

## **Thomas Jacobs, FRM, PRM**

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### **Education**

#### **University of Illinois at Urbana-Champaign, Ph.D. in Finance (expected), 2010**

Illinois Distinguished Fellowship recipient 2002-2003, 2004-2005, and 2005-2006 academic years  
- only twelve Distinguished Fellowships awarded each year within the Graduate College

Hewitt Fellowship 2004-2005, 2005-2006

Beatrice Fellowship 2002-2003

#### **Boston College, M.S. in Finance, 1994**

Outstanding Academic Achievement Award as top graduate of my class

#### **University of Alaska Fairbanks, M.S. in Engineering & Science Management, 1991**

Coursework completed on site (May, 1990), thesis completed in MA and defended on site (May, 1991)

#### **University of Notre Dame, B.S. in Mathematics, 1986**

U. S. Air Force Reserve Officer Training Corps (ROTC) Full Four Year Scholarship.

### **Teaching Experience**

#### **Boston College, Chestnut Hill, Massachusetts**

*Lecturer*, Carroll Graduate School of Management, Spring Semester 1996

Taught MF860 Master's Seminar in Finance to class of 45 students (Introduction to Derivatives and Risk Management)

Began with an existing syllabus for a derivatives course emphasizing commodity and equity products. Modified this to focus on interest rate and foreign exchange products as well as introducing market and credit risk measurement, management and reporting to include risk adjusted return on capital methodologies (RAROC) as implemented by trading desks.

### **Working Papers**

#### **Changing Market Perceptions of Who is 'Too Big To Fail' During the Credit Crisis of 2007-2008**

The government support of financial firms through direct assistance and programs to improve market liquidity during the worldwide credit crisis of 2007-2008 is unprecedented since the Great Depression. Whether a given firm is ex-ante 'Too Big To Fail' in the mind of government agents is not the principal issue for moral hazard, however, as investor perception of 'Too Big To Fail' drives the economically inefficient reduced funding cost for the firm. This work examines the U.S. government's crisis actions as well as two international bank bailouts in a series of event studies employing both debt and equity returns. I conclude that only the largest of the banks and the Government Sponsored Enterprises (GSEs), Fannie Mae and Freddie Mac, already perceived to be recipients of explicit or implicit government guarantees, experienced any 'Too Big To Fail' premiums in their debt securities. There is no evidence that these premiums extended to other large financial firms such as broker dealers, insurers or surety firms, in spite of the bailout of Bear Stearns. There is no evidence that letting Lehman Brothers fail was a surprise to investors. In addition, there is no evidence that AIG's large derivative exposures and their associated losses prior to and during the crisis led investors to infer it would be rescued. Federal Reserve programs to improve liquidity and extend lending to non-banks did not lead to 'Too Big To Fail' premiums for firms.

### **Work in Progress**

#### **Arbitrage Failures in the Markets for Debt During the Credit Crisis**

The crisis repeatedly displayed extensive spikes in liquidity premiums for a variety of traded assets from corporate debt to government debt. This work seeks to relate the price changes to break downs in existing arbitrage relationships among firms seeking to raise liquidity in times of crisis.

## **The Risk Structure of Interest Rates Revisited**

This work seeks to extend the literature for fitting Merton (1974) style structural models of credit spreads by exploiting jumps in asset value with stationary leverage ratios to overcome existing limitations to fitting credit spread term structures at both very short and long maturity. CDS spread data is employed for both industrial and financial firms.

## **Looking for the Size Cutoff of 'Too Big To Fail' Banking Institutions**

A structural model approach in the spirit of Marcus and Shaked (1984) is used to fit large non-bank financial firm CDS spreads. Then, controlling for levels of deposit insurance, banks are examined along the dimensions of size, off-balance sheet exposure and derivative market concentration to search for 'Too Big To Fail' premiums in large bank senior unsecured CDS spreads.

### **Professional Presentations**

#### **“CDO Asset Selection and Structuring: The Issuer Perspective,”**

Global Association of Risk Professionals Chicago Chapter Meeting, Chicago, Illinois, March 15, 2001.

#### **“Optimal Asset Selection for CLO Structures,”**

Credit Risk Summit 2000 sponsored by Risk Magazine, New York, New York, September 28, 2000.

#### **“Credit Exposure Measurement Applied to Reserving and Credit Capital for Derivative Portfolios,”**

Credit Risk Portfolio Management of Derivatives Conference sponsored by Risk Magazine, New York, New York, December 4, 1998.

#### **“Credit Derivatives: An Introduction to their Use and Pricing,”**

Global Association of Risk Professionals Boston Chapter Meeting, Boston, Massachusetts, October 21, 1998.

### **Professional Memberships and Designations**

American Finance Association

Financial Management Association

Midwest Finance Association

Global Association of Risk Professionals (GARP): Financial Risk Manager (FRM) designation

Professional Risk Manager's International Association (PRMIA): Professional Risk Manager (PRM) designation

### **Professional Experience**

#### **Economic Capital Specialist, Federal Reserve Bank of Chicago, Chicago, Illinois**

*The Capital Group*, 2003 – 2004

Dual research and bank examination roles within Risk Specialists Division of Supervision and Regulation

- Research of probabilistic yield curve generation in support of asset liability risk identification
- Bank examination efforts focused upon credit risk models for economic capital and market risk aspects of fixed income portfolios including municipal bonds, mortgage backed securities, and derivative trading

#### **Managing Director and Head of Analytics, Bank of America, Chicago, Illinois**

*Portfolio Management*, 1999 – 2001

First group to apply Portfolio Management techniques to loans at Bank of America

- Led team of 3 professionals
- Presented Portfolio Management theory and principles to a variety of senior management representatives

Implemented KMV's Portfolio Manager software tool and integrated its results with pricing data from the bond, loan and credit derivative markets to support decision-making activity for the US Credit Products portfolio.

- Examined and rejected other industry models (CreditManager, CreditPortfolioView, and CreditRisk+)
- Planned and directed an infrastructure development review of information available for implementation
- Tested and validated the KMV model with the bank's data to ensure reasonableness of results
- Designed relative value measures to compare pricing of instruments across markets

Designed and implemented an asset selection model in support of planned Cash (\$2 Billion) and Synthetic (\$10 Billion) Collateralized Loan Obligation (CLO) activities

- Worked across institutional impediments to sell the concept and theory of employing KMV's risk measures as the focus of populating a securitization vehicle
- Oversaw creation of database of information regarding assets, their risks and their rating agency measures
- Created and implemented a genetic algorithm to optimize the selection of the asset pool while still meeting the rating agency, regulatory, and marketing constraints of each transaction
- Presented the theory, application and results to a variety of bank and industry audiences such as Risk Magazine's September 2000 Credit Risk Summit GARP Chicago in March 2001

Implemented 1st stage of a mark to market capacity for all existing and new loan origination within US Corporate Bank

- Created a daily process beginning with internal desk and EJV updates of bond prices along with an automated asset swap process to create name specific credit spread curves, regression modeled curves or proxy spreads for each name in the US Corporate bank (60% of which lack traded instruments)
- Implemented a loan cashflow pricing tool to value new and existing draws
- Outlined a staged approach for pricing the optionality embedded within undrawn commitments

## **Director, BankBoston, Boston, Massachusetts**

*Financial Engineering, 1996 – 1999*

*Global Financial Risk Management, 1994 – 1996*

Led team of 6 professionals

Designed and implemented Waterfall and Residual Valuation Models in support of BKB's \$2.2 Billion CLO issuance.

Assessed BKB's Commercial and Industrial (C&I) Loan Portfolio credit stress model recommending improvements & contrasting with industry models (CreditManager, KMV's Portfolio Manager, CreditRisk+, CreditPortfolioView, LAS).

Presented at industry conferences: interest rate derivative credit risk, capital and reserving; pricing and use of credit derivatives; regulatory approaches to market and credit risk.

Single-handedly created and implemented methodologies to measure the credit capital, expected loss and risk adjusted returns for the five businesses comprising Capital Markets.

Designed and implemented models to:

- Price Default Swaps using the Jarrow-Turnbull approach
- Measure the counterparty credit exposure of at-market Default Swaps
- Measure the risk adjusted return of Total Rate of Return Swaps inclusive of collateral calls and country risk
- Measure the risk adjusted return of customer and proprietary emerging market repurchase agreements
- Calibrate and price Eurodollar Derivatives using either the Hull & White or Black & Karasinski models
- Measure the VAR of High Yield Bonds, Distressed Debt and Emerging Market Options and Securities

Prepared and delivered presentations to Senior Management on the following topics:

- A centralized portfolio management function for credit risk and return
- Regulatory, economic and peer bank rules for calculating market and credit risk capital
- Market risk measurement methodologies for Value-at-Risk (VAR) and stress testing
- Interest rate risk, value-at-risk and risk capital as well as Stern Stewart's EVA/SVA methodology

Authored business specifications for measuring the market risk of the Emerging Market, High Yield and Fixed Income trading businesses utilizing the historical simulation methodology. These specifications addressed all aspects of market risk management including data, instrument pricing, portfolio aggregation, liquidity, hedging, reporting and stress testing.

Analyzed existing retail deposit account modeling assumptions and the effects of modifying these assumptions to include the impact of cap and floor positions on the accounts. Implemented Black's model to value caps and floors.

## **Senior Systems Analyst, John Hancock Mutual Life Insurance, Boston, MA, 1990 - 1993**

Received two John Hancock special awards for re-engineering and running the Liability Projection System (LPS) and reporting the aggregate Guaranteed Investment Contract (GIC) liability values of John Hancock (\$12 Billion) on a monthly basis. Reduced the reporting turnaround time from three weeks to two days.

Designed and implemented flexible models (replacing existing APL based systems) in the PL/I programming language to:

- value the embedded option in certain GIC contracts using Monte Carlo simulation
- determine the present value, duration, convexity and dispersion of a cash flow feed

## **Electronic Warfare Officer, United States Air Force, 1986 - 1990**

As the Sensor Operator (SO) aboard the research and development aircraft RC-135X Cobra Eye, directed the cryogenically cooled infrared telescope in collection of infrared data. Received 1989 General Jerome F. O'Malley Award as member of the Air Force's Top Reconnaissance Crew for performance of first successful collections with the sensor.

Awarded both the Commander's Cup trophy as Top Graduate of Navigator Training School (class of 50) as well as the Colonel Mike Gilroy award as Top Graduate of Electronic Warfare School (class of 15) at Mather Air Force Base, CA.

### **Honors and Awards**

Illinois Distinguished Fellowship, University of Illinois, 2002-2003, 2004-2006

Hewitt Fellowship, University of Illinois, 2004-2006

Beatrice Fellowship, University of Illinois, 2002-2003

Outstanding Academic Achievement Award, Boston College, 1994

The Air Medal, United States Air Force, 1989

General Jerome F. O'Malley Award, United States Air Force, 1989

Commander's Cup Trophy, United States Air Force, 1988

Colonel Mike Gilroy Award, United States Air Force, 1988

Wright Aeronautical Laboratories Award, United States Air Force, 1988

AFROTC Four Year Scholarship, United States Air Force, 1982-1986

### **Technical Skills**

Database Programming: MySQL, Microsoft Access and Sequel Server

Econometric and Related: Stata, SAS, Matlab, and R

Programming Languages: Visual Basic, APL, Fortran, PL/I, Cobol and C

Other: MiKTeX & TeXnicCenter LaTeX implementation, Amaya web editor, and Microsoft Office applications

### **References**

#### **[George Pennacchi, Professor of Finance \(Chair\)](#)**

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#### **[Charles Kahn, Fred S. Bailey Memorial Chair of Finance and Professor of Finance and Department Chair](#)**

340 Wohlers Hall, 1206 South Sixth Street, Champaign IL 61820

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#### **[Neil Pearson, Harry A. Brandt Distinguished Professor of Financial Markets and Options and Professor of Finance](#)**

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#### **Teaching: [Robert Taggart, Professor of Finance](#)**

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