AURELIO VASQUEZ

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EDUCATION

Ph.D. in Finance, expected June 2010 2005 – 2010
McGill University, Desautels Faculty of Management

- *Job market paper: Volatility Mean Reversion and the Cross-Section of Option Returns*
  Co-supervisors: Prof. Peter Christoffersen and Prof. Kris Jacobs

Master in Mathematical Finance 1999 – 2000
University of Toronto

B.Sc. in Industrial Engineering 1992 - 1997
Universidad de Los Andes, Colombia

RESEARCH AND TEACHING INTERESTS

Asset Pricing, Derivatives, Investments, Risk Management and Fixed Income

WORKING PAPERS

"Volatility Mean Reversion and the Cross-Section of Option Returns" (**Job market paper**)

"Skewness from High-Frequency Data Predicts the Cross-Section of Stock Returns", with Diego Amaya, PhD Student at HEC Montreal

WORK IN PROGRESS

"High-Frequency Pairs Trading"

ACADEMIC TEACHING EXPERIENCE

Courses taught

- Market Risk Models, undergraduate Fall 2009
- Market Risk Models, graduate Summer 2009
- Fixed Income Analysis, undergraduate 2006

AWARDS AND ACCOMPLISHMENTS

IFM^2 doctoral fellowship award 2006-2009
Colfuturo Scholarship Loan Program 2007-2009
McGill doctoral entrance fellowship 2005-2006
University of Toronto graduate fellowship 1999-2000

PROFESSIONAL EXPERIENCE

MANAGER, Valuation Product Control 2004 – 2005
Bank of Montreal, Toronto

- Developed synthetic pricing of variance swaps using option prices
- Researched and developed volatility surface to price OTC options
- Computed close-out reserves and liquidity reserves for warrants, CDS and convertible securities based on limited market data, bid-ask spreads and model limitations
- Monitored credit and equity derivative pricing models and risk sensitivities
- Performed model stress tests to determine model's performance and accuracy

SENIOR ANALYST, Value-at-Risk Projects 2000 – 2004
Bank of Montreal, Toronto

- Developed research to recommend "best" estimate for volatilities and correlations among Riskmetrics, GARCH(1,1) and historical volatility
- Performed research using principal component analysis (PCA) to explain the structural changes in correlations among interest rate yield curves post September 11
- Developed covariance matrix for interest rate (IR), foreign exchange (FX), equities and implied volatilities (IV) for value-at-risk (VaR) calculation
- Developed a desktop application to compute credit risk and market risk (Delta-Gamma VaR) using Cornish-Fisher expansion
- Supported, modified and enhanced the equity, IR, FX and commodity VaR daily processes and methodologies

ANALYST, Trading Division Jan - Apr 2000
Redpath Sugars, Toronto

- Developed internal VaR model for sugar options and futures trading portfolio
- PCA calculation and analysis of the term structure of sugar futures
- Proposed methodology to price long-dated OTC sugar options

BUDGET ASSISTANT, Financial Division 1998 - 1999
Bell Canada International, Colombia

- Developed annual budget model for the company
- Analyzed profitability among different cell-phone plans
- Research on the impact of devaluation on financial statements

COMPUTER SKILLS AND ADDITIONAL INFORMATION

Computer software: SAS, C/C++, Matlab, SQL, Perl, Visual Basic, Bloomberg, Unix, Microsoft Access, and Microsoft Excel

Languages: Fluent in French, Spanish and English

Sports and recreational activities: certified Kundalini yoga teacher. Soccer, basketball and biking

IMMIGRATION STATUS

Canadian Citizen

REFERENCES

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University of Houston
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Department of Finance
HEC Montreal
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ABSTRACTS OF RESEARCH PAPERS

"Volatility Mean Reversion and the Cross-Section of Option Returns"
Job market paper

Abstract: Accurate pricing in the cross-section of options highly depends on the proper estimation of individual volatilities. A stylized fact of volatility is mean reversion, meaning that, over time, volatility pulls back to some long-run average level. Hence, mean reversion indicates the most likely direction volatility might take in the future. Based on this fact, I investigate if there is a positive relation between volatility direction, as suggested by mean reversion, and options returns in the cross section. To test this premise, I use two measures of volatility mean reversion: 1) the slope of the volatility term-structure, defined as the difference between the implied volatility of long-dated options and the volatility of short-dated options, and 2) the difference between current volatility and its long-run average. Based on these two measures, I rank stocks, form ten portfolios and analyze the returns of five option trading strategies. I find that option portfolios with the highest slope of the volatility term-structure outperform option portfolios with the lowest slope of the volatility term-structure by an economically and statistically significant amount. In particular, straddle portfolios exhibiting the steepest slope of volatility term-structure outperform straddle portfolios with the least pronounced slope by 29.2% per month. Sorting portfolios by the difference between volatility and its long-run average generates similar results. I conclude that volatility mean-reversion information predicts subsequent option returns.

"Skewness from High Frequency Prices Predicts the Cross-Section of Stock Returns"

with Diego Amaya, PhD Student at HEC Montreal

Abstract: Theoretical and empirical studies document a negative relation between stock returns and individual skewness. In these studies, individual skewness has been defined with predictive models, industry groups and even with options' skewness. However, measures of skewness computed only from stock returns, such as historical skewness, do not confirm this negative relation. We propose a model-free measure of individual skewness directly obtained from high-frequency intraday prices, which we call realized skewness. We test whether realized skewness predicts future stock returns by sorting stocks every week according to realized skewness, forming five portfolios and analyzing subsequent weekly returns. We find a negative relation between realized skewness and stock returns in the cross section. A trading strategy that buys stocks in the lowest realized skewness quintile and sells stocks in the highest realized skewness quintile generates an average raw return of 38 basis points per week with a t-statistic of 9.15. This result is robust to different market periods, portfolio weightings, firm characteristic proxies and is not explained by the Fama-French-Carhart factors.