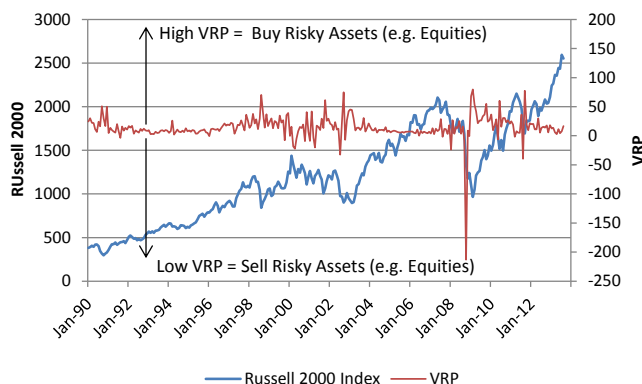
## Macro update

Our results so far indicate that the small cap world is a favorable environment for applying stock picking skill. But market timing is also important. Picking good stocks is nice, but when everything is falling even doing that is sometimes not enough. What kind of quant tools can we use to do market timing?

### Our favorite market timing indicator

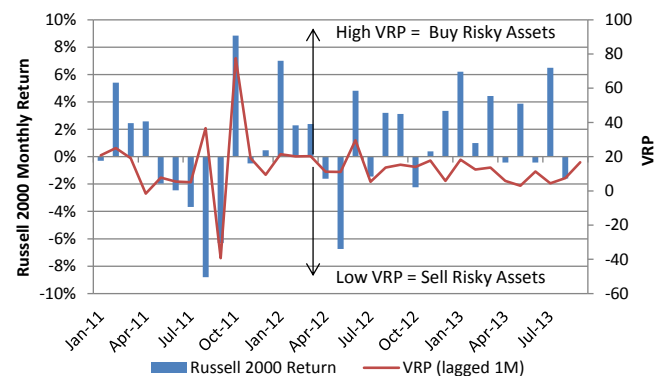
Our Variance Risk Premium (VRP) indicator is a contrarian indicator that measures market overreaction and underreaction to realized risk. Today our VRP indicator is reading 17, compared to a long-term average of 14.3. The VRP has edged upward since last month's reading of 7. Generally we pay attention to the VRP when it hits extreme levels (like +/- 2 standard deviations).

Figure 13: Variance Risk Premium (VRP)



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 14: Recent VRP (lagged) and market returns



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank





# The Small Cap Dashboard

## Which styles have been working in small caps?

This month we highlight the DB Small Cap Dashboard, an easy-to-use cheat sheet that shows which styles have been working within small cap stocks. We track cumulative factor performance year-to-date, and highlight what we think are the noteworthy observations. Figure 15 shows the results for small caps.

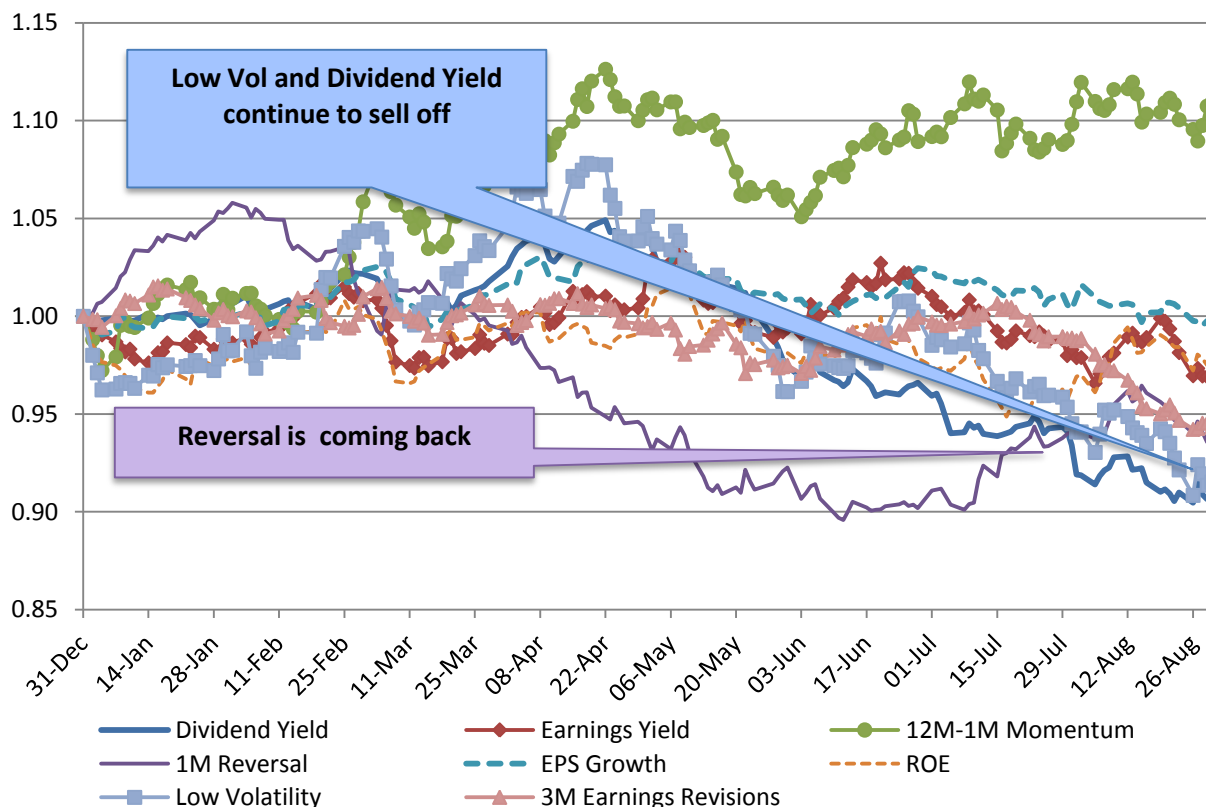
A few important themes emerge from the dashboard this month.

- We see a continued decline in low volatility and dividend yielding strategies as the market has rallied in 2013.
- Reversal is coming back indicating that investors are becoming more opportunistic about stock selection.

For more details see our website

For the most recent daily factor performance, as well as factor performance delineated by different universes (e.g., large cap, small cap) and regions, please see our Global Quantitative Strategy website at <https://eqindex.db.com/gqs/>. Note that you need a username and password to log on to this website. If you don't have login details, please contact us at [DBEQS.Americas@db.com](mailto:DBEQS.Americas@db.com) and we'd be happy to set you up.

Figure 15: Small Caps (Russell 2000): YTD cumulative factor performance (Q10-Q1 return spread)



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



# Bottom-up stock selection

## Top stock picks from our QCD stock selection model

- The QCD model is our flagship stock selection model for U.S. small cap equities.
- The model incorporates a number of unique features including dynamic factor selection, a non-linear TREE component, and active style and sector rotation.
- For complete details on the model, please see Luo et al., "QCD Model: DB Quant Handbook", 22 July 2010.

### Current stock recommendations

Figure 16 shows the best 20 buy ideas and sell ideas from today's model. Note that a complete ranking for all Russell 2000 stocks is available in spreadsheet format. If you would like to get a copy of the spreadsheet, please contact us at [DBEQS.Americas@db.com](mailto:DBEQS.Americas@db.com).

Figure 16: Current QCD model stock recommendations fro Russell 2000 universe

BEST BUY IDEAS (SECTOR NEUTRAL)					BEST SELL IDEAS (SECTOR NEUTRAL)				
Ticker	Name	CUSIP	GICS Sector	QCD Score (higher is better long)	Ticker	Name	CUSIP	GICS Sector	QCD Score (lower is better short)
MDCA	MDC PARTNERS INC	552697104	Consumer Discretionary	24.5%	ZIOP	ZIOPHARM ONCOLOGY INC	98973P101	Health Care	-20.4%
CNC	CENTENE CORP	15135B101	Health Care	23.4%	KIOR	KIOR INC	497217109	Energy	-19.5%
BONT	BON-TON STORES INC	09776J101	Consumer Discretionary	23.0%	AT	ATLANTIC POWER CORP	04878Q863	Utilities	-18.8%
TTEC	TELETECH HOLDINGS INC	879939106	Information Technology	21.0%	FXEN	FX ENERGY INC	302695101	Energy	-18.8%
SVU	SUPERVALU INC	868536103	Consumer Staples	20.9%	PZG	PARAMOUNT GOLD AND SILVER	69924P102	Materials	-18.3%
ANDE	ANDERSONS INC	034164103	Consumer Staples	20.5%	RIGL	RIGEL PHARMACEUTICALS INC	766559603	Health Care	-17.5%
CACI	CACI INTL INC -CL A	127190304	Information Technology	20.4%	GNE	GENIE ENERGY LTD	372284208	Utilities	-17.3%
OMI	OWENS & MINOR INC	690732102	Health Care	19.4%	MOSY	MOSYS INC	619718109	Information Technology	-16.4%
CNO	CNO FINANCIAL GROUP INC	12621E103	Financials	14.6%	RBCN	RUBICON TECHNOLOGY INC	78112T107	Information Technology	-15.2%
SYA	SYMETRA FINANCIAL CORP	87151Q106	Financials	14.4%	GMO	GENERAL MOLY INC	370373102	Materials	-14.2%
VG	VONAGE HOLDINGS CORP	92886T201	Telecommunication Services	13.6%	GSVC	GSV CAPITAL CORP	36191J101	Financials	-14.1%
HWCC	HOUSTON WIRE & CABLE CO	44244K109	Industrials	12.5%	ACFN	ACORN ENERGY INC	004848107	Industrials	-13.3%
IJIN	INSTEEL INDUSTRIES	45774W108	Industrials	11.9%	SWS	SWS GROUP INC	78503N107	Financials	-13.2%
GPK	GRAPHIC PACKAGING HOLDING CO	388689101	Materials	10.7%	PTGI	PRIMUS TELECOMM GROUP INC	741929301	Telecommunication Services	-12.3%
IDT	IDT CORP	448947507	Telecommunication Services	9.9%	SWSH	SWISHER HYGIENE INC	870808102	Industrials	-11.4%
FTK	FLOTEK INDUSTRIES INC	343389102	Materials	8.0%	TWER	TOWERSTREAM CORP	892000100	Telecommunication Services	-10.2%
EXH	EXTERRAN HOLDINGS INC	30225X103	Energy	7.5%	FARM	FARMER BROS CO	307675108	Consumer Staples	-1.7%
GPRI	GREEN PLAINS RENEWABLE ENRGY	393222104	Energy	7.3%	JAKK	JAKKS PACIFIC INC	47012E106	Consumer Discretionary	-0.8%
OTTR	OTTER TAIL CORP	689648103	Utilities	-5.3%	RDEN	ELIZABETH ARDEN INC	28660G106	Consumer Staples	-0.2%
PNM	PNM RESOURCES INC	69349H107	Utilities	-6.2%	CETV	CENTRAL EUROPEAN MEDIA	G20045202	Consumer Discretionary	0.2%

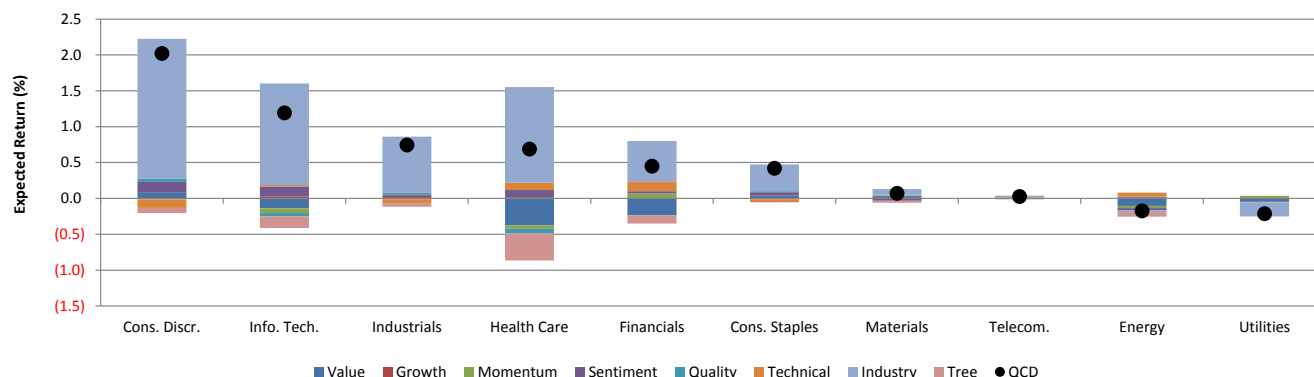
Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



### Current sector recommendations

The QCD model also implicitly makes sector predictions. Figure 17 shows the current ranking of the 10 GICS Level 1 Sectors, ranked from best (most likely to outperform this month) to worse (least likely to outperform). The bars show the key drivers for each call.

Figure 17: Current QCD sector recommendations for Russell 2000 universe

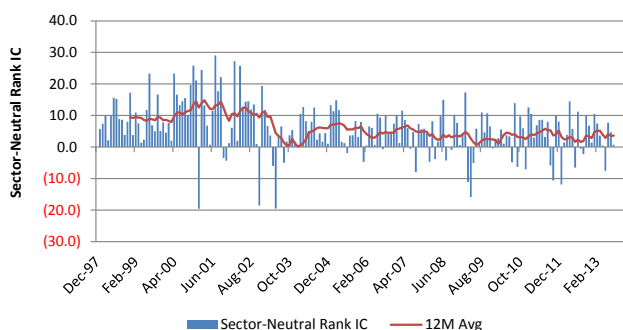


Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

### Small cap model performance

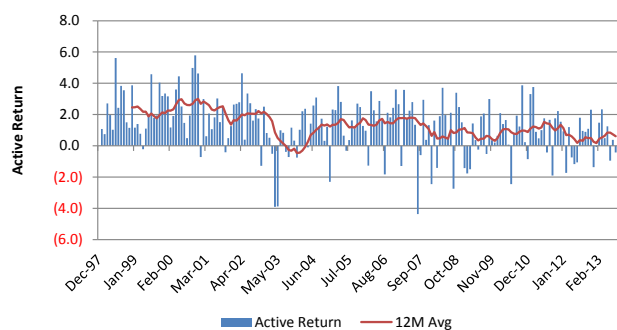
The QCD model has performed well since inception. Figure 18 shows the pure signal performance, measured as a monthly sector-neutral rank information coefficient (IC). Figure 19 shows the performance of an actual model portfolio, after costs, based on a realistically optimized market-neutral strategy.

Figure 18: Model performance, sector-neutral rank IC



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 19: Model portfolio active return, after costs

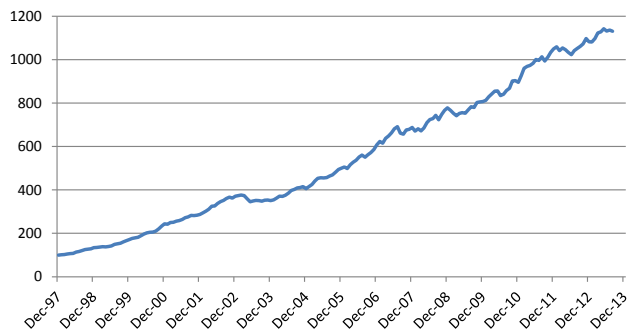


Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 20 shows the cumulative performance of the optimized strategy, and Figure 21 shows the annualized Sharpe ratio (after costs) by calendar year.

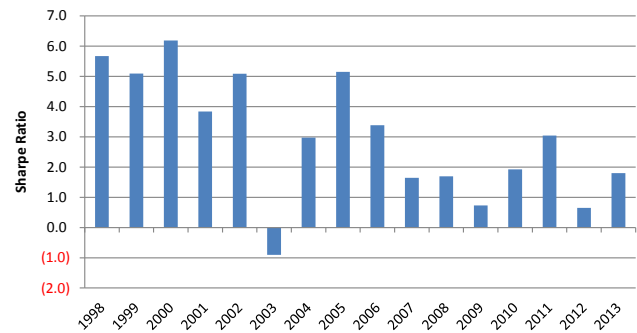


Figure 20: Model portfolio cumulative, after costs



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 21: Annualized Sharpe ratio, after costs



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



## Top stock picks from our N-LASR global stock selection model

- The N-LASR model is our flagship stock selection model for small cap equities.
- The model is based on a machine learning algorithm called AdaBoost, and is designed to adaptively learn which factors to use, often in a non-linear way.
- For complete details on the model, please see Wang et al., "Signal Processing: The Rise of the Machines", 5 June 2012.

### Current stock recommendations

Figure 22 shows the best 20 buy ideas and sell ideas from today's model. Note that a complete ranking for all small cap stocks is available in spreadsheet format. If you would like to get a copy of the spreadsheet, please contact us at [DBEQS.Americas@db.com](mailto:DBEQS.Americas@db.com).

Figure 22: Current N-LASR model stock recommendations for Russell 2000 universe

BEST BUY IDEAS					BEST SELL IDEAS				
Ticker	Name	SEDOL	Country	N-LASR Score (higher is better long)	Ticker	Name	SEDOL	Country	N-LASR Score (lower is better short)
SUSQ	SUSQUEHANNA BANCSHARES INC	2858876	USA	2.22	ADTN	ADTRAN INC	2052924	USA	-1.81
HDNG	HARDINGE INC	2403522	USA	2.11	PSMI	PEREGRINE SEMICONDUCTOR CORP	B875013	USA	-1.79
CCMP	CABOT MICROELECTRONICS CORP	2572381	USA	2.04	AKR	ACADIA REALTY TRUST	2566522	USA	-1.78
SHLM	SCHULMAN (A.) INC	2779342	USA	1.94	KEYN	KEYNOTE SYSTEMS INC	2492177	USA	-1.74
UFCS	UNITED FIRE GROUP INC	B4WXG84	USA	1.79	ISRL	ISRAMCO INC	2247571	USA	-1.67
HELE	HELEN OF TROY LTD	2419530	USA	1.78	GOV	GOVERNMENT PPTYS INCOME TR	B4ZG8D9	USA	-1.66
NUVA	NUVASIVE INC	800GJC2	USA	1.76	HIW	HIGHWOODS PROPERTIES INC	2420640	USA	-1.65
USTR	UNITED STATIONERS INC	2923815	USA	1.74	ACRE	ARES COMMERCIAL REAL ESTATE	B77PWP5	USA	-1.64
ABM	ABM INDUSTRIES INC	2024901	USA	1.73	EGP	EASTGROUP PROPERTIES	2455761	USA	-1.61
APEI	AMERICAN PUBLIC EDUCATION	B292GM4	USA	1.68	SAM	BOSTON BEER INC -CL A	2113393	USA	-1.61
CFFI	C&F FINANCIAL CORP	2494515	USA	1.67	NHI	NATIONAL HEALTH INVESTORS	2626125	USA	-1.59
BBOX	BLACK BOX CORP	2546977	USA	1.66	SFL	SHIP FINANCE INTL LTD	B019MJ8	USA	-1.59
MSFG	MAINSOURCE FINL GROUP INC	2475156	USA	1.58	REN	RESOLUTE ENERGY CORP	B4PVR71	USA	-1.58
PKOH	PARK OHIO HOLDINGS CORP	2671363	USA	1.58	PTP	PLATINUM UNDERWRITERS HLDG	2958516	USA	-1.54
SKYW	SKYWEST INC	2814210	USA	1.58	HL	HECLA MINING CO	2418601	USA	-1.51
NNBR	NN INC	2620558	USA	1.57	SCHN	SCHNITZER STEEL INDS -CL A	2821298	USA	-1.50
OMG	OM GROUP INC	2653684	USA	1.54	AMRE	AMREIT INC	B832194	USA	-1.50
LCUT	LIFETIME BRANDS INC	2515773	USA	1.54	UBNT	UBIQUITI NETWORKS INC	B76VD62	USA	-1.49
PLT	PLANTRONICS INC	2692030	USA	1.53	AEC	ASSOCIATED ESTATES RLTY CORP	2044396	USA	-1.48
PERY	ELLIS PERRY INTL INC	2851701	USA	1.52	SSNC	SS&C TECHNOLOGIES HLDGS INC	B58VSC6	USA	-1.47

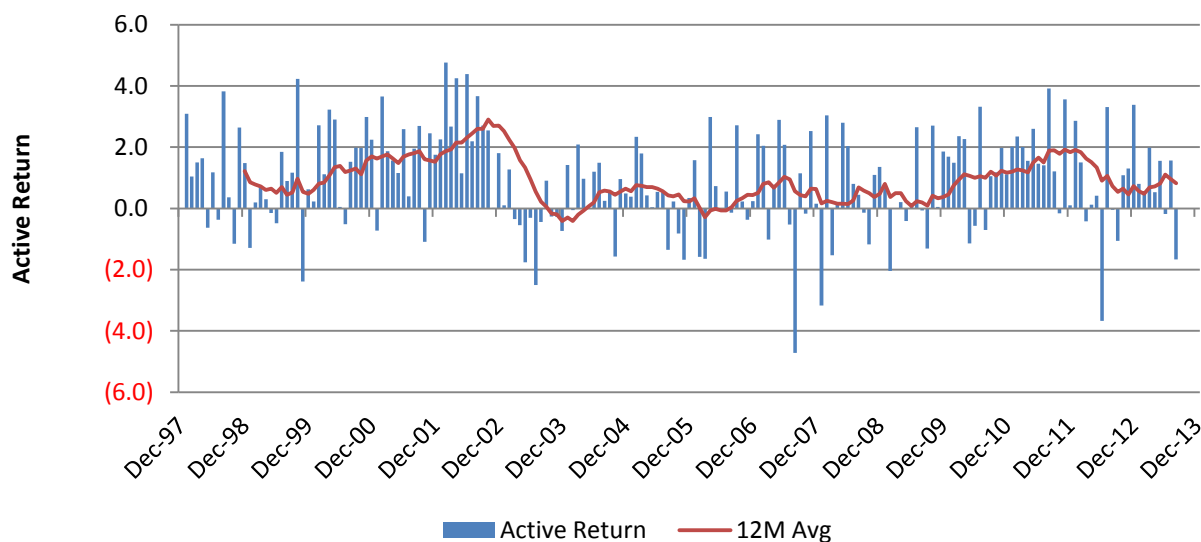
Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Workscope, Deutsche Bank



### Small cap model performance

The N-LASR model has performed well since inception. Figure 23 shows the average pure signal performance, measured as a monthly rank information coefficient (IC).

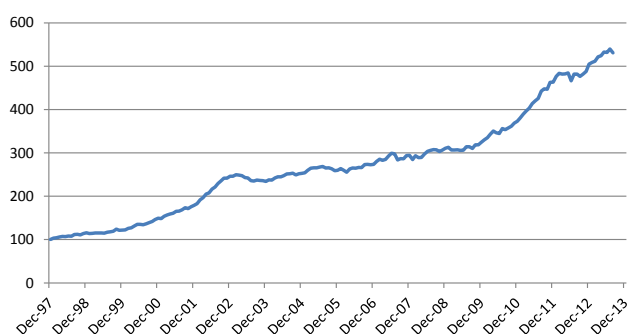
Figure 23: Model portfolio active return, after costs



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

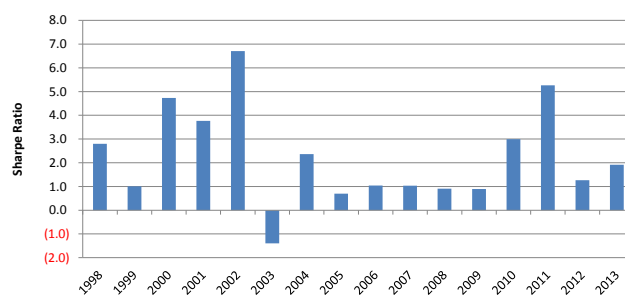
Figure 24 shows the cumulative performance of the optimized strategy, and Figure 25 shows the annualized Sharpe ratio (after costs) by calendar year.

Figure 24: Portfolio cumulative, after costs



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 25: Annualized Sharpe ratio, after costs



Source: Bloomberg Finance LP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



# Appendix 1

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