

# Annual Report

# 2017

Centre for Finance  
University of Gothenburg



GÖTEBORGS UNIVERSITET



RESEARCH AND INNOVATION  
FOR SUSTAINABLE GROWTH

# Annual Report 2017

## Centre for Finance

University of Gothenburg

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*Research 2017 – Annual Report*

Centre for Finance research catalogue

University of Gothenburg, May 2018

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# 1. Research at CFF

## 1.1. Mission and Vision

In 2010 the Centre for Finance (CFF) received a grant from VINNOVA to establish one of Sweden's three new research centers within finance. The Centre is also financed by the business community, the University of Gothenburg and the School of Business, Economics and Law.

**CFF's mission** is to contribute to a sustainable financial system through:

- Excellent research focusing on financial intermediation, specifically the interaction between financial institutions and business/households.
- An open and creative multidisciplinary research environment.
- Close interaction with practitioners, education and society at large.

**CFF's vision** is to advance the understanding and practice of financial intermediation and to be the leading Nordic research center in this field, with expertise in great demand. It is also to be a highly regarded and exciting arena for collaboration among researchers, students, financial practitioners and policy makers.

## 1.2. Highlights 2017

During spring CFF submitted a progress report to VINNOVA. In June, the evaluators appointed by VINNOVA, Mary O'Kane and Bauke Visser (generalists), and An Yan and Michel Habib (experts) visited CFF and had a formal interview with representatives for the Centre. During the interview, matters such as research, results and impact, organization and management, finance, interaction between industry partners and the Centre, and educational activities were addressed. The evaluation team concluded that the Centre is doing well and quoting from the evaluation report:

*"...It is not an exaggeration to say that the Centre has to a large extent achieved what many centres and departments have tried but not quite succeeded in achieving, namely the combination of high-quality academic research with real-world relevance..."*

During 2017 we have continued our strategy of international and strategic recruitments, investments in research infrastructure, active seminar series and topical conferences, collaborations with our co-financiers, and multidisciplinary research. These strategies have resulted in increased output of high quality research, including several top-publications, increased research grants, improved marketing, branding, and visibility, as well as increased collaborations between affiliated researchers as well as with the surrounding society.

CFF research on behavioral finance, and more specifically on so-called disappointment aversion, has been published and is forthcoming in the top-journals *Review of Financial Studies* and *Journal of Financial Economics*, respectively. During 2017 we have organized one conference together with The Second Swedish National Pension Fund (AP2) on "Incentives, talent, culture, and risk-taking in the finance industry" and together with our International Scientific Advisory Board (ISAB) we organized the "First Marstrand Finance Conference". In terms of other collaborations with our co-financiers, CFF researchers work on i) a project on Enterprise Risk Management (ERM) together with SKF and Volvo and ii) a

project on the impact of new bank regulation together with the independent savings banks. CFF researchers are also involved in interdisciplinary work on e.g. financial consumer behavior.

The main objective has been to further develop a competitive research environment and we think we are on a promising trajectory towards becoming an internationally recognized research center and a national competence center on financial intermediation. Besides research capacity in financial intermediation in general, CFF has also had a strategy in terms of methodological expertise. The Centre now has a good mix of more fundamental research, including development of research methods, e.g. financial econometrics, financial mathematics, and economic experiments, and more applied research, with a bearing on financial intermediation. Having access to methodological expertise increases the quality of the more applied research, whereas closeness to more applied researchers increases the relevance and quality of more methodologically oriented research.

Another objective has been to further improve our PhD education and placement of PhD graduates. The two most recent PhD graduates did well on the international job market and are now assistant professors at University of Navarra in Spain and Wesleyan University in Connecticut, USA, respectively. These placements added to our visibility within the international research community. However, there is still scope for further improvements in terms of quality and quantity of PhD training at the Centre.

## 2. Published works during 2017

### Journal articles

Benos E., Brugler, J., **Hjalmarsson, E.**, Zikes, F. (2017). Interactions among High-Frequency Traders. *Journal of Financial and Quantitative Analysis* 52: 1375-1402.

**Carlander, A.**, Kajonius, J. P. (2017). Who gets ahead in life? Personality traits and childhood background in economic success. *Journal of Economic Psychology* 59: 164-170.

Dahlquist, M., **Farago, A.**, Tedongap, R. (2017). Asymmetries and Portfolio Choice. *The Review of Financial Studies* 30: 667-702.

Dijk, O., **Holmen, M.** (2017) Charity, Incentives, and Performance. *Journal of Behavioral and Experimental Economics* 66: 119-128.

Fabretti, A., Herzel, S., **Holmen, M.**, **Gärling, T.** (2017). Convex incentives in financial markets: An agent-based analysis. *Decisions in Economics and Finance* 40: 375–395.

**Fang, D.**, **Holmen, M.**, Kirchler, M., Kleinlercher, D. (2017). How tournament incentives affect asset markets: A comparison between winner-take-all tournaments and elimination contests. *Journal of Economic Dynamics and Control* 75: 1-27.

**Gärling, T.**, Blomman, M., Carle, T. A., (2017). Affect account of the disposition effect and consequences for stock prices. *Review of Behavioral Finance* 9: 187-202.

**Gärling, T.**, Andersson, M., Hedesström, T. M., Biel, A. (2017). An experimental study of influences of performance-related payments on timing of delegated stock purchases. *Journal of Behavioral Finance* 18: 78-85.

**Hjalmarsson, E.**, Österholm, P. (2017). Households' mortgage-rate expectations – more realistic than at first glance? *Sveriges Riksbank Economic Review* 2: 56-63.

**Hjalmarsson E.** (2018). Maximal predictability under long-term mean reversion. *Journal of Empirical Finance* 45: 269-282.

### Book chapters

Cäker, M., **Elliot, V.** (2017). One Regulation, Diverse Banks. In Stockenstrand, A. K., Nilsson, F. (Eds.), *Bank Regulation: Effects on Strategy, Financial Accounting and Management Control*. Taylor & Francis.

**Elliot, V.**, Lindblom, T. (2017). The Swedish Mortgage Market: Bank Funding, Margins, and Risk Shifting. In *The Business of Banking* (pp. 35-53). Palgrave Macmillan, Cham.

Nicolini, G., **Gärling, T.**, **Carlander, A.**, **Carlsson Hauff, J.** (2017). Attitude towards risk and financial literacy in investment planning. In A. Carretta, F. Fiordelisi & P. Schwizer (Eds.), *Risk culture in banking* (pp. 309-320). New York: Springer.

Books

**Lindblom, T., Mavruk, T., Sjögren, S.** (2017). *Proximity bias in investors' portfolio choice*. Palgrave Macmillan Publishers Ltd.

### **3. Presentations at scientific conferences, symposiums, workshops etc, 2017**

Alizada, P. 30<sup>th</sup> Australasian Finance and Banking Conference, Sydney, December 12-15.  
Paper: *Bank-Customer Distance and Commercial Letters of Credit*

Elliot, V., NOFOMA 2017 Conference, Lund, 7-9th of June.  
Paper: *The role of logistics service providers in advancing supply chain finance.*

Elliot, V., PLAN's Research and Application Conference, Gothenburg, 25-26 October.  
Paper: *Different Perspectives on Supply Chain Finance – In search of a holistic approach.*

Elliot, V., Banks and Financial Markets in Times of Uncertainty, Essex 7-8th of July.  
Paper: *The determinants of covered bonds funding strategies.*

Elliot, V., Wolpertinger Conference, Santander, 31 August - 2 September.  
Paper: *Does bank regulation spill-over to firm financing? SME financing, bank monitoring and the efficiency of the bank lending channel*

Fang, D., Durham University Business School, Durham, May 17.  
Paper: *Turning up the heat: The demoralizing effect of competition in contests*

Fang, D., Contests: Theory and Evidence Conference, Norwich, June 22.  
Paper: *Turning up the heat: The demoralizing effect of competition in contests*

Fang, D., Society for Advancement of Economic Theory, Faro, June 26.  
Paper: *Selection contests are always clubby*

Gärbling, T., Behavioural Finance Research Group Conference, Queen Mary University of London, June 11-12.  
Paper: *Financial risk taking related to individual risk preference, social comparison, and competition.*

Herbertsson, A., Finance seminar, University of Rome Tor Vergata, Rome, March 6  
Paper: *CVA of CDS contracts in contagion models.*

Herbertsson, A., 8th General AMaMeF Conference, Amsterdam, June 22.  
Paper: *CVA of CDS contracts in contagion models.*

Hjalmarsson, E., European Summer Meeting of the Econometric Society, Lisbon, August.  
Paper: *Stock price co-movement and the foundations of pairs trading.*

Holmen, M., Southern Finance Association Annual Meeting, Key West, November.  
Paper: *Convex incentives in financial markets: An agent-based analysis.*

Kiss, T. Economics Seminar Series, University of Linköping, March 22  
Paper: *Vanishing Predictability and Non-Stationary Regressors.*

Kiss, T. The 70th European Meeting of the Econometric Society (ESEM), Lisbon, Aug 21-25.



Paper: *Vanishing Predictability and Non-Stationary Regressors*.

Kostitcyna, N., Wolpertinger Conference, Santander, August 31 - September 3

Paper: *The determinants of covered bonds funding strategies*.

Kostitcyna, N., Essex Finance Centre (EFiC) 2017 Conference in Banking and Finance, Colchester, July 7-8.

Paper: *The determinants of covered bonds funding strategies*.

Mavruk, T. International Finance and Banking Society Asia 2017 Ningbo Conference, Ningbo, China, September.

Paper: *Does corporate social responsibility reduce local bias?*

Zamojski, M., North American Summer Meeting of the Econometric Society, St. Louis, June 15-18

Paper: *Filtering with Confidence: In-sample Confidence Bands for GARCH Filters*

Zamojski, M., International Symposium on Forecasting, Cairns, June 26-28.

Paper: *Dynamic Term Structure Models with Score-Driven Time-Varying Parameters: Estimation and Forecasting*

Zamojski, M., European Financial Management Association, Athens, June 28-July 1.

Paper: *Filtering with Confidence: In-sample Confidence Bands for GARCH Filters*

Zamojski, M., Econometric Society European Meeting, Lisbon, August 21-25.

Paper: *Filtering with Confidence: In-sample Confidence Bands for GARCH Filters*

Zamojski, M., 28th (EC)<sup>2</sup> on Time-varying Parameter Models, Amsterdam, December 14-15.

Paper: *Filtering with Confidence: In-sample Confidence Bands for GARCH Filters*

Zhang, J. FMA European Conference, Lisbon, Portugal, June 22-23.

Paper: *CEO Compensation and Allocation of Managerial Effort with Macroeconomic Fluctuations*

## 4. New Working Papers 2017

**Alizada, P.** 2017. Duration of supplier-customer trade relationships. Manuscript, Centre for Finance, University of Gothenburg.

Basu Bal, A., **Elliot, V., Lindblom, T.,** Rajput, T. and Woxenius, J. 2017. The Role of Logistics Service Providers in Advancing Supply Chain Finance. Manuscript. Centre for Finance, University of Gothenburg.

**Carlander, A., Gamble, A., Gärling, T., Carlsson Hauff, J.,** Johansson, L.-O., **Holmen, M.** (2017). The role of perceived quality of personal service for influences of trust on satisfaction with banks. Manuscript, Centre for Finance, University of Gothenburg.

**Carlsson Hauff, J., Carlander, A., Gärling, T.,** Nicolini, G. (2017). The role of financial literacy in different stages of financial retirement planning. Manuscript, Centre for Finance, University of Gothenburg.

**Elliot, V. and Kostitcyna, N.** 2017. The determinants of covered bonds funding strategies. Manuscript, Centre for Finance, University of Gothenburg.

**Elliot, V.** and Willeson, M. 2017. Does bank regulation spill-over to firm financing? SME financing, bank monitoring and the efficiency of the bank lending channel. Manuscript, Centre for Finance, University of Gothenburg.

**Elliot, V. and Lindblom, T.** 2017. The impact of recent regulatory reform on the use of supply chain finance – the case of reverse factoring. Manuscript, Centre for Finance, University of Gothenburg.

**Elliot, V.,** Marton, J., Öhman, P., Stockenstrand, A-K., Söderström, R. and Wendschlag, M. 2017. National implications of EU harmonization - do we trust the financial supervisor's new cloths? Manuscript, Centre for Finance, University of Gothenburg.

**Fang, D.,** Noe, T., Strack, P. 2017. Turning up the heat: The demoralizing effect of competition in contests. Manuscript, Centre for Finance, University of Gothenburg.

**Farago, A., Hjalmarsson, E.** 2017. Stock Price Co-Movement and the Foundations of Pairs Trading. (accepted for publication at the *Journal of Financial and Quantitative Analysis* in Jan 2018).

**Gärling, T., Gamble, A.,** Klass, V., Duxbury, D. (2017). How emotions influence behavior in financial markets: A conceptual analysis and emotion-based account of buy-sell preferences. Manuscript, Centre for Finance, University of Gothenburg.

**Gärling, T.,** Michaelsen, P., **Gamble, A.** (2017). Young adults' use of consumer credit influenced by scarcity mindset, attitude towards credit, and financial involvement and knowledge. Manuscript, Centre for Finance, University of Gothenburg.

**Hjalmarsson, E., Kiss, T.** 2017. Testing Return Predictability with the Dividend-Growth Equation: An Anatomy of the Dog. Manuscript, Centre for Finance, University of Gothenburg.

**Jeppsson, H.** 2017. Corporate takeovers, sales procedures and alliances. Manuscript, Centre for Finance, University of Gothenburg.

**Kostitcyna, N., V. Elliot.** 2017. Do covered bonds issuers differ from non-issuers under the new Basel III liquidity regulation? Manuscript, Centre for Finance, University of Gothenburg.

**Kostitcyna, N., V. Elliot.** 2017. The Swedish Savings Banks branch network and the intensity of the cooperation with Swedbank. Manuscript, Centre for Finance, University of Gothenburg.

**Kostitcyna N.** 2017. Scandinavian Regulatory Response: evidence on self-reported adaptation strategies. Manuscript, Centre for Finance, University of Gothenburg.

**Mavruk, T.** 2017. Does corporate social responsibility reduce local bias? Manuscript, Centre for Finance, University of Gothenburg.

**Mavruk, T.** 2017. Local news and the change in local portfolios? Manuscript, Centre for Finance, University of Gothenburg.

## 5. Ongoing research projects

### **Trust instead of uncertainty** (*Anders Carlander*)

This project deals with the perceived risk in delegated stock portfolios. We investigate whether delegation will alter the risk perception and subsequent stress response. We also measure how trust levels aimed towards financial expertise such as advisers change during this process. The general question is whether delegation and trust in experts can alleviate psychological responses due to risk in financial instruments. This would explain a lot of the non-fundamentally based cash flows on the mutual fund market.

This project is financed by the Swedish Research Council.

### **Regulatory Arbitrage** (*Viktor Elliot, Magnus Willesson*)

The project analysis how recent bank regulations affect bank behavior and specifically focus on areas where banks act opportunistically by exploiting regulatory discrepancies to gain arbitrage.

This project is financed by Handelsbanken's Research Foundations.

### **R&D Contests, Risk-Taking Strategies, and Social Welfare** (*Dawei Fang, Thomas Noe*)

We study R&D contests where firms strategically take risks that affect the speed of an innovation. We show that competition induces firms to play excessively safer strategies. Increasing the number of competing firms induces more risk-taking and benefits social welfare via both a statistical channel and a strategic channel. However, interestingly, social welfare can be higher under monopoly (no competition) than under competition. We find that monopoly leads to higher social welfare than duopoly when society is sufficiently patient or when the expected innovation speed is sufficiently low.

### **Capital Structure and Firm Behavior in a Price War** (*Dawei Fang*)

In many high-tech industries, firms often engage in price wars in order to win the market. We model this competition as an all-pay auction in which firms can potentially relax their capital constraints by raising external capital. In contrast to the pecking order theory, we find that equity financing is globally optimal for a competing firm. If a firm is restricted to debt financing, unless the firm is much stronger (in terms of a much lower marginal bidding cost) than its rivals or the firm has a sufficiently large amount of assets in place, no bank is willing to finance the firm for a price war even if the firm is the strongest competitor. Moreover, when a firm is restricted to debt financing, an increase in the firm's assets in place induces its rivals to behave less aggressively in the price war, which benefits the firm. Our theory explains why many high-tech firms are financed by private equity rather than by banks. Our theory also shows that, when a firm is restricted to debt financing, a greater amount of assets in place benefits the firm in a price war.

### **Financial Risk Taking Related to Individual Risk Preference, Social Comparison, and Competition** (*Dawei Fang, Tommy Gärling, Martin Holmen, Patrik Michaelsen*)

We hypothesize that in dyads making financial risky choices, knowledge of the other's choice would evoke self-other comparison that results in a tendency to make the same safe or risky choice. If performance is incentivized relative to the other's performance, we hypothesize that self-other comparison would instead induce competition such that different choices are made. In order to test these hypotheses we conducted an on-line experiment with the participation of 120 undergraduates recruited from a pool of volunteers. Participants first made individual choices between a varying sum of fictitious money (safe options) and a fixed risky option consisting of a 50% chance of winning a higher amount or nothing. The same individual

choices were then in one condition repeated with information given each time about another participant who allegedly had made a risky or safe choice. In another condition the outcomes were made to depend on the other's outcomes but the results showed that both in this and the other condition the tendency was to align choices with the other's risky choices. Another 120 undergraduates from the same population were recruited to a second experiment which differed in that the risky outcomes were the same to both or reversed, and that participants in one condition were instructed that they take part in a contest. The results showed a strong effect of competitive instructions in that participants took more risk than individually preferred when this would lead to a 50% chance of defeating the other. With no competitive instructions the results were not substantially different from the first experiment. Our first hypothesis that self-other comparisons lead to the same choices is partly supported in both experiments, the second hypothesis that outcome dependence induces competition leading to different choices is supported in the second experiment.

### **Disappointment Aversion, Stock Market Participation and the Demand for Put Options** *(Adam Farago)*

I study the portfolio choice of an investor with asymmetric attitudes towards gains versus losses who invests in a stock, a bond and a put option. I demonstrate that a generalized disappointment-averse investor, who is loss averse around a reference point that is lower than her certainty equivalent, optimally holds long positions in put options. This resolves the puzzling finding in previous literature that a wide range of expected and non-expected utility functions fail to generate demand for put options. Moreover, I demonstrate that this investor always holds risky securities, independently of her degree of loss aversion. This is in stark contrast to previous findings on market non-participation of a sufficiently disappointment-averse investor, who is loss averse around her certainty equivalent. My results highlight that the endogenous reference point distinguishing gains and losses plays an important role in determining the optimal asset allocation.

### **Equilibrium Effects of Disappointment Aversion in an Economy with Heterogeneous Agents** *(Adam Farago, Mariana Khapko)*

We study the general equilibrium effects in a heterogeneous agent economy, where both disappointment-averse and disappointment-neutral investors are present and derivative securities are included in the investors' portfolios. Our results suggest that the presence of disappointment-averse agents in the economy can explain various patterns observed in option markets regarding prices, trading volumes, and open interest levels, that are otherwise puzzling for standard models.

### **The Impact of Economic Preferences and Cognitive Skills on Fund Manager Performance and Behaviour** *(Adam Farago, Martin Holmen, Felix Holzmeister, Michael Kirchler, Michael Razen)*

We investigate the impact of mutual fund managers' cognitive skills and economic preferences (e.g., ambiguity, risk, and time preferences) on their real behaviour in the industry, measured by their portfolio allocation decisions in the funds they manage. Delegated portfolio management (primarily through mutual funds), is becoming an increasingly important part of households' savings. Therefore, the decisions of mutual fund managers have far reaching consequences for the wealth of their clients and for financial markets as a whole. Hence, it is important to understand how their preferences and cognitive skills shape their professional decisions. We are currently in the process of administering a set of incentivized (with relatively high stakes) online experiments to elicit fund managers' economic preferences and cognitive skills. We recruited fund managers from four European countries for our

experiments. After finishing the experiments, we are going to connect the managers' results to return and holdings data of the funds they manage, and start the empirical analysis.

**Benchmarks and Risk-Taking in the Finance Industry** (*Adam Farago, Felix Holzmeister, Michael Kirchler*)

The performance of professional portfolio managers is typically compared to the performance of a benchmark portfolio. The purpose of this project is to understand how these benchmarks affect the risk-taking behaviour of financial professionals.

**CDS index options in Markov Chain Models** (*Alexander Herbertsson*)

We study CDS index options in a credit risk model where the defaults times have intensities which are driven by a finite-state Markov chain representing the underlying economy. In this setting we derive compact computationally tractable formulas for the CDS index spread and the price of a CDS index option. In particular, the evaluation of the CDS index option is handled by translating the Cox-framework into a bivariate Markov chain. Due to the potentially very large, but extremely sparse matrices obtained in this reformulating, special treatment is needed to efficiently compute the matrix exponential arising from the Kolmogorov Equation. We provide details of these computational methods as well as numerical results. The finite-state Markov chain model is calibrated to data with perfect fits, and several numerical studies are performed where we show that under same exogenous circumstances, the CDS index options prices in the Markov chain framework can be several hundred percent bigger compared with models which assume that the CDS index spreads follows a log-normal process. We also compare prices in the Markov model with the corresponding prices in a nonlinear filtering model. Finally, we outline mean-variance hedging techniques for CDS index options in our Markovian framework.

**CDS index options under incomplete information** (*Alexander Herbertsson, Rüdiger Frey*)

We derive practical formulas for CDS index spreads in a credit risk model under incomplete information. The factor process driving the default intensities is not directly observable, and the filtering model of Frey & Schmidt (2012) is used as our setup. In this framework we find a computationally tractable expression for the payoff of a CDS index option which naturally includes the so-called armageddon correction. A lower bound for the price of the CDS index option is derived and we provide explicit conditions on the strike spread for which this inequality becomes an equality. The bound is computationally feasible and do not depend the noise parameters in the filtering model. We outline how to explicitly compute the quantities involved in the lower bound for the price of the credit index option as well as implement and calibrate this model to market data. A numerical study is performed where we show that the lower bound in our model can be several hundred percent bigger compared with models which assume that the CDS index spreads follows a log-normal process. Also a systematic study is performed in order to understand the impact of various model parameters on CDS index options (and on the index itself).

**Credit Value Adjustment of CDS-contracts in contagion models** (*Alexander Herbertsson*)

We study unilateral CVA in a CDS contract in the contagion model of Herbertsson (2008b), Herbertsson (2008a). In this model there are  $m$  obligors interconnected in a network (where  $m$  can be very large) creating default contagion by letting the individual intensities jump when other defaults occur in the network. The investor  $A$  in a CDS contract buys protection from  $B$  on potential credit losses due to a default on obligor  $C$ . The seller of CDS-protection  $B$  and the underlying entity  $C$  are both belonging to the interconnected network and are both thus affected by default of other obligors in the network, as well as each other, which will imply a

very strong wrong way risk in the CDS contract seen from the buyers A's point of view. Since the default contagion is modeled by letting individual intensities jump when other defaults occur, but be constant between defaults, the model can be translated into a Markov jump process which represents the default status in the credit portfolio. As in the previous papers, Herbertsson (2008b), Herbertsson (2008a), matrix-analytic methods are used to derive compact, computationally tractable closed-form expressions for the quantities involved in the CVA expression. These CVA expressions needs numerical integration which is very quick, and no Monte-Carlo simulations are required to find the CVA values. In this model we then perform several numerical investigations. For example, for fixed CDS and FtD spreads calibrated to the model, we study the interconnectedness/ systemic risk impact on the CVA value (i.e. dependence of  $m$ ) and show that in the calibrated model the CVA value can increase several hundred percent with only moderate increases in the size of  $m$ . Several other numerical investigations are performed, such as sensitive studies of the CVA value with respect to CDS and FtD spread, recovery rates, and other parameters. No Monte-Carlo simulations are required. We also study the CVA of CDS when calibrated to historical iTraxx CDO data and show drastically increasing CVA values comparing pre and post 2008-crises data.

**Electronic Trading and Price Discovery in the FX Market 2008-2015** (*Alain Chaboud, Erik Hjalmarsson, Filip Zikes*)

We analyze price discovery (i.e., the mechanisms through which financial prices get updated to reflect new information) over a long sample (2008 to 2015, possibly dating back to 2003 in future extensions), and study the impact of several changes to the market rules during this period. In addition, the sample period allows for a long-run view of the introduction and subsequent increase of automated algorithmic and high-frequency trading (often popularly referred to as robot trading) in this market.

**The Need for Speed: Minimum Quote Life Rules and Algorithmic Trading** (*Alain Chaboud, Erik Hjalmarsson, Clara Vega*)

We study the impact of a 250 millisecond minimum-quote-life (MQL) rule in the euro-dollar currency pair. The MQL rule appears to have caused a decrease in depth in the market, while average bid-ask spreads were mostly unaffected. Consistent with the recent theoretical literature on HFT, we find that "slow" traders pay a premium when they transact with better informed high-frequency traders, and that these costs declined after the MQL rule was implemented. The lack of impact on average spreads is, at least partly, explained by the resulting re-distribution of trading costs between fast and slow traders. Finally, the MQL rule also seems to have caused a decrease in trading volume on the EBS trading platform, suggesting that some market participants may have moved to other trading venues without MQL rules.

**Incentive structures in the finance industry and the behavior of financial markets** (*Martin Holmen, Tommy Gärling, Stefano Herzel, Michael Kirchler*)

This project aims at investigating whether incentive structures in the finance industry lead to increased risk-taking, mispricing of financial assets, more volatile markets and ultimately financial bubbles and crashes. Researchers from financial economics, applied mathematics, and psychology will use economic experiments with finance professionals, agent-based models, and data from financial markets to investigate these issues. The project has bearing on the policy discussion about regulation of investment managers' incentive schemes.

This project is financed by the Swedish Research Council.

### **Vanishing Predictability and Non-Stationary Regressors (*Tamas Kiss*)**

This paper analyses predictive regressions of excess stock market returns, in which a non-stationary component masks the information in the regressor. If expected returns are stationary, the predictive power of the regression vanishes as the sample size grows under a general set of assumptions. This statement holds regardless of the strength of the relationship between the informative component of the regressor and the return. The results provide potential explanation why predictive regressions may have lost power in more recent samples. An estimation procedure, subsample fixed effects, is introduced to mitigate the problem caused by the non-stationary component in the regressor. An empirical application shows that changes in the predictive power of explanatory variables that exhibit non-stationary behaviour are consistent with the proposed model. Applying the subsample fixed effects estimator indicates that the relationship between these predictors and the stock market return remains significant.

### **Over-indebtedness among young adults (*Ted Lindblom, Viktor Elliot, Jeanette Hauff, Jonas Nilsson, Ammelie Gamble, Tommy Gärling, Anders Carlander*)**

We investigate the economic and physiological problems related to over-indebtedness among young adults. The project focuses on three levels; the regulatory tools to mitigate over-indebtedness and its implications, the relationship between the supply-side actors and borrowers and the implications of over-indebtedness at an individual level.

This project is financed by Handelsbanken's Research Foundations.

### **Supply Chain Finance (*Ted Lindblom, Johan Woxenius, Lars-Göran Malmberg, Abhinayan Basu, Viktor Elliot, Parviz Alizada*)**

This project focuses on the implications of the financial flows for the efficiency of the overall supply chain. By jointly studying the legal, financial and logistic aspects of the supply chain this multidisciplinary project aims to identify and analyze theoretical and empirical problems related to cash management, efficiency and performance in trade.

This project is financed by a separate VINNOVA grant.

### **Keeping it real or keeping it simple? Ownership concentration measures compared (*Taylan Mavruk, Conny Overland, Stefan Sjögren*)**

Based on a sample of 240 Swedish firms listed at the Stockholm Stock Exchange as of year-end 2008 we analyse measures of ownership concentration found in past governance literature. We find that although measures are significantly correlated, they show different distributional properties. We also identify the best underlying distribution for each concentration measure, and we are able to distinguish between measures in terms of what dimensions of ownership they describe. Finally, we document that inferences regarding the association between ownership concentration and firm performance are contingent on the choice of concentration measure.

### **How do Intellectual property law regimes within the EU affect innovation activity? (*Claes Martinson, Taylan Mavruk Stefan Sjögren*)**

This paper examines the relationship between patent law regimes and innovation activity. We use an index of patent strength developed by Ginarte & Park (1997) and regress this against two proxies for innovation activity: patent applications and patent grants. We control for legal origin, and conduct partial analyses for EU and non-EU countries. We find that the patent strength has an inversed U-shaped relation with innovation activity. We observe that this inversed U-shaped relation is stronger for abroad patent applications than domestic innovation activity. We observe the opposite effect within the EU countries sample. The relation between



the patent strength and the innovation activity is U-shaped. We observe also that this relation is driven by the abroad patent applications. Our conclusions are that patent regimes seem to be more effectual on attracting abroad innovations and that integration, common agreement and strong patent law within the EU countries induce innovators to apply for abroad patents. We obtain similar results in our robustness analyses when we use patent grants as proxy for the innovation activity and re-run our regressions.

**Generalized Autoregressive Method of Moments** (*Drew Creal, Siem Jan Koopman, André Lucas, Marcin Zamojski*)

We introduce Generalized Autoregressive Method of Moments (GaMM) dynamics. GaMM extends Generalized Method of Moments (GMM) to a setting where a subset of the parameters is expected to vary over time with unknown dynamics. To filter out the dynamic path of the time-varying parameter, we approximate the dynamics by an autoregressive process driven by the score of the local GMM criterion function. Our approach is completely observation driven, such that estimation and inference are entirely straightforward. Moreover, the approach provides a unified framework for modeling parameter instability in a context where the model and its parameters are only specified through (conditional) moment conditions, thus generalizing previous approaches built on fully specified parametric models. We provide three examples of increasing complexity to highlight the advantages of GaMM.

**Filtering with Confidence: In-sample Confidence Bands for GARCH Filters** (*Marcin Zamojski, then André Lucas, Anders Rahbek, Marcin Zamojski*)

This paper is the first to propose a robust method of computing in-sample confidence bands for time-varying parameters estimated with miss-specified observation-driven models. As an example of this class, I look at the family of GARCH models which are used to estimate time-varying variances and covariances. I propose a novel bootstrap procedure and a new moving-window resampler which together generate confidence bands around estimated volatility paths. The approach accounts for various sources of uncertainty, including parameter and filtering uncertainty. I illustrate the method by applying it to S&P 500 returns. Moreover, I investigate finite sample properties of the confidence bands and their convergence in a range of simulation experiments. I find that the average coverage is close to the nominal level in finite samples and that it converges to the nominal level as the sampling frequency is increased. The procedure can be used as a smoother to substantially reduce average root mean square error of GARCH paths. The new method is easily implementable and does not significantly increase the computational burden.

**Hedge Fund Innovation** (*Arjen Siegmann, Denitsa Stefanova, Marcin Zamojski*)

We study first-mover advantages in the hedge fund industry by clustering hedge funds based on the type of assets and instruments they trade in, sector and investment focus, and fund details. We find that early entry in a cluster is associated with higher excess returns, longer survival, higher incentive fees and lower management fees compared to funds that arrive later. Moreover, the latest entrants have a high loading on the returns of the innovators, but with lower incentive fees, and higher management fees. Cross-sectional regressions show that the outperformance of innovating funds is declining with age. The results are robust to different parameters of clustering and backfill-bias, and are not driven by the possible existence of flagship and follow-on funds. Our results show that the reported characteristics of hedge funds can be used to infer strategy-related information and suggest that specific first-mover advantages exist in the hedge fund industry.

### **Dynamic Term Structure Models with Score-Driven Time-Varying Parameters: Estimation and Forecasting** (*Siem Jan Koopman, André Lucas, Marcin Zamojski*)

We consider score-driven time-varying parameters in dynamic yield curve models and investigate their in-sample and out-of-sample performance for a dataset of 16 countries. In a univariate setting, score-driven models were shown to offer competitive performance to parameter-driven models in terms of in-sample fit and quality of out-of-sample forecasts but at a lower computational cost. We investigate whether this performance and the related advantages extend to more general and higher-dimensional models. Based on an extensive Monte Carlo study, we show that in multivariate settings the advantages of score-driven models can even be more pronounced than in the univariate setting. We also show how the score-driven approach can be implemented in dynamic yield curve models and extend them to allow for the fat-tailed distributions of the disturbances and the time-variation of variances (heteroscedasticity) and covariances. The results indicate changing importance of heteroscedasticity vs. fat-tailedness that depends on the frequency of observations.

### **Self-driving score models** (*Marcin Zamojski*)

I introduce a class of approximate ‘score’-driven filters based on automatic differentiation. The agnostic approach requires from a researcher only a specification of the conditional criterion function and the theoretical existence of influence functions for the time-varying parameters. I show that in settings where a score model is assumed to be the data-generating process, self-driving filters produce comparable results to analytically derived optimal filters. The small performance loss comes as a trade-off for increased simplicity and implementability of the approach. I further show that in settings where optimal filters are impossible to derive, self-driving models produce significantly better results than previously proposed methods.

### **CEO Compensation and Allocation of Managerial Effort with Macroeconomic Fluctuations** (*Hsin-Hui Chiu, Lars Oxelheim, Clas Wihlborg, Jianhua Zhang*)

Improperly designed compensation incentive schemes may lead CEOs to allocate too much effort to respond to shocks with relatively little effect on shareholder value at the expense of effort to manage the long-term competitiveness of the firm. In this project we analyze US CEO’s incentives to allocate effort between relative shocks that affect long-term competitiveness and macroeconomic shocks, which are relatively transitory and to some extent are beyond the controls of the managers. The contributions of the paper are: 1) We identify factors that determine the optimal allocation of managerial effort to the relative and macroeconomic shocks. 2) We propose an approach to estimate them. 3) We estimate the strength of incentives to manage relative and macroeconomic shocks taking asymmetry incentives into account.

### **The Role of Price Connectors: A study on the Market Segmentation in Chinese Stock Markets** (*Yun Feng, Jianhua Zhang*)

The degree of market segmentation has resulted in price differences for dual class equity from the same firm but traded at the different Chinese stock exchanges. If the markets were integrated, different types of shares from the same firm would be traded at the same price because of homogeneity in the fundamental value of the firm. In this paper we provide evidence to show that under market segmentation, a Chinese firm’s dividend policy can act as a connector between the prices of its dual class shares and thus the costs of different types of equity. We find that cash dividends reduce the price differences most effectively because they enable investors to earn higher dividend yield by purchasing the type of shares with lower

prices. We also compare the effects of the other three possible connectors, i.e. stock dividends, stock transfers, and book value of equity. We find that their effects are small. In the future, with more relaxations of the trade restrictions of different types of shares and more financial and institutional innovations, the effects of these connectors are expected to be even larger in China.

## 6. CFF Seminars and Conferences

### CFF Research Seminars 2017

January 12

Jieying Li, Stockholm School of Economics

**Going online? The motive of firms to borrow from the crowd?**

January 26

Taylan Mavruk, CFF

**Printed news is the old news: The role of local media in local trading activity and local stock returns**

February 9

Marcin Zamojski, CFF

**Hedge Fund Innovation**

February 23

Håkan Jankensgård, Lund University

**Do Hedging Cash Flows Really Increase Corporate Investment?**

March 16

Irina Zviadadze, Stockholm School of Economics

**Term structure of risk in macrofinance models**

March 23

Dagfinn Rime, BI Norwegian Business School

**Segmented Money Markets and Covered Interest Parity Arbitrage**

April 27

Moqi Xu, London School of Economics

**Free-riders and Underdogs: Participation in Corporate Voting**

May 3

Ingrid Werner, Ohio State University

**Trading Fees and Intermarket Competition**

May 11

Christian Wagner, Copenhagen Business School

**Margin requirements and equity option returns**

May 18

Indraneel Chakraborty, University of Miami

**Monetary Stimulus and Bank Lending**

June 8

Juhani Linnainmaa, USC Marshall

**Informed traders, long-dated options, and the cross-section of stock returns**

September 14

Masao Ogaki, Keio University

**Education and Pro-family Altruistic Discrimination against Foreigners: Five-Country Comparisons**

September 28

Russ Wermers, University of Maryland

**Costly Information Production, Information Intensity, and Mutual Fund Performance**

October 5

Torben Andersen, Northwestern University

**The Pricing of Tail Risk and the Equity Premium: Evidence from International Option Markets**

October 12

The Félix Neubergh lecture

Jon Faust, Center for Financial Economics at Johns Hopkins University

**The Role of Macroeconomic Policy Analysis in the Great Inflation, Great Moderation and Great Recession**

October 19

Inaki Rodriguez Longarela, Stockholm Business School

**Zooming in and out: Are we capturing the whole picture when we measure arbitrage in currency markets?**

October 26

Peiran Jiao, Maastricht University

**Payoff-Based Belief Distortion**

November 30

Anders Andersson, SHoF

**Self-Awareness, Financial Advice and Retirement Savings Decisions**

December 14

Philipp Strack, UC Berkeley

**Unrealistic Expectations and Misguided Learning**

## Professional Seminars 2017

January 18

Lars Meuller, Canada Pension Plan Investment Board

**Portfolio Design and Long Term Investing**

March 7

Henry Ohlsson, deputy governor of the Riksbank

**Current monetary policy and the outlook for the Swedish economy**

March 29

Pebr Wissén, Swedish House of Finance at the Stockholm School of Economics

**Housing Risks in Swedish Banks**

April 5

Sean Cotten, Standard & Poor's

**Household Debt and implications for Swedish Banks**

April 19

Erik Sprinchorn, Swedbank Robur, and Jonas Eixmann, AP2

**The Nordic Tech Miracle and Gambling Industry**

April 26

Henrik Wold Nielsen, Storebrand

**Carbon footprint data and climate-aware equity strategies**

September 15

Stefan Lundbergh, Cardano och AP4

**Vart skall PPM ta vägen?**

October 25

Torbjörn Jacobsson, Avida Finans

**The adaptable survives - the effects of increased regulation for Swedish banks**

November 22

Peter Clemedtson, chairman PwC

**A Tour of Accounting and Finance**

November 29

Jerker Wesslén, Skatteverket

**Fastighetstaxering**

December 6

Niklas Palm, Nordea Markets

**An introduction to XVA - Latest trends in pricing of derivatives**

December 13

Peter Strand, VD Victoria Park

**Victoria Park och den svenska fastighetsmarknaden**

**Saturday, Sunday, and Monday June 17-19, 2017**  
**First Marstrand Finance Conference**  
**Venue: Villa Maritime, Marstrand, Sweden**

June 17

**Session 1: Credit markets**

Session chair: Tor Jacobsson, Sveriges Riksbank

18.00-19.00 *Syndicated Loan Risk: The Effects of Covenants and Collateral*

**Presenter:** George Pennacchi, University of Illinois

Discussant: Greg Udell, Indiana University

June 18

**Session 2: Asset pricing**

Session chair: Martin Holmen, University of Gothenburg

8.45-9.35 *The Flash Crash: A New Deconstruction*

**Presenter:** Eric Aldrich, University of California Santa Cruz

Discussant: Erik Hjalmarsson, University of Gothenburg

9.35-10.25 *Bear Beta*

**Presenter:** Scott Murray, University of Georgia

Discussant: Thomas Maurer, Washington University in St. Louis

10.40-11.30 *Pricing Shocks to Conditional Market Beta*

**Presenter:** Thomas Maurer, Washington University in St. Louis

Discussant: Adam Farago, University of Gothenburg

18.00-19.00 Keynote Speech: John Heaton, University of Chicago

**Session 3: Rapid fire session: 6 papers with 10 minutes (5+5) each**

Session chair: Karin Thorburn, Norwegian School of Economics

19.00 - 20.00 *Are Shareholders Votes Rigged?*

**Presenter:** Daniel Metzger, Stockholm School of Economics

*Measures of the Natural Interest Rate from Inflation-Indexed Debt*

**Presenter:** Glenn Rudebusch, Federal Reserve Bank of San Francisco

*Beyond Common Equity: The Influence of Secondary Capital on Bank Risk*

**Presenter:** John Cotter, University College Dublin

*Credit Risk in Sovereign Debt in a Judicial Union*

**Presenter:** Emre Ergungor, Federal Reserve Bank of Cleveland

***Lending relationships and lending technologies***

Presenter: Bogdan Stacescu, BI Norwegian Business School

***Politics and Banking***

Presenter: Anjan Thakor, Washington University in St. Louis

June 19

**Session 4: Corporate Finance and Banking**

Session chair: Anjan Thakor, Washington University in St. Louis

8.45-9.35 ***Shock Propagation and Banking Structure***

**Presenter:** Farzad Saidi, Stockholm School of Economics

Discussant: Bogdan Stacescu, BI Norwegian Business School

9.35-10.25 ***Does Partisan Conflict Impact the Cash Holdings of Firms?***

**Presenter:** Jeremy Chiu, Bank of England

Discussant: Emre Ergungor, Federal Reserve Bank of Cleveland

10.40-11.30 ***Debtor Protection, Credit Redistribution, and Income Inequality***

**Presenter:** Hamid Boustanifar, BI Norwegian Business School

Discussant: Karin Thorburn, Norwegian School of Economics

**Session 5: Credit ratings**

Session chair: Paolo Fulghieri, University of North-Carolina

17.30-18.30 ***Reputation and competition in the credit ratings market—Evidence from Commercial Mortgage-Backed Securities***

**Presenter:** Bo Becker, Stockholm School of Economics

Discussant: Chester Spatt, Carnegie Mellon University



AP2-CFF Conference November 9

”Incentives, Talent, Culture, and Risk-Taking in the Finance Industry”

Although the finance sector is one of the most important and biggest industries worldwide – its share of GDP has increased from an average of 3% to about 9% over the past 50 years in major Western economies – the behavior, preferences and personal characteristics of its main protagonists (i.e., fund managers, traders, brokers) have until recently barely been investigated. This conference will bring academics and practitioners together to discuss some recent findings related to the behavior and culture within the finance industry.

14.00-14.45 Erik Thedén, Director General Finansinspektionen  
“Current Issues and Challenges”

14.45-15.30 Per Strömberg, Professor Stockholm School of Economics  
“Talent and Compensation in the Finance Industry”

15.30-16.00 Coffee Break

16.00-16.30 Alain Cohn, Professor University of Michigan  
“Business Culture in the Banking Industry”

16.30-17.00 Anna Dreber, Professor Stockholm School of Economics  
“Gender and Risk Preferences”

17.00-17.15 Break

17.15-17.45 Anna-Karin Fors, SEB, Head Gothenburg Region  
”Talent, Culture and Values within Banking – Reflections from an Employer’s Perspective”

17.45-18.15 Michael Kirchler, Professor Innsbruck University and University of Gothenburg  
“Rankings and Risk-Taking in the Finance Industry“

## 7. Visiting Researchers 2017

Professor Tamir Agmon, College of Management, Tel Aviv  
April–May and September  
Invited by Stefan Sjögren

Professor Shubhashis Gangopadhyay, India Development Foundation  
May and September-October  
Invited by Stefan Sjögren

Professor Ron Kaniel, University of Rochester  
Visits in February, May, and August  
Visiting Professor Programme

Professor Michael Kirchler, University of Innsbruck  
April and August  
Invited by Martin Holmen

Masao Ogaki, Keio University  
September  
Invited by Taylan Mavruk

Professor Philipp Strack, UC Berkeley  
December  
Invited by Dawei Fang