



AUCKLAND CENTRE FOR
FINANCIAL RESEARCH
AUT BUSINESS SCHOOL



2014 Conference on High Frequency Data and Derivative Markets



2014 PROGRAMME

KIA ORA and WELCOME

Welcome to the Conference on High-Frequency Data and Derivative Markets, which is hosted by the Auckland Centre for Financial Research. This conference focuses on two areas of research, namely that of high-frequency data analysis and derivative markets, and the overlap between the two. With the increasing availability of the intraday data on derivatives, a whole range of interesting research questions can be investigated, many of which are addressed in the papers presented at this conference.

We would like to particularly thank Professor Robert I. Webb, who has kindly agreed to deliver the keynote address at this conference and has also agreed to dedicate a special issue of the *Journal of Futures Markets* to a select number of papers presented at this conference. We also thank all conference participants for their contributions, as either presenter, discussant or session chair. Finally, we would like to thank Ms Tracy Skolmen for her superb assistance with the administrative and logistic side of things.

We hope that you will have a productive time here at the Conference and hope you will have a memorable time in Auckland, the City of Sails.

On behalf of the Organizing Committee,

Bart Frijns

*Professor of Finance, Auckland University of Technology
Director of the Auckland Centre for Financial Research*

PARTICIPANTS

Adrian Fernandez-Perez, Auckland University of Technology
Adrian Lei, University of Macau
Alireza Tourani-Rad, Auckland University of Technology
Angelo Aspris, University of Sydney Business School
Bart Frijns, Auckland University of Technology
Bujar Huskaj, Lund University, Sweden
Chi-Feng Tzeng, National Tsing Hua University
Dave Michayluk, University of Technology, Sydney
Hong Luo, Illinois Institute of Technology
Ihsan Badshah, Auckland University of Technology
Ivan Indriawan, Auckland University of Technology
Joakim Westerholm, University of Sydney Business School
John Crosby, Glasgow University Adam Smith Business School
José Da Fonseca, Auckland University of Technology
Jukka Sihvonen, University of Vaasa
Lars Nordén, Stockholm Business School
Marinela Finta, Auckland University of Technology
Narender Lakhwani, PhD Student, University of Melbourne
Robert Daigler, Florida International University
Rohini Grover, Indira Gandhi Institute of Development Research
Sang Baum "Solomon" Kang, Illinois Institute of Technology
Thanos Verousis, University of Bath

KEYNOTE SPEAKER

Professor Robert I Webb, University of Virginia, Charlottesville, USA

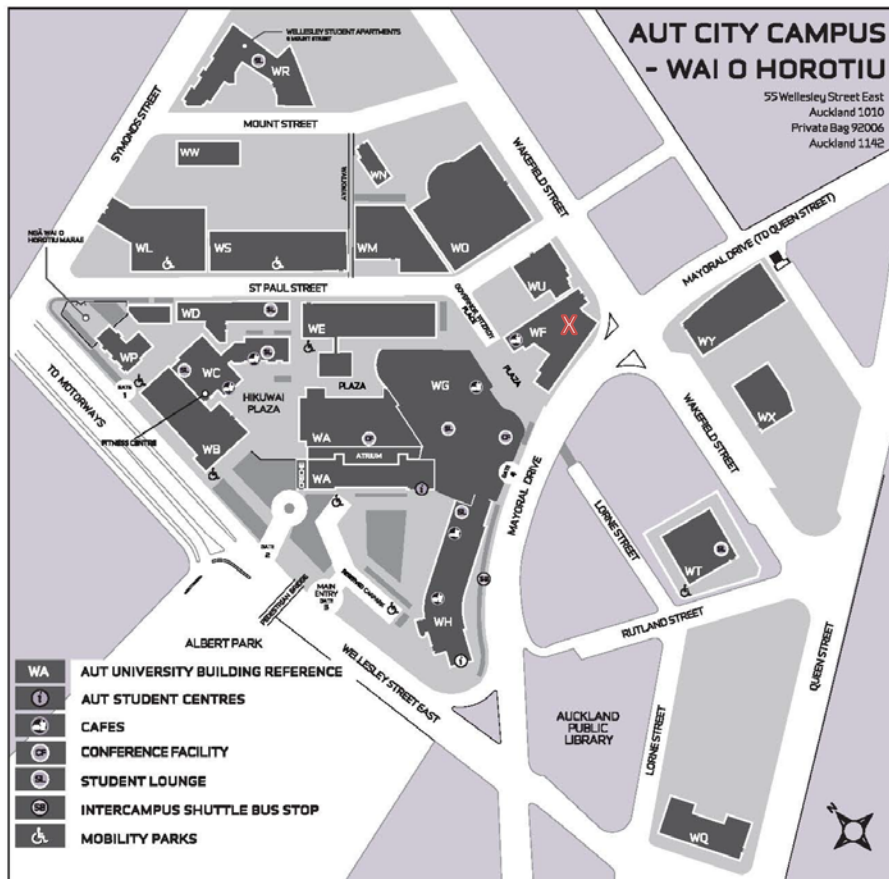
ORGANIZERS

Professor Bart Frijns, Director of ACFR, Auckland University of Technology, New Zealand
Professor Alireza Tourani-Rad, Auckland University of Technology, New Zealand
Professor Robert I. Webb, University of Virginia, US

VENUE INFORMATION

AUT Business School
 WF Level 7, Room WF711
 42 Wakefield Street
 Auckland, New Zealand

AUT University, City Campus Map



**AUT CITY CAMPUS
 - WAI O HOROTIU**
 55 Wellesley Street East
 Auckland 1010
 Private Bag 92006
 Auckland 1142

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- HOSPITALITY AND TOURISM - Level 3, WH Building
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- LAW - Level 6, WY Building
- SOCIAL SCIENCES - Level 14, WT Building
- TE ARA POUTAMA - Level 3, WB Building

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Level 2, WA Building
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 Web: www.aut.ac.nz

JOIN A CAMPUS TOUR

Fridays at 2.00pm
 AUT Student Centre



PROGRAMME OVERVIEW

Friday 8 August 2014
Registration 8.00 WF Level 7 Foyer
Session One 8.30 – 10.30
Session Chair: Alireza Tourani-Rad (Auckland University of Technology, New Zealand)
8.30 to 9.00 Automated Liquidity Provision Austin Gerig (University of Oxford, United Kingdom) David Michayluk (University of Technology Sydney, Australia)
Discussant: Lars Nordén (Stockholm Business School, Sweden)
9.00 to 9.30 Exchange Traded Barrier Options and Volume-Synchronized Probability of Informed Trading: Evidence from Hong Kong William Cheung (University of Macau, Macau) Adrian Lei (University of Macau, Macau)
Discussant: Chi-Feng Tzeng (National Tsing Hua University, Taiwan)
9.30-10.00 VIX and Skew Indices for SPX and VIX Options Zhiguang Wang (South Dakota State University, US) Robert T. Daigler (Florida International University, US)
Discussant: Bart Frijns (Auckland University of Technology, New Zealand)
10.00-10.30 Contemporaneous Spillover Effects between the US and the UK Marinela Finta (Auckland University of Technology, New Zealand) Bart Frijns (Auckland University of Technology, New Zealand) Alireza Tourani-Rad (Auckland University of Technology, New Zealand)
Discussant: Rohni Grover (Indira Gandhi Institute of Development Research, India)
10.30-11.00 Coffee/Tea
Session Two 11.00-13.00
Session Chair: Robert I. Webb (University of Virginia, US)
11.00-11.30 The Imprecision of Volatility Indexes Rohni Grover (Indira Gandhi Institute of Development Research, India) Ajay Shah (National Institute of Public Finance and Policy, India)
Discussant: Alireza Tourani-Rad (Auckland University of Technology, New Zealand)
11.30-12.00 On the Intraday Relation between the VIX and its Futures Bart Frijns (Auckland University of Technology, New Zealand) Alireza Tourani-Rad (Auckland University of Technology, New Zealand) Robert Webb (University of Virginia, US)
Discussant: Jukka Sihvonen (University of Vaasa, Finland)

12.00-12.30

[Commodity Variance Risk Premia and Expected Futures Returns: Evidence from the Crude Oil Market](#)

Sang Baum Kang (Illinois Institute of Technology, US)

Xuhui Pan (Tulane University, US)

Discussant: Adrian Fernandez-Perez (Auckland University of Technology, New Zealand)

12.30-13.00

[Commodity Risk Factors and Intertemporal Asset Pricing](#)

Joëlle Miffre (EDHEC Business School, Nice, France)

Ana-Maria Fuertes (City University London, United Kingdom)

Adrian Fernandez-Perez (Auckland University of Technology, New Zealand)

Discussant: John Crosby (Glasgow University, United Kingdom)

13.00-14.00 LUNCH

Session Three 14.00-16.30

Session Chair: José Da Fonseca (Auckland University of Technology, New Zealand)

14.00-14.30

[Two Order Books are Better than One? Trading At Settlement \(TAS\) in VIX Futures](#)

Bujar Huskaj (Lund University, Sweden)

Lars Nordén (Stockholm Business School, Sweden)

Discussant: Angelo Aspris (University of Sydney, Australia)

14.30-15.00

[Time and Pro-rata Matching: Evidence of a change in LIFFE STIR Futures](#)

Angelo Aspris (University of Sydney, Australia)

Sean Foley (University of Sydney, Australia)

Peter O'Neill (University of New South Wales, Australia)

Drew Harris (University of New South Wales, Australia)

Discussant: Thanos Verousis (University of Bath, United Kingdom)

15.00-15.30

[The Impact of a Premium Based Tick Size on Equity Option Liquidity](#)

Thanos Verousis (University of Bath, United Kingdom)

Owain ap Gwilym (Bangor University, United Kingdom)

Nikolaos Voukelatos (University of Kent, United Kingdom)

Discussant: David Michayluk (University of Technology Sydney, Australia)

15.30-16.00

[Information about price and volatility jumps inferred from option prices](#)

Stephen Taylor (Lancaster University, United Kingdom)

Chi-Feng Tzeng (National Tsing Hua University, Taiwan)

Martin Widdicks (University of Illinois at Urbana-Champaign, US)

Discussant: Ihsan Badshah (Auckland University of Technology, New Zealand)

16.00-16.30

[Explaining Credit Default Swap Spreads by Means of Realized Jumps and Volatilities in the Energy Market](#)

José Da Fonseca (Auckland University of Technology, New Zealand)

Katja Ignatieva (University of New South Wales, Australia)

Jonathan Ziveyi (University of New South Wales, Australia)

Discussant: Sang Baum Kang (Illinois Institute of Technology, US)

16.30-17.00 Break

17.00-17.45 Keynote Address: The Market Test by Professor Robert I Webb

19.00- Dinner at Four Seasons Restaurant

Saturday 9 August

Session Four 8.30 to 10.30

Session Chair: **Joakim Westerholm (University of Sydney, Australia)**

8.30-9.00

[High Frequency Trading and Market Volatility: Is there a Fundamental Association?](#)

Joakim Westerholm (University of Sydney, Australia)

Discussant: Adrian Lei (University of Macau, Macau)

9.00-9.30

[When Bernanke Talks, the Markets Listen: The Case of the First FOMC Press Conference on Monetary Policy](#)

Jukka Sihvonen (University of Vaasa, Finland)

Discussant: Marinela Finta (Auckland University of Technology, New Zealand)

9.30-10.00

[No Good Deals - No Bad Models](#)

Nina Boyarchenko (Federal Reserve Bank of New York, US)

Mario Cerrato (University of Glasgow, United Kingdom)

John Crosby (Glasgow University, United Kingdom)

Stewart Hodges (City University London, United Kingdom)

Discussant: José Da Fonseca (Auckland University of Technology, New Zealand)

10.00 to 10.30 Break

Session Five 10.30 to 12.00

Session Chair: **Bart Frijns (Auckland University of Technology, New Zealand)**

10.30-11.00

[Asymmetries of the Intraday Return-Volatility Relation](#)

Ihsan Badshah (Auckland University of Technology, New Zealand)

Bart Frijns (Auckland University of Technology, New Zealand)

Johan Knif (Hanken School of Economics, Finland)

Alireza Tourani-Rad (Auckland University of Technology, New Zealand)

Discussant: Robert Daigler (Florida International University, US)

11.00-11.30

[How does the Crude Oil Market Impound Inventory News Information? A Closer look at High-frequency Prices and Trading Activities](#)

Hong Luo (Illinois Institute of Technology, US)

Sang Baum Kang (Illinois Institute of Technology, US)

Discussant: Ivan Indriawan (Auckland University of Technology, New Zealand)

11.30-12.00

[Depth Characteristics for the Electronic Futures Limit Order Book](#)

Alexandre Aidov (University of Houston-Victoria, US)

Robert Daigler (Florida International University, US)

Discussant: Joakim Westerholm (University of Sydney, Australia)

12.15–17.00 Tour to Winery and West Coast

ABSTRACTS

Session One

8.30 to 9.00

Automated Liquidity Provision

Austin Gerig (University of Oxford, United Kingdom)
David Michayluk (University of Technology Sydney, Australia)

Traditional market makers are losing their importance as automated systems have largely assumed the role of liquidity provision in markets. We update the model of Glosten and Milgrom (1985) to analyse this new world: we add multiple securities and introduce an automated market maker who prices order flow for all securities contemporaneously. This automated participant transacts the majority of orders, sets prices that are more efficient, reduces spreads, and increases informed and decreases uninformed traders' transaction costs. The model's predictions match very well with recent empirical findings and are difficult to replicate with alternative models.

9.00 to 9.30

Exchange Traded Barrier Option and Volume-Synchronized Probability of Informed Trading: Evidence from Hong Kong

William Cheung (University of Macau, Macau)
Adrian Lei (University of Macau, Macau)

We study the validity of the Volume-Synchronized Probability of Informed Trading (VPIN) metric to measure the order toxicity around the mandatory call event of Callable Bull/Bear Contract (CBBC). The high VPIN around mandatory call events indicate that large volume imbalance exists and it predicts the high risk in the market. This study provides evidence that the first direct evidence of application of VPIN outside the US market.

9.30-10.00

VIX and Skew Indices for SPX and VIX Options

Zhiguang Wang (South Dakota State University, US)
Robert T. Daigler (Florida International University, US)

The CBOE "SKEW" and "VVIX" indices respectively measure the implied volatility skew of SPX options and the implied volatility of VIX options (the volatility of volatility). We compute intraday values of the SKEW index for SPX (SKEWSPX) and VIX options (SKEWVIX) as well as the VVIX, and then determine the empirical characteristics of these factors during the Fall 2008 financial crisis. After testing for unit roots and cointegration, we determine that changes in the VIX possess a bidirectional Granger causality with changes in the SKEWSPX; moreover, changes in the SKEWSPX leads changes in the SKEWVIX, and the SKEWVIX leads changes in the VVIX. We also confirm the positive relation between changes in the VIX and VVIX, document strong asymmetric GARCH effects for the VVIX and SKEWSPX, and symmetric GARCH effects for the SKEWVIX. Overall, we find evidence supporting the bidirectional information flow between SPX and VIX options markets.

10.00-10.30

Contemporaneous Spillover Effects between the US and the UK

Marinela Finta (Auckland University of Technology, New Zealand)

Bart Frijns (Auckland University of Technology, New Zealand)

Alireza Tourani-Rad (Auckland University of Technology, New Zealand)

This paper investigates both the dynamic and contemporaneous spillover effects between equity markets in the UK and the US. We use high frequency data and the “identification through heteroskedasticity” approach of Rigobon (2003) to capture the contemporaneous volatility spillover effects. Our results imply that during the time when trading hours overlap, higher stock market volatility in the US leads to higher volatility in the UK. We demonstrate the relevance of taking into account the information present during simultaneous trading by comparing the dynamics of the structural VAR with the dynamics of a traditional VAR. Our findings establish that the bi-directional dynamic linkages between the US and simultaneous trading periods are overestimated in the traditional VAR. These results have major implications for risk management and hedging strategies.

Session Two

11.00-11.30

The Imprecision of Volatility Indexes

Rohni Grover (Indira Gandhi Institute of Development Research, India)

Ajay Shah (National Institute of Public Finance and Policy, India)

Concerns about imprecision arise in a VIX estimator computed by aggregating several imprecise implied volatility estimates (IVs). Imprecision in the estimation of VIX, when discounted in its applications, may have adverse consequences ranging from modest to material. In this paper, we propose a bootstrap strategy to capture this imprecision for a model based VIX estimator. We use the confidence band and the standard deviation of the bootstrap estimates of VIX as imprecision indicators. We find that the imprecision of VIX is considerable and has important consequences for real-world applications of volatility indexes. In addition, we use this measure of imprecision as a model selection criterion by choosing the volatility index which has the lowest imprecision.

11.30-12.00

On the Intraday Relation between the VIX and its Futures

Bart Frijns (Auckland University of Technology, New Zealand)

Alireza Tourani-Rad (Auckland University of Technology, New Zealand)

Robert Webb (University of Virginia, US)

We study the intraday dynamics of the VIX and VXF for the period January 2, 2008 to December 31, 2012. Applying a Vector Autoregression (VAR) model on daily data, we observe some evidence of causality from the VXF to the VIX. However, estimating a VAR using our ultra-high frequency data, we find strong evidence for bi-directional Granger causality between the VIX and the VXF. Overall, this effect appears to be stronger from the VXF to the VIX than the other way around. Impulse response functions and variance decompositions analysis further confirm the dominance of the VXF. Lastly, we show that the causality from the VXF to the VIX has been increasing over our sample period, whereas the reverse causality has been decreasing. This finding suggests that the VIX futures have become increasingly more important in the pricing of volatility. We further document that the VIX futures dominate the VIX more on days with negative returns, and on days with high values of the VIX, suggesting that on those days investors use VIX futures to hedge their positions rather than trading in the S&P 500 index options.

12.00-12.30

Commodity Variance Risk Premia and Expected Futures Returns: Evidence from the Crude Oil Market

Sang Baum Kang (Illinois Institute of Technology, US)

Xuhui Pan (Tulane University, US)

We develop an extended mean-variance model to investigate the relationship between variance risk premia (VRP) and expected futures returns in the commodity market. In the presence of stochastic variance, commodity producers demand both futures and option contracts to hedge their exposure to commodity price variation and volatility risk; speculators provide liquidity and ask for risk premia. This model reveals a negative relationship between VRP and expected futures returns. Empirically, we measure VRP using options and high-frequency futures data in the crude oil market. Consistent with our model, we find that VRP predict futures returns even after controlling for other predictors.

12.30-13.00

Commodity Risk Factors and Intertemporal Asset Pricing

Joëlle Miffre (EDHEC Business School, Nice, France)

Ana-Maria Fuertes (City University London, United Kingdom)

Adrian Fernandez-Perez (Auckland University of Technology, New Zealand)

This article provides a comprehensive in-sample and out-of-sample analysis of the predictive ability of commodity risk factors for future long-horizon changes in investment opportunities. Motivated by the theories of storage and hedging pressure, the factors are constructed according to signals that are linked to backwardation and contango. The encouraging findings on predictive ability lead us to propose an Intertemporal CAPM (ICAPM) implementation that utilizes the commodity risk factors as state variables. We show that the proposed model implies intertemporal “hedging” risk premiums that are theoretically consistent with rational pricing by risk-averse investors. The model is also able to price relatively well a large cross-section of test assets that include stocks, fixed income securities and commodities.

Session Three

14.00-14.30

Two Order Books are Better than One? Trading At Settlement (TAS) in VIX Futures

Bujar Huskaj (Lund University, Sweden)

Lars Nordén (Stockholm Business School, Sweden)

We examine the effects from the introduction of Trading At Settlement (TAS) on VIX futures market quality. We find that the VIX futures market exhibits higher trading activity and better liquidity after the TAS introduction. VIX futures traders use the TAS limit order book to execute block transactions, and TAS helps limit order traders from being picked off by informed traders when the VIX futures price volatility is high. The TAS introduction has created a highly liquid, low-cost, trading venue. Although the TAS introduction fragments the VIX futures trading into two order books, liquidity in the regular order book is not hurt.

14.30-15.00

Time and Pro-rata Matching: Evidence of a change in LIFFE STIR Futures

Angelo Aspris (University of Sydney, Australia)

Sean Foley (University of Sydney, Australia)

Peter O'Neill (University of New South Wales, Australia)

Drew Harris (University of New South Wales, Australia)

We examine the impact of the introduction of a time pro-rata matching algorithm on market quality in the NYSE LIFFE Futures market. Using microsecond stamped trade and order data we are able to characterize the trading and quoting behaviour of agents in this market which allows us to test a range of theories on optimal allocation methods. We show that removal of the pure pro-rata matching algorithm eliminates the incentives for traders to “drown” the order book with overly large orders. Instead, the introduction of a time element to the priority algorithm encourages traders to submit many very small (single share) orders after their primary order which then serves to increase their time priority, as compared to traders submitting orders subsequently. This conduct appears to have a negative impact on market quality, with the Euribor, Euroswiss and Short Sterling contracts all showing a deterioration in a variety of liquidity measures, including effective spreads, reductions in quoted depth and trading volumes. The staggered introduction of the time pro-rata matching algorithm across the three contracts provides a natural experimental setting to test the impact of this change.

15.00-15.30

The Impact of a Premium Based Tick Size on Equity Option Liquidity

Thanos Verousis (University of Bath, United Kingdom)

Owain ap Gwilym (Bangor University, United Kingdom)

Nikolaos Voukelatos (University of Kent, United Kingdom)

On June 2, 2009, NYSE LIFFE Amsterdam reduced the tick size for options trading at prices below €0.20 from €0.05 to €0.01 and on April 1, 2010, the exchange increased the price threshold to €0.50. We study the effect of that tick size reduction on the liquidity of individual equity options. In this respect, this study is uniquely positioned in the options context where moneyness is a clear additional factor in the implementation of the tick size changes. We show that, in general, quoted and traded option liquidity increased but at a rate decreasing with option moneyness. Real costs have fallen more for the lower priced contracts. Importantly, we show that the ability of the market to absorb larger trades has diminished after the change in the tick size. We document a substantial increase in quote revisions that implies a deterioration in the order book, as it allows traders to take advantage of the price priority rule and step ahead of larger trades. Finally, the decrease in the tick size has led to increased speculative trading behaviour.

15.30-16.00

Information about price and volatility jumps inferred from option prices

Stephen Taylor (Lancaster University, United Kingdom)

Chi-Feng Tzeng (National Tsing Hua University, Taiwan)

Martin Widdicks (University of Illinois at Urbana-Champaign, US)

Option prices jump whenever there is a jump in either the price or volatility of the underlying asset. High-frequency jump tests are applied to the prices of both futures contracts and their options in order to infer the properties of price and volatility jumps. The empirical results for FTSE-100 contracts show that jumps in price and jumps in volatility are, firstly, smaller than those assumed or estimated in previous research and, secondly, do not occur independently. The price jump risk premium is shown to be a more important factor than the volatility jump risk premium. Monte Carlo methods confirm that our empirical jump detection methods are reliable for a selection of jump-diffusion processes.

16.00-16.30

Explaining Credit Default Swap Spreads by Means of Realized Jumps and Volatilities in the Energy Market

José Da Fonseca (Auckland University of Technology, New Zealand)

Katja Ignatieva (University of New South Wales, Australia)

Jonathan Ziveyi (University of New South Wales, Australia)

This paper studies the relationship between credit default swap spreads (CDS) for the Energy sector and oil futures dynamics. Using data on light sweet crude oil futures from 2004 to 2013, which contains crisis period, we examine the importance of volatility and jumps extracted from the futures in explaining CDS spread changes. The analysis is performed at an index level and by rating group; as well as for the pre-crisis, crisis and post-crisis periods. Our findings are consistent with Merton's theoretical framework. At an index level, futures' jumps are important when explaining CDS spread changes, with negative jumps having higher impact during the crisis. The continuous volatility part is significant and positive indicating that futures volatility conveys relevant information for the CDS market. Negative jumps have an increasing importance as the credit rating deteriorates while futures volatility becomes more important for higher rating categories. For the highest rating category the CDS spread depends very weakly on both, futures' jumps and volatility. The relation between the CDS market and the futures market is stronger during volatile periods and strengthens after the Global Financial Crisis.

Session Four

8.30-9.00

High Frequency Trading and Market Volatility: Is there a Fundamental Association?

P. Joakim Westerholm (University of Sydney, Australia)

The findings in this paper confirm that there is a general, statistical and fundamental negative association between High Frequency Trading [HFT] activity and market volatility. The connection between HFT and volatility is most pronounced during periods of very short intervals, however the association is also statistically significant and negative in data of monthly frequency. Results indicate that technological innovation in market structures through the introduction of Co-location 'Proximity Services' on the Nasdaq-OMX Helsinki [OMXH] accelerated the negative association between HFT and market volatility. The implication of this study is that future regulation must weigh up the role of HFT in dampening intra-day volatility with the systematic risks posed by the sudden evaporation of their order-flow from the market.

9.00-9.30

***When Bernanke Talks, the Markets Listen:
The Case of the First FOMC Press Conference on Monetary Policy***

Jukka Sihvonen (University of Vaasa, Finland)

This note examines minute-by-minute reactions of the US interest rate and stock markets to the first Federal Open Market Committee press conference on monetary policy. Volatility and volume effects during the press conference are shown to be less pronounced but more lasting than those observed immediately after the release of the monetary policy statement. Market responses during the press conference are found to be deterministic and originate from questions and answers pertaining to future monetary policy and the state of the economy. These findings are in line with the clarification objective of the Fed's new communication framework.

9.30-10.00

No Good Deals - No Bad Models

Nina Boyarchenko (Federal Reserve Bank of New York, US)

Mario Cerrato (University of Glasgow, United Kingdom)

John Crosby (Glasgow University, United Kingdom)

Stewart Hodges (City University London, United Kingdom)

Faced with the problem of pricing complex contingent claims, an investor seeks to make her valuations robust to model uncertainty. We construct a notion of a model-uncertainty-induced preference functional and extend the "No Good Deals" methodology of Cochrane and Saà-Requejo [2000] to compute lower and upper good deal bounds in the presence of model uncertainty. Illustrating the methodology with numerical examples, we show how model uncertainty reduces the benefit of dynamic hedging relative to static hedging and increases the early exercise premia for American options.

Session Five

10.30-11.00

Asymmetries of the Intraday Return-Volatility Relation

Ihsan Badshah (Auckland University of Technology, New Zealand)

Bart Frijns (Auckland University of Technology, New Zealand)

Alireza Tourani-Rad (Auckland University of Technology, New Zealand)

Johan Kniff (Hanken School of Economics, Finland)

This study investigates the asymmetry of the intraday return-volatility relation at different return horizons ranging from 1, 5, 10, 15, up to 60 minutes and compares the empirical results with results for the daily return horizon. Using a sample of S&P 500 and VIX from September 25, 2003 to December 30, 2011 and a Quantile-Regression approach, the results generally confirm the strong negative return-volatility relation over all return horizons. However, this negative relation is asymmetric in three different aspects. First, the effect of positive and negative returns on volatility is different and slightly more pronounced for negative returns. Second, for both positive and negative returns, the effect is conditional on the distribution of volatility changes. The absolute effect is up to five times larger in the extreme tails of the distribution. Third, at the intraday level, there is evidence of both autocorrelation in volatility changes and cross-autocorrelation with returns. This lead-lag relation with returns is also very asymmetric and more pronounced in the tails of the distribution. These effects are, however, not found for the daily return horizon.

11.00-11.30

How does the Crude Oils Market Impound Inventory News Information?

A Closer look at High-frequency Prices and Trading Activities

Hong Luo (Illinois Institute of Technology, US)

Sang Baum Kang (Illinois Institute of Technology, US)

We empirically study how the crude oil market impounds inventory news information. Using 5-minutes intraday high frequency data of crude oil futures, we examine the response of crude oil futures market to the crude oil inventory report released by U.S. Energy Information Administrations (EIA) on every Wednesday at 10:30AM Eastern Time. Applying inference technique of Jump Predictor Test (JPT), we find that consistently with the Efficient Market Hypothesis (EMH), the crude oil inventory announcement significantly increases the likelihood of jumps at the announcement and in the immediate subsequent periods. Besides, other major market news, e.g., Nonfarm Payroll Report and Natural Gas Inventory Report, are also found to trigger jumps in crude oil futures price. Also consistently with the EMH, we find that inventory shock does not predict futures price return after the announcement. To our surprise, we document evidence that the crude oil inventory shock has explanatory power on futures price return in the period prior to the announcement,

implying occurrence of information leakage in crude oil futures market. Furthermore, we find a negative contemporaneous relation between jump component of volatility and trading volumes on Wednesday during recession time (2008 ~ 2010), raising doubt on the Mixed Distribution Hypothesis (MDH) in the presence of public information such as crude oil inventory announcement. Finally, we estimate the daily change of risk neutral model-free jump variance (RNJV) implied by option market, and find no evidence that the option market can “foresee” the jumps in crude oil futures price induced by the crude oil inventory announcement.

11.30-12.00

Depth Characteristics for the Electronic Futures Limit Order Book

Alexandre Aidov (University of Houston-Victoria, US)

Robert Daigler (Florida International University, US)

Prior literature lacks a comprehensive characterization of depth in U.S. futures markets due to past limitations on the availability of depth data from floor trading records. Electronic markets remedy the lack of depth data, providing information on depth from the limit order book. This study employs the Chicago Mercantile Exchange’s (CME) proprietary depth database, which provides the five-deep depth limit order book. We examine the duration, symmetry, and equality of depth for both the day and night trading sessions. The results show that a large amount of depth is present in the book beyond the best bid-ask level. Furthermore, we show that depth is updated faster during the day than the night session. We document symmetry between the bid and ask sides of the limit order book for each of the separate five depth levels. However, the total amount of bid plus ask depth differs from one level to another. Overall, our characterization of depth helps explain the behaviour of market participants in their order submission strategies.



HEI MATAU / FISH HOOK

The fishhook / hei-matau represents peace, prosperity and good health. It is also said to ensure safe journey, especially over water. Representing determination, the hook is considered by many to encourage good luck in life. According to Maori mythology, Maui used a hook to pull New Zealand's North Island from the sea.



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