



Opportunity Knocks

Quantitative macro and micro forecasts for the month

In this report we present our latest quantitative forecasts for the coming month. Our models are designed to generate both bottom-up stock selection ideas as well as top-down asset, country, and style allocation calls.

The market has recently dipped

The US equity market has had a strong run up since the beginning of 2013. However, recent unsettling news about events in Syria and the looming international escalation has shaken markets around the world.

This may be an opportune time for investors

The recent market sell-off may be an opportune time for investors to pick up undervalued stocks or sectors. We measure the sector-value alignment to determine which sectors are currently relatively undervalued and overvalued.

Investors should consider valuations alongside stock selection opportunity

We also analyze the level of stock-selection opportunity within the sectors and proceed to combine this measure with the sector valuation analysis. This two-fold approach provides a more comprehensive view of current top-down and bottom-up opportunities available to investors.

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Source: gettyimages.com

Deutsche Bank Securities Inc.

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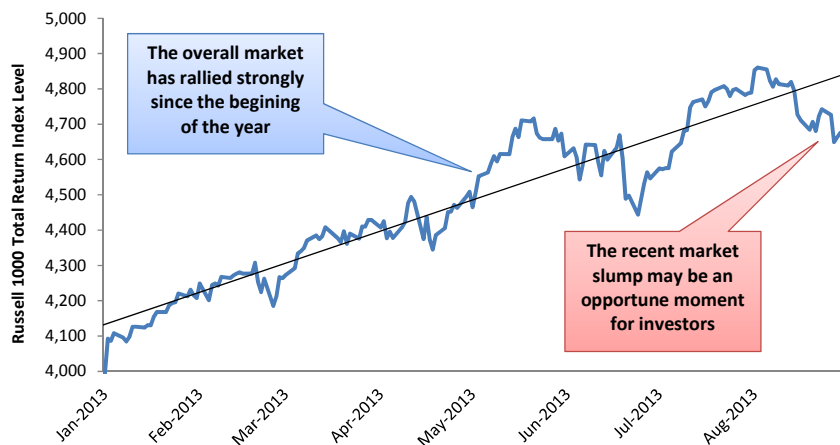
Opportunity for Skilled Investors

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 1000 total return index is up almost 17% YTD (Figure 1). However, recent unsettling news about events in Syria and a greater likelihood of international intervention has rattled markets globally. As the events in Syria unfold, the Russell 1000 has dropped almost 4% (Figure 1) since August 5th. The recent pullback in the market has no doubt shaken 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 stock selection opportunity in combination with relative sector valuations, an opportunistic investor can get a better sense of which sectors may be relatively inexpensive and the amount of stock level differentiation or opportunity available within each sector.

Figure 1: Performance of Russell 1000 total return index YTD



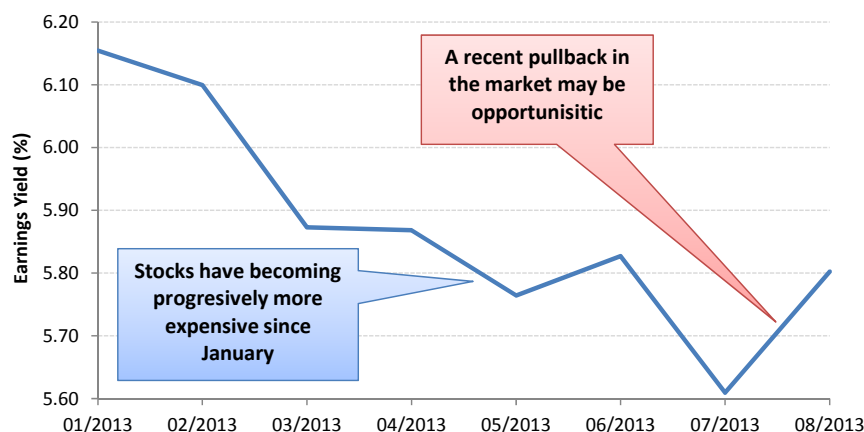
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

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 1000 YTD (Figure 2). We compute the Russell 1000 earnings yield by dividing total earnings by market cap for the constituents within Russell 1000. 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. The effect of this pullback in the market on stock level valuations may present an opportunity for longer-term investors.



Figure 2: Russell 1000 aggregate earnings yield

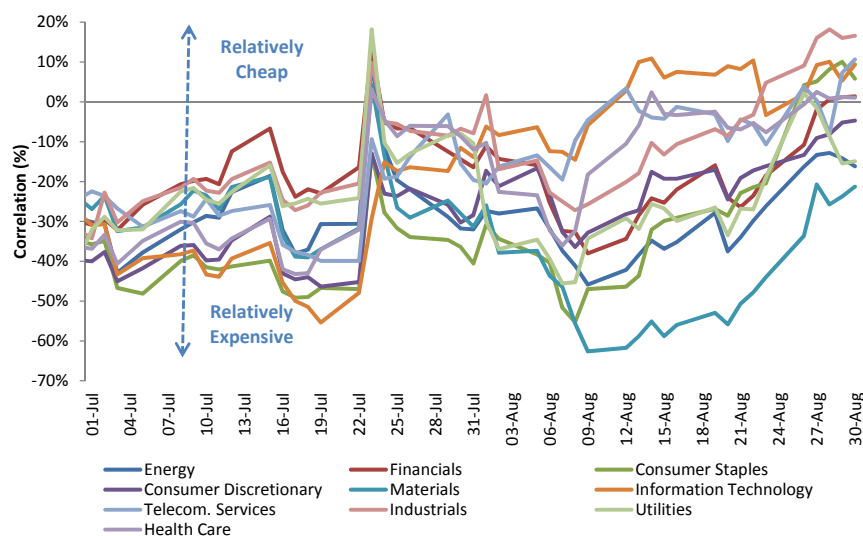


Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Which sectors are most attractive in terms of valuation?

Digging deeper, we gauge which sectors are relatively inexpensive by calculating the correlation (aka alignment) of the S&P 500 sector indices with a standard value portfolio. Figure 3 shows the 21 day rolling time-series correlation of each of the sector indices with a long/short value portfolio based on earnings yield. Sectors with higher correlation with the value portfolio are relatively cheaper. Conversely, sectors less correlated with the value portfolio are relatively more expensive. Based on this analysis, we find that industrials, information technology and consumer staple sectors are currently the relatively cheap sectors (i.e. more aligned with a value portfolio). But this is not the entire story. Opportunistic investors looking to take advantage of the recent market dip can augment these relative sector valuations with an analysis to determine which sectors have the most opportunity for stock picking.

Figure 3: Correlation between S&P 500 sector indices and value portfolio



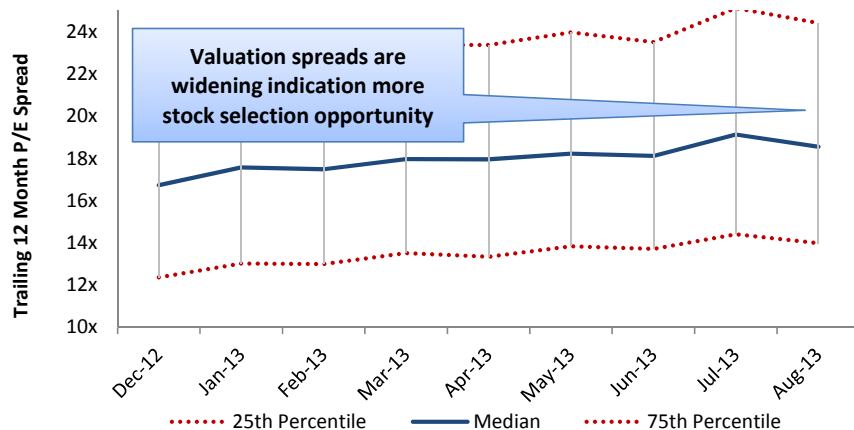
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



But don't forget about stock selection opportunity

Valuation spreads are one way for investors to gauge the level of stock selection opportunity in the market or within a sector¹. 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 1000 constituents. Interestingly, we see that valuation spreads across the market are slowly widening.

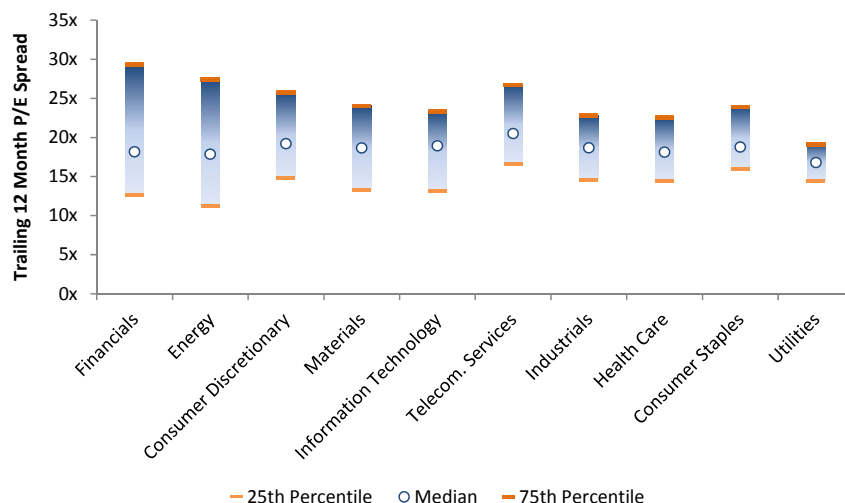
Figure 4: Valuation spreads for the Russell 1000 constituents



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

But which sectors are showing the most or least stock selection opportunity? 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. Interestingly financials, energy, and consumer discretionary sectors currently show the most opportunity for stock selection.

Figure 5: Valuation spread for each sector within the Russell 1000



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

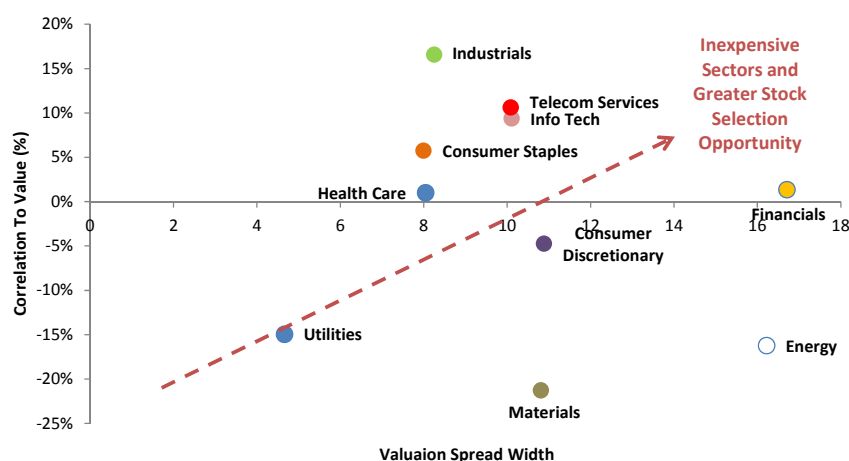
¹ For other methods see Alvarez *et al*, 2012, "Portfolios Under Construction: Correlation and Consequences".



Comparing valuation and stock selection opportunity in unison

We can obtain a more comprehensive view of valuation and opportunity by combining the relative sector valuation and stock-selection opportunity measures analyzed above. The result will reveal sectors that are relatively cheap and those which 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 industrials, telecommunication, information technology, and consumer staples. 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 that is chosen, investors should consider stocks or sectors that present attractive valuations alongside stock selection opportunity.



Macro update

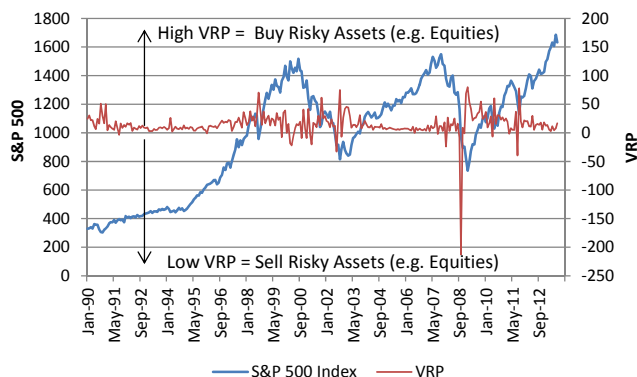
Turning our attention to the bigger picture, we also take the opportunity to update our favorite top-down market indicators.

Our favorite market timing indicator

Our Variance Risk Premium (VRP) indicator is a contrarian indicator that measures market overreaction and underreaction to realized risk. In simple terms, VRP is the difference between options-implied risk (i.e. the VIX index) and realized risk (i.e. the actual risk in the market measured historically over the last month). If VRP is high, we see this as a buying opportunity for risky assets, like equities and high yield bonds. Why? The intuition is as follows. When VRP is high, VIX has typically shot up dramatically (i.e. the market is in panic mode). At the same time, realized risk has probably also risen, but not to the same extent. In other words, the market has overreacted relative to what the actual, realized data is telling us. Our research shows that such episodes are good buying opportunities for risky assets on about a three month horizon.⁴ On the other hand, when VRP is low, it tends to be a complacency indicator: investors are failing to price in rising realized risk in the market, and as a result we should be selling risky assets like equities.

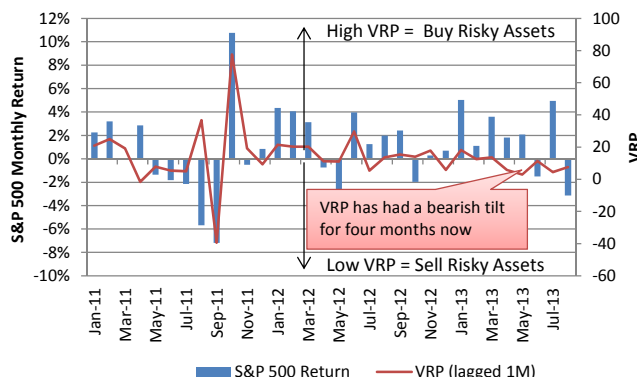
Our Variance Risk Premium (VRP) indicator is a contrarian indicator that measures market overreaction and underreaction to realized risk. Today our VRP indicator is reading 7, compared to a long-term average of 14.3. The VRP has edged upward since last month's reading of 4 suggesting a fairly neutral position. Generally we pay attention to the VRP when it hits extreme levels (like ± 2 standard deviations).

Figure 7: Variance Risk Premium (VRP)



Source: Deutsche Bank

Figure 8: Recent VRP (lagged) and market returns



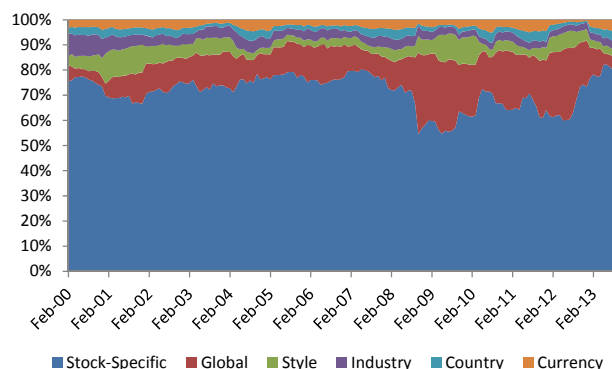
Source: Deutsche Bank

The opportunity set for investors

Another metric we keep a close eye on is the so-called "opportunity set" for investors. Think of this as the total 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 9 we show the opportunity set for global equity investors, and in Figure 10 we show the same thing for emerging market equity investors.

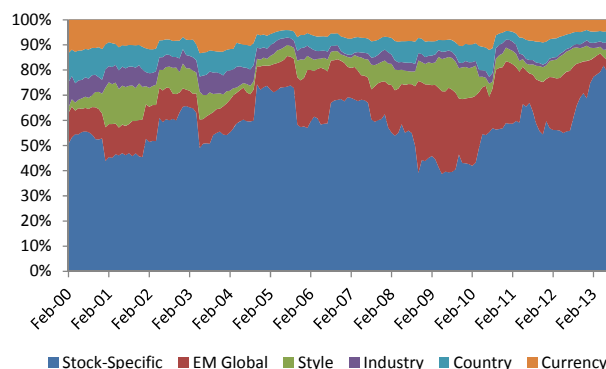


Figure 9: Global opportunity set



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

Figure 10: Emerging markets opportunity set



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

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 the right countries, 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.



The DB Quant Dashboard

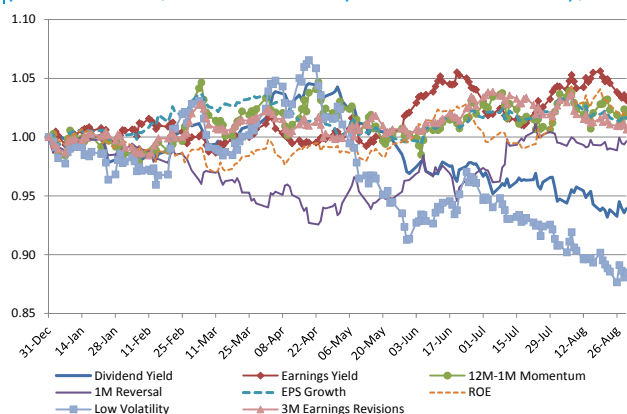
Which styles have been working around the world?

The DB Quant Dashboard is an easy-to-use cheat sheet that shows which styles have been working in key markets around the world. We track cumulative factor performance year-to-date, and highlight what we think are the noteworthy observations in each region. For those who prefer the previous tabular format (which includes more factors), you can find those results in the Appendix.

For more details see our website

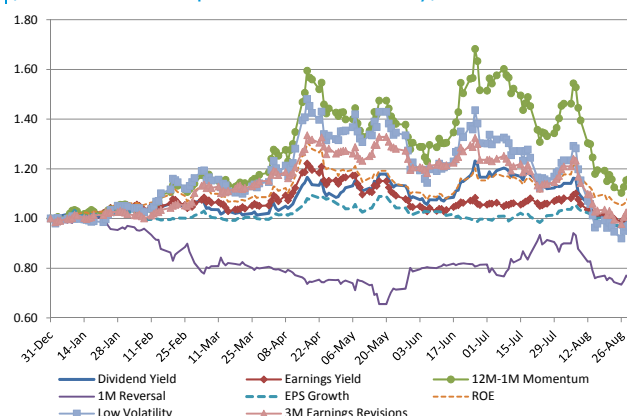
For the most recent daily factor performance, as well as factor performance delineated by different universes (e.g. large cap, small cap) and regions, please see our Global Quantitative Strategy website at <https://eqindex.db.com/gqs/>. Note that you need a username and password to log on to this website.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

Figure 11: United States: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



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

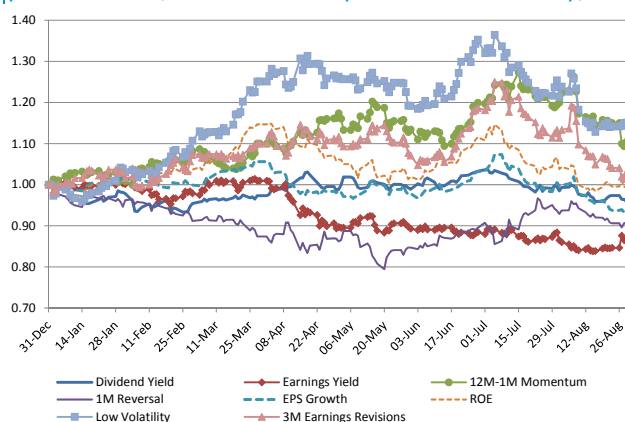
Figure 12: Canada: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



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

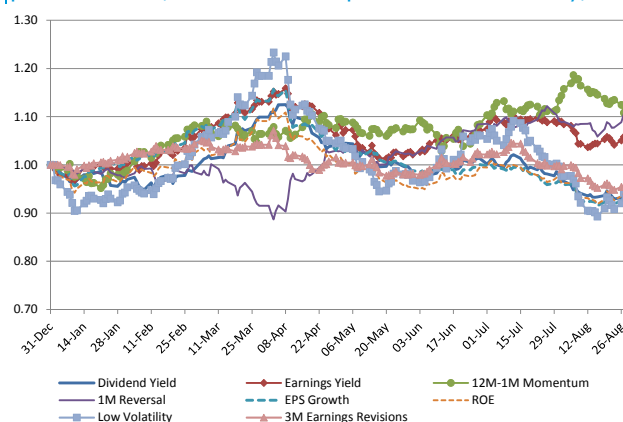


Figure 13: United Kingdom: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



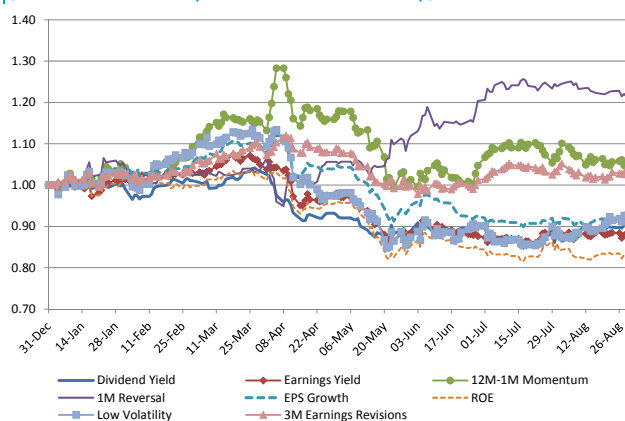
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 14: Europe ex UK: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



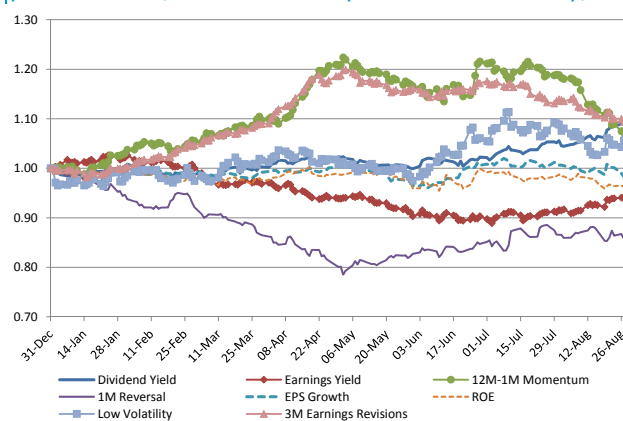
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 15: Japan: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



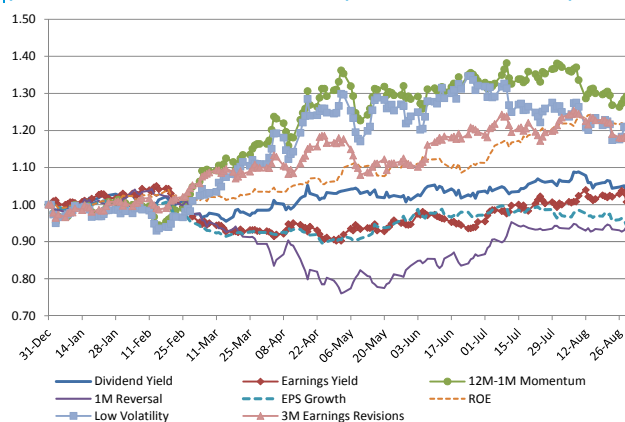
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 16: Asia ex Japan: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



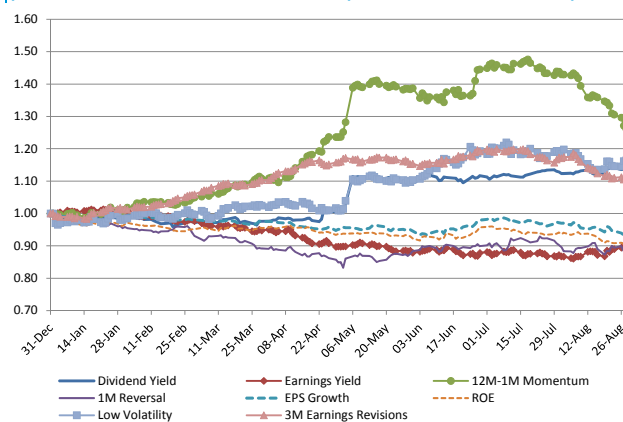
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 17: Australia/New Zealand: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



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

Figure 18: Emerging Markets: YTD cumulative factor performance (Q10-Q1 return spread, local currency)



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



Bottom-up stock selection

QCD U.S. stock selection model

- The QCD model is our flagship stock selection model for U.S. 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 19 shows the best 20 buy ideas and sell ideas from today's model. Note that a complete ranking for all Russell 3000 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.

Figure 19: Current QCD model stock recommendations

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)
DISCA	DISCOVERY COMMUNICATIONS INC	25470F104	Consumer Discretionary	24.6%	ZIOP	ZIOPHARM ONCOLOGY INC	98973P101	Health Care	-20.4%
ABC	AMERISOURCEBERGEN CORP	03073E105	Health Care	24.6%	TAHO	TAHOE RESOURCES INC	873868103	Materials	-20.0%
MDCA	MDC PARTNERS INC	552697104	Consumer Discretionary	24.5%	KIOR	KIOR INC	497217109	Energy	-19.5%
WLP	WELLPOINT INC	94973V107	Health Care	24.3%	AT	ATLANTIC POWER CORP	04878Q863	Utilities	-18.8%
BMC	BMC SOFTWARE INC	055921100	Information Technology	23.2%	FXEN	FX ENERGY INC	302695101	Energy	-18.8%
SAI	SAIC INC	78390X101	Information Technology	21.2%	PZG	PARAMOUNT GOLD AND SILVER	69924P102	Materials	-18.3%
SVU	SUPERVALU INC	868536103	Consumer Staples	20.9%	RIGL	RIGEL PHARMACEUTICALS INC	766559603	Health Care	-17.5%
ANDE	ANDERSONS INC	034164103	Consumer Staples	20.5%	GNE	GENIE ENERGY LTD	372284208	Utilities	-17.3%
GNW	GENWORTH FINANCIAL INC	37247D106	Financials	16.6%	UNXL	UNI-PIXEL INC	904572203	Information Technology	-16.5%
CNO	CNO FINANCIAL GROUP INC	12621E103	Financials	14.6%	MOSY	MOSYS INC	619718109	Information Technology	-16.4%
BA	BOEING CO	097023105	Industrials	14.3%	GSVC	GSV CAPITAL CORP	36191J101	Financials	-14.1%
LUV	SOUTHWEST AIRLINES	844741108	Industrials	13.8%	ACFN	ACORN ENERGY INC	004848107	Industrials	-13.3%
VZ	VERIZON COMMUNICATIONS INC	92343V104	Telecommunication Services	13.7%	SWS	SWS GROUP INC	78503N107	Financials	-13.2%
VG	VONAGE HOLDINGS CORP	92886T201	Telecommunication Services	13.6%	PTGI	PRIMUS TELECOMM GROUP INC	741929301	Telecommunication Services	-12.3%
GPX	GRAPHIC PACKAGING HOLDING CO	388689101	Materials	10.7%	SWSH	SWISHER HYGIENE INC	870808102	Industrials	-11.4%
PSX	PHILLIPS 66	718546104	Energy	8.8%	TWER	TOWERSTREAM CORP	892000100	Telecommunication Services	-10.2%
FTK	FLOTEK INDUSTRIES INC	343389102	Materials	8.0%	SHLD	SEARS HOLDINGS CORP	812350106	Consumer Discretionary	-1.8%
EXH	EXTERRAN HOLDINGS INC	30225X103	Energy	7.5%	FARM	FARMER BROS CO	307675108	Consumer Staples	-1.7%
AES	AES CORP	00130H105	Utilities	-1.1%	JAKK	JAKKS PACIFIC INC	47012E106	Consumer Discretionary	-0.8%
CNP	CENTERPOINT ENERGY INC	15189T107	Utilities	-2.1%	RDEN	ELIZABETH ARDEN INC	28660G106	Consumer Staples	-0.2%

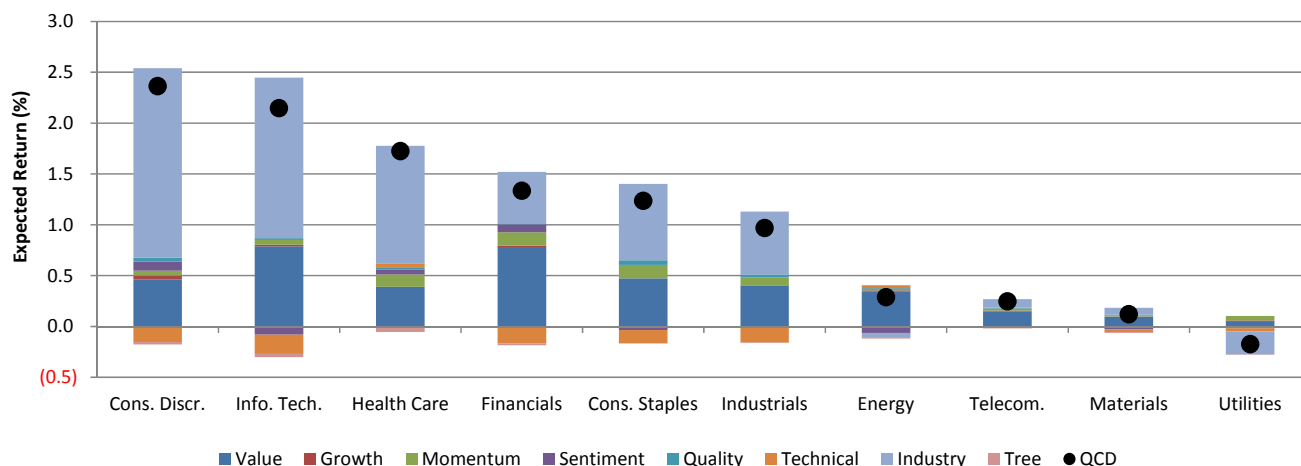
Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Current sector recommendations

The QCD model also implicitly makes sector predictions. Figure 20 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 20: Current QCD sector recommendations

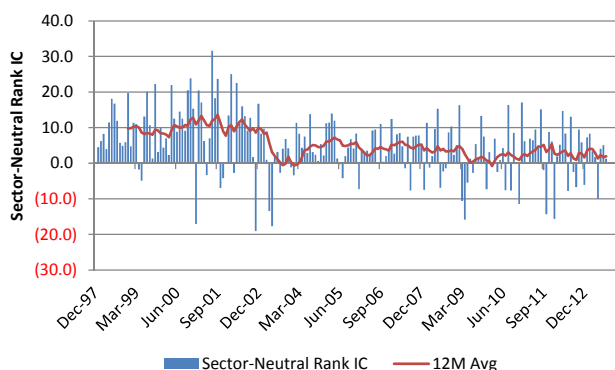


Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Model performance

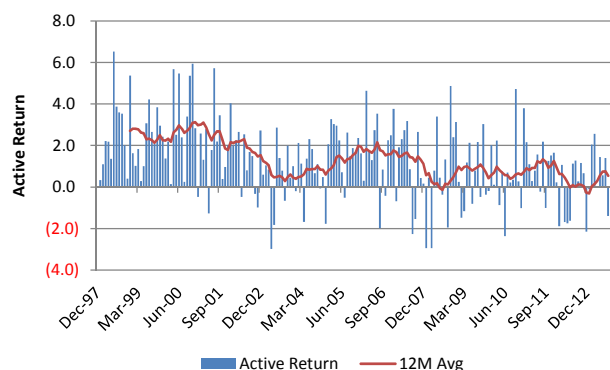
The QCD model has performed well since inception. Figure 21 shows the pure signal performance, measured as a monthly sector-neutral rank information coefficient (IC). Figure 22 shows the performance of an actual model portfolio, after costs, based on a realistically optimized market-neutral strategy.

Figure 21: Model performance, sector-neutral rank IC



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

Figure 22: Model portfolio active return, after costs

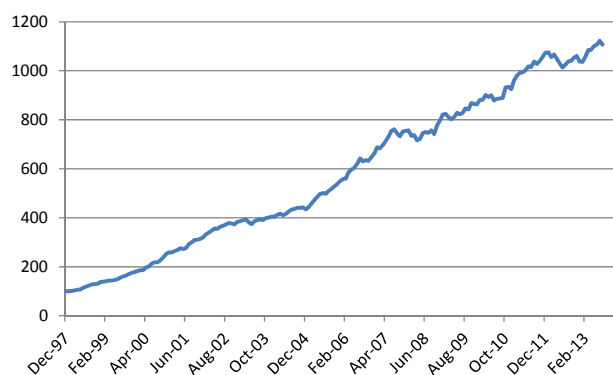


Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Figure 23 shows the cumulative performance of the optimized strategy, and Figure 24 shows the annualized Sharpe ratio (after costs) by calendar year.

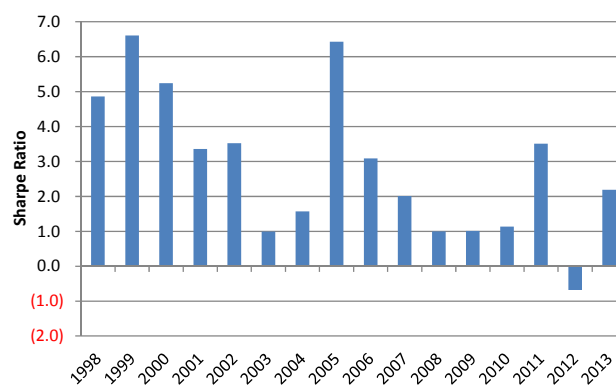


Figure 23: Model portfolio cumulative, after costs



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

Figure 24: Annualized Sharpe ratio, after costs



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



N-LASR global stock selection model

- The N-LASR model is our flagship stock selection model for global 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 25 shows the best 20 buy ideas and sell ideas from today's model. Note that a complete ranking for all global 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.

Figure 25: Current N-LASR model stock recommendations

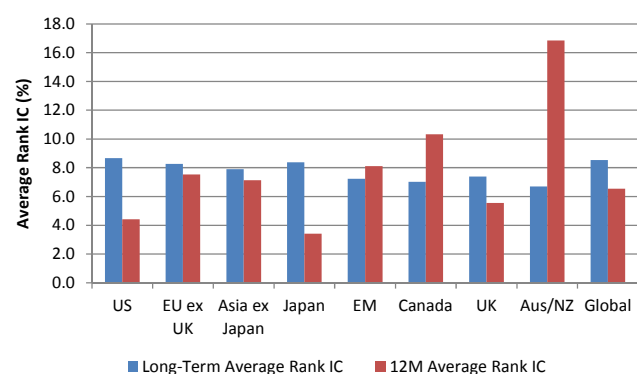
BEST BUY IDEAS					BEST SELL IDEAS				
Ticker	Name	SEDOL	Country	N-LASR Score (higher is better long)	Ticker	Name	SEDOL	Country	N-LASR Score (lower is better short)
DAL	DELTA AIR LINES INC	81W9D46	USA	2.14	LLXL3 BS	LLX Logistica S.A.	B3BXMS	Brazil	-2.37
CBS	CBS CORP	805RLH6	USA	2.12	005690 KS	Pharmicell Co Ltd	698839	Korea	-2.34
ATK	ALLIANT TECHSYSTEMS INC	2017677	USA	2.10	TRQ	TURQUOISE HILL RESOURCES LTD	B7WJ1F5	Canada	-2.17
LEA	LEAR CORP	8570P91	USA	2.05	VVUS	VIVUS INC	2934657	USA	-2.13
KUNN SW	Kuoni Reisen Hldg Reg B	471475	Switzerland	1.95	GRT SJ	Growthpoint Properties	88GB5W	South Africa	-2.11
KAI	KADANT INC	2769978	USA	1.95	PXS AU	Pharmaxis	670736	Australia	-2.02
PKCIV FH	PKC Group OYJ	522249	Finland	1.93	PGI AU	PanTerra Gold Ltd	B4NX2K	Australia	-2.00
III LN	3i Group	81YW44	UK	1.91	POH AU	Phosphagenics Ltd	638736	Australia	-1.99
OCR	OMNICARE INC	2659778	USA	1.90	NAUR NO	Northland Resources SA	B631JK	Norway	-1.98
TSN	TYSON FOODS INC -CL A	2909730	USA	1.88	RPO LN	RusPetro PLC	B4ZH7J	Russia	-1.94
DFDS DC	DFDS AS	579734	Denmark	1.86	ALK AU	Alkane Resources Limited	601402	Australia	-1.92
ALARK TI	Alarko Holding	803MKN	Turkey	1.86	MRC MK	Malaysian Resources Corp Bhd	655786	Malaysia	-1.91
FIS	FIDELITY NATIONAL INFO SVCS	2769796	USA	1.86	MPXE3 BS	MPX Mineracao e Energia SA	B29VWQ	Brazil	-1.87
ALR	ALERE INC	2823089	USA	1.86	RCS IM	RCS Mediagroup SpA Ord	B8D809	Italy	-1.86
9433 JT	KDDI Corp	624899	Japan	1.85	1101 HK	China Rongsheng Heavy Industry G	B5NSWF	China	-1.83
000880 KS	Han Wha Co	649675	Korea	1.85	PEL IM	Banca Popolare dell'Etruria	B8DPTG	Italy	-1.81
SKG ID	Smurfit Kappa Group PLC	B1RR82	Ireland	1.84	MFRISCOA MM	Minera Frisco SAB de CV	B3QKHK	Mexico	-1.81
CTC.A	CANADIAN TIRE CORP -CL A	2172286	Canada	1.79	SVW GY	Solarworld AG	581986	Germany	-1.79
001040 KS	CJ Corp	618951	Korea	1.79	5384 JT	Fujimi Inc	635527	Japan	-1.76
ICFI	ICF INTERNATIONAL INC	B1FP363	USA	1.79	OMER	OMEROS CORP	B4N8S58	USA	-1.76

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

Model performance

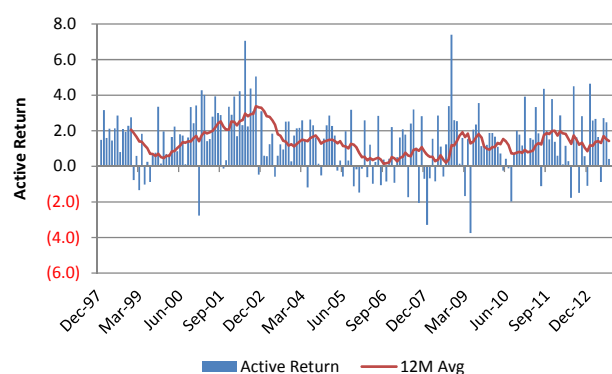
The N-LASR model has performed well since inception. Figure 26 shows the average pure signal performance, measured as a monthly rank information coefficient (IC), in different regions. Figure 27 shows the performance of a global model portfolio, after costs, based on a realistically optimized market-neutral strategy.

Figure 26: Regional model performance, average rank IC



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

Figure 27: Global portfolio active return, after costs

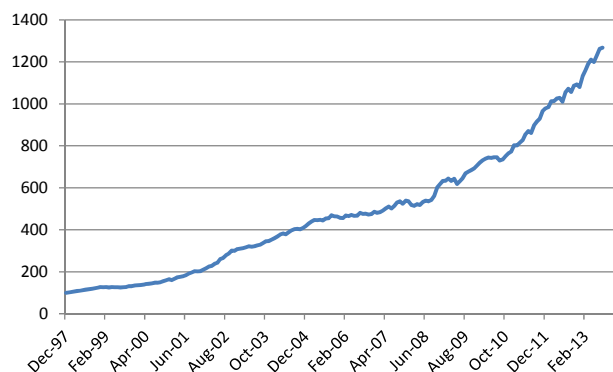


Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank



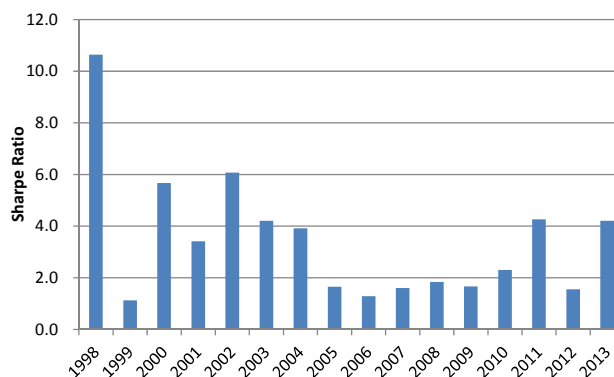
Figure 28 shows the cumulative performance of the optimized strategy, and Figure 29 shows the annualized Sharpe ratio (after costs) by calendar year.

Figure 28: Global portfolio cumulative, after costs



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

Figure 29: Annualized Sharpe ratio, after costs



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



Top-down country rotation

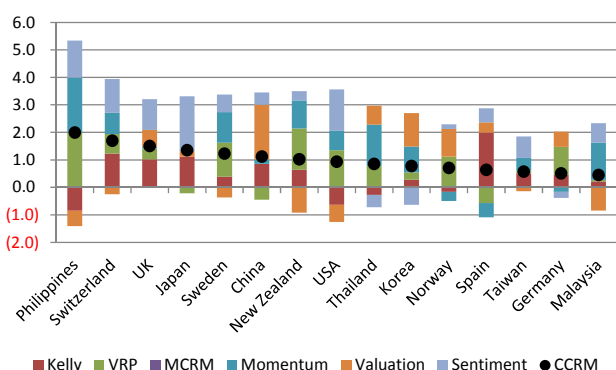
CCRM country rotation model

- Our Composite Country Rotation Model (CCRM) uses three sets of inputs to dynamically rotate between countries in the MSCI All Country World Index.
- The inputs include top-down macro signals (e.g. VRP, Kelly's Tail Risk), aggregate bottom-up fundamental signals (e.g. country-level valuation and momentum), and lead-lag signals based on economic trade linkages.
- For complete details on the model, please see Luo et al., "Signal Processing: New Insights in Country Rotation", 9 February 2012.

Current recommendations

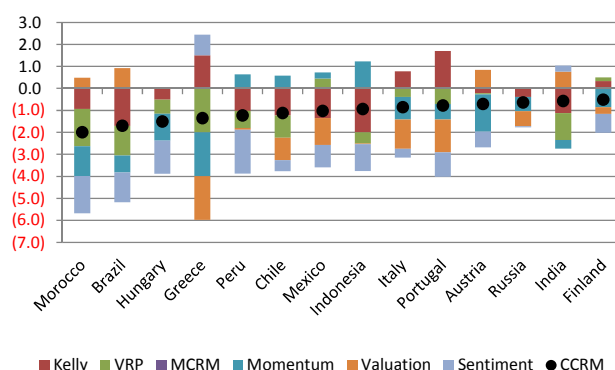
Figure 30 and Figure 31 show the top and bottom third of countries, as ranked currently by our CCRM model. The bars show what is driving these calls.

Figure 30: Top tercile countries



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

Figure 31: Bottom tercile countries

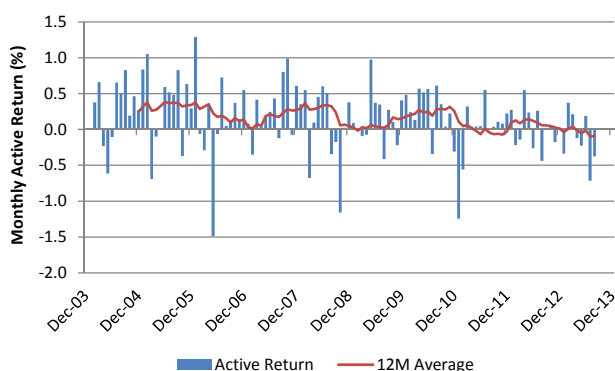


Source: Bloomberg Finance LLP, Compustat, IBES, MSCI, Russell, S&P, Thomson Reuters, Worldscope, Deutsche Bank

Model performance

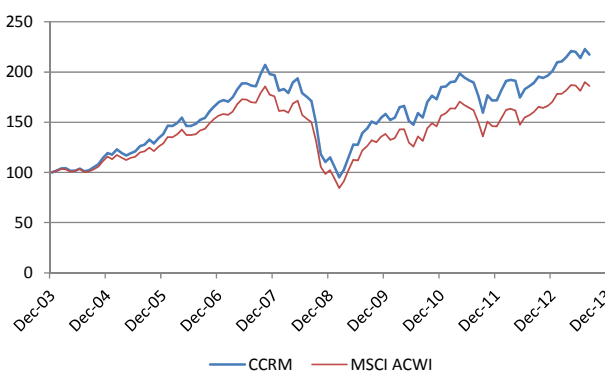
Figure 32 and Figure 33 show the performance of the model over time.

Figure 32: Monthly returns



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

Figure 33: Cumulative performance



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



Top-down asset allocation

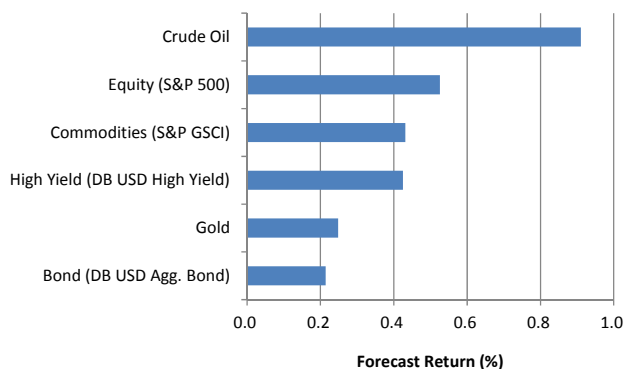
Quant Tactical Asset Allocation (QTAA) model

- Our Quantitative Tactical Asset Allocation (QTAA) model uses a model-of-models methodology to rotate between six asset classes.
- The model uses a wide range of fundamental and market-based factors as inputs, and dynamically selects a subset of those factors to use at each point in time.
- For complete details on the model, please see Luo et al., "Signal Processing: Quant Tactical Asset Allocation", 19 September 2011.

Current recommendations and performance

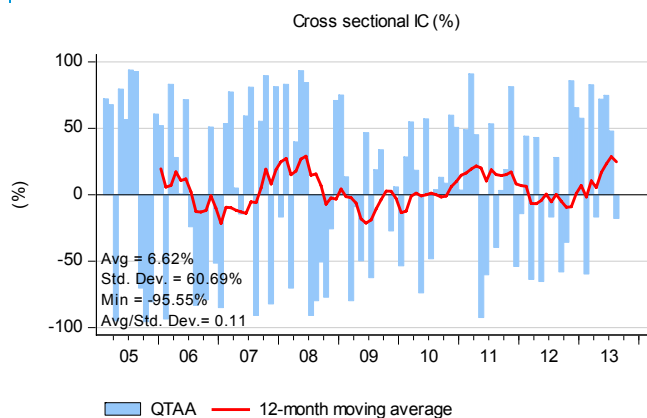
Figure 34 shows the current ranking of our six asset classes, ranked from best to worse in terms of month-ahead forecast returns. Figure 35 shows the monthly performance of the QTAA model over time.

Figure 34: Current QTAA forecasts



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

Figure 35: Performance of QTAA model



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



Top-down style rotation

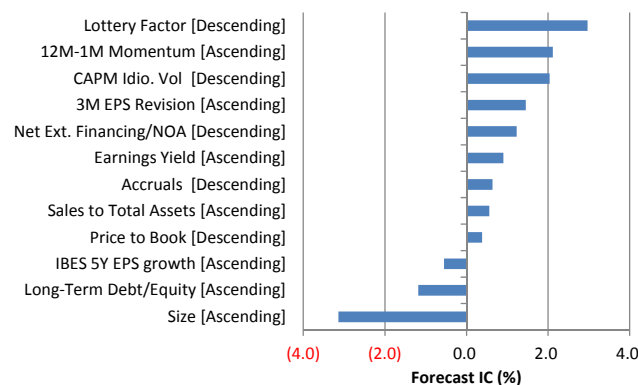
Style rotation model

- Our Style Rotation model dynamically rotates between 12 “typical” quant factors.
- The model uses market-based and macroeconomic inputs to predict month-ahead factor returns using a backwards stepwise linear regression model.
- For complete details on the model, please see Luo et al., “Signal Processing: Style Rotation”, 7 September 2010.

Current recommendations and performance

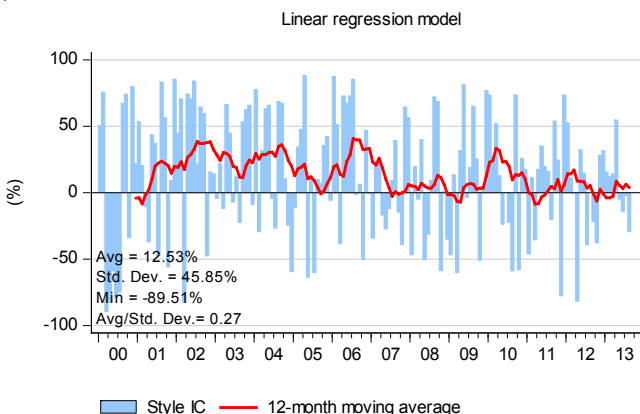
Figure 36 shows the current ranking of our 12 factors, ranked from best to worse in terms of month-ahead forecast performance. Figure 37 shows the monthly performance of the Style Rotation model over time.

Figure 36: Current style rotation forecasts



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

Figure 37: Performance of style rotation model



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



Appendix: Factor performance

Figure 38: US factor performance, measured as rank IC (Russell 3000 universe)

		Current			Average IC (%)			Since Inception					# of	Avg # of	Hit	Serial
Factor Name	Direction ¹	# of Stocks	Last M	12M Avg	3Y Avg	Avg	Std Dev	Avg / Std Dev	Max	Min	p-value ²	Months	Stocks	Rate (%)	Corr (%) ³	
1. Value																
1 Dividend yield, trailing 12M	Ascending	2,988	(11.17)	(0.50)	1.26	2.86	14.41	0.20	42.59	(33.26)	0.00	308	2,873	54.87	99.24	
2 Expected dividend yield	Ascending	2,988	(10.76)	(0.50)	1.47	3.11	14.94	0.21	44.46	(33.89)	0.00	308	2,873	54.22	99.31	
3 Price-to-operating EPS, trailing 12M, Basic	Descending	2,337	(3.83)	3.90	1.41	2.83	10.36	0.27	30.82	(32.28)	0.00	232	2,354	59.91	95.23	
4 Operating earnings yield, trailing 12M, Basic	Ascending	2,939	0.73	4.50	3.81	4.86	12.96	0.38	47.24	(33.30)	0.00	232	2,872	62.07	96.44	
5 Earnings yield, forecast FY1 mean	Ascending	2,802	1.38	5.13	3.58	4.43	12.30	0.36	48.88	(34.61)	0.00	308	2,539	62.99	94.98	
6 Earnings yield, forecast FY2 mean	Ascending	2,791	1.62	5.12	2.96	3.88	11.91	0.33	47.02	(34.31)	0.00	308	2,439	63.64	94.36	
7 Earnings yield x IBES 5Y growth	Ascending	1,723	6.77	4.90	1.96	1.85	10.45	0.18	41.11	(26.63)	0.01	232	1,924	59.05	93.47	
8 Sector-rel Operating earnings yield, trailing 12M, Basic	Ascending	2,939	4.86	4.34	3.55	4.35	8.31	0.52	28.96	(14.90)	0.00	232	2,870	69.40	96.01	
9 Hist-rel Operating earnings yield, trailing 12M, Basic	Ascending	2,073	(5.75)	(0.36)	0.76	1.59	6.89	0.23	20.73	(18.74)	0.01	138	2,015	61.59	96.88	
10 Operating cash flow yield (income stmt def)	Ascending	2,988	0.45	4.24	3.03	4.10	10.84	0.38	47.14	(32.67)	0.00	308	2,873	64.94	96.03	
11 Cash flow yield, FY1 mean	Ascending	1,620	5.34	4.06	1.02	2.76	17.54	0.16	66.06	(54.29)	0.01	278	762	58.63	95.75	
12 Free cash flow yield	Ascending	2,867	0.86	4.75	3.78	4.92	7.88	0.62	31.93	(22.64)	0.00	271	2,511	75.65	94.64	
13 Price-to-sales, trailing 12M	Descending	2,904	(2.58)	5.12	1.70	1.84	10.93	0.17	30.02	(41.46)	0.00	308	2,798	56.82	99.12	
14 Price-to-book	Descending	2,867	(13.70)	0.55	(0.81)	0.80	10.65	0.08	26.28	(35.75)	0.19	308	2,763	49.03	97.65	
15 EBITDA/EV	Ascending	2,948	(0.19)	3.24	2.57	4.16	9.67	0.43	39.32	(27.15)	0.00	308	2,819	67.86	95.55	
16 Price-to-book adj for ROE, sector adj	Descending	2,671	(5.50)	1.83	(0.46)	0.47	8.72	0.05	22.50	(33.21)	0.35	308	2,433	49.35	95.61	
2. Growth																
17 Hist 5Y operating EPS growth	Descending	2,865	3.60	1.96	2.33	1.06	8.67	0.12	30.58	(22.70)	0.07	220	2,733	52.73	97.26	
18 Hist 5Y operating EPS acceleration	Ascending	2,865	0.13	2.59	0.20	0.83	6.65	0.12	25.31	(16.13)	0.07	220	2,733	54.09	94.74	
19 IBES 5Y EPS growth	Ascending	2,439	11.57	0.89	1.98	0.93	8.10	0.12	21.65	(27.86)	0.04	308	2,298	54.22	98.28	
20 IBES 5Y EPS growth/stability	Ascending	2,439	13.59	1.21	2.21	1.37	7.71	0.18	20.64	(19.20)	0.00	308	2,298	56.82	98.62	
21 IBES LTG EPS mean	Descending	1,978	(13.00)	(2.14)	(1.38)	1.63	15.81	0.10	37.64	(52.38)	0.07	308	2,151	49.35	97.75	
22 IBES FY2 mean DPS growth	Ascending	2,170	(5.22)	(0.12)	0.97	0.86	8.52	0.10	24.12	(21.96)	0.24	135	1,492	50.37	87.82	
23 IBES FY1 mean EPS growth	Ascending	2,745	0.72	2.56	1.87	1.06	7.48	0.14	20.76	(24.42)	0.01	308	2,518	61.36	88.80	
24 Year-over-year quarterly EPS growth	Ascending	2,966	(1.05)	2.87	3.01	2.53	7.02	0.36	23.85	(21.12)	0.00	232	2,876	66.38	81.52	
25 IBES FY1 mean CPFS growth	Descending	1,467	(14.15)	(4.66)	(1.56)	0.37	11.18	0.03	38.08	(42.07)	0.61	235	529	50.21	92.72	
26 IBES SUE, amortized	Ascending	2,634	0.71	0.73	1.83	0.80	6.48	0.12	20.62	(16.30)	0.05	247	1,093	54.25	73.92	
3. Price Momentum and Reversal																
27 Total return, 1D	Descending	2,988	(4.25)	2.02	2.94	4.96	7.18	0.69	15.52	(33.75)	0.00	308	2,873	77.60	1.64	
28 Total return, 21D (1M)	Descending	2,987	0.70	2.12	1.49	1.85	10.90	0.17	29.03	(43.69)	0.00	308	2,873	58.12	0.42	
29 Maximum daily return in last 1M (lottery factor)	Descending	2,983	1.30	1.29	2.74	5.08	14.92	0.34	39.13	(56.07)	0.00	308	2,745	64.29	54.23	
30 21D volatility of volume/price	Descending	2,987	(1.32)	0.72	1.92	0.21	6.56	0.03	24.16	(16.78)	0.57	308	2,863	50.97	56.37	
31 Total return, 252D (12M)	Ascending	2,880	0.60	1.53	2.66	3.24	14.07	0.23	39.62	(57.00)	0.00	308	2,792	64.61	89.93	
32 12M-1M total return	Ascending	2,880	1.60	2.17	3.30	4.09	13.17	0.31	37.65	(49.06)	0.00	308	2,792	65.26	88.43	
33 Price-to-52 week high	Ascending	2,879	5.47	0.75	2.46	3.16	17.75	0.18	49.63	(62.50)	0.00	308	1,946	62.01	83.27	
34 Total return, 1260D (60M)	Ascending	2,509	8.18	(0.98)	1.96	1.13	10.94	0.10	25.63	(35.41)	0.08	296	2,236	56.76	97.47	
4. Sentiment																
35 IBES LTG Mean EPS Revision, 3M	Ascending	1,952	(2.84)	0.16	1.08	0.86	3.75	0.23	11.16	(12.06)	0.00	308	2,123	61.69	59.70	
36 IBES FY1 Mean EPS Revision, 3M	Ascending	2,753	(3.37)	0.58	1.92	2.91	8.44	0.34	29.96	(33.00)	0.00	308	2,477	66.56	75.29	
37 IBES FY1 EPS up/down ratio, 3M	Ascending	2,738	(1.94)	0.61	1.83	3.07	7.85	0.39	27.54	(24.41)	0.00	308	2,340	67.53	79.52	
38 Expectation gap, short-term - long-term	Descending	2,174	7.07	1.63	1.57	1.21	5.19	0.23	9.60	(19.91)	0.00	308	2,124	57.79	91.14	
39 IBES FY1 Mean CPFS Revision, 3M	Ascending	1,523	(1.29)	1.29	1.97	2.01	15.95	0.13	69.38	(75.04)	0.04	277	694	62.99	64.41	
40 IBES FY1 Mean SAL Revision, 3M	Ascending	2,714	(1.72)	1.11	2.11	1.08	7.84	0.14	27.43	(24.32)	0.05	207	2,171	59.90	71.48	
41 IBES FY1 Mean FFO Revision, 3M	Ascending	147	(9.89)	(1.45)	2.73	2.87	21.03	0.14	71.43	(80.00)	0.02	280	84	57.50	69.50	
42 IBES FY1 Mean DPS Revision, 3M	Ascending	1,282	8.68	1.45	1.32	0.73	5.19	0.14	14.91	(17.55)	0.11	132	999	58.33	62.49	
43 IBES FY1 Mean ROE Revision, 3M	Ascending	38	0.76	(0.49)	1.04	0.67	6.60	0.10	23.70	(22.19)	0.25	132	1,715	59.09	66.09	
44 Recommendation, mean	Descending	2,815	6.22	2.82	2.12	0.84	7.52	0.11	21.85	(19.41)	0.09	237	2,677	56.96	94.40	
45 Mean recommendation revision, 3M	Descending	2,796	(4.91)	0.46	0.46	1.22	4.09	0.30	19.86	(11.55)	0.00	234	2,663	62.82	59.94	
46 Target price implied return	Ascending	2,756	0.10	2.68	0.89	0.08	16.78	0.00	60.74	(39.59)	0.95	173	2,461	53.18	80.00	
47 Mean target price revision, 3M	Ascending	2,738	(0.86)	1.05	1.67	2.37	12.63	0.19	30.14	(41.94)	0.02	170	2,448	62.94	74.91	
5. Quality																
48 ROE, trailing 12M	Ascending	2,834	9.49	2.93	3.16	3.88	10.04	0.39	33.42	(29.52)	0.00	232	2,863	64.66	96.47	
49 Return on invested capital (ROIC)	Ascending	2,927	9.89	2.60	3.55	4.20	10.21	0.41	33.02	(31.24)	0.00	232	2,855	68.97	98.21	
50 Sales to total assets (asset turnover)	Ascending	2,900	8.42	3.01	2.40	1.63	8.68	0.19	22.78	(22.02)	0.00	308	2,814	56.17	99.45	
51 Operating profit margin	Ascending	2,896	4.40	(1.11)	0.48	1.21	5.47	0.22	16.98	(14.17)	0.00	308	2,718	59.74	98.44	
52 Current ratio	Descending	2,293	(2.10)	2.09	1.05	1.84	10.19	0.18	31.95	(38.66)	0.00	308	2,239	54.22	97.91	
53 Long-term debt/equity	Ascending	2,855	(4.67)	2.35	1.64	0.78	9.59	0.08	35.65	(28.14)	0.16	308	2,747	48.38	98.52	
54 Altman's z-score	Ascending	2,228	8.47	(0.53)	1.39	0.32	9.17	0.03	31.74	(30.44)	0.54	308	2,159	49.35	98.35	
55 Merton's distance to default	Ascending	2,468	10.85	(0.34)	2.32	3.34	11.77	0.28	33.03	(41.45)	0.00	308	2,336	65.58	95.05	
56 Ohlson default model	Descending	2,238	6.77	(0.36)	1.53	2.31	6.34	0.36	16.95	(18.63)	0.00	271	2,125	68.27	98.29	
57 Accruals (Sloan 1996 def)	Descending	2,206	(3.48)	(0.23)	(0.24)	0.54	4.17	0.13	12.07	(15.48)	0.02	308	2,138	55.19	88.51	
58 Firm-specific discretionary accruals	Descending	2,173	(3.40)	(0.72)	(0.28)	0.47	3.19	0.15	7.82	(10.87)	0.02	248	2,120	55.65	80.06	
59 Hist 5Y operating EPS stability, coef of determination	Ascending	2,865	6.15	0.55	0.26	0.84	5.02	0.17	20.01	(12.27)	0.01	220	2,733	52.73	96.89	
60 IBES 5Y EPS stability	Descending	2,439	6.85	0.46	1.11	1.21	8.60	0.14	25.00	(34.33)	0.01	308	2,298	54.22	98.96	
61 IBES FY1 EPS dispersion	Descending	2,802	0.93	0.26	2.65	1.57	9.08	0.17	31.67	(25.17)	0.00	308	2,539	60.06	84.20	
62 Payout on trailing operating EPS	Ascending	2,242	(15.50)	(3.44)	(0.83)	0.71	13.51	0.05	38.55	(30.91)	0.36	308	2,211	49.35	99.23	
63 YOY change in # of shares outstanding	Descending	2,898	3.30	3.34	2.86	1.62	8.86	0.30	19.53	(46.21)	0.00	308	2,769	61.04	94.29	
64 YOY change in debt outstanding	Descending	2,186	(6.32)	(0.30)	(0.35)	0.28	4.07	0.07	13.07	(10.40)	0.23	308	2,220	55.84	89.89	
65 Net external financing/net operating assets	Ascending	2,971	0.15	2.66	2.28	2.46	8.43	0.29	44.61	(21.76)	0.00	308	2,836	61.36	94.68	
66 Piotroski's F-score	Descending	2,988	(2.32)	2.85	2.82	2.92	8.07	0.36	29.20	(27.83)	0.00	308	2,875	67.53	88.23	
67 Mohanram's G-score	Ascending	550	9.17	(1.64)	1.23	2.64	10.56	0.25	35.27	(32.14)	0.00	220	385	56.82	95.46	
6. Technicals																
68 # of days to cover short	Descending	2,960	2.84	2.32	2.41	2.18	7.30	0.30	33.80	(25.16)	0.00	308	2,023	58.44	91.39	
69 CAPM beta, 5Y monthly	Descending	2,983	3.08	(2.77)	(0.63)	1.01	13.74	0.07	40.19	(42.70)	0.25	249	2,908	51.41	97.70	
70 CAPM idiosyncratic vol, 1Y daily	Descending	2,839	(4.48)	1.43	4.08	5.13	18.09	0.28	42.60	(60.80)	0.00	296	2,880	61.82	99.18	
71 Realized vol, 1Y daily	Descending	2,880	(2.18)	0.63	3.50	4.98	18.71	0.27	42.69	(59.63)	0.00	308	2,792	61.04	99.16	
72 Skewness, 1Y daily	Descending	2,880	(2.44)	(0.59)	0.45	1.22	5.33	0.23	13.93							



Figure 39: Global factor performance, measured as rank IC (S&P BMI World universe)

Factor Name	Direction ¹	Current # of Stocks	Average IC (%)			Avg /					Since Inception					Hit Rate (%)	Serial Corr (%) ³
			Last M	12M Avg	3Y Avg	Avg	Std Dev	Std Dev	Max	Min	p-value ²	# of Months	Avg # of Stocks				
1. Value																	
1 Dividend yield, trailing 12M	Ascending	9,739	3.50	1.47	3.00	4.26	10.53	0.40	36.88	(23.89)	0.00	284	8,009	64.79		97.98	
2 Dividend yield, FY1	Ascending	7,584	1.89	0.90	2.65	4.31	10.86	0.40	32.17	(22.90)	0.00	227	5,241	63.88		98.17	
3 Dividend yield, FY2	Ascending	7,542	2.98	0.89	2.45	4.20	10.91	0.38	33.19	(24.39)	0.00	217	5,200	63.59		98.16	
4 Price/Earnings	Descending	8,006	2.64	0.09	0.17	4.02	13.11	0.31	39.66	(50.73)	0.00	277	6,299	61.73		96.30	
5 Price-to-FY0 EPS	Descending	7,751	8.00	0.61	(0.65)	2.90	10.29	0.28	28.98	(37.08)	0.00	284	6,025	62.32		96.38	
6 Earnings yield, FY0	Ascending	8,911	6.90	2.28	1.41	4.01	9.18	0.44	31.67	(18.68)	0.00	284	7,007	64.79		96.30	
7 Earnings yield, forecast FY1 mean	Ascending	8,223	6.54	2.46	2.02	4.72	10.87	0.43	35.35	(22.20)	0.00	284	6,457	63.73		95.67	
8 Earnings yield, forecast FY2 mean	Ascending	8,120	7.95	1.88	0.97	4.33	11.88	0.36	37.31	(31.50)	0.00	284	6,282	62.68		95.71	
9 Cash flow yield, FY0	Ascending	6,964	5.59	1.42	0.98	4.07	6.36	0.64	26.42	(11.80)	0.00	160	4,952	75.63		97.10	
10 Cash flow yield, FY1 mean	Ascending	5,846	9.47	0.85	(0.60)	2.04	9.72	0.21	31.42	(32.01)	0.00	216	4,474	58.33		96.01	
11 Price/Sales	Descending	9,231	7.86	0.95	0.04	1.48	9.56	0.16	26.48	(31.59)	0.01	284	7,487	55.99		99.23	
12 Price/Book	Descending	9,361	6.36	(1.35)	(1.63)	1.16	10.49	0.11	31.56	(37.54)	0.06	284	7,535	56.69		98.34	
13 Est Book-to-price, median	Ascending	7,224	6.82	(1.06)	(2.21)	1.15	9.88	0.12	30.37	(26.29)	0.13	168	5,401	52.38		98.07	
14 EBITDA to EV	Ascending	7,258	(3.40)	5.29	5.64	4.00	10.84	0.37	36.69	(26.20)	0.00	284	4,668	62.68		95.59	
15 Sales/EV	Ascending	9,183	8.83	2.09	1.40	1.98	7.88	0.25	24.81	(20.06)	0.00	284	7,454	61.27		98.98	
2. Growth																	
16 IBES 5Y EPS growth	Ascending	8,226	(1.90)	0.26	1.42	1.10	6.14	0.18	19.09	(21.86)	0.00	284	6,210	58.80		98.06	
17 EPS Growth	Ascending	8,735	(7.93)	1.64	1.31	2.05	6.88	0.30	29.72	(28.97)	0.00	268	6,883	63.81		88.39	
18 IBES LTG EPS mean	Descending	5,140	3.13	(0.64)	0.29	1.34	12.11	0.11	28.22	(40.36)	0.06	284	4,168	53.17		96.75	
19 IBES FY1 mean EPS growth	Ascending	7,903	(4.32)	0.17	0.39	0.37	6.06	0.06	14.44	(20.10)	0.30	284	6,365	54.58		88.52	
20 IBES FY1 mean CFPS growth	Descending	5,304	(0.05)	0.99	1.09	1.75	4.22	0.42	7.47	(11.39)	0.00	160	3,907	65.00		91.75	
21 IBES FY2 mean DPS growth	Ascending	7,520	0.94	0.33	(0.20)	2.42	11.00	0.22	38.85	(31.49)	0.00	226	5,082	59.29		88.05	
22 Asset growth	Descending	9,164	4.32	2.54	1.92	0.67	8.52	0.08	21.57	(27.36)	0.19	284	7,279	52.46		93.66	
3. Price Momentum and Reversal																	
23 Total return, 1D	Descending	9,756	(1.69)	1.96	3.79	3.61	7.44	0.49	21.94	(41.58)	0.00	284	8,122	70.77		2.01	
24 Weekly Total Return	Descending	9,756	(2.53)	(0.17)	3.12	2.96	8.72	0.34	30.60	(33.64)	0.00	284	8,121	64.44		1.42	
25 Total return, 21D (1M)	Ascending	9,750	3.64	1.55	0.19	0.14	11.44	0.01	27.69	(44.07)	0.84	284	8,116	53.17		4.15	
26 Total return, 252D (12M)	Ascending	9,592	(5.43)	6.13	5.64	4.42	14.53	0.30	41.64	(46.50)	0.00	284	7,924	66.55		90.65	
27 12M-1M total return	Ascending	9,592	(6.45)	6.12	6.16	5.03	14.00	0.36	40.96	(42.52)	0.00	284	7,924	68.66		88.73	
28 Total return, 1260D (60M)	Ascending	8,567	(8.29)	0.88	1.95	1.44	14.07	0.10	40.32	(44.84)	0.09	284	6,421	58.10		97.79	
4. Sentiment																	
29 IBES LTG Mean EPS Revision, 1M	Ascending	5,128	2.30	0.67	0.67	0.67	2.57	0.26	7.26	(8.59)	0.00	284	4,130	63.03		0.57	
30 IBES LTG Mean EPS Revision, 3M	Ascending	5,085	0.46	0.96	0.90	0.86	3.33	0.26	11.05	(10.26)	0.00	284	4,074	61.62		60.10	
31 IBES FY1 EPS up/down ratio, 1M	Ascending	5,011	(1.11)	3.02	3.58	3.69	5.43	0.68	17.76	(13.76)	0.00	284	4,347	76.41		34.72	
32 IBES FY1 EPS up/down ratio, 3M	Ascending	7,543	(5.37)	3.67	3.85	3.65	5.82	0.63	17.92	(12.36)	0.00	284	5,831	75.00		78.46	
33 IBES FY1 Mean EPS Revision, 1M	Ascending	8,045	(4.28)	2.48	2.85	2.89	5.08	0.57	16.50	(12.79)	0.00	284	6,309	72.18		24.13	
34 IBES FY1 Mean EPS Revision, 3M	Ascending	7,930	(6.41)	3.31	3.79	3.37	6.65	0.51	19.37	(20.12)	0.00	284	6,218	73.24		74.15	
35 IBES FY1 Mean CFPS Revision, 3M	Ascending	5,508	(3.67)	2.10	2.52	2.49	5.56	0.45	15.81	(23.83)	0.00	206	4,296	76.70		63.91	
36 IBES FY1 Mean DPS Revision, 1M	Ascending	6,003	(5.26)	2.09	2.73	1.75	4.39	0.40	12.65	(16.63)	0.00	225	4,338	71.56		10.97	
37 IBES FY1 Mean DPS Revision, 3M	Ascending	5,955	(3.43)	3.27	3.65	2.20	5.86	0.38	19.08	(24.51)	0.00	223	4,279	72.20		65.65	
38 IBES FY1 Mean FFO Revision, 1M	Ascending	5,136	(3.44)	3.25	3.42	2.26	4.07	0.55	11.73	(8.89)	0.00	152	4,042	76.97		13.54	
39 IBES FY1 Mean FFO Revision, 3M	Ascending	4,989	(8.68)	4.02	4.29	2.82	5.81	0.49	16.27	(14.53)	0.00	149	3,948	73.83		67.77	
40 IBES FY1 Mean ROE Revision, 1M	Ascending	8,065	(1.53)	1.59	1.98	1.76	4.08	0.43	13.70	(10.51)	0.00	204	5,370	69.12		14.31	
41 IBES FY1 Mean ROE Revision, 3M	Ascending	7,923	(4.11)	1.68	2.20	2.14	5.02	0.43	13.57	(13.58)	0.00	202	5,239	68.81		68.44	
42 Target price implied return	Descending	8,263	0.23	1.27	1.17	0.95	14.61	0.06	55.58	(36.25)	0.40	168	6,283	53.57		82.31	
43 Recommendation, mean	Descending	8,435	(0.82)	2.58	2.23	1.76	6.82	0.26	17.41	(16.84)	0.00	237	7,192	64.98		94.46	
44 Mean recommendation revision, 3M	Descending	8,405	0.98	0.87	1.40	1.87	2.91	0.64	10.01	(10.13)	0.00	234	7,170	75.21		60.10	
5. Quality																	
45 Return on Equity	Ascending	8,964	(1.75)	2.71	3.34	4.20	10.13	0.41	30.68	(34.69)	0.00	236	7,672	66.53		97.10	
46 return on capital	Ascending	9,050	0.83	2.09	3.01	4.44	12.28	0.36	49.47	(34.02)	0.00	284	6,964	64.79		97.95	
47 Return on Assets	Ascending	9,310	(4.52)	4.53	5.28	4.78	13.26	0.36	44.20	(30.31)	0.00	284	7,065	63.73		98.15	
48 Asset Turnover	Ascending	9,273	(5.05)	4.64	4.68	2.69	16.31	0.16	44.64	(51.55)	0.01	284	7,549	58.10		99.84	
49 Gross margin	Ascending	8,546	(0.89)	1.95	2.33	1.87	5.84	0.32	16.60	(13.45)	0.00	284	6,864	63.03		98.88	
50 EBITDA margin	Ascending	9,263	(11.84)	3.41	4.03	4.01	13.80	0.29	42.97	(41.30)	0.00	284	7,568	59.51		96.80	
51 Berry Ratio	Ascending	7,103	1.92	0.30	0.70	2.85	9.28	0.31	29.57	(20.79)	0.00	284	5,307	59.51		97.70	
52 IBES FY1 EPS dispersion	Descending	8,223	(7.33)	2.14	3.38	0.48	9.56	0.05	32.68	(25.37)	0.40	284	6,457	50.70		87.91	
53 IBES 5Y EPS growth/stability	Ascending	8,226	(1.38)	0.55	1.77	1.44	5.98	0.24	18.66	(20.47)	0.00	284	6,209	58.45		98.30	
54 YoY change in debt outstanding	Descending	7,625	0.63	0.78	0.52	0.27	3.92	0.07	11.51	(11.34)	0.25	284	6,287	53.87		91.46	
55 Current ratio	Descending	7,670	(1.28)	0.14	0.35	0.60	8.90	0.07	27.86	(27.01)	0.26	284	6,153	49.30		98.50	
56 Long-term debt/equity	Ascending	9,197	(5.54)	2.05	1.17	0.77	6.46	0.12	22.37	(18.17)	0.05	284	7,461	54.23		98.88	
57 Merton's distance to default	Ascending	8,053	4.76	2.28	3.71	2.66	11.14	0.24	31.19	(31.18)	0.00	284	6,465	60.21		93.26	
58 Capex to Dep	Descending	7,623	(3.36)	4.12	3.15	1.52	6.50	0.23	22.38	(19.93)	0.00	284	5,133	61.27		96.91	
6. Technicals																	
59 Realized vol, 1Y daily	Descending	9,595	0.12	3.60	4.56	5.11	15.34	0.33	29.45	(44.64)	0.00	284	7,932	61.27		98.96	
60 Skewness, 1Y daily	Descending	9,595	(1.59)	1.22	2.19	1.65	5.33	0.31	15.03	(32.98)	0.00	284	7,932	63.73		90.00	
61 Moving average crossover, 15W-36W	Ascending	9,316	(7.48)	3.67	1.92	2.98	14.58	0.20	37.15	(45.46)	0.00	284	6,926	62.32		91.36	
62 Normalized abnormal volume	Ascending	9,719	1.09	2.79	3.08	2.26	6.54	0.35	20.47	(14.71)	0.00	284	7,885	60.92		66.25	

Note:

- 1 Direction indicates how the factor scores are sorted. Ascending order means higher factors scores are likely to be associated with higher subsequent stock returns, and vice versa for descending order.
- 2 P-value indicates the statistical significance of the factor's performance. A smaller p-value suggests that it is more likely the factor's performance is different from zero.
- 3 This is the autocorrelation of the factor scores over time. Higher serial correlation indicates lower portfolio turnover based on the factor.

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



Appendix 1

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