Quantum The monthly newsletter of the Deutsche Bank Quantitative Strategy team

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Welcome to the May edition of the DB Quantitative Strategy Team's monthly newsletter, **Quantum**. The aim of Quantum is to make it easier for you to keep track of all the research we publish, and to serve as a forum to highlight the latest news and thinking in the quant investing world. If you only read one email from us every month, make it Quantum!

This month we had the great honor of being named the **#1 quant team in Asia** in the **2013 Institutional Investor All-Asia Research Team survey**. This result, coming on the back of our #1 rankings in the All-America and All-Europe Research Team surveys, gives us a lot of confidence that you are finding our research valuable. We want to take the opportunity to thank all of you for taking the time to vote, and more importantly for your support throughout the year. Without your feedback, lively discussions, and steady stream of good ideas we'd really have nothing much to write about. So again, thank you so much for your support!

Now, on to the this month's bumper crop of research. In Europe we launched a **comprehensive study of risk factor timing**. The idea of transitioning from an asset class-based allocation to a risk factor allocation is getting a lot of interest. But, while risk factors do deliver a positive payoff in the long-run, in the short-term they can be impacted by macroeconomic conditions. In our research we develop a "switchboard" to help investors understand the link between the business cycle, the leverage cycle, and the ebb and flow of risk factor performance.

Meanwhile in the U.S. we published two major pieces. The first, on the alpha side, develops a **technical trading system** that can be used to trade single stocks or country indexes. Unique features of the system include a market conditions overlay that alters the response to buy and sell signals depending on market direction, and a trading momentum filter that limits the rules' application to stocks where the rules have been working in the past. The second paper is on portfolio construction, and is one we hope will remain on your desk for years. We carry out an **exhaustive analysis of risk-based allocation strategies**, not just in equities but also in other asset classes and even multi-asset portfolios. A novel feature is the introduction of a Minimum Tail Dependence portfolio that builds on our extensive work on crowded trades by deliberately avoiding such trades in the first place.

We will be **speaking at a number of upcoming events** over the next few weeks, so we hope to see many of you there.

- **DB Quant London Luncheon** (June 5th, 2013 - London): Yin and Rocky will be hosting an informal group luncheon at our London office to present our latest research. The event is nearly full, but if you'd like to attend please let us know and we will try to squeeze you in.
- **DB Quant Boston Luncheon** (June 19th, 2013 - Boston): Yin and Rocky will be presenting our latest research at an informal luncheon in our Boston office. We still have seats available, if you'd like to attend please let us know and we will sign you up.
- **Axioma Quant Forum** (June 20th, 2013 - New York): Yin will be presenting our latest portfolio construction work from our recent report the "DB Handbook of Portfolio Construction". To register, click here.
- **CFA UK Annual Conference** (June 20th, 2013 - London): Spyros will be speaking, with discussion topics to focus on portfolio construction using risk factors, low volatility strategies, and the fallibility of benchmarks. For more info, click here.
- **QuantInvest 2013** (June 25th, 2013 - Chicago): Rocky will be presenting some of our recent work on web and news sentiment stock-selection models. For more info, click here.
- **Behavioural Models and Sentiment Analysis Conference** (July 3rd, 2013 - London): Rocky will be presenting some recent work on web and news sentiment via video conference. For more info, click here.

As always, we look forward to discussing our research ideas with you in the coming weeks. Any feedback is much appreciated.

Regards,

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Recent Research

North America

- **Portfolios Under Construction: DB handbook of portfolio construction** (May 30th, 2013): The heart of portfolio construction is about how to achieve better diversification and risk reduction. In this paper, we introduce two innovative techniques to accomplish this goal. These techniques recognize the fact that asset returns are not normally distributed. The

minimum tail dependence portfolio attempts to find assets that are less dependent to each other at the tail level to avoid crowded trades. To read the whole report, click here.

- **Signal Processing: The evolution of market timing** (May 16th, 2013): In this report, we develop a trading system that starts with well-known technical trading rules, improves on them, and finally integrates them into a quantitative investing framework. One of the novel features of our approach is that it incorporates the direction of the broad equity market into its stock selection calls. To read the whole report, click here.
- **The Quant View** (May 3rd, 2013): In this report we present our latest quantitative forecasts. This month we highlighted increasing crowding in low volatility and dividend yield strategies, and suggested investors beware of potential downside risk. It turns out that was a good call. To read the whole report, click here.
- **The Quant View: Small cap edition** (May 3rd, 2013): This month we launch a new quant report dedicated to small caps. Quantitative screening techniques are particularly fruitful in the small caps world. With so many stocks to choose from, and so little time to analyze them all, quant tools can help point small cap investors towards the types of stocks that warrant further analysis. To read the whole report, click here.

Europe

- **Thematic Report: A macroeconomic switchboard for style factor allocation** (May 22nd, 2013): In this report we introduce a taxonomy of macroeconomic and financial market conditions, which draws from the interaction of the business cycle with the leverage cycle. We believe that changes in growth and leverage dynamics drive risk-pricing behavior, which, in turn, influence expected risk factor performance. To read the whole report, click here.
- **Top-Down Monthly Update: MCRM update** (May 2nd, 2013): The MCRM model uses economic trade flow data to rotate among countries. The allocation in the long portfolio for the month of May mainly includes North America, Japan, and a selected group of Asian countries. In the short portfolio, we highlight the exposure to the BRIC area. To read the whole report, click here.

Asia

- **Quantfucius: Quantitative ideas for investors in Asia** (May 7th, 2013): In this monthly report, we showcase the best ideas based on our quantitative signals and model forecasts. We include both bottom-up stock selection ideas as well as top-down country allocation calls. This month Asian countries continue to dominate the long side of our country rotation model, while at the stock level the opportunity for stock-selection is favorable. To read the whole report, click here.

Global

- **Academic Insights: Harnessing the best ideas from academia** (May 24th, 2013): Every month we scan the latest academic research for innovative but practical quant investment ideas. This month one of the interesting papers we highlight devises a statistical model to determine "leader" and "follower" stocks, and then uses that to predict future returns for the follower stocks based on the leader's past performance. To read the whole report, click here.

Note: to access these links you need a login to the DB Quant website; if you don't have a login, or have forgotten your password, please click here and fill out the requested details.

Quant in the News

Interesting news articles related to quant investing:

- **Going Big: Norway Takes on Risk Factors for Large Portfolios** (*ai-CIO.com*, May 30th, 2013): Risk factor-based investing is a hot topic right now. This article, and the paper it mentions, considers the implications for risk factor performance when used in very large (>$100 billion) portfolios To read the whole article, click here.
- **Call it What You Like - New Investing Approach Gains Followers** (*bloomberg.com*, May 15th, 2013): Last month we published an in-depth paper studying the use of environment, social, and governance (ESG) factors in quantitative portfolios. This is a space that continues to gain attention, and perhaps more importantly, assets. To read the whole article, click here.

Quantomatic: Latest trends in quant technology

Each month we use this section to focus on the technological side of quant investing. Our view is that better technology can be a source of alpha in its own right - either via new, cutting-edge data sources or through more data intensive modeling techniques.

It's difficult for investors to resist the buzz of the social media startup space. The rapid surge in valuations, buyouts, and IPOs of social media companies has caused a significant increase in entrepreneurial-based technology startups hoping to ride this wave. For

investors though, this world is hard to access, given that these firms are not yet listed, have a high failure rate, and are often opaque with unproven business models. However, an interesting company we came across called i2X is taking a more quant-focused approach. Instead of trying to pick individual winners in the space (i.e. pick the next Instagram or Tumblr) they focus on building "clusters" of startups (think portfolios in our language). The firm has a data infrastructure that allows investors to analyze a large number of technology startups (including failures) based on different characteristics while controlling for other risk factors. The obvious next step is to look for factors that best predict future success, and build a diversified portfolio that seeks exposure to those characteristics. Perhaps this could form the basis of an alternatives allocation instead of the usual hedge fund or private equity sleeves?

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