Quantum The monthly newsletter of the Deutsche Bank Equity Quantitative Strategy team

Welcome to the August 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!

Given the violent market volatility this month, staying focused on research instead of the sea of red on the Bloomberg terminal has been a little tricky. Nonetheless, we did touch on some interesting research topics over the course of the month. In the U.S. we launched a new model to **forecast takeover targets**. Given depressed valuations following the sell-off and cash-rich corporate balance sheets, we do expect M&A activity to re-accelerate as risk aversion dissipates. Our model has some novel features, including the use of "informed trading" variables - derived from options data and high frequency data - to better time the entry point of trades.

Meanwhile, in Europe we have been delved into the interesting problem of **estimating equity risk premia** for countries. The ERP is of course a crucial ingredient in many investment strategies, but there is no broad consensus on the best way to estimate it. In our research we canvas a range of methodologies, and make recommendations on which techniques work. At the same time, we are also excited to launch our new European style factor basket portfolios. These are designed to provide exposure to seven categories of style factor premia, and are available on Bloomberg on the DBCU page, under Quantitative > EMEA/Global.

Finally, we will be presenting at the **Boston QWAFAFEW event**, September 20th at 6pm, on active tail risk management in equity portfolios and asset allocation strategies. If you are interested, please register online at here. Look forward to seeing some of you there.

Regards,

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Recent Research

North America

- **Signal Processing: Targeting takeovers** (August 22nd, 2011): We build a quant model for predicting takeover targets. A novel feature of our model is the use of informed trading variables, constructed using high frequency and options data, which help us enter potential targets at the right time. We also devise a way to mitigate what we call the "loser" drag, which arises from holding underperforming stocks in the hope they will get taken over. To read the whole report, click here.
- **QCD Model: August update** (August 8th, 2011): In our regular monthly update of our flagship alpha model, we recommended allocating more weight to value, growth, momentum, revision, and quality factors, and less weight to technical factors. To read the whole report, click here.

Europe

- **Quantitative Musing: Road map to the equity risk premium** (August 15th, 2011): One of the topics that currently concerns the investment community is how to calculate the Equity Risk Premium (ERP) in different markets. In this report we delve into this challenging topic and examine some practical approaches that an investor may use to estimate the ERP in practice. To read the whole report, click here.
- **Top-Down Monthly Update: Still a mixed allocation** (August 1st, 2011): Our Macromomentum Country Rotation Model (MCRM) uses trade linkages between countries to predict future country-level equity market performance. In the long portfolio we highlight the exposure to core Europe and Asia ex-Japan, while EMEA and the European periphery is still in the short portfolio. Singapore and Israel replace Thailand and Turkey in the top tertile portfolio. To read the whole report, click here.

Global

- **Academic Insights: Harnessing the best ideas from academia** (August 24th, 2011): Every month we survey the latest academic research for any ideas relevant to quantitative investing. In this edition, one theme that stands out is the increasing importance of market or style timing. One paper argues that the rise in passive investing has led to a permanent increase in correlations, while another derives useful analytic expressions to measure expected returns from market timing. 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 contact us at DBEQS.Global@db.com and we will get you set up.

Quant in the News

Interesting news articles related to quant investing:

- **Deutsche Bank Identifies Takeover Candidates** (*Bloomberg*, August 22nd, 2011): Most quant research is too esoteric for the media to take much interest, but our takeover target model did generate a bit of a splash outside the quant world. Or perhaps it was just a slow news day. To read the whole article, click here.
- **Direxion drafts quant, volatility-focused ETFs** (*IndexUniverse.com*, August 16th, 2011): An emerging trend is the "pacification" of quant strategies into ETF-type products. Because quant strategies are rules-driven by nature, they are an obvious candidate in the accelerating quest to ETF-ize everything. What this means for returns to the traditional quant factors is a question we will have to confront sooner than we might like. 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 modelling techniques.

On the subject of modelling techniques, a field of study called graph analysis is becoming increasingly important in modeling the multi-dimensional relationships that are common within social media systems, communication networks, electronic circuits, and even biological ecosystems. Increasing demand for the analysis of non-traditional datasets, coupled with the advent of new technologies and analysis tools, has led to the resurgence of a graph analysis technique called graph mining. In a nutshell, graph mining is the process of interpreting graphical information for the purposes of pattern recognition, data mining, extrapolation, and data linkage. We recently came across two tools - SPSS Modeler and Data-Applied - that offer graph mining capabilities and support. Traditionally, graph mining has been employed for analysis of biological systems. However, the incredible complexity of today's financial ecosystem mean that such techniques might also be useful to quant investors.

Other items of interest

Regular readers of *Quantum* know that we are quite big fans of the R programming language. Indeed, this "Other Items of Interest" section does tend to focus disproportionately on R related topics. But for all its good features, R is certainly not without limitations. One of the biggest issues is the massive proliferation of user-provided packages, which extend on the basic R functionality with a dizzying array of new features. This might sound like a positive, but it is also increasingly a frustration. Finding the right package for a particular task is becoming a full time job, especially because there are often multiple packages that do the same thing. Picking the right package can take almost as long as writing everything from scratch! These gripes are well articulated in a recent blog posting on *Information Management* titled "Frustrations with R". Read the whole entertaining post here.