Behavioral Finance and Beyond: Introduction to EFM Special Issue

In the past fifteen years, the field of behavioral finance has grown enormously, with well-developed bodies of both empirical evidence and theory.[1] On the empirical front, we now have a long list of variables that can be used to forecast stock returns, both in the time series and the cross-section. Many of these predictability patterns have been replicated in so many different samples (e.g. a large number of international markets) that they are generally considered to be established facts.[2] Moreover, new datasets have given us a better understanding of the determinants of the behavior and performance of individual and institutional investors from around the world.[3]

On the theory front, research has proceeded along two distinct lines. The first is to understand what prevents rational arbitrageurs from completely eliminating the predictability patterns in returns described above. Work in this "limits to arbitrage" vein has focused on the risks, market frictions (e.g., costs of short-selling) and agency issues which make it difficult for professional managers to respond aggressively to even clear cut cases of mispricings (Shleifer and Vishny (1997)).[4]

The second line seeks to explain the *specific nature* of the patterns of predictability. Why is it that stock prices appear to underreact to certain types of

[1] This introduction is intended as a quick survey (subject to my bias) to provide context for the papers in this special issue. Hence, citations are necessarily incomplete. For a more comprehensive review of the field, see, e.g., Hirshleifer (2001).

[2] Standard references include Jegadeesh and Titman (1993) on momentum, Bernard and Thomas (1989) on post-earnings announcement drift, and Fama and French (1992) and Lakonishok, Shleifer and Vishny (1994) on the returns to value vs. glamour stocks.

[3] To name just a few strands of this research, Odean (1998) on the loss averse individual investors, Odean(1999) and Barber and Odean (2001) on how investors trade too much, Huberman (2001) and Grinblatt and Keloharju (2000) on local bias, and Hong, Kubik and Stein (2001) and Guiso, Sapienza, and Zingales (2001) on the effects of social interaction on investor behavior.

[4] This list is by no means exhaustive. Examples include Delong, Shleifer, Summers and Waldmann (1990), Shleifer and Vishny (1997), Kyle and Xiong (2001), and Gromb and Vayanos (2002), and Abreu and Brunnermeier.

information in the short run, but to overreact in the longer run? Different authors have taken very different approaches: one approach has been to use representative-agent models with standard preferences but biased beliefs (e.g., Barberis, Shleifer and Vishny (1998), Daniel, Hirshleifer and Subrahmanyam (1998)); another is to consider heterogeneous-agent models (Hong and Stein (1999, 2006)).[5]

More recently, research in behavioral corporate finance has taken off. A couple of lines of inquiry have emerged. The first looks at the extent to which managerial financing and investment decisions as rational responses to securities market mispricing. The second approach emphasizes that managers themselves may be less than fully rational and considers the effect of nonstandard preferences and judgmental biases on managerial decisions.[6]

A number of papers in this issue contribute to all of the lines of research discussed above. For example, Peng, Xiong and Bollerslev examine how limited attention might influence asset price behavior by looking at the co-movement of stock prices. That attention is limited is almost a tenet of cognitive psychology and previous work has used limited attention to explain observed predictability patterns (see, e.g., Hong and Stein (1999)). Peng, Xiong and Bollerslev look at how the allocation of limited attention leaves traces in the covariance of asset returns Their main hypothesis is that investors shift their (limited) attention to process market-level information following the arrival of macroeconomic shocks and then subsequently divert their attention back to asset-specific

[5] A large body of work has recently emerged based on differences in opinion or disagreement and to varying degrees short-selling, see, e.g. Chen, Hong and Stein (2001), Hong and Stein (2003), Ofek and Richardson (2003), Duffie, Garleanu and Pedersen (2002), and Scheinkman and Xiong (2003).

[6] See Baker, Ruback and Wurgler (2004) and a comprehensive survey. Along the first line, see as an example Baker and Wurgler (2002) and along the second line, see as an example Malmendier and Tate (2005).

information. They test their hypothesis using volatility of 30-year treasury bond futures to assess macro-economic shocks and use the ratio of a stock's idiosyncratic volatility relative to total volatility to asses price comovement. This paper fits into the line of inquiry concerning the specific nature of the patterns of predictability. This paper is an example of how a sensible and richer theory of investor behavior can help improve our understanding of asset price movements.

Barber, Lee, Liu and Odean use novel data from Taiwan to re-examine biases in individual investor behavior. What is remarkable about their dataset is that it encompasses all trading activity on the Taiwan Stock Exchange for five years ending in 1999. They find both loss aversion and over-trading on the part investors in their database, confirming the novel findings in earlier work by Odean (1998, 1999) and Barber and Odean (2001). Anderson also uses novel data but from Sweden (during the interesting period of 1999 to 2002 which covers the peak and fall of the internet valuations) to study the behavior of online traders. There are less than a handful of papers examining the performance of online traders, particularly in comparison to those that trade off-line. Consistent with earlier studies, Anderson finds that investors online tend to be young, male and aggressive traders and they end up under-performing the market significantly, about half of which is due to excessive trading costs.

These two studies are examples of the significant advances that the field of behavioral finance has achieved as a result of the hard work of researchers from around the world in gathering novel datasets and then applying interesting insights and theories from the intersection of economics and psychology. This trend seems to only be growing as evidence of rewards to previous hard work are emerging.

Ghysels, Plazzi and Valkanov model and study valuation in the US commercial real estate market. Financial economists have recognized for a long time the importance of the real estate market in economic terms even though most academic inquiry has focused largely on equity markets. Part of this is undoubtedly driven by data availability. As more and better real estate data comes online, we are seeing more and more papers modeling the behavior of asset prices along the lines that have been done in equity markets. This paper by Gyhsels, Plazzi and Valkanov is very much in this vein. They look at the predictability of real estate returns and similar patterns as have been documented for equity markets. They argue that at least at the aggregate level, commercial real estate prices are better modeled as financial assets much like equities and that a discount rent (dividend) model better explains real estate prices than the more traditional hedonic models that have been used in the past.

The area of real estate is very much ripe for study from a behavioral finance perspective since arbitrage limits are likely to be even more binding in this venue and there is tons of anecdotal (and some systematic) evidence that home owners suffer from all the same psychological biases as do investors in equity markets. Moreover, the long gestation periods required of construction, the myriad zoning restrictions and political economy factors, and that investors are natural short housing also make the real estate market interestingly different from equity markets. Hence, different models and analyses are needed to thoroughly understand this market.

Bris, Cantale and Nishiotis re-examine the valuation effects associated with the cross-listing of domestic stocks in foreign exchanges. Earlier studies typically find significant valuation effects associated with such an event. The authors try to assess the

importance of the various economic determinants of this effect. This paper belongs to a large literature on the international segmentation of markets, which has typically been in the international finance literature. But research in behavioral finance in the past decade has shown that there is segmentation even at the domestic level due to the local bias of investors. While these two literatures have developed in parallel, it is interesting to note that there is much in the international segmentation literature that is interesting for behavioral finance and vice versa. For example, Gagnon and Karolyi (2006) investigate the differences in the prices of shares of stocks that trade simultaneously in different markets around the world.

The last two papers by Doukas and Petmezas and Banal-Estanol and Ottaviani look at mergers or acquisitions (the first in by publicly traded companies and the second by banks in particular). In particular, Doukas and Petzemas fits into the literature on behavioral corporate finance. They examine managers suffer from an overconfidence bias and make bad acquisitions. They rely on the notion of self-attribution bias which suggests that overconfidence plays a greater role in the latter deals of a manager's career as his early successes go to his/her head. They find evidence in favor of this self-attribution bias as the performances of higher-order (later) deals tend to be worse than lower-order (earlier) ones.

The field of behavioral corporate finance has already generated lots of provocative hypotheses and findings. A natural next step is to look at the extent to which corporate financing decisions impact asset prices. For instance, if managers are indeed intervening in the shares of their stocks for valuation reasons (e.g. buying when share prices are perceived to be too low relative to fundamental and issuing when they are

perceived to be too high), then how do these interventions influence asset price dynamics?

In sum, the field of behavioral finance is reaching some degree of maturity but shows not signs of slowing down as witnessed by these interesting papers. As long as the hard work continues in bringing new data to the table and equal amounts of discipline is applied in building, testing and refining theories, the field promises to be an energetic place to play in the future.

References

Abreu, Dilip and Markus Brunnermeier, 2002, Synchronization Risk and Delayed Arbitrage, Journal of Financial Economics 66, 341-360.

Baker, Malcolm, Richard S. Ruback and Jeffrey Wurgler, 2004, Behavioral corporate finance: A survey, forthcoming in the Handbook in Corporate Finance: Empirical Corporate Finance, edited by Espen Eckbo.

Baker, Malcolm, and Jeffrey Wurgler, 2002, Market timing and capital structure, Journal of Finance 57, 1-32.

Barberis, Nicholas, Andrei Shleifer, and Robert W. Vishny, 1998, A model of investor sentiment, Journal of Financial Economics 49, 307-343.

Bernard, Victor L., and J. Thomas, 1989, Post-earnings announcement drift: Delayed price response or risk premium? Journal of Accounting Research 27, 1-48.

Chen, Joseph, Harrison Hong, and Jeremy C. Stein, 2002, Breadth of Ownership and Stock Returns, Journal of Financial Economics 66, 171–205.

Daniel, Kent D., David Hirshleifer and Avanidhar Subrahmanyam, 1998, Investor psychology and security market under- and over-reactions, Journal of Finance 53, 1839-1885.

DeLong, J. Bradford, Andrei Shleifer, Lawrence Summers, and Robert J. Waldmann, 1990, Positive Feedback Investment Strategies and Destabilizing Rational Speculation, *Journal of Finance* 45, 375-395.

Darrell Duffie, Nicolae Garleanu, and Lasse Heje Pedersen (2002), "Securities Lending, Shorting, and Pricing," Journal of Financial Economics, vol. 66, pp. 307-339.

Fama, Eugene F. and Kenneth R. French, 1992, The cross-section of expected returns, Journal of Finance 47, 427-65.

Gabaix, Xavier and Arvind Krishnamurthy and Olivier Vigneron, 2005, Limits of Arbitrage: Theory and Evidence from the Mortgage-Backed Securities Market, *Journal of Finance, forthcoming*.

Gagnon, Louis and Andrew Karolyi, 2006, Multi-market trading and arbitrage, Ohio State University Working Paper.

Grinblatt, Mark, and Matti Keloharju, 2000, The investment behavior and performance of various investor-types: A study of Finland's unique data set, Journal of Financial Economics 55, 43-67.

Gromb, Denis and Dimitri Vayanos, 2002, Equilibrium and Welfare in Markets with Financially Constrained Arbitrageurs, *Journal of Financial Economics* 66, 361-407.

Guiso, Luigi, Paola Sapienza and Luigi Zingales, 2004, The Role of Social Capital in Financial Development, American Economic Review 94, 526-556.

Hirshleifer, David, 2001, Investor psychology and asset pricing, Journal of Finance 56, 1533-1597.

Hong, Harrison, Jeffrey D. Kubik, and Jeremy C. Stein, 2004, Social interaction and stock market participation, Journal of Finance 59, 137-163.

Hong, Harrison and Jeremy C. Stein, 1999, A unified theory of underreaction, momentum trading and overreaction in asset markets, Journal of Finance 54, 2143-2184.

Hong, Harrison and Jeremy C. Stein, 2003, Differences of opinion, short-sales constraints and market crashes, Review of Financial Studies 16, 487-525.

Hong, Harrison and Jeremy C. Stein, 2006, Disagreement and the Stock Market, forthcoming Journal of Economic Perspectives.

Huberman, Gur, 2001, Familiarity breeds investment, Review of Financial Studies 14, 659-680.

Jegadeesh, Narasimhan and Titman, Sheridan, 1993, Returns to buying winners and selling losers: Implications for stock market efficiency, Journal of Finance 48, 93-130.

Kyle, Albert and Wei Xiong, 2001, Contagion as a Wealth Effect, *Journal of Finance* 56, 1401-1440.

Lakonishok, Josef, Andrei Shleifer and Robert W. Vishny, 1994, Contrarian investment, extrapolation and risk, Journal of Finance 49, 1541-1578.

Malmendier, U., Tate, G., 2005. CEO Overconfidence and Corporate Investment. Journal of Finance 60, 2661-2700.

Ofek, Elie and Matthew Richardson, 2003, "DotCom Mania: The rise and fall of internet stock prices," Journal of Finance. 2003, Vol. 58, 1113-1138 .

Savor, Pavel and Mario Gamboa-Cavazos, 2005, Holding on to Your Shorts: When do Short Sellers Retreat? mimeo.

Scheinkman, Jose and Wei Xiong, 2003, Journal of Political Economy 111, 1183-1219.

Shleifer, Andrei, and Robert Vishny, 1997, The limits of arbitrage, Journal of Finance 52, 35-55.