



Harnessing the best ideas from academia

Welcome to our monthly Academic Insights report

Each month we survey the academic literature for interesting published and working papers related to quantitative investing. We review five papers in detail and also provide a list of other papers that piqued our interest this month.

Fresh insights from academia

Most people – even nerdy quants – like to shop for things that look nice. So why should buying stocks be any different. One of the interesting papers we review this month shows that a strategy of buying stocks with visually-appealing price patterns and selling those with unattractive price patterns can significantly outperform the basic momentum strategy. An attractive stock is one that has been going up at an increasing rate in the past, whereas an ugly stock is one that has been going down at an increasing rate. The argument is that these types of stocks tend to be more attention-grabbing, and therefore tend to exhibit a stronger trend. Style matters, it seems.

Key papers this month

This month we focus on five papers spanning a range of topics including alpha generation, portfolio construction, and risk management:

- Investor attention, visual price pattern, and momentum investing
- Using link mining for investment decisions: Extending the Black-Litterman model
- Smart beta strategies: the social responsibility of investment universes does matter
- Time-varying momentum payoffs
- A four-factor model for the size, value, and profitability patterns in stock returns

Upcoming events

We also highlight upcoming conferences and seminars in the quantitative investing space that may be of interest.

The best of the rest

At the back of this report we include abstracts from some additional papers that we think are also quite interesting. These are arranged by topic to make skimming the list quicker. If you need any further information on any of the papers in this report, please contact the Deutsche Bank Quantitative Strategy team at (+1) 212 250 8983 or (+44) 20 754 71684 or (+852) 2203 6990, or email us at DBEQS.Global@db.com.

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A letter to our readers

Welcome to *Academic Insights*

Most of us, when we are out shopping, are visual creatures. We like to buy things that look good (other than your author, whose tie and shirt combination inevitably leaves a lot to be desired). So why should stocks be any different?

Looking good, feeling better

An interesting new paper by Chen and Yu [2013] argues that in fact stocks are indeed just like other purchases; we like to buy the ones that look good. More specifically, the authors assess the visual appeal of stocks by considering their past price action. Stocks that have gone up at an increasing rate look quite juicy, whereas those that have been going down at an increasing rate are usually the ones we avoid at all costs. The study finds that a strategy of buying good looking stocks and shorting ugly stocks does much better than the equivalent momentum strategy (which just buys past winners and sells past losers, irrespective of the path they followed to get there). In other words, being a winner stock is not enough; you have to win in style!

Buying stocks with visually-appealing price patterns and shorting those with unattractive patterns beats the basic momentum strategy

Two for the price of one

Two hot themes in the investment world right now are alternative beta strategies and socially responsible investing (SRI). So it was only a matter of time before someone combined the two. A new paper by Bertrand and Lapointe [2013] studies how smart beta strategies (by which they mean the usual plethora of minimum variance, maximum diversification, risk parity, etc.) perform in a SRI-compliant universe compared to the broader universe. The interesting outcome is that despite the smaller breadth of the SRI-compliant universe, the smart beta strategies actually perform in-line with the equivalent strategies in the wider universe. This is an important finding, because it suggests asset owners who want to take an SRI approach to their investments can still garner benefits from the latest risk-based investment strategies.

One question we often get asked is whether the standard quant toolbox works in a smaller SRI-compliant universe; this paper says yes

When to use momentum

Ever since the great momentum crash in March-May 2009, the momentum factor has been a popular research topic. The attractive returns outside of the episodic crashes make it worthwhile to study whether one can somehow avoid the crashes through a timing mechanism. A study by Avramov, Cheng, and Hameed [2013] shows that market-wide illiquidity is a useful tool for doing that. They show that when illiquidity is high, momentum profits tend to suffer. Since illiquidity is easily measured using metrics like the Amihud ratio, this paper offers a practical way to solve one of the vexing issues with momentum.

Avoiding momentum crashes is a popular topic right now, given the devastating drawdown in the March 2009 junk rally

For the rest of this month's papers, please read on.

Regards,
The Deutsche Bank Quantitative Strategy Team



Five key papers this month

Paper 1: "Investor attention, visual price pattern, and momentum investing"

- Li-Wen Chen and Hsin-Yi Yu
- SSRN, available at <http://ssrn.com/abstract=2292895>
- Reviewed by Rochester Cahan

Why it's worth reading

As quants, we tend to look at stocks in terms of numbers. But many investors, and indeed humans in general, are visually-orientated. This paper argues that stocks whose prices show certain appealing visual patterns (e.g. rising at an increasing rate) are more likely to attract investors' attention, and hence show stronger momentum-type behavior. Anyone who has watched the talking heads on CNBC hyperventilating over the latest hot stock chart can understand why there might be some truth in this argument.

As quants, we often forget that most investors don't think in numbers like we do

Data and methodology

The data are straightforward: the usual CRSP common stocks from 1962 to 2011, excluding those with prices below \$5. More interesting is the methodology for indentifying "appealing" visual patterns. It turns out it is simple: for a given stock, at the beginning of each month, t , regress its daily returns from month $t-13$ to $t-2$ onto a time trend variable and that same variable squared. The coefficient on the time trend variable, β , gives the linear growth rate of the stock with time. The coefficient on the squared time trend, γ , tells us whether the stock price chart has a convex or concave shape. The study itself involves simple backtesting of groups of stocks with various combinations of β and γ . For example, buying stocks with positive β and γ would be buying stocks that have been trending up at an increasing rate (i.e. a convex pattern).

This paper has a simple hypothesis: momentum should be stronger for stocks with appealing price patterns, e.g. stocks rising at an increasing rate

Results

A strategy that goes long past winners with highly convex price histories and short past losers with highly concave price histories almost always beats the equivalent momentum strategy. For example, using a 12 month formation period and six month holding period yields annual returns that are almost double the basic momentum strategy with the same parameters. In further analysis, the authors study the characteristics of stocks with concave and convex past prices. Interestingly, convex stocks tend to be larger, less volatile, and more liquid. In contrast, concave stocks are also larger and more liquid, but also more volatile than the universe.

Sorting stocks on past performance, plus the convexity or concavity of that performance, significantly enhances the basic momentum strategy

Our take

This is an interesting paper that is also extremely easy to implement. It ties into our own work where we showed that momentum works better for stocks with higher news flow. Indeed, perhaps the two are related: could it be that stocks with appealing price patterns also generate higher news flow? This is a fruitful area for future research.

This result ties into our own finding that stocks with higher news flow tend to have stronger momentum



Paper 2: “Using link mining for investment decisions: Extending the Black-Litterman model”

- German Creamer
- SSRN, available at <http://ssrn.com/abstract=1771847>
- Reviewed by Ada Lau

Why it's worth reading

In this complex world, extracting information from social networks to obtain useful financial signals is becoming popular. So far, most studies have been focusing on determining “proximity” between companies.¹ This paper takes a different angle and attempts to forecast earnings surprises using the network of company directors and analysts who cover the companies. This approach could help to disentangle the conflicts of interests between company management, investors and analysts, and hence providing better forecasts for earnings surprises and abnormal returns.

Extracting information from social networks is a growing area of interest for investors

Data and methodology

US stock data are obtained from CRSP and Compustat, analyst quarterly estimates are obtained from I/B/E/S, and annual list of directors is from the Investor Responsibility Research Center. First, the author uses the software package “Pajek” and applies a link mining algorithm called “PortInterlock” to build a social network where the vertices are the companies and the edges are the number of common directors and analysts shared by each pair of companies. Based on this network, social indicators are obtained: (1) Degree Centrality – the degree of connections between directors and analysts; (2) Closeness Centrality – how close are the connections; (3) Betweenness Centrality – how many companies are connected through the same reference company; (4) Clustering Coefficient – the degree of clustering of the companies. Using these social network indicators, together with a list of accounting indicators, analyst forecasts and economic variables, a machine learning algorithm called “Logitboost” is applied to forecast the trends of earnings surprises and cumulative abnormal returns (CAR) for each asset.

This study looks at whether a network of companies, directors, and analysts can be used to better predict earnings surprises

Results

The mean prediction error of earnings surprises is 19%, which is much lower than that of CAR (47.6%). The author only tests a trading strategy based on the predicted trends of earnings surprises. The long-only Black-Litterman portfolio with the views obtained from the above algorithm gives the highest Sharpe ratio of 6.56 when the confidence of views is high and the risk aversion parameter is small, compared with 1.42 for the market portfolio and 2.84 for the equal weighted portfolio.

The network does show efficacy in improving the accuracy of earnings surprise prediction and enhances an earnings surprise-based trading strategy

Our take

This paper shows an example of how social network data may add value on top of economical or financial variables by accounting for the patterns in behavioral finance. Generating views using the “PortInterlock” algorithm is novel, but the author did not attempt to obtain uncertainty of these views and simply use fixed values in the backtests, which undermines the Black-Litterman mechanism.

Studying hidden links between companies is a fruitful area for future research

¹ For our own work in this space, see: Cahan et al., 2011, “Signal Processing: Quant 2.0”, *Deutsche Bank Quantitative Strategy*, 11 November 2011



Paper 3: “Smart beta strategies: The social responsibility of investment universes does matter”

- Philippe Bertrand and Vincent Lapointe
- SSRN, available at <http://ssrn.com/abstract=2254578>
- Reviewed by Javed Jussa

Why it's worth reading

Recently, there has been a lot of interest in so-called “smart beta” investment strategies. At the same time, there is a growing focus on socially responsible investing (SRI).² It was only a matter of time before someone put these two hot topics together. In this paper, the authors study the impact on smart beta strategies if one is limited to an SRI-compliant universe. This is an important question because the growing number of SRI mandates suggests that quant managers will increasingly be called on to demonstrate that their strategies can still function in a smaller, SRI-compliant universe.

Smart beta and SRI are two hot topics right now, so why not combine them?

Data and methodology

For this research, the universes under study are the EuroStoxx, the Advanced Sustainable Performance Index (ASPI), and the complement of the ASPI (i.e. the part of the EuroStoxx universe not in the ASPI). The ASPI is a subset of the EuroStoxx and contains approximately 120 best-rated stocks based on environmental, social, and governance (ESG) factors. The backtesting period is from 2002 to 2012 and portfolios are rebalanced on a quarterly basis. The paper examines the performance of various portfolio construction techniques including minimum variance (MV), maximum diversification (MD), and equal risk contribution (ERC) within these three universes. The authors also compare the performance to the equally-weighted and cap-weighted portfolios. Solving MV, MD, and ERC requires an estimate of the variance covariance (VCV) matrix. As such, the authors also perform detailed attribution analysis on the impact of different estimation methodologies. The estimators employed include: empirical, constant correlation, shrinkage estimator with constant correlation, and shrinkage estimator with the one-factor model VCV matrix.

This paper studies whether smart beta strategies like minimum variance, maximum diversification, and risk parity can work in an SRI-compliant universe

Results

The authors find that smart beta strategies applied in the full EuroStoxx universe tend to favor stocks that are not in the ASPI universe. In other words, the smart beta strategies studied tend to tilt *away* from socially responsible companies. On face value, this suggests asset owners who want to take an SRI stance should avoid these strategies. However, the good news is that in terms of risk-adjusted performance, the smart beta strategies in the ASPI universe do not perform significantly worse than the equivalent strategy in the whole universe. In fact, they tend to have more positive skewness.

The authors find that smart beta tend to tilt away from good SRI stocks; but importantly that doesn't mean that smart beta underperforms in an SRI universe

Our take

This is an interesting paper because it suggests that popular smart beta strategies can still work in an SRI-compliant universe. However, the downside is, like all SRI research, the conclusions are highly dependent on the data used to define what qualifies as an SRI stock.

Popular smart beta strategies are still effective even in a smaller, SRI-compliant universe

² For our own work in the socially responsible investing space, see: Jussa et al., 2013, “Signal Processing: The socially responsible quant”, *Deutsche Bank Quantitative Strategy*, 24 April 2013



Paper 4: “Time-varying momentum payoffs”

- Doron Avramov, Si Cheng, and Allaudeen Hameed
- SSRN, available at <http://ssrn.com/abstract=2289745>
- Reviewed by Mehmet Beceren

Why it's worth reading

To disentangle the driving factors of the momentum anomaly is a big challenge in the finance literature. This paper makes an attempt to analyze the role of market illiquidity on the profitability of the simple momentum trading strategy, and builds a partial link from the behavioral models of investor expectations to momentum returns. The paper is able to show that market illiquidity (a commonly used measure based on Amihud [2002]) has robust predictive power for the variation in momentum profits in time. Also, the cross-sectional dispersion of momentum payoffs is shown to be partly driven by market illiquidity.

Since the devastating momentum crash of March 2009, the momentum strategy is one of the most studied of all factors

Data and methodology

The sample includes all common stocks listed on NYSE, AMEX and NASDAQ available in CRSP from January 1926 to December 2011. Long-short momentum portfolios (winners minus losers) are constructed in a standard way by taking the top and bottom deciles of the first 11-month returns. The primary focus of the analysis is the correlation between momentum returns and the aggregate market illiquidity measure. The authors present a set of robustness checks that test the descriptive power of market illiquidity in the presence of various control variables. A sentiment index based on Baker and Wurgler [2006] is used in addition to the Fama-French factors, volatility measures, earnings surprise effects, along with market-state indicators to test the robustness of the illiquidity variable. The authors also expand the analysis to the interaction of the average market illiquidity with the cross-sectional dispersion of stock-level illiquidity to explain the variation in momentum returns.

This paper argues that the performance of the momentum strategy is closely tied to market-wide illiquidity

Results

The analysis of momentum returns shows that the winners-minus-losers portfolio earns negative illiquidity premium and aggregate illiquidity is an important determinant of the time variation in momentum payoffs. The results suggest that during high market illiquidity periods, the gap between the illiquidity of the loser and winner portfolios widens significantly. The interaction of investor sentiment and widening illiquidity gap seem to be driving the episodic “momentum crashes”. In addition, stock-level momentum payoffs are shown to be related market illiquidity.

Aggregate illiquidity is an important determinant of the time variation in momentum profits

Our take

The paper presents a set of very interesting results related to the statistical and structural nature of momentum returns, and makes a strong case for the significance of the illiquidity risk premium in determining momentum returns. One direct recommendation that follows from the results is to incorporate an average market illiquidity indicator to avoid momentum crashes. A backtest based on illiquidity signals is warranted to see how feasible it can be to improve momentum returns.

The practical implication of this paper is that one should track market-wide illiquidity as a useful timing tool for momentum strategies



Paper 5: "A four-factor model for the size, value, and profitability patterns in stock returns"

- Eugene F. Fama and Kenneth R. French
- SSRN, available at <http://ssrn.com/abstract=2287202>
- Reviewed by Mehmet Beceren

Why it's worth reading

This is a preliminary draft of the prospective addition to the Fama-French literature on factor-based analysis of stock returns. The paper investigates if the three factor model of Fama and French [1993] should be augmented to include a profitability factor. The motivation for the exercise is driven by the results of a recent paper by Novy-Marx [2012] that documents a strong relation between a proxy measure of expected profitability and average returns. Novy-Marx [2012] shows that there is variation in average returns related to profitability that is missed by the Fama-French three factor model. The goal of this new paper is to see if they can actually capture the unexplained variation in average returns by adding a profitability factor to their three factor model.

The Fama-French three factor model is standard in the academic literature, but increasingly is under threat by new empirical evidence... or is it?

Data and methodology

The authors begin their empirical analysis by generating the return statistics of portfolios of stocks sorted on Size and Book-to-Market versus Size and Profitability. The sample is all NYSE, Amex and NASDAQ stocks that are included both in Compustat and CRSP from 1963-2012. To disentangle the effect of each factor they need to create cross-sorted quintile portfolios. Such sequential sorting of multiple factors inevitably creates problems: First, the 5x5x5 sorts on Size, B/M and Profitability produce too many baskets. The authors try to get around that problem by limiting the number of percentile groups for each factor. The other problem is the negative correlation between Book-to-Market and Profitability. As a result of the negative correlation between the two factors, the triple-sorting yields baskets with too few or empty quintile baskets. To partly circumvent that issue, the authors assume separate percentile breakpoints for the Profitability factor in Small and Big stock universes. Then they document and compare the return statistics of the stock baskets produced. The main statistical testing tool is the GRS portfolio efficiency test devised by Gibbons, Ross and Shanken [1989].

The paper sets out to refute the Novy-Marx [2012] assertion that adding a profitability factor to the Fama-French model improves it

Results

The GRS test results reject a parsimonious four factor model but suggest that Profitability adds descriptive power for the distribution of average returns across some of the factor-based baskets. Although a four-factor model is strongly rejected, partial effectiveness of the Profitability factor generates additional empirical questions that will be discussed in the following drafts of the paper.

The authors find, to the surprise of no one, that their three factor model does not need a fourth factor

Our take

This is an unfinished paper in many respects. As the authors describe in the concluding section, there are additional issues to be investigated. Also, at its current stage there are points that can potentially be better explained and justified. Why the GRS test, but not other alternatives, is a good tool for the empirical problem in hand, and how much the test results are dependent on the "practical choices" made at each step of portfolio construction, are among some of the points that will probably be made more clear in the future drafts of this intriguing study.

This is an early paper with many open questions, but we think it is important because it touches on one of the most ubiquitous models in all of finance



Upcoming conferences

Europe

Figure 1: European event calendar

Date	Location	Conference
8-11 September 2013	Oxford	London Quant Group Autumn Seminar http://www.lgg.org.uk/autumn-seminar-2013/
26 September 2013	London	Axioma Quant Forum http://www.axioma.com/seminars.htm
14-15 November 2013	London	CFA Institute Sixth Annual European Investment Conference http://eic.cfainstitute.org/?intCamp=homepage_banner_eic_pjs
30 September – 3 October 2013	London	CFA Institute – Implementing Fundamental Quantitative Techniques http://www.cfainstitute.org/learning/products/events/Pages/09302013_88259.aspx
14-16 December 2013	London	Computational and Financial Econometrics http://www.cfenetwork.org/CFE2013/

Source: Deutsche Bank

North America

Figure 2: North American event calendar

Date	Location	Conference
12-17 August 2013	New York	Advanced Risk and Portfolio Management Bootcamp http://www.symmys.com/arpm-bootcamp
8-9 October 2013	New York	EDHEC-Risk Days in North America http://www.edhec-risk.com/events/edhec_conferences/northamericadays2013?newsletter=yes
11 September 2013	Chicago	CQA Fall Conference www.cqa.org
10-12 November 2013	New Orleans	Factset Symposium http://www.factset.com/campaigns/symposium2013
3 January 2014	Philadelphia	2013 AFA/AEA Meeting http://www.afajof.org/details/page/4437421/Paper-Submission-2014.html
13 March 2014	Newark, NJ	CQA Best Practices Seminar www.cqa.org
16 April 2014	Las Vegas	CQA Spring Conference www.cqa.org

Source: Deutsche Bank



Asia

Figure 3: Asian event calendar

Date	Location	Conference
30 October 2013	Melbourne	CIOS Australia 2013: Factors for Portfolio Success http://www.ai-cio.com/event/CIOSAus2013/
6 November 2013	Hong Kong	CQAsia Fall Conference http://cqa.org/
17-20 December 2013	Sydney	Quantitative Method in Finance 2013 Conference http://www.qfrc.uts.edu.au/qmf/

Source: Deutsche Bank



Other papers of interest

Alpha generation and stock-selection signals

Better than the original? The relative success of copycat funds

- Marno Verbeek and Yu Wang
- *Journal of Banking and Finance*, Volume 37, Issue 9, available at <http://www.sciencedirect.com/science/article/pii/S0378426613002070>
- Abstract: "We construct hypothetical copycat funds to investigate the performance of free-riding strategies that duplicate the disclosed asset holdings of actively managed mutual funds. On average, copycat funds are able to generate performance that is comparable to their target mutual funds, taking into account transaction costs and expenses. However, their relative success increased significantly after 2004 when the SEC imposed quarterly disclosure regulations on all mutual funds. We also find substantial cross-sectional dispersion in the relative performance of copycat funds. Free-riding on the portfolios disclosed by past winning funds and funds that disclose representative holdings generates significantly better performance net of trading costs and expenses than the vast majority of mutual funds. The results indicate that free-riding on disclosed fund holdings is an attractive strategy and suggest that mutual funds can suffer from the information disclosure requirements."

Are extreme returns priced in the stock market? European evidence

- Jan Annaert, Marc De Ceuster, and Kurt Versteegen
- *Journal of Banking and Finance*, Volume 37, Issue 9, <http://www.sciencedirect.com/science/article/pii/S0378426613002343>
- Abstract: "This paper revisits some recently found evidence in the literature on the cross-section of stock returns for a carefully constructed dataset of euro area stocks. First, we confirm recent results for US data and find evidence of a negative cross-sectional relation between extreme positive returns and average returns after controlling for characteristics such as momentum, book-to-market, size, liquidity and short term return reversal. We argue that this is the case because these stocks have lottery-like characteristics, which is attractive to certain investors. Also, these stocks tend to be very volatile so that arbitrageurs are discouraged from correcting potential mispricing. As a consequence, these stocks are often overpriced and hence face lower expected returns. Second, when we control for extreme returns, the recently found negative relationship between idiosyncratic risk and future returns is less robust. In our models, after adding maximum returns, the relationship is insignificant and sometimes even positive. We also find that idiosyncratic skewness and coskewness play an important role for asset pricing, as predicted by several theoretical models."



Alpha momentum and price momentum

- Hannah Lei Huhn and Hendrik Scholz
- SSRN, available at <http://ssrn.com/abstract=2287848>
- Abstract: "We implement a momentum strategy that ranks stocks based on their daily three-factor alpha. This strategy outperforms a conventional price momentum strategy in the U.S. and in Europe in terms of three-factor alphas and Sharpe ratios. The difference in the composition between these two strategies can be explained by differences in their factor-related return contributions during the ranking period. In addition, the alpha momentum strategy exhibits smaller dynamic factor exposures within the investment period. In further analysis we find that i) a hedge strategy based on factor exposures determined during the formation period only works for alpha momentum, ii) price momentum can be subsumed by alpha momentum but not vice versa, and iii) the three-factor alpha of momentum strategies based on "alpha only" stocks doesn't reverse in the sixty months following the formation period."

The timing of 52-week high price and momentum

- Ajay Bhootra and Jungshik Hur
- *Journal of Banking and Finance*, Volume 37, Issue 10, available at <http://www.sciencedirect.com/science/article/pii/S0378426613002446>
- Abstract: "We propose a new momentum strategy based on the timing of a stock's 52-week high price. We find that the stocks that attained the 52-week high price in the recent past significantly outperform the stocks that attained the 52-week high price in the distant past. In particular, the top 10% of the stocks with the most recent 52-week high price outperform the bottom 10% of the stocks with most distant 52-week high price by 0.70% per month. Further, conditioning on the recency of 52-week high price significantly increases the profitability of momentum strategy based on the nearness of current price to the 52-week high price. Specifically, the average monthly return of this strategy is about twice as large for stocks with recent 52-week high price as compared with stocks with distant 52-week high price."

212 years of price momentum (world's longest backtest: 1801-2012)

- Christopher Geczy and Mikhail Samonov
- SSRN, available at <http://ssrn.com/abstract=2292544>
- Abstract: "We assemble a dataset of U.S. security prices between 1801 and 1926, and create an out-of-sample test of the price momentum strategy, discovered in the post-1927 data. The pre-1927 momentum profits remain positive and statistically significant. Additional time series data strengthens the evidence that momentum is dynamically exposed to market beta, conditional on the sign and duration of the tailing market state. In the beginning of each market state, momentum's beta is opposite from the new market direction, generating a negative contribution to momentum profits around market turning points. A dynamically hedged momentum strategy significantly outperforms the un-hedged strategy."



Enhancing the returns of SRI portfolios using a minimum variance small-basket strategy

- Glen Larsen Jr.
- SSRN, available at <http://ssrn.com/abstract=2279115>
- Abstract: "The focus of this research is on enhancing the returns of socially responsible investment (SRI) portfolios by constructing minimum variance small-basket portfolios. The results suggest that individual investors and professional financial planners on behalf of their clients can realize enhanced performance relative to SRI funds that contain a large number of stocks by constructing minimum variance portfolios that generally contain fewer than 10 stocks. Over the 10-year period from 2002 through 2011, which is a function of the availability of SRI fund return data, the average annual excess returns for the minimum variance small-basket portfolios range from 2.59% to 6.99% relative to the larger SRI funds from which the small-basket funds are constructed. Measures of total risk and downside risk further support the enhanced performance of the minimum variance small-basket portfolio strategy. Perhaps most importantly, the minimum variance small-basket strategy that we describe can be easily implemented by individual investors or by professional financial planners on behalf of their clients."

Short selling and corporate bond returns

- Stephen Chrisophe, Michael Ferri, Jim Hsieh, and Tao-Hsien Dolly King
- SSRN, available at <http://ssrn.com/abstract=2294660>
- Abstract: "This paper examines the relationship between short selling in the equity market and corporate bond returns. We show that abnormal short selling is inversely correlated with contemporaneous abnormal bond returns. In addition, firms with heavily shorted shares experience negative future bond returns. The impact of abnormal short selling on bond returns is robust to various risk, liquidity, and characteristics controls. In examining the source of information in short selling, we find that firms associated with heavy short selling and lower bond returns are likely to have more negative earnings surprises and higher credit risk in the future. The overall results support the proposition that short trades in the equity market exert important valuation consequences in the corporate bond market."

The value of soft information in credit rating reports

- Sumit Agarwal, Vincent Chen, and Weina Zhang
- SSRN, available at <http://ssrn.com/abstract=2297138>
- Abstract: "We examine whether concurrent credit rating reports released by Standard & Poor's (S&P) upon rating change provide useful information beyond credit ratings. Employing textual analysis, we abstract linguistic tone — a type of soft information — from the reports. We find that positive (negative) tone is significantly related to positive (negative) abnormal returns during downgrades for investment-grade firms and that tone provides default-related information. Cross-sectional variations in the return-tone relation reveal that tone complements the existing information environment. Moreover, when S&P is concerned about its reputation, it provides less positive tone during downgrades. Under such a low moral hazard



condition, returns react more strongly toward positive tone. Overall, our results suggest that soft information contained in credit rating reports is important to investors.”



Optimization, portfolio construction, and risk management

Default prediction around the world: The effect of constraints on pessimistic trading

- Mark Maffett, Edward Owens, and Anand Srinivasan
- SSRN, available at <http://ssrn.com/abstract=2296992>
- Abstract: "Research examining cross-country differences in the ability of market participants to accurately assess a firm's likelihood of default using publicly available sources of information is virtually non-existent. This paper examines one potential source of such variation, constraints on pessimistic trading (i.e., trades made in anticipation of future price declines). On average, predictive accuracy is significantly greater in countries where pessimistic trading is less constrained. This relation is further identified using time-series variation in restrictions on short selling and the introduction of put option trading. Consistent with trading constraints limiting the extent to which prices reflect publicly available default risk information, the direct incorporation of accounting information in the default prediction model leads to a larger improvement in accuracy where pessimistic trading is limited. Finally, although fewer constraints consistently lead to more accurate identification of actual defaults, during periods of heightened macroeconomic uncertainty, default prediction models in countries with fewer pessimistic trading constraints inaccurately classify a greater proportion of non-default observations."

Optimal factor composition under sampling error of parameters – Diversification of factor portfolios

- Seiji Minami
- SSRN, available at <http://ssrn.com/abstract=2285878>
- Abstract: "Existence of premiums for factors is known to quantitative equity fund managers. They use factors to get premium of them when they construct (factor tilted) portfolio from a lot of stocks. They try to use many factors in order to get the premiums effectively by calculating covariance of each factor. Increasing number of factors is expected to enhance efficiency of portfolio by theory. But in practice, when they construct portfolio from large number of factors, sampling error in estimated parameters sometimes makes trouble to factor tilted portfolio. In this study, we will show case studies of factor tilted portfolio from a lot of factors in three classes, and will propose robust method to deal with sampling error."

Robust portfolio optimization under sampling error: Estimation of sampling error in small eigen value by semidefinite programming

- Seiji Minami
- SSRN, available at <http://ssrn.com/abstract=2292361>
- Abstract: "The optimized portfolio that is calculated by a covariance matrix has large sensitivities to small eigen values of the covariance matrix. Estimation of sampling errors for small eigen values is quite important for fund managers who construct their portfolios from estimated covariance matrixes. If they can calculate the sampling errors, they can construct robust portfolios. In this study, we propose the method of estimation of sampling error for eigen values from error



of each element of covariance matrix. And we will show how this estimation is useful to optimized portfolio.”

Risk-based commodity investing

- Simon Bernardi, Markus Leippold, and Harald Lohre
- SSRN, available at <http://ssrn.com/abstract=2290776>
- Abstract: “Pursuing risk-based allocation across a universe of commodity assets, we find two alternative notions of risk parity to provide convincing results, diversified risk parity (DRP) and principal risk parity (PRP). DRP strives for maximum diversification along the uncorrelated risk sources embedded in the underlying commodities, while PRP budgets risk proportional to the risk source's relevance in terms of their variance. These strategies are characterized by concentrated allocations that are actively adjusted to changes in the underlying risk structure. We also document competing risk-based allocation techniques to be rather similar to the 1/N-strategy or market indices in picking on concentrated market risk. Finally, we demonstrate how to enhance given risk-based allocation strategies by means of common commodity anomalies while preserving a meaningful degree of diversification.”

Systemic risk in the financial sector: What can we learn from option markets?

- Holger Kraft and Alexander Schmidt
- SSRN, available at <http://ssrn.com/abstract=2288073>
- Abstract: “In this paper, we propose a novel approach on how to estimate systemic risk and identify its key determinants. For all US financial companies with publicly traded equity options, we extract their option-implied value-at-risks (VaRs) and measure the spillover effects between individual company VaRs and the option-implied VaR of an US financial index. First, we study the spillover effect of increasing company risks on the financial sector. Second, we analyze which companies are most affected if the tail risk of the financial sector increases. We find that key accounting and market valuation metrics such as size, leverage, balance sheet composition, market-to-book ratio and earnings have a significant influence on the systemic risk profile of a financial institution. In contrast to earlier studies, the employed panel vector autoregression (PVAR) estimator allows for a causal interpretation of the results.”

The smart beta indexing puzzle

- Zelia Cazalet, Pierre Grison, and Thierry Roncalli
- SSRN, available at <http://ssrn.com/abstract=2294395>
- Abstract: “In this article, we consider smart beta indexing, which is an alternative to capitalization-weighted (CW) indexing. In particular, we focus on risk-based (RB) indexing, the aim of which is to capture the equity risk premium more effectively. To achieve this, portfolios are built which are more diversified and less volatile than CW portfolios. However, RB portfolios are less liquid than CW portfolios by construction. Moreover, they also present two risks in terms of passive management: tracking difference risk and tracking error risk. Smart beta investors then have to puzzle out the trade-off between diversification, volatility, liquidity and tracking error. This article



examines the trade-off relationships. It also defines the return components of smart beta indexes.”

Local risk, local factors, and asset prices

- Selale Tuzel and Miao Zhang
- SSRN, available at <http://ssrn.com/abstract=2293784>
- Abstract: “We show that the industrial composition of local markets, in particular, how cyclical the local industries are, impacts firm risk. We propose a metric of how cyclical the local economy is, which we label “local beta”. We find that aggregate shocks have more pronounced effects on local factor prices such as wages and real estate prices in high beta areas. More procyclical wages lead to greater risk sharing with labor, mitigating the effect of systematic shocks on firms in high beta areas. This mechanism lowers the risk of these firms relative to industry peers located in lower beta areas. The same shocks also lead to fluctuations in real estate prices, increasing the risk of firms that have long positions in corporate real estate, partially offsetting the wage effect. We propose an equilibrium model that explains these empirical findings.”

Social networks in the global banking sector

- Joel Houston, Jongsub Lee, and Felix Suntheim
- SSRN, available at <http://ssrn.com/abstract=2288134>
- Abstract: “We construct a wide variety of social network measures within the global banking system using the board connections of top global banks from 16 countries in the post-2000 period. Our measures illustrate that social networks among top banks are extensive and have become increasingly important over time. We hypothesize that these connections may facilitate valuable information flows, but they may also foster a “group-think” mentality that could lead to instability in the global banking sector. Indeed, we find evidence supporting both views. Connected banks are more likely to partner together in the global syndicated loan market, which suggests that social connections generate valuable information which translates into business connections. However, consistent with “group-think” concerns, we find that the more central banks in the network contribute significantly to the systemic risk of the global banking system, suggesting that there is also a potential dark side to having a strong social network.”



Asset Allocation and sector/style/country rotation

A regime switching approach for the predictability of returns in international financial markets

- Anjeza Kadilli
- SSRN, available at <http://ssrn.com/abstract=2291237>
- Abstract: "The aim of this study is to investigate whether the predictability of aggregate financial stock market returns from a large set of (country-specific) sentiment-based, economic and financial variables undergoes a regime change during the recent financial and sovereign debt crises compared to the pre-crisis period. Our data involves a broad set of developed countries and covers the period from January 1999 to August 2011. We allow the regime switch to be either sudden or smooth employing two nonlinear threshold modeling approaches for panel data. We use the spread between 3-month and overnight interbank rates as an appropriate transition variable that predicts business cycles. We find evidence for predictability of financial returns with the marginal effect of the predictors being conditional on the economic state. Notably, investor sentiment and inflation have a greater predictive power on financial returns during economic and financial distress. Conversely, we find similar predictability patterns in the marginal effect through the countries."



Trading and market impact

ETF arbitrage: Intraday evidence

- Ben Marshall, Nhut Nguyen, and Nuttawat Visaltanachoti
- *Journal of Banking and Finance*, Volume 37, Issue 9, available at <http://www.sciencedirect.com/science/article/pii/S037842661300232X>
- Abstract: "We use two extremely liquid S&P 500 ETFs to analyze the prevailing trading conditions when mispricing allowing arbitrage opportunities is created. While these ETFs are not perfect substitutes, our correlation and error correction results suggest investors view them as close substitutes. Spreads increase just before arbitrage opportunities, consistent with a decrease in liquidity. Order imbalance increases as markets become more one-sided and spread changes become more volatile which suggests an increase in liquidity risk. The price deviations are followed by a tendency to quickly correct back towards parity."

Assessing VPIN measurement of order flow toxicity via perfect trade classification

- Torben Andersen and Oleg Bondarenko
- SSRN, available at <http://ssrn.com/abstract=2292602>
- Abstract: "The VPIN, or Volume-synchronized Probability of INformed trading, metric is introduced by Easley, Lopez de Prado and O'Hara (ELO) as a real-time indicator of order flow toxicity. They find the measure useful in predicting return volatility and conclude it may help signal impending market turmoil. The VPIN metric involves decomposing volume into active buys and sells. We use the best-bid-offer (BBO) files from the CME Group to construct (near) perfect trade classification measures for the E-mini S&P 500 futures contract. We investigate the accuracy of the ELO Bulk Volume Classification (BVC) scheme and find it inferior to a standard tick rule based on individual transactions. Moreover, when VPIN is constructed from accurate classification, it behaves in a diametrically opposite way to BVC-VPIN. We also find the latter to have forecast power for short-term volatility solely because it generates systematic classification errors that are correlated with trading volume and return volatility. When controlling for trading intensity and volatility, the BVC-VPIN measure has no incremental predictive power for future volatility. We conclude that VPIN is not suitable for measuring order flow imbalances."

Intraday liquidity, price dynamics and uncertainty in cap-based portfolios

- Paolo Mazza and Mikael Petitjean
- SSRN, available at <http://ssrn.com/abstract=2294444>
- Abstract: "We investigate how informative is price dynamics to estimate contemporaneous intraday liquidity on Euronext for three market capitalization classes: small, mid, and large caps. Liquidity is measured by a comprehensive set of both book-based and trade-based proxies. Price dynamics is captured by studying price movements between high, low, opening, and closing prices. While controlling for trading activity and realized volatility, we estimate the relation between liquidity and price movements by applying OLS with clustered standard errors, robust and median regression techniques."



We show that liquidity and price dynamics are closely related. For example, the intensity in the price discovery process and the level of (relative) price uncertainty are clearly associated with lower liquidity. Easy-to-observe price movements are found to be particularly useful when it comes to efficiently evaluating the level of liquidity on the stock market.”

Are all odd-lots the same? An analysis of all, pure, and circumstantial odd-lot transactions

- Hardy Johnson, Bonnie Van Ness, and Robert Van Ness
- SSRN, available at <http://ssrn.com/abstract=2294727>
- Abstract: “We examine all odd-lot trading and determine if an odd-lot trade is a pure odd-lot trade (the original order is submitted as an odd-lot) or a circumstantial odd-lot (the original order is submitted for more than 100 shares and subsequently divided into multiple transactions, one or more of which is an odd lot). We find that slightly more than half of all odd-lot transactions are circumstantial (the original order is larger than 100 shares). We confirm that odd-lot transactions contribute to price discovery. We further find that pure odd-lot transactions (orders submitted for less than 100 shares) add more to price discovery than circumstantial odd-lot transactions. Our finding that odd-lot transactions contain substantial information is not being driven by orders that are originally larger than 100 shares and subsequently divided into odd-lot transactions. Additionally, we find that more price contribution occurs when a non-high frequency trading firm is providing liquidity in an odd-lot transaction (whether the odd-lot trade is a pure odd-lot transaction or a circumstantial one).”



Finance theory and techniques

Corporate social responsibility and earnings forecasting unbiasedness

- Leonardo Becchetti, Rocco Ciciretti, and Alessandro Giovannelli
- *Journal of Banking and Finance*, Volume 37, Issue 9, available at <http://www.sciencedirect.com/science/article/pii/S0378426613002458>
- Abstract: "We investigate the relationship between corporate social responsibility (CSR) and I/B/E/S analysts' earnings per share (EPS) forecasts using a large sample of US firms for 1992–2011. Based on literature findings, we decompose the CSR effect into four factors: accounting opacity, corporate governance, stakeholder risk, and overinvestment. We find that all of them significantly affect both the absolute forecast error on EPS and its standard deviation controlling for forecast horizon; number of analysts and forecasts; and year, industry, and broker house effects. Consistently with our ex ante hypotheses, overinvestment, stakeholder risk, and accounting opacity have a positive effect, increasing both dependent variables, while corporate governance quality has a negative effect. A crucial aspect of our findings is that high CSR quality in terms of the four factors (i.e., accounting transparency, high corporate governance quality, stakeholder risk mitigation, and absence of overinvestment) contributes to making earnings forecasts unbiased as unbiasedness is generally met in the subsample of the Top CSR quality companies and markedly violated in the subsample of the Bottom CSR companies. We also document that overinvestment and stakeholder risk are sufficient to produce this effect."

Slopes as factors: Characteristic pure plays

- Kerry Back, Nishad Kapadia, and Barbara Ost diek
- SSRN, available at <http://ssrn.com/abstract=2295993>
- Abstract: "Returns to pure play strategies, estimated as Fama-MacBeth slope coefficients on standardized size, value and momentum characteristics, have positive and significant four factor alphas. The mispricing of these characteristics-based strategies by the four factor model is due in part, but not entirely, to (1) the effect of microcap stocks on the pure play returns and (2) the effect of stale book and market capitalization information on the SMB and HML factors. Adjusting for these issues, the value and momentum pure play strategies still have positive and significant four factor alphas. We examine thirteen reported anomalies and find that five have insignificant alphas when the pure play returns are used as factors. Eight are insignificant when an interaction between size and value characteristics is included as a factor."

Realized jump risk and conditional equity premium

- Hui Guo, Liu Zhentao, Keng Wang, Hao Zhou, and Haomiao Zuo
- SSRN, available at <http://ssrn.com/abstract=2294867>
- Abstract: "Realized market-wide jump risk, which has an adverse effect on aggregate economic activity, predicts excess stock market returns in sample and out of sample. Previous studies have suggested a close link between jumps and skewness; however, we find that unlike realized jump risk, standard stock market skewness measures



have no forecasting power for excess market returns. Moreover, both realized jump risk and variance risk premium are significant determinants of conditional equity premium in multivariate predictive regressions. This result further implies that economic uncertainty and rare disaster are two distinct drivers of equity premium variations."

Naked short selling: Is it information-based trading?

- Harrison Liu, Seam McGuire, and Edward Swanson
- SSRN, available at <http://ssrn.com/abstract=2288187>
- Abstract: "Citing a widely held belief that naked short selling is not based on company fundamentals, the SEC (2008) has substantially tightened Reg. SHO close-out regulations in an effort to eliminate naked short selling. Contrary to accepted belief, we find that accounting fundamentals are highly significant in explaining naked short sales. Further, naked short sales contain incremental information about future stock prices: Abnormal returns from a long/short trading strategy that buys (sells short) shares with low (high) short interest are more than seven times larger using naked and covered short interest, compared to returns using only covered short interest (15.2 percent vs. 2.1 percent annualized). Our findings show that recent actions by regulators to eliminate naked short sales are likely to impede informed arbitrage and reduce market efficiency."

Why is the Amihud (2002) illiquidity measure priced?

- Xiaoxia Lou and Tao Shu
- SSRN, available at <http://ssrn.com/abstract=2291942>
- Abstract: "This paper empirically studies the widely used Amihud (2002) illiquidity measure using a large sample of NYSE and AMEX firms from 1964 to 2012. Although the Amihud illiquidity measure is intended to capture price impact using the ratio of return to trading volume, we find that the pricing of the Amihud measure is completely explained by its trading volume component. Specifically, an alternative measure using only the trading volume component of the Amihud measure (ratio of 1 to trading volume) has a correlation of 0.92 with the Amihud measure, and exhibits a similar return predictability. Additionally, the Amihud illiquidity measure is no longer priced after we remove its variation due to the trading volume component. These results are robust to multivariate regression analyses, alternative versions of the Amihud measure, and alternative sample selections such as NASDAQ stocks. These findings suggest that the pricing of the Amihud illiquidity measure is associated with total trading activities instead of price impact."

Informed trading before unscheduled corporate events: Theory and evidence

- Shmuel Baruch, Marios Panayides, Kumar Venkataraman
- SSRN, available at <http://ssrn.com/abstract=2288914>
- Abstract: "Despite widespread evidence that informed agents are active before corporate events, there is little work describing how informed agents accumulate positions and what explains their trading strategies. We use the prisoners' dilemma to model the execution risk that informed traders impose on each other and explain why they forgo the price benefit of limit orders and use instead market orders. However the efficient limit-orders outcome is obtained if there is



sufficient uncertainty about the presence of informed traders. We link the level of uncertainty to costly short selling and test theoretical predictions using order level data from Euronext Paris. We find empirical support for the prediction that informed traders use limit orders when the news is negative, especially when (a) the investor base is not broad, (b) security borrowing costs are high, and (c) the magnitude of the event is small so potential profits cannot justify the cost of borrowing. When the news is positive, we show that informed buyers face more competition and use market orders. These results help explain the buy-sell asymmetry in price impact of trades and provide a framework for surveillance systems that are designed to detect insider trading.”

Do company visits add value for professional investors?

- Lorne Switzer and Mariane Keushgerian
- SSRN, available at <http://ssrn.com/abstract=2294097>
- Abstract: “This paper looks at relationships between managerial characteristics and actions on the performance, management fees, trading behavior, and systematic risk of investment managers of US equity portfolios and Global portfolios during the period 2008 through 2010, focusing on the impact of company on-site visits. Company on-site visits significantly enhance performance and reduce portfolio turnover of US equity managers but not Global equity managers. Higher employee ownership of the investment management firms increases their on-site visit activity. This supports the agency hypothesis that managers with greater personal stakes in their companies invest more in collecting non-public information for trading decisions.”

Momentum and insider trading

- Qingzhong Ma
- SSRN, available at <http://ssrn.com/abstract=2293221>
- Abstract: “Both short-term momentum and long-term reversal are attributable to investors underreacting to preceding insider trading information. Past winners (losers) continue to earn significant positive (negative) returns in the short term only if their insider trading activity indicates positive (negative) information. Thus, short-term momentum is attributable to investors underreacting to insider information that confirms past return. In the long term, past winners (losers) earn significant negative (positive) returns only if their insider trading activity indicates negative (positive) information. Thus, long-term reversal is attributable to investors underreacting to insider information that disconfirms past return. The overall evidence supports underreaction and rejects overreaction.”



Derivatives and volatility

Measuring downside and upside volatilities from options

- Kam Hamidieh
- SSRN, available at <http://ssrn.com/abstract=2286852>
- Abstract: "We introduce a methodology to extract the downside and upside implied volatilities from European options. Our proposed methodology is based on partitioning the total implied volatility into downside and upside portions. We extract the downside and upside volatilities for S&P 500 for the years 2007-2011. Not surprisingly, we find that in general the downside volatility is greater than the upside. However, our method gives a way to quantify the difference. We also find that in the recent years of 2010-2011, the downside volatility accounts for a larger portion of the total volatility when compared with the tumultuous parts of 2007-2009."

Call options, preferences for lotteries, and the stability of underlying stock prices

- Benjamin Blau, T. Boone Bowles, and Ryan Whitby
- SSRN, available at <http://ssrn.com/abstract=2288910>
- Abstract: "Despite assumptions of mean-variance efficiency that underlie most asset pricing models, investors have shown a penchant for lottery-type stocks or stocks that exhibit skewness in returns. In this paper, we test whether the proportion of option trading volume made up from call options (i.e. the call ratio) is greater for stocks with return distributions that resemble lotteries. We find that call ratios are highest for stocks with lottery characteristics, suggesting that investors' preferences for lottery-type stocks might be reflected in the level of call option volume. Perhaps, more importantly, we test whether these preferences affect future spot price volatility. Consistent with our expectation, we find that preferences for lotteries by call option traders directly affect future spot price volatility. To the extent that higher call ratios in lottery-type stocks represent speculative activity in the options market, these results are consistent with theory in Stein (1987), which posits that speculative trading activity in the derivatives market can lead to increased volatility."



Appendix 1

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