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Guest editorial

Finance

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Financial Economics as an independent field of study is only about 50 years old, which as fields go, is young. It is inherently arbitrary to date the genesis of a new discipline. Although a case could be made to trace the foundations of Finance to Bernoulli (1738) or Bachelier (1900) or to Fisher (1930), perhaps the first systematic discourse that heralded and shaped contemporary financial thought was the publication of Kenneth Arrow's classic, 'Le Rôle des valeurs boursières pour la repartition la meillure des risques'.

The first 30 years saw tremendous progress in our understanding of the twin approaches to pricing, arbitrage and equilibrium and the functioning of markets. In rapid succession, new paradigms were developed by Arthur Roy, Harry Markowitz, Merton Miller, Franco Modigliani, Eugene Fama, William Sharpe, John Lintner, Jan Mossin, Paul Samuelson, David Cass, Joseph Stiglitz, Robert Lucas, Edward Prescott, Richard Roll, Fischer Black, Myron Scholes, Robert Merton, Stephen Ross, Sanford Grossman, John Cox, Mark Rubinstein, George Constantinides, Michael Jensen, Hayne Leland, Michael Brennan, Eduardo Schwartz, William Brock, Oliver Hart, Sudipto Bhattacharya, Douglas Breeden, Michael Harrison and David Kreps [1] to name just a handful of the pioneers of modern finance.

Since the 1980s, however, the discipline has stagnated. [2] Until very recently [3], no fundamentally new paradigms have been proposed to confront the numerous empirical anomalies that have steadily appeared over the years. The

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[1] I have listed the names in the approximate order of their first seminal contribution to Finance *before 1980*. Since their works are so well known, it would be redundant to list them in the references.

[2] A similar sentiment is expressed in Duffie (1996).

[3] Barberis et al. (2001), Campbell and Cochrane (1999), Constantinides and Duffie (1996) and Constantinides et al. (2001) are some examples.

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discipline of finance is inherently an applied one. Yet the ad hoc factor models popular with practitioners have little grounding in theory, while the theoretically elegant representative-agent consumption based models prove inadequate when confronted with data. Multi-period discounting under uncertainty, for capital budgeting, as taught in standard corporate finance courses, makes little theoretical sense. The serious disconnect between theory and practice poses a strong challenge to the profession. Not since the advent of the notion of risk-neutral valuation[4] has the profession experienced a conceptual advance which thoroughly explains a well-defined set of financial phenomena. The equity premium puzzle still lacks a generally accepted resolution. Market efficiency anomalies proliferate. While intriguing as a possible source of explanation, the area of behavioral finance lacks unifying paradigms. Term structure models are largely ad hoc, as are the models of volatility smiles. Factor fishing is the sport of the day. In no other applied scientific discipline does practice diverge from theory to the extent observed in Finance today. One senses that the field is marking time as it awaits a new theoretical and conceptual breakthrough. The situation is critical—the consumers of financial models appear to have boycotted the product!

While it is simplistic to attribute the current state of affairs to any one specific reason, one factor does stand out. It is the resistance of the profession, both to taking the challenges to existing paradigms seriously and to entertaining new paradigms.[5] While a healthy dose of skepticism is essential for real progress, dogmatism is counter-productive.

It is with this guiding philosophy in mind that I present this volume. It brings together 11 research papers in diverse areas of finance. The unifying theme is that of a creative bent; each paper brings an innovative perspective to bear on the well-established models of Finance and Economics.

Four of the papers in this volume deal with asset pricing. Andrew Abel's work, 'An Exploration of the Effects of Pessimism and Doubt on Asset Returns' examines the implications of 'pessimism' and 'doubt' about the process on aggregate consumption for the risk free rate and the equity premium. 'Pessimism' means that the distribution that agents have in mind is first order stochastically dominated by the objective distribution. 'Doubt' means that the distribution is a mean preserving spread of the objective distribution. Pessimism lowers the risk free rate because, anticipating the low consumption growth rate, people save more. It raises the equity premium because, again anticipating low dividend growth, investors pay too little for stocks; subse-

[4] Cox and Ross (1976), Harrison and Kreps (1979).

[5] I am not endorsing a 'promiscuity of new paradigms'. Ideally, new paradigms must meet the criteria of cross-model verification. Not only must the paradigm be more useful for organizing and interpreting observations under consideration but it must not be *grossly inconsistent* with other observations in growth theory, business cycle theory, labor market behavior and so on.

quent dividends are higher than expected, raising the average realized return. 'Doubt' makes the future seem risky, inducing people to save more and thus lowering the riskfree rate; the higher perceived risk also raises the equity premium. The paper shows that pessimism and doubt are better able to match the sample movements of asset returns for a representative-agent economy. Pessimism and doubt both reduce the riskfree rate and could perhaps resolve the riskfree rate puzzle. The paper's conclusions are encouraging and suggest that a better understanding of these departures from rationality may enhance and deepen our discussions of asset pricing.

'The CAPM in Thin Experimental Financial Markets', by Peter Bossaerts and Charles Plott examines the validity of the CAPM in financial markets without a large participant base. While the CAPM adequately models pricing and trading in competitive markets, a vast number of naturally occurring markets tend to be illiquid. They conclude that while thin markets tend to move towards the equilibrium conditions of the CAPM, they appear to stop short of the equilibrium. The general result is that market summary measures, such as the Sharpe ratio, show some convergence to the equilibrium predictions, but convergence is incomplete in these thin markets. The authors suggest that a dimension of market risk endemic to thin markets is not captured by the Capital Asset Pricing Model and pose this as a research challenge.

In his paper, 'A Correlation Pricing Formula', David Luenberger proposes a pricing formula, an extension of the Capital Asset Pricing Model, to determine the value of as-yet-untraded assets. The main result is intuitive, and relates the price of the 'new' asset to the price of any portfolio whose payoff has the maximum correlation with the asset to be priced. The two formulas are similar, with the important distinction that the benchmark market portfolio of the classic paradigm is replaced in the Correlation Pricing Formula by a marketed asset most closely correlated with the asset being priced. The Correlation Pricing Formula has implications for pricing derivative securities when the underlying asset is not marketed, providing both a qualitative framework and a quantitative basis for computational efficiency.

Telmer and Zin's paper, 'Prices as Factors: Approximate Aggregation with Incomplete Markets' is in the research tradition of focusing on modifications of the classic Arrow–Debreu Asset Pricing theory. The paper provides a link between the fully specified equilibrium approach and the factor-based approach used in practice. It shows that economies that specify the existence of certain frictions, such as incomplete markets, succeed in bringing theory in line with empirical observation without necessarily being at odds with the goal of model parsimony. The thrust of the paper is to find a parsimonious specification of a random variable that can serve as an approximate pricing kernel for economies with interesting heterogeneity and market frictions. The authors find that a low dimension function of aggregate information such as

asset returns, (as in the CAPM or the APT), appears to work better than a low dimensional function of quantities, such as consumption.

Three of the papers in this volume focus on portfolio theory. 'Economic Implications of Using a Mean-VaR Model for Portfolio Selection', by Gordon Alexander and Alexandre Baptista, is a contribution to the literature on risk management. They relate Value at Risk (VaR) to mean–variance analysis. In particular, the authors examine whether a mean-VaR portfolio choice criterion is consistent with utility maximization. They conclude that while such an analysis is broadly consistent with utility maximization, it is not necessarily an improvement over variance to quantify uncertainty. A surprising result in the paper is that it is plausible for a class of risk-averse agents to select a higher variance portfolio if they use VaR as a measure of risk rather than variance.

In 'A Direct Test for the Mean Variance Efficiency of a Portfolio', Gopal Basak, Ravi Jagannathan and Guoqiang Sun derive a consistent relationship between asset returns and the mean variance efficiency of a portfolio. They empirically illustrate their methodology to test mean–variance portfolio efficiency with and without the short-selling restrictions of standard theory. Their results complement the tests based on Jensen's alpha and directly answer the question as to how much a portfolio manager can reduce risk while controlling for the mean return. They conclude that prohibiting short selling impacts both on the efficiency of the benchmark portfolio and on the precision with which this efficiency can be calibrated.

Suleyman Basak's paper, 'A Comparative Study of Portfolio Insurance' is a succinct examination of the impact of portfolio insurance on the stochastic behavior of the market portfolio. The paper models portfolio insurance separately in continuous time exchange and production economies. All investors have iso-elastic utility over the rate of current consumption. Portfolio insurers have bequest functions that are modified power utility functions of terminal wealth, while normal agents have normal power functions. The result is a comparison of portfolio insurance under a variety of modeling methods.

Portfolio insurance is generally thought to increase market volatility since portfolio insurers demand a convex function of the aggregate payoff and their dynamic trading strategy exacerbates price volatility. The paper examines the relationship between portfolio insurance, market volatility and the risk premium and finds that portfolio insurance works to decrease both in the market. The interest rate and the market price of risk are not affected. This surprising result arises because in this model prices are determined by intertemporal clearing in the market for the consumption good, while in the earlier literature the pre-horizon prices were determined from agents' expectations about prices at some specified horizon. The paper concludes by investigating the relationship between portfolio insurance and market volatility.

Two papers deal with Interest Rate Dynamics. Andrew Ang and Geert Bekaert, in their paper, 'Short Rate Nonlinearities and Regime Switches', examine the stochastic properties of interest rates. They show that stochastic switches between different regimes can explain the strong documented non-linearities in the drift and volatility components of interest rates, where the intra-regime processes are linear. In their model, the switching probabilities are state dependent. They use non-parametric estimation to document the distinct drift and volatility in short term US interest rates and in term spreads. Using information from short rates and spreads from the US, UK and Germany, they construct a parametric model to match the empirically observed non-linear patterns observed in non-parametric studies. Their results are of interest because regime switching is, arguably, a more intuitive way of introducing non-linearity than simply using a non-linear function to capture drift and volatility.

Hodrick and Vassalou, in their paper, 'Do We Need Multi-country Models to Explain Exchange Rate and Interest Rate and Bond Return Dynamics?' look at the dynamics of short term returns and exchange rates in four economies, the US, UK, Germany and Japan. They argue that exchange rate drift can potentially be better modeled as a linear function of multiple country short rates as opposed to the usual practice of modeling it as a linear function of the interest rate differential of the two countries under consideration. Alternatively stated, the paper explores whether the forward risk premium can potentially be better modeled by incorporating multiple interest rates rather than by confining it to a single interest rate differential. In terms of empirical evidence, the paper shows that for various exchange rates under consideration, other country interest rate differentials 'kick in'. They conclude that when compared to the standard single or two-country model, a multi-country model specification offers additional intuitive insight in understanding these realizations.

The final two papers in this collection stand alone in their subject matter. Sudipto Bhattacharya, Manfred Plank, Günter Strobl and Josef Zechner, in their paper 'Bank Capital Regulation with Random Audits', make a major contribution to the literature on the role of regulation in the banking sector. They propose a model and provide closed form solutions for optimal bank evaluation and closure rules so as to eliminate the incentives for equity holders to invest in overly risky assets.

'Stochastic Dominance Bounds on Derivatives Prices in a Multiperiod Economy with Proportional Transaction Costs', by George Constantinides and Stylianos Perrakis derives upper and lower bounds on the reservation write price of European option prices based on costs incurred in trading the underlying asset. The paper uses stochastic dominance arguments and its key contribution is that it derives these bounds while allowing for intermediate trading in the underlying security over the life of the option.

Their model is not restricted to specific probability distributions and is able to incorporate both stochastic volatility and price jumps in the underlying asset. Some of the bounds are tight and invariant to the frequency of trading permitted over the life of the option.

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Gary Becker recently said a 'real test of whether you make a big contribution in Economics is how much you affect the research in the field'. It is my hope that these papers will provide the impetus to stimulating discussion and new directions in research.

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