Econometric Research in Finance Workshop 2016

Workshop program

16.09.2016

Session 1: Aula I (9:00-10:30)
Jérémy Leymarie *Backtesting Marginal Expected Shortfall and Related Systemic Risk Measures* This paper proposes two backtesting tests to assess the validity of the systemic risk measure forecasts. This new tool meets the need of financial regulators of evaluating the quality of systemic risk measures generally used to identify the financial institutions contributing the most to the total risk of the financial system (SIFIs). The tests are based on the concept of cumulative violations and it is built up in analogy with the recent backtesting procedure proposed for ES (Expected Shortfall). First, we introduce two backtests that apply for the case of the MES (Marginal Expected Shortfall) forecasts. The backtesting methodology is then generalised to MES-based systemic risk measures (SES, SRISK) and to the Delta CoVaR. Second, we study the asymptotic properties of the tests in presence of estimation risk and we investigate their finite sample performances via Monte Carlo simulations. Finally, we use our backtests to asses the validity of the MES, SRISK and Delta CoVaR forecasts on a panel of EU financial institutions.
Raffaella Giacomini, Toru Kitagawa, **Alessio Volpicella** *Uncertain Identification*
Taufiq Choudhry, Yuanyuan Zhang *Forecasting the Daily Time-Varying European Banks Beta during the Crisis Period: Comparison between GARCH models and Kalman Filter* This paper empirically attempts to forecast the daily beta of major European banks by means of four GARCH models and the Kalman Filter method during the pre-global financial crisis period and the crisis period. The four GARCH models employed are BEKK GARCH, DCC-GARCH, DCC-MIDAS GARCH and Gaussian-Copula GARCH. The data consists of daily stock prices from 2001 to 2013 from two large banks each from Greece, Germany, Ireland, Italy and Spain. We apply the rolling forecasting method and the Model Confidence Sets (MCS) to compare the daily forecasting ability of the five models during one month of the pre-crisis (January 2007) and the crisis (January 2013) periods. Based on the MCS results, the BEKK and Copula are generally the first and second best models in the January 2007 period, and the Kalman Filter and DCC-MIDAS outperform the other models during the January 2013 period. The superior forecasting ability of the model depends upon the bank and the period under study. The Kalman Filter, on average, outperforms the other models during the volatile period, giving it more creditability over the GARCH models.

Session 2A: Aula I (11:00-13:00)

Fabio Calonaci

Forecasting Asset Market Volatility: 'the HAR model with Jump and Leverage components

This paper proposes a new version of the HAR model to describe financial market volatility. The model involves jumps, long memory components and effects for representing and leveraging. The empirical results of out of sample forecasting analysis reveals this modeling approach has advantages over many competitors.

Mikhail Stolbov, **Maria Shchepeleva**

Financial stress in emerging markets: patterns, real effects, and cross-country spillovers

We extend the conventional approach to the construction of financial stress indices (FSI) for emerging market economies proposed by Balakrishnan et al. (2011). Based on the principal component analysis, our index accounts for the developments in residential real estate markets, adopts distinctive indicators for the banking sector and sovereign debt risks, covering the period from February 2008 to September 2015 for 14 emerging markets. The FSIs accurately capture the periods of impaired financial intermediation. The hierarchical cluster analysis identifies five country groups, revealing similarities in the national structures of financial stress. We find an adverse impact of financial stress on economic activity in 9 countries. A Bayesian VAR model is also specified to test for cross-country spillovers of financial stress.

Yuthana Sethapramote, **Suthawan Prukumpai**, Tiwa Kanyamee

Evaluation of Value-at-Risk Estimationusing Long Memory Volatility Models: Evidence from Stock Exchange of Thailand

This paper examines the accuracy of Value-at-Risk (VaR) estimation in the Stock Exchange of Thailand. We apply standard conditional volatility models (GARCH) and the GARCH model with long memory process (FIGARCH) in calculation of VaR. The empirical results from R|S statistics show that there is significant evidence of long memory process in volatility but not in mean of SET50 index returns. Comparing accuracy of VaR estimation, the results from the Kupiec-LR test show that 1-day ahead 1% VaR values calculated using FIGARCH(1,d,1) model with normal innovations are more accurate than those generated using short memory GARCH(1,1) models. Considering the Bank of International Settlement (BIS)'s regulatory back-testing, the results also confirm that the long memory models provide better performance than those of the standard GARCH models. In summary, our empirical results indicate that long-range memory could provide better performance in risk management than that of standard GARCH in the case of Stock Exchange of Thailand. However, our results from FIGARCH still do not outperform those of the asymmetric GARCH.

Michał Chojnowski, Piotr Dybka

Is Exchange Rate Moody? Estimating the Influence of Market Sentiments with Google Trends

This article aims to implement market sentiments into forecasting model of Euro exchange rate against Polish zloty (PLN). In order to quantify market sentiments we propose a solution of how they can be extracted out of Google Trends and how they improve the model. As a basis we used a model presented by Ko and Ogaki, in which exchange rate violations are explained by market fundamentals. To illustrate mentioned relations VAR model was used. In our article we expanded the idea of Ko and Ogaki. Firstly, we partially captured unobserved fundamentals, in which money market, stock market and goods market sentiments are hidden. Those sentiments are drawn out of Google Trends, however, as Google Trends does not perfectly illustrate computer user intentions, Principal Component Analysis (PCA) was used to extract those sentiments. After that sentiments are implemented into the model as partially-observed fundamentals. As a result we expect to explain significant part of the variance within the model with the sentiments as previously they were part of residuals. Therefore it is expected that not only model is more precise, but also as accurate as its predecessor. Moreover we expect that variance decomposition will show importance of sentiments in exchange rate forecasts.

Session 2B: Room 1B (one floor above the ground floor) (11:00-13:00)

Marco Botta, Luca Colombo
Macroeconomic and institutional determinants of capital structure decisions.

We investigate the capital structure of a large sample of corporations in 52 countries, focusing on the effects of macroeconomic and institutional characteristics on firms' dynamic behavior. We find that these factors affect both the optimal level of leverage and the adjustment process towards it. The speed of adjustment varies significantly with both macroeconomic and institutional conditions for financially unconstrained firms, while it is unaffected for constrained firms. Overall, our results support a complex view of capital structure decisions, where market timing and pecking order arguments affect the short-run, while dynamic trade-off with costly readjustment matters in the long-run.

Oskar Krzesicki, Krzysztof Gajewski
International Banking and Cross-border effects of regulation.

The aim of this paper is to verify the existence of the inward policy spillovers and check whether foreign banks adjust their lending growth in Poland in response to changes in the regulatory policy in their home countries. Poland is an interesting case to study this mechanism for a few reasons. First, Polish banking system is dominated by foreign-owned banks, mainly subsidiaries of European financial institutions. Second, nearly all activity of Polish banks is domestic, so the only policies that may directly impact their credit growth are those in the home countries of foreign banks and the Polish ones. Third, the business model of Polish banks, both domestic and foreign-owned, is conservative (assets consists mainly of loans granted to non-financial customers, operations on financial markets are not a significant part of their business activity), so by looking at the credit extension we capture most of the variation in the banks' activities.

Tho Pham, Oleksandr Talavera, Junhong Yang
Multimarket Competition and Profitability: Evidence from Ukrainian banking.

This paper examines the impacts of multimarket competition on bank financial performance in the Ukrainian banking industry from 2009Q1 to 2015Q4. We measure repeated competition by multimarket contacts. Our data reveal that banks are more profitable with higher level of multiple market contacts. Moreover, the effect is stronger when multimarket competitors are highly similar in size and coincide in more competitive markets. The findings imply the anti-competitive effect of multimarket contacts in banking industry, which is consistent with mutual forbearance hypothesis. When banks compete with the rivals in multiple markets, they have incentives to cooperate instead of competing aggressively. However, the anti-competitive effect of multimarket contacts could be weakened by exogenous shock such as political conflict.

Małgorzata Pawłowska
The effect of the market structure and the competitive framework of the EU for financial stability.

The aim of this paper is to present the role of market structure and competitive framework for sound of European Union (EU) banking sector, with particular emphasis on the change in concentration and competition, in an attempt to determine the relationship between size and competition and risk-taking by banks. The empirical results based on panel data analysis find that the banking sectors with EU-27 are not homogeneous and find asymmetry between performance of EU-15 and EU-12 banking sectors. In fact, we have obtained different results concerning the impact of competition and size on financial stability for EU-15 banks (i.e., large banking sectors) and for EU-12 (i.e., small banking sectors).

Session 2C: Aula II (11:00-13:00)

Michał Rubaszek
Forecasting The Yield Curve with Macroeconomic Variables

This paper compares the accuracy of interest rates forecasts from dynamic, affine yield curve models, also those that take into account the correlation of latent factors and macroeconomic variables. The empirical results suggest that the affine models are better in explaining future movements in interest rates than the benchmark, arbitrage-free model. Moreover, we show that interest rates forecasts conditional on the realization of inflation and the unemployment rate are more accurate than unconditional forecasts.

Enrique Covarrubias, **Gerardo Hernandez-del-Valle**
Inflation expectations derived from a portfolio model

This paper proposes a new methodology for extracting inflation expectations from financial markets. For this purpose, a synthetic financial asset is built whose returns are matched with the inflation rate by construction. The methodology estimates the implicit return expected by the market on this asset through a portfolio valuation approach; in other words, implicit inflation expectations are obtained. This approach clarifies the mechanisms behind a negative risk premium: an inflation linked bond is attractive to an investor when high inflation is expected or when generalized low returns are observed; in both cases, a yield below expected returns is observed.

Anmar Al Wakil
The Smart Vega Factor-Based Investing: Disentangling Risk Premia from Implied Volatility Smirk

This paper paves the way for option-based volatility strategies genuinely built on factor-based investing. Since market option prices reflect uncertainty, we exploit the discrepancy between the physical and the risk-neutral distributions, i.e. the fair price of moments. From an economic perspective, the level, slope, and convexity associated to the implied volatility smirk quantify the departure from the lognormal distribution. Subsequently, our so-called "Smart Vega investing" proposes option-based replication strategies mimicking the variance, skewness, and kurtosis risk premia in the form of divergence swap contracts, tradeable at moderate transaction costs in complete option markets. Extending the Zhang-Xiang (2008) quadratic approximation, we derive an explicit representation of the implied volatility smirk function, conveniently expressed as a combination of tradeable time-varying risk premia that reward for bearing higher-order risks. Furthermore, we empirically test these theoretical underpinnings on the SPX and the VIX options, under strongly skewed leptokurtic distributions.

Tomasz Piotr Kasprowicz, Andrzej Bednorz
Threshold Theory – Modelling Risk Attitude

In this paper we offer an alternative framework for examining why risk matters in the decisions of economic agents, and how the agent's risk attitude affects his decisions. This "Threshold Theory" framework is based on a real options approach and the observation that in many situations an agent faces one or more thresholds in the payoff function. These thresholds influence the agent's risk attitude. The theory's predictions help to explain many anomalies that standard expected utility model cannot. Threshold Theory can also model behavior in contexts such as individual investor decisions, corporate governance and other agency problems. Further, we examine CEO decisions as a function of time to the CEO's retirement to test predictions of the Theory.

Poster Session: Entresol (13:45-14:30)

Onar Akkaya
Robust Nonparametric Quantile Estimation of Efficiency Change: EUROZONE Case

This paper focuses on nonparametric efficiency analysis based on robust estimation of Partial Frontiers. A nonparametric estimator is proposed achieving strong consistency and asymptotic normality. Then if a increases to one as a function of the sample size we recover the properties of the FDH (the Free Disposal Hull) estimator. But Daouia and Simar (2007) estimator is more robust to the perturbations in data, since it attains a finite gross-error sensitivity. Environmental variables can be introduced to evaluate efficiencies and a consistent estimator is proposed. This paper uses a new non-parametric, conditional, hyperbolic order- the α quantile estimator and the order-m frontiers estimator to construct a hyperbolic version of the Malmquist index. Unlike traditional non-parametric efficiency estimators, the new estimator is both robust to data outliers and has a root-n convergence rate. We use this estimator to examine changes in the efficiency of Eurozone banks between 1999 and 2009.

Sergii Kavun, Mihail Vorotintcev
Methods of assessing of financial institutions activity credit risk

The authors turn to the analysis fundamentals and credit risk assessment in international practice. The authors have been proposed technique assessments of the following indicators that have a significant impact (proved by the author) to assess the credit financial institutions activity. To solve this problem the authors offer a geometric interpretation to determine the addiction type, whereas we must time consider all the indicators, and their quantity number is three, then they are convenient to interpret in three dimensions.

Olha Zadorozhna, Bogna Gawrońska-Nowak
Home Bias: Evidence from the Stock Exchange

We use annual data on value of share trading on 79 stock exchanges around the world for the period of 2003-2015 to find out if the home bias exists given domestic and foreign shares are traded under the same regulatory framework, with the same transaction costs and rules for information availability applied; and if it does, then what factors are responsible for it. We estimate the home bias effect under the lack of traditional investment barriers and analyze factors that determine it. Home bias can largely be explained by not only macroeconomic fundamentals, but also non-economic variables such as ethnic, language and religious diversity; moreover, the degree of the home bias is more prominent in culturally closed to investments countries, and is less so in countries that are more culturally open to investments. The results suggest that countries with better regulatory environment, higher ethnic/religious diversity, and more open cultural attitude towards investments have more foreign companies listed on their stock exchanges. The home bias is lower in countries with better regulatory environment and those more culturally open to investments.

Thierno Thioune
Financial Instability and Dynamics of Inequality in WAEMU
Instabilité financière et Dynamique des Inégalités dans l'UEMOA

La crise financière de 2008 continue d'avoir un effet majeur sur l'économie mondiale et certains facteurs économiques sont soupçonnés en être les causes. Ces facteurs comprennent l'augmentation des inégalités qui a faibli la demande effective et les dépenses de consommation (Sheng, 2014). De nombreuses analyses se sont interrogées si les inégalités n'avaient pas été responsables de la crise financière. Parmi les auteurs les plus influents, Raghuram Rajan (2010), puis Michael Kumhof et Romain Ranciere (2011) ont ainsi suggéré que l'accroissement des inégalités a directement contribué au boom du crédit dans les années trente et dans la première moitié des années deux mille. L'analyse des disparités dans la répartition des revenus et du patrimoine est essentielle pour comprendre la crise financière et la reprise (Sarah Bloom Raskin, 2013).

Lidiya Guryanova, Tamara Klebanova, Tetiana Trunova
Modeling the financial strategy of the enterprise in an unstable environment

Modern conditions of enterprise operation are characterized by a large number of negative factors. First of all, such factors include decrease in business activities of stock markets, low level of exchange fluctuations predictability etc. These factors generate additional financial risks and lead to significant losses and damages, and as a result they can cause the financial crisis situations. The novelty of scientific challenges contains the following tasks: to develop the complex of economic mathematical models which allows assessing the impact of uncontrollable external factors on financial activity; to create preventive financial strategies ensuring stable functioning and development of the company under threats. The development of models is based on methods of multivariate analysis (principal component analysis, the method of the development level, the method of gravity center, hierarchical agglomerative methods and iterative cluster analysis, discriminant analysis, classification trees), econometric methods (pool data models, logit- and probit-models, vector autoregression technology, error correction models), simulation methods and system dynamics approach. The models implication in companies' activity has allowed developing financial strategy balanced on various directions while considering the potential financial risks.

Session 3A: Aula I (14:30-16:00)

Pierre L. Siklos, Martin T. Bohl, **Claudia Wellenreuther**
The Speculative Component in Chinese Agricultural Commodity Futures

We aim at empirically investigating whether speculative activity in Chinese futures markets for agricultural commodities destabilizes futures prices. To capture speculative activity we use a ratio defined as daily trading volume divided by end-of-day open interest. Applying a GARCH-model we first analyse the influence of the speculation ratio on conditional volatility of five heavily traded Chinese futures contracts, namely soybeans, soybean meal, corn, sugar and cotton. Furthermore, we try to gain insight into the lead-lag-relationship between speculative activity, proxied by the speculation ratio, and price volatility by using a VAR-model in conjunction with Granger causality tests, impulse-response analyses and variance decompositions.

Tadaaki Komatsubara, Tatsuyoshi Okimoto, **Ken-ichi Tatsumi**
Dynamics of Integration in East Asian Equity Markets

This paper investigates the dynamics of integration in East Asian equity markets between the years 1995 and 2013 using a smooth-transition correlation GARCH model. Our results show that East Asian equity market integration among China and other countries has increased significantly since 2007, whereas integration among other East Asian equity markets excluding China increased significantly in an earlier period from the year 1999 to the year 2001. Additionally, we find that increasing integration has been mostly caused by correlation increases in after-trading hours. These results suggest that stock prices in East Asia are sensitive to Europe and US stocks because Europe and US investors were actively investing in East Asian stocks. Indeed, the periods reflect striking increases in integration that correspond approximately to the start of intensive Europe and US investment activity in East Asian stock markets.

Barbara Będowska-Sójka
Beta estimation: The evidence from the Warsaw Stock Exchange

This paper empirically investigates the problem of estimating Sharpe's beta. A plenty of methods is used in the literature and none is indicated as the best solution. In the paper we apply data of different frequencies of the biggest and most liquid stocks quoted in the Warsaw Stock Exchange. The sample starts in the beginning of 2000 and ends in 2014 including the last global financial crisis. We estimate beta within few competing approaches. The BEKK GARCH models are employed together with DCC model to estimate the time-varying beta for weekly data. These estimates are compared to weekly betas from the linear regression within the moving window and realized betas calculated from the daily data. Additionally unobserved component model is used allowing to obtain another time-varying beta. All estimates are compared within securities market line approach. Finally the best-fit measure is modeled within Markov Switching dynamic regression.

Session 3B: Room 1B (one floor above the ground floor) (14:30-16:00)

Konrad Kostrzewa, Tomasz Szabluk, Maciej Kowalczyk
Estimating Bond-CDS portfolio VaR with Copulas

In the paper we estimate Value-at-Risk with various copula functions. The portfolio under consideration consists of a sovereign bond and a Credit Default Swap issued on that bond. Such portfolio is exposed to market risk and limited credit risk (CDS upfront value changes). We present a method of estimation of VaR and compare that method with traditional approaches.

Pavel Gertler, Boris Hofmann
Monetary facts revisited

This paper uses a cross-country database covering 46 economies over the post-war period to revisit two key monetary facts: (i) the long-run link between money growth and inflation and (ii) the link between credit growth and financial crises. The analysis reveals that the former has weakened over time, while the latter has become stronger. Moreover, the money-inflation nexus has been stronger in emerging market economies than in advanced economies, while it is the other way round for the link between credit growth and financial crises. These results suggest that there is an inverse relationship between the two monetary facts. The money-inflation link is weaker in regimes characterised by low inflation and highly liberalised financial systems, while the reverse holds true for the credit-crisis nexus

Aleksandra Wójcicka
Neural networks in credit risk evaluation of construction sector

The branch which is the most exposed to a financial and credit risk is the financial sector (banks, financial institutions etc.). This is due to the fact that one of the basic objectives of banks' activity (as a specific enterprise) is granting credits and loans. Therefore, credit risk is one of the problems banks face constantly. Identifying potential good and bad customers is an extremely important task. The paper investigates the use of different structures of neural networks (NN) which can be a great support in credit-risk decision process. The results are compared among the models and juxtaposed with the commercial model. Moreover, the analysis of different sets and subsets of entry data is carried out to find the most beneficial set of variables.

Session 3C: Aula II (14:30-16:00)

Thomas Nitschka
Bond market evidence of time variation in exposures to global risk factors and the role of US monetary policy

This paper empirically shows that US monetary policy influences present and future exposures of developed markets' government bond returns to measures of global, systematic risk and thus affects the time variation of these returns. This finding highlights spillovers from US monetary policy not only to US dollar denominated foreign assets but also to foreign assets denominated in other currencies than the US dollar. From an asset pricing perspective, the evidence highlights that exchange rate risk and time variation in sensitivities to global bond and exchange rate risk are important to describe time variation in developed markets' government bond returns.

Piotr Fiszeder, Ilona Pietryka
Monetary Policy in Steering the EONIA and POLONIA Rates in the Eu-rosystem and Poland — a Comparative Analysis

The ECB's and NBP's monetary policy effectiveness is compared directly in terms of influencing the spread between the interbank overnight rate and the main rates of the central banks during periods of completely various economic conditions, i.e. the global financial crisis of 2008, the European sovereign debt crisis and the period of relative stability. Three categories of determinants of the EONIA/POLONIA spreads are considered: (1) monetary policy instruments such as: open market operations, standing facilities and minimum reserve requirements, (2) liquidity conditions measures, (3) market expectations and risk measures. Applying the ARFIMA-GARCH models, we show that the statistical and economic properties of the EONIA and POLONIA spreads are quite different. The EONIA spread has a long memory while the POLONIA spread has the characteristic of a short memory. This difference is important from the viewpoint of a stabilizing monetary policy. The impact of shocks on the future levels of the spread was stronger for the POLONIA spread but it was short-lived in comparison to the EONIA spread. Most of the analysed variables significantly influenced the spreads during the financial crisis, while the biggest differences in the impact of determinants between the EONIA and POLONIA spreads occurred during the period of relative stability. Substantial differences exist also between the volatilities of both spreads.

Gábor Dávid Kiss
Currency Stability and Unconventional Balance Sheet Practices – a Panel Approach

The impact of balance sheet expansions on extreme currency fluctuations was tested in present paper on a panel data of seven European central banks between 2006 and 2014. Balance sheets can evolve due to conventional and unconventional monetary practices – mostly by foreign exchange reserve policies or by quantitative easing. Qualitative easing can undermine money quality as recent literature suggested. Current paper summarized the structural changes in the corrected balance sheets (FX reserve accumulation excluded) and in the variety of instruments to capture and test some indicators to evaluate later hypothesis. Extreme currency fluctuations were captured trough the contravention of normal distribution at tails. The intensity of the appearance of extreme currency fluctuations can be caused by corrected balance sheet practices as the panel regressions underlined.

Session 4: Aula I (16:15-17:45)

Margarita Arantes Salgueiro Carvalho
Financialization, corporate governance and employee pay: a firm level analysis

The aim of our study is to focus on the relation between financialization and changes in corporate banking governance. In particular the main objective is to estimate the relation between shareholder value orientation, leverage and employee pay. We estimate the effects of changes in corporate banking governance on employee pay, taking into account the unobserved heterogeneity at the firm and country level. The present study contributes to the literature by addressing for the first time, at least to our knowledge, the relation between shareholder value, leverage and employee pay for a panel of European banks for the period 1988-2015. Information from income statements and balance sheet information on individual banks is taken from BankScope. The BankScope database, provided by Bureau van Dijk, is a unique collection of micro-level banking information for different countries. It comprises information on detailed financials which are presented in multiple formats including the universal format to compare banks globally. Focusing on financialization and changes in corporate governance, we estimate how wages are affected by shareholder value orientation and leverage.

Carlos Aller Arranz, **Charles Grant**
The Effect of Financial Crisis on Default by Spanish Households

We analyse the default behaviour of Spanish households immediately before and after the recent financial crisis. Using several waves of the Survey of Household Finances (a tri-annual survey of financial position of Spanish households), we show that younger, poorer and less well educated households are most likely to default, but that while there were substantial changes in default over time, the response was different across household types. Since households separately report information on credit applications and acceptances, we can decompose the changes in default into a borrower and a lender effect. We find most of the changes in behaviour can be attributed to changes in the default behaviour of borrowers. Nevertheless, there is also some evidence that lenders restricted credit to some groups during the crisis, attenuating the rise in default among poorer households.

Matteo Benetton, **Peter Eckley**, Nicola Garbarino, Liam Kirwin, Georgia Latsi, Paolo Siciliani
Specialising in risky mortgages: the unintended consequences of Basel II

Since Basel II was introduced in 2008, two approaches to calculating bank capital requirements have co-existed: banks' internal models, and a less risk-sensitive standardised approach. Using a unique dataset for the UK mortgage market, 2005-2015, and novel identification, we provide the first empirical evidence that this leads smaller lenders to specialise in higher risk lending, leading to systemic concentration of risk. Adopting internal models leads to reduced interest rates for lower-risk loans, and a corresponding portfolio shift. A 1pp reduction in risk weights causes a 1.3bp reduction in interest rates. Our results are relevant to live policy debates.