Cambridge Papers for the Cambridge-Princeton Conference, 21-22 September 2007

No	Centre	Author	Title	Abstract
1	CFAP	L. Vanessa Smith & **Taksahi Yamagata** *CAN THIS PAPER BE SCHEDULED FOR THE SECOND DAY (22^{ND})?*	Volatility-Return Analysis using Dynamic Panels	As Bekaert and Wu (2000) document, traditionally in finance stock return volatility is modeled as negatively correlated with stock returns, due to the "leverage effects" -- a drop in the value of the stock (negative return) increases financial leverage, which makes the stock riskier and increases its volatility (Black, 1976, Christie, 1982). Another explanation of such an asymmetry is the volatility feedback effect -- if volatility is priced, an anticipated increase in volatility raises the required return on equity, leading to an immediate stock price decline. Apart from the direction of the causality, the empirical results on these effects are mixed and sometimes conflicting. Using the (general) autoregressive conditional heteroskedasticity in mean, (G)ARCH-in-mean model, French, Schwert and Stambaugh (1987) and Campbell and Hentschel, (1992) find weak evidence of a positive relation between the conditional volatility and the return, while, Turner, Startz and Nelson (1989), Glosten, Jagannathan and Runkle (1993) and Nelson (1991) find a negative relation. Ghysels, Santa-Clara and Valkanov (2005) find a significant positive effect of the conditional variance on the one-month ahead stock market return, where the former is estimated as past daily squared returns (mixed data sampling (MIDAS) approach). Recently a growing body of the research community has turned its attention to the inter-relationship between the real macroeconomy and financial markets. Among others Chen, Roll and Ross (1986) specify macroeconomic and financial market variables that are thought to capture the systematic risks of the economy; Lettau and Luldvigson (2001) show that the consumption factor model can explain the portfolio as well as does the three-factor model of Fama and French (1996); Fornari and Mele (2006) have found that indicators of financial volatility predict roughly 30% of post-war economic activity in the US. There is evidence that suggests there can be significant effects of common volatility on returns. Goyal and Santa-Clara (2003) found a significant positive effect on market return of the cross-section average of the squared residuals of the Fama-French three factor model. Hong, Torous and ValKanov (2007) reported that the returns of a few industries are significantly predictable by volatility of market return. Connor, Korajczyk

				and Linton (2006) develop a dynamic approximate factor model in which returns are time-series heteroskedastic. In their model the heteroskedasticity is divided into three components: a factor-related component, a common (unconditional) heteroskedastic component, and the latter is multiplied by a purely asset-specific component. Each of these components is modeled separately. A factor-related component is estimated by principal components, and the common (unconditional) heteroskedastic component is estimated simultaneously using the method proposed by Jones (2001). The logarithm of common heteroskedasticity over time is then modeled using a nonparametric local trend model with stationary innovations. The purely asset-specific component is modeled as variants of GARCH. The limitation of this approach is that it is difficult to extend the GARCH-in-mean type model to examine the volatility feedback effect. To measure the inter-relationship between returns and volatilities, some authors have adopted a vector autoregression (VAR) analysis. Whitelaw (1994) considers a VAR model using fitted moments from a set of first-stage predictive regressions as proxies for the unobservable conditional mean and volatility; see also Ludvigson and Ng (2006) for a related approach. Brandt and Kang (2004) model the conditional mean and volatility of stock returns as a latent VAR process, using simulated maximum likelihood based importance sampling. More recently Dufour, Garcia and Taamouti (2007) quantify the leverage and volatility feedback effects by applying causality measures, using high-frequency equity returns data. In view of the above literature, we develop a panel vector autoregression model to examine the dynamic interrelationship among return and volatility across assets/industries as well as macroeconomy, under heterogeneity and cross section dependence, which is an extension of the work by Dees, Di Mauro, Pesaran and Smith (2007), Pesaran (2006), Pesaran, Schuermann and Weiner (2004). We control for unobserved correlations of volatility and returns across assets/industries by including weighted cross section averages of return and volatility in addition to common macroeconomic variables, then the system of asset/industry returns and volatilities are solved as a function of macroeconomic variables and past asset/industry returns and volatilities. This approach has three important advantages comparing to existing methods over return-volatility analysis. First, this approach allows us to examine the return-

				volatility relationship at three different levels/directions: contemporaneous leverage and volatility feedback effects from the market level to the industry level; leverage and volatility feedback effects at the industrial level as well as at the market level. Second, the predictability of asset/industry stock returns for future market return, whose empirical evidence has been reported in Hong, Torous and ValKanov (2007), is allowed in our approach. Third, dynamic interrelationship across industries and macroeconomies can be captured by our framework, regardless of how large the cross section dimension (N), unlike the traditional seemingly unrelated regression (SUR) framework. We provide impulse response analysis to visualise such a dynamic interrelationship across industry return and volatility as well as the macroeconomics and financial variables. Also the out of sample analysis is provided.
2	CFAP	**Mardi Dungey,** Michael McKenzie & Vanessa Smith	News, No-News and Jumps in the US Treasury Market	Sufficiently fast and large disruptions to the continuous price process can be detected in high frequency data as jumps. Cojumping occurs when jumps occur contemporaneously across assets. This paper assesses cojumping in the US term structure using the Cantor-Fitzgerald tick dataset of 2002-2006. Most cojumping occurs in association with responses to scheduled news announcements, but little evidence emerges that the existence or extent of a jump relates to the size of the news surprise. Around one-third of cojumps occur independently of any news announcements.
3	CFR	**Michael Dempster**, Elena A. Medova, S. W. Yang	Empirical Copulas for CDO Tranche Pricing Using Relative Entropy	We discuss the general optimization problem of choosing a copula with minimum entropy relative to a specified copula and a computationally intensive procedure to solve its dual. These techniques are applied to constructing an empirical copula for CDO tranche pricing. The empirical copula is chosen to be as close as possible to the industry standard Guassian copula while ensuring a close fit to market tranche quotes. We find that the empirical copula performs noticeably better than the base correlation approach in pricing non-standard tranches and that the market view of default dependence is influenced by maturity.
4	CIMF	M. Hashem Pesaran & **Paolo Zaffaroni**	Optimal Asset Allocation with Facor Models for Large Portfolios	This paper characterizes the asymptotic behaviour, as the number of assets gets arbitrarily large, of the portfolio weights for the class of tangency portfolios belonging to the Markowitz paradigm. We assume that the joint distribution of asset returns is described by a dynamic factor models, with possibly heteroskedastic factors and idiosyncratic components. The latter could exhibit a substantial degree of cross-sectional

				dependence. Under mild conditions, correct specification of the conditional distribution of the factors turns out to be less important than the distribution of the factor loadings and of the idiosyncratic components. We derive various limit approximations of the optimal weights. Our results shed light on several other issues pertinent to the large-asset behaviour of optimal portfolio weights, such as on the form of diversifiability of the portfolio weights, as well as on the issue of the number of dominant factors.
5	CRQF	**L. Chris Rogers**, Jose Scheinkman	Liquidity premia in a model of two bonds	Can two bonds with identical coupons trade at different prices? This talk explores a simple search model where differences in the volume of trading in two different bonds with identical coupons may lead to differences in pricing, the `on the run' effect.
6	CFQF	L. Chris Rogers & **Mike Tehranchi**	The implied volatility surface does not move by parallel shifts	This note explores the analogy between the dynamics of the interest rate term structure and the implied volatility surface of a stock. In particular, we prove an impossibility theorem conjectured by Steve Ross.

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