# Nonna Y. Sorokina, Ph.D.

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#### WORK EXPERIENCE

## \*non-academic experience highlighted in bold

➤ 2020 – present ~ Assistant Professor of Business (Finance)

Pennsylvania State University, Dunmore, PA

➤ 2017 – 2022 ~ Quantitative Analyst

Freedom Mortgage Corporation, Marlton, PA

> 2016 – present ~ Consultant

Litvak Legal Group, PLLC, Bensalem, PA

> 2020 – present ~ Advisor

## Institute for Financial Distress Research and Education, King of Prussia, PA

➤ 2022 (Summer) ~ Adjunct Assistant Professor of Finance

Temple University, Philadelphia, PA

➤ 2020 (Summer) ~ Adjunct Assistant Professor of Finance

Temple University, Philadelphia, PA

> 2009-2017 ~ Quantitative Business Analyst/Project Manager

New York Community Bankcorp, Inc (NYCB), Cleveland, OH

➤ 2016 – 2020 ~ Assistant Professor of Finance

The College of New Jersey, Ewing, NJ

➤ 2014-2016 ~ Visiting Professor

Wake Forest University, Winston-Salem, NC

➤ 2010-2014 ~ Instructor in Finance, Research Assistant

Kent State University, Kent, OH

2007-2009 ~ Business Analyst / Project Manager

**AmTrust Bank, Cleveland OH** 

➤ 2003-2007 ~ Business Analyst / Project Manager

Ohio Savings Bank, Cleveland OH

➤ 2001-2003 ~ Programmer / Business Analyst

Charter One Bank (presently Citizens Bank), Cleveland OH

➤ 1999-2002 ~ Programmer / Business Analyst

Ohio Savings Bank, Cleveland OH

## **EDUCATION**

➤ 2010-2014 ~ Ph.D. in Finance, with a minor in Applied Statistics

Kent State University, Kent, OH

➤ 2005-2007 ~ MBA, concentration in Finance

Cleveland State University, Cleveland, OH

> 1993-1998 ~ Diploma of Specialist in Finance and Banking

Donetsk State University, Donetsk, Ukraine

# FINANCIAL INDUSTRY EXPERIENCE [ABBREVIATED]

- Substantial industry experience of over 25 years mostly in Investment Banking, Capital Markets / Secondary Mortgage Marketing in various roles involving Advanced Quantitative Analysis, Project Management, Development of Analytical Systems, User Interfaces, Data Processing, Reporting Systems, Facilitating Software Updates and Upgrades, Introducing New Products and Processes, Propagating Institutional Changes; Attending to Compliance Process and Audit Findings.
- Selected Projects: Intraday Lock Volume Forecasting Model; FNMA Reservation Pricing (flexible G-Fees), Integration of Loan Sales, Trading and Hedging systems; Loan Sales software enhancement and integration with BestX optimization model (recommendations for optimal loan and servicing sales); Mortgage Loan Lock Fallout Forecasting Model; Price/Yield Forecasting Function; Universal price interpolation/extrapolation function; Hedging Model Enhancements; Trading System Optimization; Data Mart loan data warehouse; Servicing System Data Purge process; HELOC loans conversion from old servicing system to the new; new GSE and non-GSE loan securitization and sale processes, including FNMA, FHLMC, GNMA, FHLB and private investors' mortgage products implementation; P&L Analysis; Infrastructure projects: Capital Markets Controlled Environment (Production, QA, Test, Development server structure and surrounding processes), MS Office and Windows upgrades, MortgageServ/FiServ updates and others.

# FINANCIAL CONSULTING

- > Investments
- ► Lending practices
- ➤ Risk Management
- ➤ Audit and Compliance
- Valuation
- Budgeting
- Personal Financial Planning

#### RESEARCH

*Interests:* capital structure, financial regulation, financial crises, real estate; applications of advanced quantitative analysis in Finance, e.g. regression methods robust to outliers and multicollinearity, change point analysis, forecasting models, variable selection, Bayesian statistics and simulation analysis, textual analysis

# **Publications:**

- Why Do Banks Choose to Finance with Equity? Nonna Y. Sorokina, John H. Thornton, Jr., and Ajay Patel, 2017. Journal of Financial Stability, Vol.30, June 2017, p. 36-52 Presented at the FMA'14, MFA'15, EFA'15
- Reactions of Equity Markets to Recent Financial Reforms. Nonna Sorokina and John H. Thornton, 2016. Journal of Economics and Business, Vol. 87, September-October 2016, p. 50-69

- KSU School of Business Dean's Best Paper 2012 Award. Presented at the MFA'12, at the FMA European'13, at the IFABS'13(invited paper in the special session organized by the Federal Reserve Bank of Cleveland), and at the FMA International'13
- Analyst Optimism in the Automotive Industry: A Post-Bailout Boost and Methodological Insights. Barry Hettler, Yertai Tanai, Nonna Sorokina and David Booth, 2015. *Journal of Data Science, Vol.13, No.3 (July), p. 473-494. Presented at the MWDSI'13*
- ➤ Robust Methods in Event Studies: Empirical Evidence and Theoretical Implications. Nonna Y. Sorokina, David E. Booth and John H. Thornton, Jr., 2013. *Journal of Data Science, Vol.11, No.3 (July), p. 607-621. Presented at the EFA'12, FMA'12*
- ➤ Does liquidity matter when crisis is brewing? Equity Returns and Intraday Liquidity in DAX Futures Market, with David E. Booth. *Journal of Accounting and Finance 22.1 (2022): 116-132. Presented at the EFA'14*, MWDSI'14. MWDSI'14 Best Application Paper Award

### Forthcoming:

➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation, with Ajay Patel and John Thornton. Journal of Financial Stability. *Presented at the EFA'18, FMA Asia/Pacific'18, India Finance Conference'18, FMA'18, MFA'19, FMA European'19* 

#### Under review:

Are Listed Banks Riskier than Private Banks? with Hamid Mehran, and Ajay Patel. *Presented at the FMA'19, FMA European'21, EFA'21, AFFI'21*.

#### Working papers (developed):

- Consumer and Bank Credit Consequences of the Opioid Epidemic, with Wenli Li and Raluca Roman. *Accepted for the FMA'21*.
- ➤ Bank Capital and Firm Capital, with Lindsay Baran. Accepted for the EFA'20 (conference cancelled due to COVID-19), Presented at the FMA'20.
- > The Impact of Tax Law Changes on Bank Dividend Policy, Industry Structure, and Financial Stability, with Rebel Cole, Hamid Mehran, and Michael Suher.

### Working papers (early stage):

- > When fear grips the markets, well-informed and risk-tolerant investors are better equipped to stay the course through the downturn, with Mikhail Samonov
- > Opioid Epidemic and Bankruptcies
- > Determinants of Mortgage Loan Lock Fallout
- > Textual analysis of economic news for assessment of interest rate move expectations in application to mortgage loan lock fallout forecasting

#### Working papers / conference presentations (inactive):

➤ Banks Size Matters When it Comes to Leverage Components, with David Booth, *Presented at the MWDSI'17* 

- Variable Selection: a Case of Bank Capital Structure Determinants, with David Booth, Presented at the MWDSI'16
- ➤ Long-term impact of Gramm-Leach-Bliley Act on the financial industry, with James Thomson, *Presented at the EFA'13*
- ➤ MBS Prepayment Speed and More: Forecasting Model Based on Pure Rational Behavior, Quasi-Simulation and Empirical Restrictions, *Presented at the EFA'13*

#### **CONFERENCE PRESENTATIONS**

- Consumer and Bank Credit Consequences of the Opioid Epidemic. 2021 FMA Annual Meeting, Denver, CO
- Consumer and Bank Credit Consequences of the Opioid Epidemic. 2021 FMA DESI Seminar, Denver, CO
- ➤ Are Listed Banks Riskier than Private Banks? 2021 AFFI Meeting, virtual
- > Are Listed Banks Riskier than Private Banks? 2021 EFA Annual Meeting, virtual
- ➤ Are Listed Banks Riskier than Private Banks? 2021 FMA European Annual Meeting, virtual
- ▶ Bank Capital and Firm Capital 2020. FMA Annual Meeting, virtual
- ▶ Bank Capital and Firm Capital 2020. EFA Annual Meeting, Boston, MA (cancelled due to COVID-19)
- Are Listed Banks Riskier than Private Banks? 2019 FMA Annual Meeting, New Orleans, LA
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. 2019 FMA European Annual Meeting, Glasgow, Scotland\*
- Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. 2019 MFA Annual Meeting, Chicago, IL
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. 2018 India Finance Conference, Calcutta, India\*
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. 2018 FMA Annual Meeting, San Diego, CA
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. 2018 EFA, Philadelphia, PA
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. 2018 FMA Asia/Pacific Annual Meeting, Hong Kong\*
- ➤ Banks Size Matters When it Comes to Leverage Components. 2017 MWDSI, Grand Rapids, MI\*
- Variable Selection: a Case of Bank Capital Structure Determinants. 2016 MWDSI, Valparaiso, IN\*
- ➤ Why Do Banks Choose to Finance with Equity? 2015 EFA Annual Meeting, New Orleans, LA
- Why Do Banks Choose to Finance with Equity? 2015 MFA Annual Meeting, Chicago, IL
- ➤ Why Do Banks Choose to Finance with Equity? 2014 FMA Annual Meeting, Nashville, TN
- Chasing the Change: a Study of DAX Returns and its Futures Liquidity. 2014 EFA Annual Meeting, Pittsburgh, PA
- Chasing the Change: a Study of DAX Returns and its Futures Liquidity. 2014 MWDSI, Chicago, IL\*
- ➤ Reactions of Equity Markets to Recent Financial Reforms. 2013 FMA Annual Meeting, Chicago, IL
- ➤ Reactions of Equity Markets to Recent Financial Reforms. 2013 International Finance and Banking Society (IFABS) Conference "The Search for Financial Stability: Models, Policies and Prospects", Nottingham, UK
- ➤ Bank Capital Structure. 2013 FMA European Doctoral Student Consortium, Luxembourg City, Luxembourg

- ➤ Reactions of Equity Markets to Recent Financial Reforms. 2013 FMA European Annual Meeting, Luxembourg City, Luxembourg
- ➤ MBS Prepayment Speed and More: Forecasting Model Based on Pure Rational Behavior, Quasi-Simulation and Empirical Restrictions. 2013 EFA Annual Meeting, St. Pete Beach, FL
- ➤ Long-term impact of Gramm-Leach-Bliley Act on the financial industry. 2013 EFA Annual Meeting, St. Pete Beach, FL
- ➤ Analyst Optimism in the Automotive Industry: A Post-Bailout Boost and Methodological Insights. 2013 MWDSI, Twinsburg, OH\*
- Reactions of Equity Markets to Recent Financial Reforms. 2012 FMA Annual Meeting, Atlanta, GA
- > Reactions of Equity Markets to Recent Financial Reforms. 2012 EFA Annual Meeting, Boston, MA
- Reactions of Equity Markets to Recent Financial Reforms. 2012 MFA Annual Meeting, New Orleans, LA

#### **RESEARCH SEMINARS**

- Consumer and Bank Credit Consequences of the Opioid Epidemic. February 2022, Penn State University, Dunmore, PA
- Are Listed Banks Riskier than Private Banks? *April 2021, Wake Forest University, Winston-Salem, NC*
- Are Listed Banks Riskier than Private Banks? March 2021, Penn State University, State College, PA
- Are Listed Banks Riskier than Private Banks? *March 2021, Federal Reserve Bank of Philadelphia, Philadelphia, PA*
- ➤ Bank Capital Structure and Firm Capital Structure, February 2021, Pennsylvania State University, BSB Colloquium, Virtual, Multiple locations
- > Are Listed Banks Riskier than Private Banks? December 2020, University of Delaware, Newark, DE
- > Are Listed Banks Riskier than Private Banks? October 2020, Temple University, Philadelphia, PA
- Are Listed Banks Riskier than Private Banks? February 2020, Carnegie Mellon University, Pittsburgh, PA
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. *April 2019*, *Temple University, Department of Finance, Philadelphia, PA*
- ➤ Risk Mitigation Instead of Risk Shifting: the Role of Liquidity in Capital Regulation. *March 2019*, Fordham University, Department of Finance and Business Economics, NYC, NY
- > Long-term impact of GLBA. November 2018, School of Business, TCNJ, Ewing, NJ
- ➤ Understanding Bank Leverage through the Motivation Prism: The Role of Liquidity. September 2018, Research Department of the Federal Reserve Bank of Philadelphia, Philadelphia, PA
- ➤ Understanding Bank Leverage through the Motivation Prism: The Role of Liquidity. *April 2018*, *Hofstra University, Department of Finance, Hempstead, NY*
- ➤ Chasing the change: a study of DAX returns and its futures liquidity. *April 2018, School of Business, TCNJ, Ewing, NJ*
- ▶ Bank Capital and Firm Capital. October 2017, School of Business, TCNJ, Ewing, NJ
- Bank Capital Components. September 2017, Department of Finance, KSU, Kent, OH
- ▶ Bank Capital Components. April 2017, School of Business, TCNJ, Ewing, NJ

<sup>\*</sup>presented by a co-author

- ➤ Bank Capital in General Capital Structure Framework with Competition, Diversification and Liquidity. *October 2014, Department of Finance, UNC Charlotte, Charlotte, NC*
- ➤ Bank Capital and Theory of Capital Structure. April 2014, Department of Finance, KSU, Kent, OH
- Cross-Industry and Cross-Country Reactions of Equity Markets to Recent Financial Reforms.

  April 2013, Department of Finance, KSU, Kent, OH
- ➤ Dean's Best Paper Finalists, April 2012, School of Business, KSU, Kent, OH
- Analyst optimism in the automotive Industry: a post-bailout boost and methodological insights. December 2012, Department of Management and Information Systems, KSU, Kent, OH

## **SERVICE TO THE PROFESSION (ACADEMIC)**

- ➤ 2022 EFA Annual Meeting, Washington, DC (program committee)
- ➤ 2021 FMA Annual Meeting, Denver, CO (discussant, session chair)
- ➤ 2021 FMA European Virtual Annual Meeting (discussant, session chair)
- ➤ 2021 French Finance Association Virtual Annual Meeting (discussant)
- > 2021 EFA Virtual Annual Meeting (discussant, session chair, program committee)
- > 2020 FMA Virtual Annual Meeting, (program committee, session chair, session organizer, discussant)
- ➤ 2020 FMA Applied Finance Conference, New York, NY cancelled due to COVID-19 (program committee)
- ➤ 2020 EFA Annual Meeting, Boston, MA- cancelled due to COVID-19 (program committee, session chair, discussant)
- ➤ 2019 FMA Annual Meeting, New Orleans, LA (program committee, session organizer, session chair, discussant)
- ➤ 2019 Southern Finance Association Annual Meeting, Orlando, FL (program committee)
- ➤ 2019 FMA Applied Finance Conference, New York, NY (program committee, panel session organizer and host "Compensation in Financial Industry")
- ➤ 2018 FMA Annual Meeting, San Diego, CA (program committee, session organizer, session chair, discussant)
- ➤ 2018 FMA Applied Finance Conference, New York, NY (program committee, panel session organizer and host "Borrowing and Saving, Capital Structure and Economic Growth in the Post-crises U.S. Economy")
- ➤ 2018 EFA Annual Meeting, (session chair, discussant)
- ➤ 2017 FMA Annual Meeting, Boston, MA (program committee, session organizer, session chair, discussant)
- ➤ 2017 FMA Applied Finance Conference, New York, NY (program committee, discussant)
- ➤ 2017 EFA Annual Meeting, Jacksonville, FL (program committee)
- ➤ 2016 EFA Annual Meeting, Baltimore, MD (program committee)
- ➤ 2015 EFA Annual Meeting, New Orleans, LA (discussant, session chair, program committee)
- ➤ 2015 MFA Annual Meeting, Chicago, IL (discussant, session chair)
- ➤ 2014 FMA Annual Meeting, Nashville, TN (discussant)
- ➤ 2014 EFA Annual Meeting, Pittsburgh, PA (discussant, session chair)
- ➤ 2013 FMA Annual Meeting, Chicago, IL (discussant)
- ➤ 2013 FMA European Annual Meeting, Luxembourg City, Luxembourg (discussant)
- ➤ 2013 EFA Annual Meeting, St. Pete Beach, FL (discussant, session chair)
- ➤ 2012 FMA Annual Meeting, Atlanta, GA (discussant)

- > 2012 EFA Annual Meeting, Boston, MA (discussant)
- > 2012 MFA Annual Meeting, New Orleans, LA (discussant)
- ➤ 2011 MFA Annual Meeting, Chicago, IL (discussant, session chair)

#### **AD-HOC REFEREE**

- > Journal of Financial Stability
- > The Financial Review
- > Empirical Economics
- > Emerging Markets Finance and Trade
- Journal of Data Science

#### **TEACHING**

### **Highlights:**

- Kent State University, Wake Forest University, TCNJ, Temple University, Pennsylvania State University
- Recent teaching evaluations: Spring'19 ~ 4.5/5; Fall'19 ~ 4.6/5; Spring'20 ~ 4.4/5; Summer'20 ~ 4.5/5; Fall'20 ~ 6/7; Spring'21 ~ 5.5/7; Fall'21 ~ 6.1/7
- ➤ Teaching Areas: Corporate Finance, Quantitative Financial Analysis, Investments, Financial Markets and Institutions, Risk Management
- > Small and large classes
- > In-person and online content delivery
- ➤ Introductory through advanced undergraduate and graduate level
- > Student-centered, innovative approach with high utilization of technology and real-world applications of knowledge focused on hands-on learning with elements of group work

#### Courses (as of Spring'22):

- ➤ Financial Markets and Institutions\* (1 section)
- > Student Investment Fund" (4 sections)
- ➤ Corporation Finance^\*\* (7 sections)
- ➤ Investments and Portfolio Analysis ^ (2 section)
- ➤ Introductory Financial Modeling (2 section)
- ➤ Retirement Planning^ (2 section)
- ➤ Financial Modeling^\*" (9 sections)
- ➤ Corporate Finance^\*" (9 sections)
- ➤ Introduction to Investments\* (4 sections)
- ➤ Fundamental Financial Methods\*\*\* (23 sections)
- Applied Quantitative Analysis for Finance" (6 sections)
- ➤ Quantitative Analysis II MBA for Working Professionals ~ weekends" (1 section)
- Quantitative Analysis I" (5 sections)
- > Financial System" (1 section)
- ➤ Individual Investment Analysis" (1 section)
- Business Finance" (6 sections)
  - \* hybrid (partially asynchronous on-line); ^ synchronous on-line; "on-campus; of fully asynchronous

#### SERVICE TO THE UNIVERSITY

#### Penn State:

- ➤ Hiring Committee for Assistant Director of AIMI in the Fall'21 and Spring'22/ Member
- Faculty Senate Council / Member
- > Student Affairs Committee / Member and subsequently Chair
- ➤ Hiring Committee for Teaching Line Faculty in the Fall'20/ Member
- Advisor to the Financial Services Option students starting Spring'21

#### TCNJ:

- BSB Colloquium Committee / Member
- ➤ Neil Gaston Award Committee / Member
- > CFA Scholarship Committee / Chair
- ➤ Faculty Senate / Senator
- Budget and Financial Planning Committee / Faculty Member
- Advisor to 51 student in 2019-20 academic year
- Advisor to 68 students in 2018-19 academic year
- ➤ Advisor to 46 students in 2017-18 academic year

### **AFFILIATIONS**

- ➤ AFA (American Finance Association)
- > FMA (Financial Management Association)
- > EFA (Eastern Finance Association)
- ➤ MFA (Midwest Finance Association)
- ➤ IFABS (International Finance and Banking Society)
- ➤ Beta Gamma Sigma (Honors Society Recognizing Business Excellence)

#### CFA:

- ➤ Passed CFA Level 1 Exam
- Facilitated recognition of the BS in Business Administration at TCNJ by the CFA Institute
- > Served as a Principal contact for CFA Institute at The College of New Jersey

### PROFESSIONAL DEVELOPMENT:

- Engaging Multilingual Students, Penn State Schreyer institute, Virtual, Spring'22
- Student (and Faculty) Wellbeing in Learning Environments, Penn State Schreyer institute, Virtual, Spring'22
- Motivating and Engaging Students, Penn State Schreyer institute, Virtual, Spring'22
- Changing the Future: Leadership Development Program; The Pennsylvania State University, virtual; Spring'22
- ➤ ROAR Super Computer Training: New User Training, January'22
- ➤ ROAR Super Computer Training: Getting your Software Running on Roar, February'22
- ➤ ROAR Super Computer Training: Intermediate HPC Training, February'22
- ➤ OL 3200: Serving the Military and Veteran Student, The Pennsylvania State University, World Campus; Fall'21

- ➤ The Hybrid Classroom: How to Engage Students to Promote Individual and Collective Learning, Harvard Business Publishing Education, Virtual, Fall'21
- ➤ Microsoft Bookings, Instructional Design Group, The Pennsylvania State University, Scranton, PA; Fall'21
- > BSBIC Faculty development session, The Pennsylvania State University, World Campus; Fall'21
- ➤ Teaching toolkit [for active learning], Instructional Design Group, The Pennsylvania State University, Scranton, PA; Fall'21
- ➤ Designing Better Courses: Blending the Best of Pre- and Post-Pandemic Pedagogy by Harvard Business Publishing Education, Virtual; Summer'21
- ➤ Reducing Cognitive Load: Focusing on What Matters in Online and Hybrid Teaching by Harvard Business Publishing Education, Virtual; Spring'21
- Making Online Classrooms Work for You (and Your Students) by Harvard Business Publishing Education, Virtual; Spring'21
- ➤ Breakout Rooms, Instructional Design Group, The Pennsylvania State University, Scranton, PA; Spring'21
- CANVAS Gradebook, Instructional Design Group, The Pennsylvania State University, Scranton, PA; Fall'20
- Exam Strategies for Remote Delivery, Penn State Schreyer Institute, Virtual, Fall'20
- ➤ Teaching in Online and Hybrid Classes: Key Elements for Success by Harvard Business Publishing Education, Virtual; Fall'20
- ➤ Blended and Online Learning training, TCNJ, Ewing, NJ; Spring'17
- ➤ Teaching with Cases Part I by Harvard Business Publishing Education, Harvard Business School, Boston, MA; Spring'17
- ➤ Bloomberg for Education, Bloomberg, NYC, NY; Summer'17

### **HONORS AND AWARDS**

- ➤ 2022 RISE Grant in Support of AI Research (competitive)
- ➤ 2021 Teaching and Learning with Technology Distinguished Service Award
- ➤ 2021 FMA Diversity Emerging Scholar Initiative (competitive)
- ➤ 2021 Faculty Research Development Grant (competitive)
- > 2021 Greater Scranton Penn State Chapter Faculty Research Endowment Grant (competitive)
- ➤ 2020 Dr. & Mrs. Richard J. Matthews Award for Excellence in Scholarship (competitive)
- ➤ 2020 Greater Scranton Penn State Chapter Faculty Research Endowment Grant (competitive)
- ➤ 2017 TCNJ Support of Scholarly Activities (competitive)
- ➤ 2017 TCNJ Professional Development Grant (competitive)
- ➤ 2014 MWDSI Best Application Paper Award
- ➤ 2013 FMA European Doctoral Student Consortium
- ➤ 2013 KSU International Travel Grant (competitive)
- ➤ 2012 KSU School of Business Dean's Best Paper Award
- > 1998 Diploma of Specialist in Finance and Banking with Honors
- ➤ 1993 High School Diploma with Honors

#### **QUANTITATIVE METHODS (selected):**

regressions, piecewise regressions, logit and probit regressions; multinomial, conditional and mixed logit; robust (to outliers and high leverage points) regression; lasso variable selection and robust estimation; Heckman variable selection model; instrumental variables and proxies; Monte-Carlo simulations; bootstrap; MCMC; breakpoint analysis; Chow test; Quandt-Andrews test; panel data estimation, including difference in differences estimation, fixed effects and random effects linear and logit models, Hausman test; censored and truncated regressions, including Tobit and hurdle model, count data models; autocorrelation treatment, Durbin-Watson statistics, Parks model, Arellano-Bond Estimator; White standard errors; clustered standard errors; change point identification; discriminant analysis; MANOVA; principal component analysis; factor analysis; completely randomized design; random block design; full factorial design; dummy variables, Heckman Selection Model, 2SLS, Granger Causality test; textual analysis of economic news and announcements

### **SOFTWARE AND DEVELOPMENT TOOLS:**

Learning management: Blackboard, Sakai, CANVAS, McGraw-Hill Connect, Cengage MindTap

Statistical packages: SAS

Research data: CRSP, COMPUSTAT, EXECUCOMP, Thompson Reuters DealScan, Bloomberg, WRDS,

Bank Regulatory Data

Software Development: VBA, Visual Basic 5-6, COBOL, RPG, C/C++, SQL, Power Builder, HTML

Databases: DB2, MS SQL Server 7/2000, Oracle 8, FoxPro 6, MS Access

2.0/97/2000/2003/2010/2013/2016

OS: OS400 for AS400; Windows 95/98/2000/XP/Vista/7/8/10

**Reporting:** Crystal Reports, Oracle Discoverer

General office software tools: MS Office, MS Projects, MS Visio, Open Office

Bank-specific: Midas, FDR, OMNI, MTRS, FORUM, TCL, TSM, TMO, VISA PC Edit Package,

FiServ/MortgageServ, QRM