Ph.D. Dissertation Defense

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Degree:	Doctor of Philosophy
School/Department.:	School of Business / Financial Engineering
Date:	Tuesday, April 28, 2026
Time:	3:30 – 5:30 pm
Location:	Martha Bayard 104
Title:	The Impact of Major Events on Equity and Cryptocurrency Markets
Chairperson:	Dr. Steve Yang, Financial Engineering, School of Business
Committee Members:	Dr. Dan Pirjol, Financial Engineering, School of Business
	Dr. Majeed Simaan, Finance/FE, School of Business
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Abstract

The three essays presented in my dissertation proposal examine two emerging and complementary dimensions of modern asset pricing research: the role of investor sentiment in high-frequency risk transmission across markets, and the pricing implications of firm-specific risk disclosures extracted from unstructured regulatory texts.

The first study, "*Cryptocurrency jump contagion with market sentiment events: A study of high frequency cross effect",* focuses on the dynamic contagion effects between cryptocurrency and traditional equity markets under sentiment shocks. Specifically, it examines how abrupt changes in investor sentiment—proxied by jump events in the VIX index—affect Bitcoin price jumps, and whether feedback effects flow from the cryptocurrency market back to broader investor sentiment. Using high-frequency intraday data and a multivariate Hawkes process, the study identifies a range of jump contagion effects. It finds that positive sentiment shocks (reflected in downward VIX jumps) trigger both positive and negative jumps in Bitcoin, while negative VIX jumps exhibit no significant contagion effect. Notably, the analysis reveals that Bitcoin displays stronger self-excitation and cross-contagion effects than the equity market. Evidence also suggests a persistent "fear of missing out" (FOMO) dynamic, as positive Bitcoin jumps last approximately three times longer than either negative Bitcoin jumps or any equity market response. These findings have important implications for understanding the behavioral drivers of cryptocurrency volatility and for informing policy approaches to systemic risk in digital markets.

Second essay, *"Risk disclosure premium in the cross-section of stock returns: A generative topic modeling approach"*, examine the pricing implications of financial risk disclosures by applying generative topic modeling to Section 1A of 10-K risk factor filings for S&P 1500 firms from 2010 to 2023. Using the FinBERT embedding, we quantify firm-level exposure to specific risk narratives and compute corresponding risk scores. These scores are used to construct narrative-based risk factors through a two-step empirical asset pricing framework. First, we test the return predictiveness of these factors using the Fama-French multi-factor models via long-short portfolio sorts. Second, we implement Fama-MacBeth cross-sectional regressions to evaluate their risk premia alongside the standard market, size, value, profitability, investment, and momentum factors. Our results reveal a robust risk premium in equity-focused financial condition risk disclosure - which remains statistically significant even after applying the Bonferroni correction for multiple tests. In addition, several other disclosure factors, such as covenant-focused financial condition risk, and funding risk also show some level of significance. These findings suggest that firm-disclosed forward-looking risks, as identified through generative embedding model on firm risk disclosures, are not sufficient priced in the existing cross-section risk models, and the financial constraint risks measured with embedding topic models provide additional risk premium.

The third essay extends the first study's investigation of jump contagion by moving from minute-level to second-level high-frequency data and broadening the scope of market interactions. Using a refined multivariate non-parametric Hawkes framework, this essay examines the micro-dynamics of contagion across Bitcoin, the S&P 500 (SPX), and gold (GLD), allowing for far more granular detection of cross-market excitation patterns. By leveraging second-by-second price changes, the study captures short-lived bursts of activity that are often missed in lower-frequency settings, as well as possible inhibition effect, enabling a clearer distinction between instantaneous feedback effects and longer-horizon propagation. This extension provides a more precise understanding of real-time contagion mechanisms and offers deeper insights into how digital assets interact with traditional safe-haven and equity markets under stress.