

Abstract of some research papers

1 On the Modelling of Debt Maturity and Endogenous Default: A Caveat.

We focus on structural models in corporate finance with roll-over debt structure and endogenous default triggered by limited liability equity-holders. We prove that these models are dynamically time inconsistent and that the existing literature has failed to solve the equity-holders' problem.

2 Large Risks, Limited Liability and Dynamic Moral Hazard.

Consider a dynamic moral hazard context, where the limited liability risk neutral manager must exert unobservable effort to reduce the likelihood of relatively infrequent but large losses. In the optimal contract, investment occurs only if there is a sufficiently large time without large losses. Then, if good performance continues, the manager is compensated. But, after large losses, investment and compensation are halted. Very bad track records even lead to firm downsizing. We provide explicit formulae for the dynamics of firm size and its asymptotic growth rate. We show under which conditions firm size eventually goes to zero, or infinity.

3 Ecological Discounting

Which rates should we use to discount costs and benefits of different nature at different time horizons? We answer this question by considering a representative agent consuming two goods whose availability evolves over time in a stochastic way. We extend the Ramsey rule by taking into account the degree of substitutability between the two goods and of the uncertainty surrounding the economic and environmental growths. The rate at which environmental impacts should be discounted is in general different from the one at which monetary benefits should be discounted. We provide arguments in favor of an ecological discount rate smaller than the economic discount rate. In particular, we show that, under certainty and Cobb-Douglas preferences, the difference between the economic and the ecological discount rates equals the difference between the economic and the ecological growth rates. We also justify a decreasing term structure of the ecological discount rate on the basis of the large parametric uncertainty affecting the evolution of the environmental quality.

4 Option Value and Flexibility: a general theorem with applications

What is the effect of future information on today's actions? The answer may help understand, or justify, low investment in the presence of adjustment costs, a preference for holding liquid money, self-insurance or precautionary savings motives, environmental preservation and global warming abatement policies. Within a three-period model, Epstein (1980) showed that the effect of future information depends on a condition on an indirect value function. We provide the necessary and sufficient condition on the model's primitives. Furthermore, we derive a generic ambiguity result, and characterize all model specifications for which the question can be answered without ambiguity. These specifications include all classical models discussed in the literature. The paper also discusses the interpretation of the concept of flexibility in this literature.

5 The determinants of insurance demand by firms

In this paper, we provide a survey of the literature on why risks may be costly for firms, but also on why firms may find difficulty to insure them. A wide variety of arguments are provided, at the intersection of the economic theory of insurance, corporate finance, and decision theory.

6 Liquidity Risk and Corporate Demand for Hedging and Insurance

We analyze the demand for hedging and insurance by a firm facing liquidity risk. We study how the firm's liquidity management policy interacts with two types of risk: a Brownian risk that can be hedged through a financial derivative, and a Poisson risk that can be insured by an insurance contract. We find that the patterns of insurance and hedging decisions are pole apart: cash-poor firms should hedge but not insure, whereas the opposite is true for cash-rich firms. We also find non monotonic effects of profitability. This may explain the mixed findings of empirical studies on corporate demand for hedging and insurance.

7 Individual decisions under risk, risk sharing and asset prices with regret

We consider an Arrow-Debreu economy in which expected-utility-maximizing agents are sensitive to regret. According to regret theory, the marginal utility of their consumption is increasing in the maximum payoff that they could have obtained if they would have made another choice ex ante. We show that regret biases the optimal portfolio allocation towards assets that perform particularly well in low probability states. The competitive asset pricing kernel is convexified by regret if the distribution of the macroeconomic risk is logconcave. Regret also reduces the equity premium when the macro risk is positively skewed. We characterize the competitive allocation of risk when consumers have heterogeneous preferences, and we show how to aggregate individual intensities of regret.

8 Bootstrapping realized multivariate volatility measures

We study bootstrap methods for statistics that are a function of multivariate high frequency returns such as realized regression coefficients and realized covariances and correlations. For these measures of covariation, the Monte Carlo simulation results of Barndorff-Nielsen and Shephard (2004) show that finite sample distortions associated with their feasible asymptotic theory approach may arise if sampling is not too frequent. This motivates our use of the bootstrap as an alternative tool of inference for covariation measures. We consider an i.i.d. bootstrap applied to the vector of returns. We show that the finite sample performance of the bootstrap is superior to the existing first-order asymptotic theory. Nevertheless, and contrary to the existing results in the bootstrap literature for regression models subject to heteroskedasticity in the error term, the Edgeworth expansion for the i.i.d. bootstrap that we develop here shows that this method is not second order accurate. We argue that this is due to the fact that the conditional mean parameters of realized regression models are heterogeneous under stochastic volatility.

9 Generalized Affine Models

Affine models are very popular in modeling financial time series as they allow for analytical calculation of prices of financial derivatives like treasury bonds and options. The main property of affine models is that the conditional cumulant function, defined as the logarithmic of the conditional characteristic function, is affine in the state variable. Consequently, an affine model is Markovian, like an autoregressive process, which is an empirical limitation.

The paper generalizes affine models by adding in the current conditional cumulant function the past conditional cumulant function. Hence, generalized affine models are non-Markovian, such as ARMA and GARCH processes, allowing one to disentangle the short term and long-run dynamics of the process. Importantly, the new model keeps the tractability of prices of financial derivatives. This paper studies the statistical properties of the new model, derives its conditional and unconditional moments, as well as the conditional cumulant function of future aggregated values of the state variable which is critical for pricing financial derivatives. It derives the analytical formulas of the term structure of interest rates and option prices. Different estimating methods are discussed (MLE, QML, GMM, and characteristic function based estimation methods). Three empirical applications developed in companion papers are presented. The first one based on Feunou (2007) presents a no-arbitrage VARMA term structure model with macroeconomic variables and shows the empirical importance of the inclusion of the MA component. The second application based on Feunou and Meddahi (2007a) models jointly the high-frequency realized variance and the daily asset return and provides the term structure of risk measures such as the Value-at-Risk, which highlights the powerful use of generalized affine models. The third application based on Feunou, Christoffersen, Jacobs and Meddahi (2007) uses the model developed in Feunou and Meddahi (2007a) to price options theoretically and empirically.

10 Risk Attitude, Beliefs Updating and the Information Content of Trades : An Experiment

We conduct a series of experiments that simulate trading in financial markets and which allows us to identify the different effects that subjects' risk attitudes and belief updating rules have on the information content of the order flow. We find that there are very few risk-neutral subjects and that subjects displaying risk aversion or risk-loving tend to ignore private information when their prior beliefs on the asset fundamentals are strong. Consequently, private information struggles penetrating trading prices. We find evidence of non-Bayesian belief updating (confirmation bias and under-confidence). This reduces (improves) market efficiency when subjects' prior beliefs are weak (strong).