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Impact Statement:

From an academic point of view, I teach some of the more challenging FINC electives related to markets. Derivatives and Trading Risk are two courses tied to not just the financial markets, but more specifically I teach these courses oriented toward the energy markets. Many of our students find employment in that sector after they graduate, so an understanding of the physical market and the financial market is key for the students to complete for these positions.

The results show:

- In August, 20 students completed the Trading, Risk & Investments Program (TRIP) as part of Group 12.
- The students all had at least one job offer prior to starting the fall semester. Accepted starting salaries averaged \$95k ++.
- The Advisory Board consists of 40 companies. Those companies offered over 100 internships solely for students in TRIP. In addition to the 40 companies currently in TRIP, there is a wait list to join the advisory board including multiple energy-related Fortune 50 companies.
- Students completing this program are "fast-tracking" to early promotions. Our students tend to double their base income within the first four years working (information given to us by our board members). Including performance-based compensation, TRIP students in their first year earn more than Clinical professors at Texas A&M. By year 8, TRIP students are often earning a % of book (% of profit attributed to them). This feature means, TRIP students are often earning seven-digit incomes before they are 35 years of age.
- We have increased the TRIP class size to 40 in 2013 (with expectations of increasing the class sizes to 50 students per year in three years) because of industry demand.
- My personal fundraising (as a faculty member, not a Foundation employee) has increased to over \$400,000 per year by Board members (the equivalent of a \$10 million endowment because of TRIP. This does not include \$3.8+ million in endowed scholarship money specifically raised for TRIP students.

The PVP program has had similar success. PVP is a natural bridge into energy investment banking. We have had 100% placement of FINC majors in the program by graduation with a heavily weighted percentage going into investment banking for the energy sector.

Finally, I present at 5-8 conferences and events ranging from state level to regional providing my views on the energy sector and trends/price paths that will affect energy, renewables and related industries. Advisory Board members seek my advice regarding the energy markets to confirm or contest their own views of what they are seeing in the markets. In addition, I consistently advise members of the Critical Infrastructure task force for the US government and Interpol on energy matters. As a result, I am consistently on local/regional news outlets several times per year and am quoted in a few national level news feeds per year.

Professional Experience

Texas A&M University: Clinical Professor

Executive Director, Energy Programs (encompasses all responsibilities for the Trading Risk & Investment Program, Petroleum Ventures Program and the Reliant Energy Securities & Commodities Trading Center)

- Promotion Process:
 - Promoted to Director, Energy Programs as of 2019.
 - Promoted to Clinical Professor as of September 2017.
 - Promoted to Clinical Associate Professor as of September, 2009.
 - Started as Assistant Clinical Professor in fall, 2003.
 - Received unanimous approval through every level of the approval process during both promotion processes. Have received fifteen years of exemplary performance reviews from the Finance Department and Texas A&M University.
- Developed the Trading, Risk and Investments Program (TRIP) in the Finance Department in 2008. TRIP is a unique specialized co-op style BA/MFM (4+1) Finance program for students interested in careers in commodity and securities markets.
 - TRIP is consistently ranked in the Top 15 in the United States and World-Wide in the Eduniversal Masters Rankings for Best masters for Financial Markets. We were 7th in the US and 12th internationally in 2018. The program is currently ranked #9 in the United States.
 - The program began (Group I) with twelve (12) students and eight (8) companies in the fall of 2008.
 - Currently, TRIP consists of approximately:
 - Approximately seventy-five (75) students
 - Approximately thirty-five (35) Advisory Board member companies with a waiting list of companies.
 - The program has provided over five hundred (500) student internships since inception including over 80 per year during COVID. Over two hundred (200) students have completed TRIP.
 - Over 90% are still working in the energy commodity or investment banking space as of 2020.
 - We have had 100% placement of graduates by graduation. In the past two years, students graduating in December accepted offers prior to the career fair in late September.
 - I generate, through the program, \$300,000 - \$400,000 per year in donations for Texas A&M University.
 - The TRIP Advisory Board consists of approximately 35 energy markets related firms. There is currently a wait list of corporations that wish to join the advisory board. We are aggressively working on expanding the student side of TRIP to accommodate industry demand for students.
 - I manage all Board member and student relationships in the program.
 - The program supports multiple staff members and has supported multiple professors for developing and teaching new curricula. More recently, this has included:
 - Bob Kelly: Structured Transactions in Energy
 - Hagen Kim: Python
 - Deanna Newcomb: Ethics in Energy Trading
 - TRIP is unique in that it is the only academic program of its kind creating an intern-based program to prepare students for commodity and equity based investments and trading careers.

- Secondary benefits include students staying at their first firm longer than average and students consistently outperforming peers (based on Board member feedback and studies) dating back to Group I.
- Developed the Petroleum Ventures Program (PVP) for the Finance and Petroleum Engineering Departments in 2017.
 - PVP is a cross-college integrated program allowing students in the Petroleum Engineering Department to specialize in upper level Finance Certificate coursework and allows students in the Finance Department to specialize in upper level Petroleum Engineering Certificate coursework.
 - This is the first inter-disciplinary academic program between the engineering and business departments at Texas A&M University.
 - In the first year, over sixty students applied and 30 were accepted between the two departments.
 - Year-on-year improving the ratio of Finance-to-Petroleum Engineering students from 5:1 to currently 2.5:1.
 - PVP is considered an academic incubator to create engineers and analysts for energy related investment banking and private equity as well as expecting to create start-up energy firms in the 10-15 year time horizon.
- Awarded ConocoPhillips Outstanding Scholar Award multiple times
- Awarded 2007-2009 Mays Fellowship for Teaching Award
- Awarded multiple performance based teaching grants
- Awarded the Rhonda & Todd Overbergen Executive Professorship
- Prior to COVID I averaged presenting at ten or more Texas and National level conferences per year.
 - My presentations are typically macro-based crude oil and natural gas based forecasts.
 - In 2017, I was one of five international presenters that presented at the King Fahd University of Petroleum Minerals Entrepreneurship Forum in Dhahran, Saudi Arabia.
 - Since COVID, I am presenting 4-8 times per year.
- Appointed to a Special Advisor to the Texas A&M CFO regarding energy hedging for the university (2004 – 2009). My assistance in the program has saved the university over \$15 million.
- Developed Senior and Graduate level Finance courses on derivatives, trading risk management and active portfolio management. Trading industry and investment banking industry employers have aggressively hired students from these classes. I also developed multiple undergraduate level three-hour classes. With the exception of Derivatives, none of these courses were taught using a textbook. These courses are taught using the most recent market knowledge meaning the courses are designed from “scratch” using journal articles and industry best practices.
- Integrated Excel based coursework throughout the Finance undergraduate and graduate curriculums to make students more marketable to industry. I received two grants as a result of the success in integrating Excel into the classroom.
- Developed multiple inter-university student trading competitions. Highlights include:
 - Creating live NYMEX futures and F/X trading competitions on live platforms.
 - Students from top-tier schools participated including MIT and University of Toronto.
 - The 2009 and 2010 F/X competition included more than 350 students from approximately twenty universities.
- Managed a team of full-time staff members (graduate and undergraduate students) to operate the Reliant Energy Trading Center, the TRIP program, the PVP program and additional required responsibilities. Total direct reports ranged from (8) eight to fourteen (14) persons at any point in time.
- Sat on multiple Master and Doctorate Student Committees.

- Part of a three person team that created a 16 course certificate in Risk Management for Rice University and Sirius Solutions. Over 120 members of the Duke Energy mid-office group participated in the certification.
- Responsible for managing the development of 75% of the course content for certificate.
- Taught the following multi-day courses as part of the curriculum: Energy Markets I & II, Credit Risk, Market Risk Controls, Stress Testing, Natural Gas Storage, Pipelines Valuation, Power Plant Valuation, and Statistics

Petroleum Engineering Institute for Continuing Education (PIECE): Instructor 2006 - date

- Developed multiple two-day courses in energy trading and in options for energy companies. All course evaluations have scored above 8.5/10. Average course evaluation is 9+ /10.

Kiodex: Product Specialist

2002 - 2003

- Performed technical sales support for North America and for Asia that resulted in over 65% increase in new clients. The new clients represented over \$1.4 million in annual subscription-based revenue.
- Assisted clients in developing, implementing and pricing hedge strategies. Directly saved one client \$0.05 per mmBTU on their collar strategy in a single typical hedge transaction. Performed this type of activity for multiple clients.
- Assisted development team and clients in developing and implementing multiple risk management reporting functionalities including VaR, CFaR, FAS 133 and Sarbanes-Oxley protocols.
- Developed in-house training seminars for Product Specialists, Solutions and Account Executives, increasing Workbench knowledge and productivity.

Capstone Global Energy: Director

2000 - 2002

- Valued multiple power plant transactions using Contingent Claims Analysis (Real Option Pricing) that resulted in the client receiving financing for the plant purchase.
- Analyzed and recommended multi-factor stochastic convenience yield models to value 20-year crude oil positions, well beyond the visible forward curve. As a result, the client decided to enter into a 20-year fixed price swap crude contract.
- Primary team member that developed and applied a principal components (HJM) approach to simulate gas and power price forward curves for a large European utility. Curves were implemented directly into the company value at risk (VaR) reporting engine.
- Developed a highly accurate credit model for a major US utility based on S&P ratings and publicly traded information that indicates when market conditions would cause S&P to downgrade companies.
- Acted as technical advisor for an Austin based computer software company developing a commercial grade software package to value a company's commodity, including chemical, paper, fuels) contracts as positions in trading and hedging portfolios.
- Originated potential transactions and valued multiple power plants as part of a joint venture between Capstone Global Energy and Harvard Capital Management to acquire 'widow and orphan' power plants under 200 MW in size. Capstone and HCM are currently in the negotiation process with the selling entities regarding the first two power plants I have recommended.

Reliant Energy: Senior Quantitative Analyst/Manager

1999 - 2000

- Manager – Quantitative Group
 - Management – Responsible for all hiring and screening for the quantitative group. Increased group size from three (3) analysts to twelve (12) while maintaining a cohesive team structured environment. I managed the workload and specification of projects for the group and managed the timing and expectations of the projects to the trade floor. Total project management at any point in time ranged from ten (10) to over thirty (30+) projects.

- WSCC/California Power Desk - In the summer of 1999 Reliant had very few hedged power positions in the WSCC. An unseasonably late build-up of snow pack levels depressed power prices. As a result, the Reliant WSCC trading desk lost significantly. The following year, I developed a weekly summary of snow pack levels and correlated those to the previous 50 years of snow pack data. The Reliant WSCC desk began the spring almost completely hedged for summer 2000. By mid-March I had recommended the desk enter the summer season with the minimum hedge position allowed. The WSCC desk completely unwound all hedges for the summer. That summer, California power prices reached record highs and the WSCC desk generated a profit level that surpassed their budget by an order of magnitude (1,000% of target profit). The WSCC desk was the most profitable desk on the trading floor that year.
- Corporate wide initiative – Developed a five-person team to build an in-house ‘pricing library’ of Visual Basic and C derivatives pricing models. The pricing library was adopted throughout the company saving the company several million dollars per year in licensing fees. In addition, the pricing library removed the inconsistencies between front office, mid-office and the structuring group. The model consistency saved over 40 man-hours per week within mid-office alone.
- Calgary Trading Office - The Calgary trading office had difficulties gaining access to trading tools used in the Houston office, but were required to perform risk metrics and analytics that were consistent with the Houston office. Thus, I developed relationships with their front office to insure the quantitative analytics developed by the quantitative group were provided to, and implemented by the Calgary office. This enabled the Calgary office front office and mid-office analytics to become consistent with those of the Houston office.
- Power & Gas Structure & Origination Group
 - Developed a methodology to value the correct risk premium associated with liquidating damages (LD) and unit contingent (UC) contracts based on portfolio diversification theory. As a result, I uncovered a market arbitrage opportunity and Reliant altered their strategy regarding pricing LD contracts that enabled Reliant to enter into several profitable LD contracts.
 - Developed derivatives tools including the Margrabe spark spread model in Visual Basic for the structure desk.
- Credit Group – Created credit risk tools to treat counter-parties as part of a large portfolio enabling the credit group to determine the optimal mix of credit risk counter-parties
 - Began infrastructure to build additional tools to move Reliant towards trading credit risk
 - Developed reserve calculation tool to calculate the appropriate reserve amount required for pricing structured transactions. The tool would ‘roll up’ positions by transaction, counter-party, industry, credit rating and corporate level.
- Financial Gas Trading
 - The financial gas and basis-trading group had difficulty tracking the group’s position. Their supervisor had no tools available to aggregate trader’s positions across tenure, commodity or geographic region. I headed a quantitative team to develop an in-house trade input and tracking software. As a result, the basis-trading group switched from being the perennial trade floor loss leader to consistently achieving trade profitability

University of Denver: Lecture Professor

1997 - 1999

- Consistently generated student evaluations that scored 4.3/5.0 or better for five straight quarters (Business School Average: 3.9/5.0)
- Designed courses, performed lectures, and assigned grades for intermediate and advanced undergraduate level and MBA level finance classes
- Generated a new senior level course that focused on addressing and quantifying risk in capital expenditure analysis. Taught students how to use Decision Programming Language (DPL) for

developing decision trees and Crystal Ball for creating Monte Carlo Simulations. Class cases included real estate valuation, petroleum exploration and inventory control problems.

Colorado School of Mines: Adjunct Professor/Teaching Assistant

1992 – 1998

Prior to my Ph.D., I worked as a petroleum engineer. I worked two years in production and operations in the Denver-Julesburg basin and two years in reserve valuation and producing energy property acquisitions.

Consulting Project Examples (Since joining Texas A&M)

- Expert witness for three Florida utilities in response to the Florida Utility Commission regarding the efficacy of a VaR related hedging strategy. The Florida PUC ruled in the utilities favor based on my expert witness report.
- Developed financial analysis of innovative seismic techniques for purposes of developing a drilling fund.
- Marketed and acquire funding for a start-up innovative, proprietary crude upgrading technology specifically designed to handle heavy Canadian oil sand crudes and heavy refined products (e.g. slurry, bunker fuel).
- Developed Monte Carlo VaR models for natural gas basis and cross commodity spreads for a major energy commodity trade floor.
- Developed Monte Carlo Value at Risk (VaR) model for crude oil proprietary desk trading analyzing both physical and financial transactions.
- Principal investigator in a trade floor fraud audit for a \$50 billion international physical and financial trading organization.
- Expert witness in State of Texas legal suit regarding oil and natural gas royalties. Suit settled in our favor.
- Requested by the Saudi government to present at a national level think tank regarding how to stimulate entrepreneurship in Saudi Arabia.
- Provided numerous short courses for industry personnel on front and middle office components of energy markets and trading.
- Developed risk management policies and procedures for energy trading hedge fund.
- Provided transaction and risk management support for portfolios of exotic options.
- Provided technical and fundamental analysis of energy markets for corporations in the energy market space.

Presentations and Publication Examples

Numerous Appearances on local television and radio including KAGS and KBTX in College Station, TX as well as Texas Radio. OpEd articles published in the Austin American Statesman and Dallas Morning News. Frequently referenced in regional and national newspapers (e.g. Denver Post, El Politico (Spanish national newspaper), Sputnik (Russian national news agency) and national publications (e.g. TIME magazine, January 2015)

August 8, 2023

Numerous presentations regarding trading, hedging, options and risk management for Petroleum Engineering Institute for Continuing Education (PEICE), Petrobras, Saudi Aramco, Duke Energy and ConocoPhillips representing eighteen plus (18+) days of continuing education classroom material related to trading and risk management as well as numerous forecasts of the energy sector for senior management at various corporations and agencies.

The following are a Sample of Recent National Level Conference Presentations:

The Casino Is Open, Prepared for multiple national level industry conferences and numerous state level events. Spring 2017

Sad Puppies, a Crude Oil Forecast, Prepared for multiple national level industry conferences and numerous state level events. Spring 2016.

Under Construction, Prepared for the American Society of Farm Managers and Rural Appraisers (ASFMRA) National Conference, October, 2015 and multiple state level events

Football and Energy, Prepared for the 24th Annual Texas Real Estate Conference, April 2014, San Antonio, Texas

Coffee Beans and Frac'ing, Prepared for the National Land Conference, March 2014, Charleston, SC and the 23rd Annual Texas Real Estate Conference, April 2014, San Antonio, Texas

Back to the Futures...An Energy Price Forecast, Prepared for the 21st Annual Texas Real Estate Conference, April 2012, San Antonio, Texas

Presented to the Commodities Futures Trading Commission (CFTC) Commissioners Scott O'Malia and Jill E. Sommers regarding the Dodd-Frank Act and its expected effects on energy hedging

The Risks and Characteristics of the Physical Energy Markets, Volume 1 Prepared for the Global Association of Risk Professionals, Textbook for the Energy Risk Manager Certification (ERM), 2008

State of the North American LNG Market, Three Day Conference prepared for the Angolan Government at Rice University, July 2005

Energy Commodity Trading Workshop, One Day Conference prepared for Nord Bank in German, Kiel Germany, July 2004 (Presented in German)

Returning Liquidity to the Coal Industry, Keynote Speaker, American Coal Council Annual Meeting, Phoenix, Arizona, October 2003

Research Summary: The following three papers focused on my work to develop two models to determine the decrease in the value of a mine because of expropriation risk. I treat expropriation as an option written by the corporation to the government. Because the price of the mineral produced is also treated as stochastic, I wrote a C++ program to perform a Gauss-Seidel approximation of the mine value at any price and percentage of net revenue retained by the corporation. Results from a hypothetical copper mine demonstrated the mine lost between 8% and 22% of its value in the first model and between 65% and 93% of its value in the second model when compared to mine values in which only the mineral price is stochastic.

Comparative Two Stochastic Variable Option Pricing Models to Evaluate Expropriation Risk in Valuing a Producing Mine, Doctoral Defense, Colorado School of Mines, Golden, Colorado, January, 1999

Valuing Political Risk: A Contingent Claims Approach, 7th Annual Mineral Economics Management Society Conference, Washington D.C., March 1998. Doctoral Student Paper Contest: First Place

A comparative analysis of production-sharing contracts and economic risk using a weighted criteria decision analysis model, 69th Annual Society of Petroleum Engineers Technical Conference, New Orleans, Louisiana. September 1994. S.P.E. paper #28345

Education

Colorado School of Mines Golden, CO
Ph.D. Mineral Economics Department, Dissertation
Defended: January, 1999, Graduation: Spring, 1999
M.S. Mineral Economics Department, Spring 1999

University of Denver Denver, CO
M.B.A. with Specialization in Finance, 1991

Texas A&M University College Station, TX
B.S Department of Petroleum Engineering, 1989

Professional Affiliations

Board Member – Market Technicians Association Education Foundation

Market Technician Association (MTA), National Energy Services Association (NESA), Global Association of Risk Professionals (GARP) & Financial Management Association (FMA)

Other Skills

Bilingual: German

Advanced Finance Related Skills:

- Contingent Claims Analysis
- Multiple Stochastic Variable Contingent Claims Analysis
- Generating creative hedges
- Stochastic Simulation (Monte Carlo Simulation)
- Corporate Finance
- Numerical Methods
- Multi-Attribute Utility Theory and Decision Tree Analysis

Citizenship: United States. Eligible for dual citizenship into the European Union through German parents