List of Abstracts

How Does ESG Rating Uncertainty Affect Corporate Capital Structure?

Prof. Yu-Chen Wei*   National Kaohsiung University of Science and Technology
Mr. Chen-Lin Tang   National Kaohsiung University of Science and Technology
Mr. Guan-Yu Hou   National Kaohsiung University of Science and Technology

Abstract

This study uses market leverage and debt ratio as key indicators to explore the relationship between ESG rating uncertainty and firms' financing choices. This study collects annual and corporate sustainability reports to establish corporate ESG scores, compares them with the ESG indicators published by the TEJ database, and constructs an ESG rating uncertainty index. The ESG rating uncertainty index aims to measure the degree of difference in the scoring of corporate ESG performance by different rating constructions and rating methods. The analysis uses an OLS multiple regression model, with firm size, profitability, and asset structure included as control variables. Empirical results show that ESG rating uncertainty is significantly and positively associated with market leverage and debt ratio. This suggests that higher uncertainty leads firms to increase overall debt levels and rely more on bank borrowing over market-based instruments. Given that the study period encompasses the COVID-19 pandemic, this study further examines whether ESG rating uncertainty influences the stability of firms' financial leverage during systematic risk. During the pandemic, ESG rating uncertainty continues to have a significant impact on both market leverage and debt ratio, reinforcing the view that high ESG uncertainty may lead firms to rely more heavily on debt financing even under conditions of systematic risk, possibly due to investor sensitivity to informational inconsistencies. Overall, this study provides preliminary insights into the potential influence of ESG rating inconsistency on capital structure decisions and offers a reference point for future research on ESG measurement and financial behavior.

Keywords: *ESG, ESG Rating Uncertainty, Capital Structure, Financing Decisions, COVID-19.*

SESSION 1-1 ESG and green finance

Institutional Investor Stewardship and GHG Emissions Reduction: Evidence from Taiwan

Prof. Jr-Wei Huang   Hubei University
Prof. Min-Hung Tsay*   Academia Sinica
Prof. Sharon S. Yang   National Cheng-chi University

Abstract

This paper investigates the relationship between institutional ownership and GHG emissions. We show that institutional investors promote better GHG emissions reduction performance on Taiwan market from 2013 to 2023. Our findings are driven by foreign rather than domestic institutional investors, suggesting that foreign institutions enjoy monitoring view advantage and therefore drive GHG emissions reduction more efficiently. Furthermore, we also show that institutional investors use exit and select channels to influence corporate GHG emissions. Finally, the impact of Green Finance Action policy on foreign institutional and domestic investors is different.

Keywords: *Institutional Investors, Stewardship, Carbon Emissions*

SESSION 1-1 ESG and green finance

ESG Performance and Stock Returns: How Investor Sentiment and Attention Drive Delayed Returns in Chinese Markets

Ms. Yu-han Lin*   National Sun Yat-sen University
Prof. Pei-Shih Weng.   National Sun Yat-sen University

Abstract

This paper systematically explores the impact of Environmental, Social, and Governance (ESG) performance on stock returns and its underlying mechanisms. Using quarterly trading data from the Shanghai and Shenzhen stock markets from 2011 to 2023, we examine how investor sentiment and attention mediate ESG stock returns in Chinese capital markets. We show that ESG performance is significantly negatively associated with contemporaneous stock returns but positively related to returns in the subsequent year, indicating a delayed effect of ESG investments. Investor sentiment significantly moderates the ESG-return relationship, since the return suppression effect for firms with better ESG performance becomes more pronounced. Furthermore, mechanism tests demonstrate that investor attention plays a crucial mediating role between ESG performance and stock returns: while superior ESG performance reduces media coverage in the current period, it enhances attention in the following year, thereby promoting stock returns. Additional robustness checks and heterogeneity analyses support our findings. These results provide important implications for investors seeking to understand the temporal dynamics of ESG investments and for companies developing sustainable strategies.

Keywords: *ESG Stock, Investor Sentiment, Limited Attention*

SESSION 1-2 Corporate finance and governance

CEO Gender and Firm Risks: The Impact of Compensation Incentives

Prof. Chia-Hsien Lin*   National Chung Cheng University
Prof. Yenn-Ru Chen   National Cheng-chi University

Abstract

This paper delves into the risk-taking propensities of female CEOs by exploring the nexus between CEO gender and the incentivization of risk through stock options. Our analysis reveals that the influence of risk incentives on female CEO behavior is constrained, with female CEOs typically receiving fewer risk incentives but greater wealth incentives, possibly stemming from perceived gender-based risk aversion. We also demonstrate that female CEOs are more frequently appointed by firms with higher risk profiles, yet these firms experience a significant reduction in risk subsequent to the appointment of a female CEO. Contrary to conventional beliefs regarding female risk aversion, our findings suggest that female CEOs are not averse to engaging in risk-taking activities. This study contributes to a deeper understanding of gender dynamics in executive decision-making and its implications for firm risk management strategies.

Keywords: *Gender, Risk Taking, Executive Stock Options, CEO Turnover*

SESSION 1-2 Corporate finance and governance

Co-opted boards and Directors' and Officers' Liability Insurance

Prof. Vivian Tai*   National Chi Nan University
Prof. Yi-Hsun, Lai   National Yunlin University of Science and Technology
Ms. Wen-Feng Chan   National Chi Nan University

Abstract

We explore the effect of co-opted board on directors and officers liability insurance (D&Oinsurance). Co-opted directors are those appointed after the CEO assumed office. Utilizing the sample of Taiwan non-financial listed firms from 2008 to 2018, our evidence reveals that greater the proportion of co-opted directors on a board increase the demand of D&O insurance. The results are robust under the Heckman selection model, reverse causality, and the alternative measures of D&O liability insurance and co-opted board. Additionally, we find that the demand of D&O insurance increase as the increase of the proportion of either co-opted independence directors or co-opted nonindependence directors. Finally, we find additional evidence on the relationship between the independent non-co-opted directors and D&O liability insurance policy. It is provided for insurance company's insurance product decision-making and the related regulations.

Keywords: *Directors' and Officers' Liability Insurance, Co-opted Directors, Director Independence*

Detailed Decomposition on Earnings Management Distribution – the Unconditional Quantile Regression Analyses

Prof. Donald Lien   University of Texas at San Antonio
Prof. Mei Hsu*   National Taiwan Normal University

Abstract

This study aims to identify key individual factors contributing to the disparity in earnings management (EM) between family- and nonfamily-owned businesses across quantiles and interquantile levels within the EM distribution. Using data from Taiwanese-listed companies between 2001 and 2016, we apply a re-centered influence function (RIF) based on unconditional quantile regression (UQR) to decompose EM gaps and uncover underlying causes of this disparity. By overcoming the limitations of the Oaxaca-Blinder decomposition and employing a detailed decomposition with the reweighting technique, we provide a more comprehensive analysis.

Our findings indicate that family-owned businesses engage in significantly fewer EM maneuvers across quantiles and exhibit smaller dispersion compared to nonfamily-owned businesses. The impact of leverage becomes increasingly pronounced at higher quantiles, exerting greater dispersion effects across a broader interquantile range (IQR), suggesting a U-shaped relationship. The detailed RIF decomposition breaks down the EM gap into two components: the composition effect (driven by business characteristics) and the structure effect (reflecting returns to those characteristics).

Results reveal that leverage and operational cash flow, tied to the composition effect, as well as board size and the presence of highly educated managerial officers, linked to the structure effect, play crucial roles in narrowing the EM gap. Conversely, firm size and returns to managerial educational characteristics contribute to widening the disparity. The composition effect is particularly influential at lower quantiles, while the structure effect dominates at higher quantiles. At low-end quantiles, the EM disparity is largely explained by the composition effect, whereas at high-end quantiles, the gap is attributed to the structure effect across different ownership structures.

These findings suggest that adjusting business characteristics through strategic interventions could yield more valuable policy implications than structural changes in business operations. As managers navigate corporate governance to optimize profit maximization, focusing on business attributes offers a more effective approach to addressing EM disparities.

Keywords: *RIF-decomposition, Unconditional Quantile Regression, Earnings Management gap, Composition Effects, Structure effect, JEL Classification: G30, G32, M4*

SESSION 1-3 ESG and green finance

Climate Information Disclosure and Stock Market Volatility

Prof. Yu-Chen Wei   National Kaohsiung University of Science and Technology
Mr. Chang-Long Huang   National Kaohsiung University of Science and Technology
Mr. Guan-Yu Hou*   National Kaohsiung University of Science and Technology

Abstract

Climate change has become an increasingly critical factor affecting corporate operations and financial market behavior. This study investigates the relationship between climate information disclosures and stock market volatility by applying text analysis techniques to the annual reports of Taiwan-listed firms. This study constructs three climate information indices, including the Index of Climate Information Disclosure Degree of Annual Report (DTFI), the Index of Climate Information Disclosure Degree per Page of Annual Report (PTFI), and Climate Information Diversity Degree (DI), to quantify the level and characteristics of climate-related information disclosure. These indices are then examined with stock volatility controlling the effects of ESG performance and firm-level financial indicators. Empirical results show that greater diversity in climate information vocabulary is significantly associated with increased stock volatility, suggesting that multifaceted disclosures may heighten investor uncertainty and, in turn, increase volatility. ESG performance is negatively related to volatility and exhibits a moderating effect, as the DI coefficient declines after ESG is included in the model, indicating that ESG can influence how markets respond to complex climate disclosures. However, during the COVID-19 period, this moderating role of ESG is not statistically significant. This study contributes to the literature by introducing a novel text-based approach for measuring climate information perception, providing new insights into the interaction between corporate sustainability disclosure and market behavior, and offering practical implications for investors, managers, and policymakers.

Keywords: *Climate Information, Stock Market Volatility, Textual Analysis, Annual Reports, Moderating Effect, ESG*

SESSION 1-3 ESG and green finance

Firm's Rhetorical Patriotism and Green Innovation

Prof. Ning Tang   Jiangnan University
Prof. Mei-Chen Lin   National Taipei University
Prof. Chih-Yung Lin   National Yang Ming Chiao Tung University
Prof. Chien-Lin Lu*   National Taipei University

Abstract

This paper examines the impact of firm-level national spirit on corporate green innovation using a sample of Chinese-listed firms. We find that firms with stronger national spirit exhibit higher levels of green patenting activities. To establish causality, we employ the instrumental variable approach and exploit the Sino-U.S. trade war as an exogenous shock. Competitive markets, state-owned enterprises, and the CEO's greater awareness of environmental issues strengthen this positive relationship. Using China's green credit guidelines policy and path analysis, we further show that firms with stronger national spirit tend to abide by national green policies and do not follow national policies only in rhetorical. These firms also enjoy lower taxes because of their green investments.

Keywords: *Rhetorical Patriotism, Corporate Green Innovation, Sino-U.S. Trade War, China's Green Credit Guidelines Policy*

SESSION 1-4 Cryptocurrency and FX markets

Cryptocurrency Momentum and Liquidity Volatility Premium

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Mr. Wei-Shau Chen*   Soochow University
Prof. Hung-Wen Cheng   Soochow University
Prof. Wei-Ying Nie   Chinese Culture University
Mr. Pang-Yu Wang   National Taiwan University

Abstract

This study investigates the predictive power of cryptocurrency momentum factor (cmom), market factor (cmkt), and size factor (csize) on the liquidity volatility premium (LVP) in terms of liquidity volatility (LV), which was defined per Chordia et al. (2001) as the long–short quintile portfolio's return sorted by the natural logarithm of the standard deviation of cryptocurrency dollar volume. We found that lower LV led to higher future returns, whereas a higher cmom mitigated the impact of LV on expected returns. By contrast, the effects of cmkt and csize were nonsignificant.

Keywords: *Cryptocurrencies, Liquidity Volatility Premium, Momentum Factor*

SESSION 1-4 Cryptocurrency and FX markets

Monetary Supply and Bitcoin Returns

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Mr. Po-Hsun Chuang*   Soochow University
Prof. Kuang-Chieh Yen   Soochow University

Abstract

This study examines how monetary supply dynamics affect Bitcoin returns. Drawing on Hayek's theory of denationalized money, we use monthly data from September 2014 to October 2024 and apply an Autoregressive Distributed Lag (ARDL) model to assess the impact of M2 growth in major economies. Results show that global M2 expansion significantly increases Bitcoin returns, particularly with a lag. At the national level, M2 growth in the U.K., Japan, and El Salvador is positively associated with Bitcoin returns, while effects in the U.S., EU, Canada, China, and Russia are insignificant. These findings highlight the importance of global liquidity and national monetary conditions in shaping cryptocurrency markets.

Keywords: *Bitcoin returns, M2 growth, Monetary policy, ARDL model*

SESSION 1-4 Cryptocurrency and FX markets

Disentangling Market and Uncertainty Effects in Crypto Valuation: A Portfolio-Based Analysis

Mr. Withz Aimable*   Yuan Ze University

Abstract

This study examines cryptocurrency valuation using a cross-sectional portfolio approach, focusing on interactions with equity, commodity, and forex markets, alongside financial, macroeconomic, and real uncertainty factors. Portfolios, constructed from daily and monthly data, are analyzed for returns and Sharpe ratios, with factor sensitivities estimated via two-pass regression. The findings highlight the significant impacts of macroeconomic variables, financial market returns, real uncertainty, and commodity factors on cryptocurrencies. Higher exposures to these factors enhance returns and risk-adjusted performance, supporting multi-factor asset pricing models. Cryptocurrencies are identified as speculative assets with diversification potential, offering critical insights for their valuation and integration into financial markets.

Keywords: *Cryptocurrency Pricing, Portfolio Sorting Theory, Market Exposures, Uncertainty, Cross-Sectional Portfolio.*

SESSION 1-5 Artificial intelligence and machine learning

Forecasting Credit Card Fraud via Machine Learning

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Prof. Jyy-I Hong	National Chengchi University.
Prof. Xian-Ji Kuang*	National Changhua University of Education
Prof. Shih-Kuei Lin	National Chengchi University

Abstract

In this study, we employ a simulated dataset comprising 1.8 million U.S. credit card fraud instances to delve into the specifics of fraudulent transactions. By mod-eling variables related to customer spending behaviors and personal data, we aim to investigate their impact on fraudulent activities. We compare the performance of tree-based models within machine learning frameworks to the logistic regression model, and our findings reveal that random forest and XGBoost demonstrate su-perior predictive capabilities. Additionally, by harnessing the power of explainable machine learning, we identify that the transaction amount, merchant category, and date of transaction are pivotal variables in predicting fraud incidents.

Keywords: *Credit Card Fraud, Machine Learning, Random Forest, XGBoost, Forecasting Problem*

SESSION 1-5 Artificial intelligence and machine learning

Machine Learning in Momentum Strategies

Prof. Hsuan-Ling Chang	Tamkang University
Prof. Hung-Wen Cheng	Soochow University
Ms. Jou-Ping Yu*	National Taiwan University
Ms. Yi-Min Lan	National Taiwan University

Abstract

The study applies machine learning models to construct momentum strategies and utilizes the information coefficient as an indicator to select stocks with strong and weak momentum characteristics. Through this approach, we have built investment portfolios capable of generating superior returns and conduct a thorough analysis. Compared to existing research on momentum strategies, we incorporate machine learning to capture non-linear interactions. This approach improves the traditional stock selection process, which is frequently hindered by challenges related to timeliness, accuracy, and efficiency due to market risk factors. We find that implementing bidirectional momentum strategies outperforms unidirectional ones, and momentum factors with longer observation periods exhibit stronger correlations with returns. Optimizing the number of stocks in the portfolio, while staying within a certain threshold, leads to the highest excess returns. We present a novel framework for momentum strategies that enhances and improves the operational aspects of asset management. By introducing innovative financial technology applications to traditional investment strategies, we demonstrate significant effectiveness.

Keywords: *Information Coefficient, Machine Learning, Momentum, Portfolio, Return Prediction*

SESSION 1-5 Artificial intelligence and machine learning

Enhancing Performance of Investment Strategies Based on Text Categorization with NLP Techniques

Prof. Yao-Tsung Chen*   National Yang Ming Chiao Tung University
Mr. Shu-Yi Lin   National Yang Ming Chiao Tung University

Abstract

With the rapid development of information technology, we can employ natural language processing (NLP) techniques to extract textual features and enhance investment performance. We crawl the news articles from the Wall Street Journal website, utilize latent Dirichlet allocation (LDA) and financial bidirectional encoder representations from transformers (FinBERT) to extract textual features from those articles and apply the extracted features in text classification and investment strategies. The empirical results indicate that NLP techniques enhance the performance of investment strategies based on text classification with LDA and FinBERT.

Keywords: *Investment Strategy, Text Classification, Natural Language Processing, Feature Extraction, Sentiment Words List*

SESSION 1-6 Insurance and risk management

Climate Risk and the Demand of Reinsurance in the Global Property-Liability Insurance Industry

Prof. Yi-Hsun Lai*   National Yunlin University of Science and Technology
Prof. Vivian W. Tai   National Chi Nan University
Prof. Wen-Chang Lin   National Chung Cheng University
Ms. Qiao-Ting Chen   National Yunlin University of Science and Technology

Abstract

This study examines whether climate risk influences the demand for reinsurance, using a sample of global property and casualty insurers from 2009 to 2019. Our findings indicate that both long-term and short-term climate risk indicators are positively associated with the demand for reinsurance. To ensure the robustness of our results, we conduct several validation checks, including subsample analysis, the use of a two-stage least squares (2SLS) model to address potential endogeneity concerns, and the inclusion of control variables related to national governance, language, culture, and religious beliefs. The results of these robustness tests remain consistent with our baseline findings, confirming their stability. Additionally, we find that insurers in middle-and low-income countries tend to purchase more reinsurance in response to climate risks compared to those in high-income countries.

Keywords: *Climate Risk, Climate Change, Reinsurance, Risk Management, Property-Liability insurance industry*

Why Don't Insurers Hesitate? Investigating the Factors of Implementing Automated Claims Payment in Private Health Insurance

Prof. Chia-Ling Ho*   Tamkang University

Abstract

This study delves into the factors influencing automated claims payment in private health insurance. The results show the characteristics of the insured when the insured has low loss frequency (count of claims), low loss severity (payments of claims), the claim events do not occur within two years from the insurance policy issue date, the insured suffers from the outpatient, nonriding ambulance to the hospital, the close distance between the residence of insured and the hospital for treatment, the insured suffers from malignant neoplasm, endocrine and immune system diseases, blood and hematopoietic diseases, nervous system diseases, circulatory diseases, respiratory diseases, genitourinary system diseases, pregnancy, childbirth, and postpartum complications diseases, musculoskeletal system diseases, congenital malformation diseases, specific circumstances caused by perinatal period, symptoms, signs and unknown conditions, the insured is female, the older insured, and the insured lives in an rural area have a significant and positive related to the automated claims payment, while the insured's benign neoplasm, and skin and subcutaneous tissue diseases has a significant and negative related to the automated claims payment. In the agent characteristics, when the agent with a basic, head or manager, longer seniority, and a good rating, there are significant and positive factors related to the automated claims payment. The research sheds light on critical elements that impact the decision-making process surrounding automated claims processing adoption. The findings contribute valuable insights for insurers seeking to automate claims payment for claim management practices.

Keywords: *Insurance Technology, Automated Claims Payment, Policyholder Services*

Investigating the Role of Digital Transformation in ESG Performance: The Moderating Effect of Corporate Characteristics and the Impact of the External Environment

Prof. Yu-Chen Wei   National Kaohsiung University of Science and Technology
Ms. Yi-Ching Huang*   National Kaohsiung University of Science and Technology
Ms. Guan-Yu Hou   National Kaohsiung University of Science and Technology

Abstract

This study examines how digital transformation can enhance corporate Environmental, Social, and Governance (ESG) performance by analyzing 8,801 annual corporate reports from the Taiwan Stock Exchange from 2015 to 2023.The difference between this study and previous research is that this study employs content analysis to construct a dictionary of digital transformation characteristics and subsequently quantifies the extent of digital transformation information disclosed in each company's annual report. Furthermore, this study examines the varying effects of strategic digitalization measures and the adoption of digital technology on ESG performance. The findings confirm that digital strategies have a significantly greater impact on ESG performance than digital technology alone. This study identifies key moderators during the process of ESG impact on digital transformation, including corporate characteristics (corporate size and profitability) and the external environment (the COVID-19 crisis and government policies). Empirical results indicate that larger and more profitable corporations benefit significantly from ESG digital transformation. At the same time, external factors also significantly impact the effect of digital transformation on ESG. These insights underscore the need for corporations to integrate digital strategies into ESG planning and confirm policymakers' critical role in designing regulations and incentives that drive corporate sustainability transformation.

Keywords: *Digital Transformation, Digital Strategy, Digital Technology, ESG, Content Analysis*

The Influence of ESG Performance on Corporate Payout Policy: Evidence from Taiwan

Prof. Chong-Chuo Changa   National Chi Nan University
Ms. Yi-Jou Liua   National Chi Nan University
Prof. Chia-Wei Yeh*   National Chi Nan University

Abstract

Sustainable development is an important issue of global concern, and ESG reflects the company's overall performance in terms of environment, society and governance. This study uses the data for Taiwanese listed and OTC-listed companies over the period 2015–2020 to explore the impact of companies' ESG performance on payout policy. The results show that an increase in ESG scores results in higher dividend payouts and lower share repurchases. Regarding the possible transmission channels, we also demonstrate that higher ESG scores improve the company's profitability and performance, thereby increasing dividends. This study further divides companies into groups to investigate whether different industries and degrees of internationalization affect the relationship between their ESG performance and payout policies. Among the individual effects of the environmental, social, and governance components, corporate governance is the most important influencing factor. Overall, ESG practices help companies navigate the challenges of different economic environments, maintain robust performance, and achieve profitability.

Keywords: *Sustainable Development, ESG Performance, Payout Policy, Cash Dividend, Share Repurchase*

Mapping ESG-Driven FinTech Innovation: A Patent Analytics Approach for Assessing Firm Innovations and Market Gaps

Prof. Wen-Kuo Chen   National Kaohsiung University of Technology
Dr. Priyanka C. Bhatt*   National Tsing Hua University

Abstract

This study examines the intersection of Environmental, Social, and Governance (ESG) principles with financial technology (FinTech) innovation through a comprehensive patent analytics approach. The integration of ESG objectives with FinTech solutions has the potential to enhance financial inclusion, promote sustainability, and improve governance practices. However, the global distribution of such innovations remains uneven, with developed economies like the US, EU, and China dominating patent filings. To address this disparity, the study excludes patents from these regions, focusing on identifying innovation patterns and gaps in underrepresented areas. We develop novel metrics, including the Innovation Reach (IR), Market Gap (MG) and Firm Innovation Index (FI), to quantitatively assess regional disparities, global market influence, and firm-level innovation performance. Our analysis reveals that while technologically advanced countries like Japan, Australia, and Canada lead in ESG-driven FinTech patents, emerging economies such as Brazil, South Africa, and Malaysia are increasingly active, though still underrepresented. High IR scores indicate patents with extensive geographical coverage, reflecting their broader market relevance and commercial potential. The FI Index highlights leading firms like Hitachi,Toyota, and General Electric, which exhibit robust innovation capabilities through diversified technological portfolios and expansive jurisdictional reach. The findings underscore the need for targeted policy interventions to support innovation in lessrepresented regions and suggest that fostering collaborative governance and inclusive patenting practices can enhance global sustainability efforts. This research provides valuable insights for stakeholders, including policymakers, financial institutions, and investors, seeking to leverage FinTech innovation to achieve ESG objectives in a more balanced and equitable manner.

Keywords: *Fintech, ESG, Patent Analytics, Market Gaps, Firm Innovations*

SESSION 2-2 Corporate finance and governance

Deviation from target capital structure and corporate misconduct

Prof. Tsai-Ling Liao   National Formosa University
Prof. Ruey-Jenn Ho*   National Taichung University of Science and Technology

Abstract

As prior research suggests that deviation from target leverage ratio could impair firm value and affect subsequent corporate decisions, we examine the impact of a firm's leverage deviation in the pre-misconduct period on corporate misconduct, as well as on the subsequent adjustment to move toward the target leverage. Based on 1,156 corporate misconduct events revealed by 272 Taiwan listed firms from 1996 to 2021, we find that mis-leveraged firms adjust their leverage quite aggressively soon after misconduct. Typically, overleveraged (underleveraged) firms substantially lower (increase) their leverage to close the deviation gap following misconduct. Furthermore, we observe that the pre-misconduct leverage deviation is significantly positively associated with the incidence of misconduct. In other words, when a firm is already overleveraged or underleveraged it has a higher propensity to engage in misbehavior. Our empirical results also show that the markets react negatively to the misconduct revealed by overleveraged firms. Collectively, these findings support the existence of target leverage and shed light on how offending firms actively adjust capital structures in an attempt to mitigate the negative effect of leverage deviation on misconduct.

Keywords: *Target Capital Structure, Leverage Deviation, Corporate Misconduct*

SESSION 2-2 Corporate finance and governance

Does Family Engagement Affect Operation Performance in the Banking Industry?

Prof. Min-Hung Tsay   Academia Sinica
Prof. Li-Han Chang   Tamkang University
Prof. Hsuan-Ling Chang   Tamkang University
Mr. Tzu-Hao Hsu*   Mercuries Life Insurance

Abstract

This study examines whether family engagement in banks leads to different managerial strategies, focusing on loan portfolio diversification and tax aggressiveness. We manually assessed family member data by identifying the number of key related parties disclosed and followed the approach of Parise (2024) to identify potential family members within banks. Using data from Taiwanese banks, we find that family-run banks exhibit significantly higher loan diversification and adopt more conservative tax strategies compared to non-family banks. These results suggest that family engagement promotes long-term stability over short-term profit maximization in the banking industry.

Keywords: *Family Links, Family Firms, Banks, Loan Diversity, Tax Aggressiveness*

Head-and-shoulders patterns in the Taiwan stock market: A comprehensive analysis of predictive ability, profitability, and decision making factors

Prof. An-Sing Chen*   National Chung Cheng University
Prof. Che-Chen Liao   National Chung Cheng University
Mr. Chen-Ping Liao   Google
Prof. Tzu-Ling Lin   National Chung Cheng University
Prof. Che-Ming Yang   Putian University

Abstract

The Head and Shoulders (HS) pattern is considered by investment practitioners to be one of the most reliable technical stock chart patterns. However, there exists few academic research on the HS pattern. This study focuses on the decision making aspects during the application of the HS pattern trade. First, after identifying a possible HS pattern, the stock trader must follow up with a decision as to whether to actually enter into the trade. Second, after the HS pattern is entered into by the stock trader, the next decision is whether to 1) early exit, 2) close only after the pattern has completed, or 3) hold out for longer than the duration of the pattern. Our results show how high (or low) the current stock price is relative to its historical mean price has a strong effect on whether the decision to enter the HS trade will make profits. We also find, for the HS bottom pattern, holding out longer than the duration of the pattern actually improves the profits. Finally, we show that the performance of the HS pattern can be improved by combining it with the Bry-Boschan algorithm during its implementation.

Keywords: *Stock Price Pattern Recognition, Stock Trading Rules, Stock Price Patterns, Stock Price Prediction*

Volatility Decay and Arbitrage in Leveraged ETFs: Evidence from the US and Japan

Prof. Cheng-To Lin   Renmin University of China
Prof. Shih-Kuei Lin   National Chengchi University
Prof. George Yungchih Wang Soka University
Mr. Zong-Wei Yeh*   National Chengchi University

Abstract

This paper investigates statistical arbitrage strategies that exploit volatility decay in leveraged ETFs (LETFs). Using pairwise beta-neutral portfolios across US and Japanese markets, we demonstrate that such strategies are profitable, exhibit positive skewness, and maintain well-controlled downside risk. By decomposing profits into bull- and bear-side components, we find that although theoretical models suggest bear LETFs should offer greater volatility decay exposure, empirical results contradict this intuition. A key driver of this discrepancy is the non-compounding effect, which captures replication frictions and market inefficiencies. Notably, swap-based (US) and futures-based (Japan) LETFs exhibit distinct non-compounding patterns. We show that shorting US bull LETFs and Japanese bear LETFs provides a more effective and robust implementation of volatility decay-based arbitrage. Finally, as a theoretical extension, we develop a jump-diffusion framework to account for the abrupt surges in strategy profits observed during periods of market turmoil.

Keywords: *Leveraged ETFs, Volatility Decay, Statistical Arbitrage*

SESSION 2-3 Quantitative trading and investment

Classifying Hedge Fund Strategies with Large Language Models: Systematic vs. Discretionary Performance

Prof. Hui-Ching Chuang*   National Taipei University
Prof. Chung-Ming Kuan   National Taiwan University

Abstract

This paper fine-tuned the FinBERT, a large language model (LLM) tailored for the financial domain, to classify hedge funds into systematic and discretionary categories. By leveraging LLM techniques, our approach mitigates the subjective judgment traditionally involved in categorizing investment strategies. We find that on average, funds classified as systematic yield higher factor-adjusted returns than their discretionary counterparts. Moreover, after implementing an alpha-screening procedure with a false discovery rate adjustment, we observe that between 10% to 20% of funds exhibit statistically significant positive alphas in models incorporating a combination of observable and unobservable factors.

Keywords: *Transfer Learning, Textual Analysis, False Discovery Rate, Fund Performance*

SESSION 2-4 Other topics related to financial markets

Enhancing Data Analytical Skills: A Step-by-Step Spreadsheet Approach to Identifying and Understanding Top-Performing Stocks

Prof. Te-Feng Chen*   Hong Kong Polytechnic University
Mr. Mingpei Liu   Hong Kong Polytechnic University

Abstract

Data analytical skills are essential for business school students to seek successful careers, while the data-driven decision-making process has been proven to be crucial for creating business value. However, developing a data analytics curriculum for all business school students without STEM foundations can be a huge challenge. Using stock return data from the Center for Research in Security Prices (CRSP2), this study aims to equip business school students with the skills necessary to evaluate stock performance and conduct investment analysis effectively. We present a comprehensive, step-by-step spreadsheet approach that guides students in calculating top-performing buy-and-hold returns and assessing wealth creation for stocks listed in the US, specifically those in the S&P 500, as well as for stocks on the Hong Kong Stock Exchange, serving as a representative sample of global equities.

Keywords: *Individual Stock Returns, Buy-and-Hold Returns, Wealth Creation*

SESSION 2-4 Other topics related to financial markets

Order flow variability by investors' trade size choice and market returns

Prof. Chin-Ho Chen   Feng Chia University
Prof. Shu-Fang Yuan*   Nanhua University

Abstract

This study investigates the effect of order imbalance volatility (VOIB), driven by investors' trade size choices, on subsequent returns in the Taiwan index futures market. Using high-frequency data to measure VOIB as a proxy for information asymmetry costs, we find that higher VOIB leads to greater illiquidity in the futures market. This illiquidity stems primarily from elevated information asymmetry costs, particularly associated with medium-sized VOIB. Moreover, medium-sized VOIB significantly influences subsequent futures returns, supporting the informed stealth trading hypothesis. Our results remain robust even when applying a market-timing VOIB strategy and after excluding data from financial crisis periods.

Keywords: *Information Asymmetry, Order Imbalance Volatility, Stealth Trading, Index Futures*

SESSION 2-4

The information content of share pledging effect on synchronous stock price movements

Prof. Chih-Chuan Yeh   National Taichung University of Science and Technology
Prof. Chuin-Hong Chen*   National Yunlin University of Science and Technology
Prof. Chung-Chiao Huang   National Chi Nan University

Abstract

This paper examines the relation between insider share pledging and stock price crash risk. To establish causality, we take advantage of the presence of heteroskedasticity in the data and employ the generalized method of moments to address the endogeneity problem. Empirical results show that higher insider share pledging leads to higher stock price crash risk, which is mediated by the bad news hoarding behavior. We also find that the risk is more pronounced for firms without stock repurchase behavior, and the presence of insider share pledging can also lead to higher stock price synchronicity. Our findings contribute to the existing literatures in the following aspects. (1) We use Heckman two stage selection model to address the sample selection bias and the heteroscedasticity-based technology to deal with the endogeneity problem, and get the causal effect of insider share pledging on the crash risk. (2) We find stock repurchase behavior moderates its relation and the bad news hoarding behavior fully mediates the two relation. (3) We contribute to the stock price synchronicity literature by identifying the positive impact of insider share pledging on it. This study offers insights for policymakers interested in mitigating the risk of stock price crash risk by regulating insider share pledging behavior. As an increasing number of companies use the share pledging as the secure personal loans, we offer recommendations on what policymakers can do to minimize the asymmetry of information.

Keywords: *Insider Share Pledging, Stock Price Crash Risk, Stock Price Synchronicity, Generalized Method of Moments*

SESSION 2-5 Corporate finance and governance

Board gender diversity and firm performance: Empirical evidence from Taiwan

Prof. Ching-Hua Yu*   Kainan University
Prof. Hsiao-Chi Ling   Kainan University
Prof. Chia-Ching Lin   Ling Tung University

Abstract

Does the inclusion of female directors on a company's board of directors increase the overall performance of the firm? Despite numerous studies on this topic, they have not adequately addressed the issues of discrimination and tokenism related to the presence of female. We use the number of female directors as a classification criterion to address potential discrimination within the company. This method allows us to determine the net effect of female directors on firm performance. This has been widely discussed in financial and economic fields, but it has received little attention in management and leadership research. In addition, we analyzed the impact of gender diversity on three types of firm performance, distinguishing between market-based and accounting-based indicators. Our sample is based on Taiwan stock markets and spans 16 years (2006-2022). Our findings suggest that gender diversity has a significant impact on firm performance in Taiwan, regardless of the performance indicators used for measurement. However, once discrimination factors are taken into account, these results disappear. As a result, we conclude that the impact of female directors on firm performance in Taiwan stock markets is due to discrimination. This study contributes to strategic leadership research, specifically the literature on the impact of female leaders.

Keywords: *Strategic Leadership, Gender Diversity, Women Leader, Gender Roles*

SESSION 2-5 Corporate finance and governance

Board Gender Diversity and the Intraclass Pay Gap

Prof. Yu-Lin Huang*   National Taichung University of Science and Technology

Abstract

This study investigates how a gender-diverse board affects the within-firm pay gap between top executives and basic-level employees by examining the Taiwan publicly-listed firms from 2014 to 2023. The empirical results demonstrate that the representation of female directors on board would mitigate the intraclass pay gap, indicating the social preference influence induced by the female characteristics. Meanwhile, such an association is more pronounced in larger firms, better-governed firms, and those with greater growth potential. Such findings remain when we control the impacts of CEO gender and corporate ESG performance. Moreover, while a gender-diverse board does not matter to the association between the excess intraclass pay gap and operating performance, it significantly and positively influences the relation between the intraclass pay gap and market valuation.

Keywords: *Board Gender Diversity, Intraclass Pay Gap*

The Nexus between the Prices of Bitcoin, Carbon, and Electricity

Prof. Hsiao Chiu-Ming*   National Yunlin University of Science and Technology

Abstract

This study investigates the dynamic relationships between the fluctuations of Bitcoin prices, carbon spot prices, and electricity price using Vector Autoregression (VAR) and Vector Autoregression with exogenous variables (VAR-X) models. Given Bitcoin's energy-intensive mining process, the research explores whether carbon pricing and electricity costs significantly impact Bitcoin price movements. The findings suggest that while electricity prices exhibit a weak but positive correlation with Bitcoin returns, carbon pricing has a limited and mostly negative effect. The VAR-X model, incorporating macroeconomic factors such as Bitcoin illiquidity, volatility, and foreign exchange rates, marginally improves prediction accuracy. However, the models indicate that Bitcoin's price movements remain highly volatile and are largely influenced by speculative market forces rather than energy-related factors alone. These results provide valuable insights for investors, policymakers, and researchers by highlighting the partial influence of energy costs on Bitcoin valuation and the need for more advanced modeling techniques to capture its price dynamics.

Keywords: *Bitcoin, Carbon Pricing, Electricity Prices, VAR Model, Financial Markets, Cryptocurrency, Energy Economics*

SESSION 3-1 ESG and green finance

Institutional herding in positive and negative ESG performance and stock price crash risks

Prof. Hao Fang*   Chung Yuan Christian University
Prof. Robin K. Chou   National Chengchi University
Prof. Yen Hsien Lee   Chung Yuan Christian University

Abstract

This study simultaneously explores positive and negative ESG scores, which can explore the impact of corporate ESG risks. We accurately analyze the monthly-frequency impact of foreign institutional investors (FIIs) buy herding ESG stocks on crash risks. First, this study analyzes whether the impact of FIIs buy herding stocks with ESG scores (or negative ESG scores) on subsequent stock price crash risks are more significantly as expected, compared to without FIIs buy herding. Next, we examine whether the degree of FIIs buy herding stocks with higher ESG scores, compared to that with lower ESG scores (or lower negative ESG scores), is more likely to significantly mitigate ubsequent crash risks. We find that FIIs buy herding stocks with higher ESG or lower negative ESG (lower ESG) scores is more likely to mitigate (raise) subsequent crash risks compared to no FIIs buy herding. Finally, the force of FIIs buy herding stocks with higher ESG performance is more likely to reduce subsequent crash risks than that with lower ESG (or lower negative ESG) performance.

Keywords: *ESG Controversy, Herding Behavior, Institutional Investor, Stock Price, Crash Risk*

SESSION 3-1 ESG and green finance

The Effect of ESG Performance and Sustainability Uncertainty on Mispricing: Empirical Analysis of Asian Developed Countries

Prof. Lin-Chih Wu*   National Sun Yat-sen University
Ms. Yi Chen   National Sun Yat-sen University

Abstract

Environmental, social, and governance (ESG) have grasped much attention in the stock market in recent years. Despite extensive research on ESG on financial performance, few studies have discussed the ESG effect in the Asian market and the effect on misvaluation. With the increasing demand in ESG and possibly coupling with increased uncertainty, this research finds that firms with better ESG performance could mitigate the negative effect between sustainability uncertainty and misvaluation. The research aims to provide managerial implication that even though the Asian market does not value ESG strategies, supporting the shareholders' expense view, firms should deploy ESG strategies to alleviate the negative perception in the stock market, and therefore, sustain the momentum of overvaluation or mitigate undervaluation.

Keywords: *ESG, Misvaluation, Uncertainty, Shareholders' Expense View, Stakeholders' Value Maximization*

The Impact of Sustainable Investment and R&D Innovation on Firm Value

Prof. Li-Ching Chi   Ming Chuan University
Prof. Min-Rui Choo*   Ming Chuan University
Ms. Zhen-Ni Wang   Ming Chuan University

Abstract

This study analyzes the impact of ESG investment strategies employed by firms in emerging markets on their market value. This study examines the period from 2015 to 2019, concentrating on firms listed on China's CSI 300 index, utilizing ESG scores from SynTao Green Finance and Thomson Reuters to assess ESG investments. The findings indicate that excessive ESG activities may result in a decrease in market value, as managers might utilize limited resources inefficiently, leading to increased costs. The results of PSM regression demonstrate a significant negative correlation between ESG investments and firm value, with R&D exerting a negative moderate effect on this relationship. Furthermore, although R&D investments considerably increase company value, their benefits do not consistently counterbalance the adverse effects of ESG activities. The research indicates that within the financial sector, elevated ESG scores, especially in governance, contribute to increased firm value, implying a synergistic relationship between governance investment and R&D in addressing governance and social challenges. Recommendations for policy include the provision of governmental subsidies and support for companies involved in ESG activities, particularly targeting resource-constrained small and non-financial industries, to alleviate adverse economic effects and foster sustainable development. The findings emphasize the necessity of customized ESG policies in emerging markets due to their distinct structural and regulatory characteristics compared to developed markets.

Keywords: *ESG, Sustainable Investment, R&D Innovation, Firm Value*

Is the Commitment of Commercial Banks to Self-Regulation for Sustainable Development a CSR Practice or Greenwashing?

Prof. Chien-Jung Li*   National Taiwan University
Prof. Mao-Wei Hung   National Taiwan University
Prof. Sheng-Yung Yang   National Chung Hsing University

Abstract

The commitment to self-regulation for sustainable development has attracted significant attention as organizations, particularly in sectors like banking and finance, work to align their practices with global sustainability goals. However, concerns have emerged about whether these commitments are genuine corporate social responsibility (CSR) efforts or simply greenwashing, where companies present themselves as environmentally or socially responsible without making real, impactful changes. The empirical results, derived from data on Taiwanese commercial banks between 2018 and 2023, indicate that Taiwan's commercial banks' commitment to self-regulation for sustainable development reflects a genuine CSR effort, rather than greenwashing.

Keywords: *Commercial Banks, Self-Regulation, Sustainable Development , CSR, Greenwashing, BoD Approach, Truncated Panel Regression Model*

SESSION 3-2 Asset pricing: capital market efficiency and anomalies

Asset Pricing and A Tale of Night and Day: Evidence from Taiwan

Ms. Hui-Wen Chang*   National Cheng-chi University
Ms. Shiang-Ting Tseng   National Cheng-chi University
Prof. Nien-Tzu Yang   National United University

Abstract

Hendershott et al. (2020) propose that investors' risk attitude could vary toward intraday and overnight periods, resulting in a positive relation between market beta and stock returns overnight, that is reversed significantly during daytime trading sessions. Taking advantage of Taiwan stock market's important features of high retail investors' trading and the non-trading regulation during overnight sessions, we hypothesize that the opposite beta-return relation between intraday and overnight periods should be prevalent in this market. We provide comprehensive analyses to confirm this prediction. Further, we bring in the overcorrection argument based on daytime reversals as a plausible explanation for the divergent beta-return relation. Finally, we explore more pricing factors to understand whether and how they are priced, and we obtain robust evidence that the value, profitability, and investment factors are priced overnight, while the size factor is priced during daytime sessions.

Keywords: *Asset Pricing, Daytime Return, Overnight Return, Capital Asset Pricing Model, Factor Models*

SESSION 3-2 Asset pricing: capital market efficiency and anomalies

Do Net-buying Pressures on Institutional Investors Predict Stock Returns: Evidence from Taiwan Stock Market

Prof. Jen-Wei Yang   Soochow University
Prof. Kuang-Chieh Yen*   Soochow University

Abstract

This study investigates whether institutional net buying pressure predicts short-term stock returns in Taiwan. Using daily and weekly trading data for foreign investors, investment trusts, and dealers, we form quintile portfolios based on net buying volume. Results show that higher net buying pressure predicts significantly higher future returns, especially at the daily level. This predictive power strengthens during periods of elevated market volatility (VIX), but weakens during the COVID-19 pandemic, indicating a structural shift. Our findings highlight the time-varying informativeness of institutional trading under different market conditions.

Keywords: *Institutional Investors, Net Buying Pressure, Return Predictability, Market Volatility, COVID-19, Taiwan Stock Market*

SESSION 3-2 Asset pricing: capital market efficiency and anomalies

The High-volume Return Premium- The Evidence from the Taiwan Stock Market

Prof. Mu-Shu Yun*   National Chung Cheng University
Prof. Lee-Young Cheng   National Chung Cheng University
Prof. Wei-Ching Chen   National Chung Cheng University
Prof. Rui-hai Li   Shanghai Lixin University of Commerce and Finance

Abstract

We examine whether abnormal trading volume influences future stock returns in the Taiwan stock market. Consistent with the investor recognition hypothesis (Merton, 1987; Kaniel et al., 2012), we find that zero-investment portfolios, formed by buying high-volume stocks and selling low-volume stocks, generate positive returns (high volume return premium). This premium persists across various volume measures, even after controlling for other price predictors such as size, book-to-market, different market regimes, and momentum. Our findings contrast with those of Kaniel et al. (2012), Huang et al. (2011), and Wang (2017), who do not observe the same effect in emerging Asian markets.

Keywords:

SESSION 3-2 Asset pricing: capital market efficiency and anomalies

Return Seasonalities in the Taiwan Stock Market: The Role of Overnight and Daytime Returns

Prof. Yi-Hsien Wang   CTBC Business School
Prof. Chien-Ping Chung   National Taipei University of Technology
Prof. Chih-Hsiang Hsu*   Ming Chuan University
Prof. Hsiu-Chuan Lee   Ming Chuan University

Abstract

This study investigates return seasonalities in the Taiwan stock market by examining whether they are primarily driven by overnight or daytime returns. Using data from 2001 to 2024, the empirical findings reveal that daytime returns predominantly drive the same-month seasonal effect, with mispricing stemming from investor underreaction rather than limits to arbitrage. Portfolios formed based on daytime return seasonalities dominate those based on close-to-close returns, even after controlling for traditional risk factors. These findings contribute to the literature on return anomalies and provide practical insights for asset management and trading strategies in the Taiwan stock markets.

Keywords: *Return Seasonalities, Overngith Returns, Daytime Returns, Investor Underreaction, Investor Attention*

SESSION 3-3 Behavioral finance and risk management

Employee Education and Stock Price Crash Risk

Prof. Mei-Chen Lin*   National Taipei University
Ms. Szu-Fang Wang   National Taipei University

Abstract

This study examines the relationship between employee education levels and stock price crash risk in Taiwanese listed companies. The findings show a negative relationship between employee education levels and crash risk, supporting stakeholder theory. The results are consistent after controlling for endogeneity using two-stage least squares (2SLS) and difference-in-difference (DID) methods. Companies with higher employee education levels exhibit greater growth potential, attract institutional investors, and reduce pay disparities, which helps to lessen stock price crash risk. Additionally, in firms with strong corporate governance, the impact of employee education on reducing crash risk is more pronounced.

Keywords: *Price Crash Risk, Education, Stakeholder Theory, Two-stage Least Squares, Difference-In-Difference*

SESSION 3-3 Behavioral finance and risk management

Option-Implied Probability Distortions and Stock Return Predictability

Mr. Ting-Xuan Wang∗   National Cheng-chi University
Prof. Wei-Yu Kuo   National Cheng-chi University
Mr. Zong-Wei Yeh   National Cheng-chi University
Prof. Shih-Kuei Lin   National Cheng-chi University

Abstract

As retail investors increasingly influence financial markets, understanding how cognitive biases affect asset prices is crucial. This study examines the return predictability and economic value of the curvature parameter of probability weighting function, which captures investors' risk perception through probability distortions. Using a empirical pricing kernel approach with particle filtering, we construct a Probability Weighting Index (*PWI*) and analyze its predictive power. Empirical results suggest that *PWI* exhibits a certain degree of predictive power, provides incremental information beyond traditional predictors, and offers economic value through an investment strategy that outperforms the buy-and-hold approach. Further analysis indicates that *PWI* primarily predicts returns through the discount rate channel, distinguishing it from sentiment-based predictors. Our findings highlight the role of cognitive biases in asset pricing by introducing *PWI* as a potential behavioral-based predictor.

Keywords: *Probability Weighting, Return Predictability, Investment Strategy,*
JEL Classification: G11, G12, G23

SESSION 3-3 Behavioral finance and risk management

Frontier Culture and Firm Tax Avoidance

Prof. Dien Giau Bui   Yuan Ze University
Prof. Iftekhar Hasan   Fordham University, Bank of Finland, and University of Sydney
Prof. Chih-Yung Lin   National Yang Ming Chiao Tung University
Mr. Nhut Vu Truong Nguyen*   National Yang Ming Chiao Tung University

Abstract

This paper investigates whether CEOs with frontier culture influence corporate tax avoidance. Our findings demonstrate that higher levels of CEO frontier intensity are associated with more aggressive tax avoidances. We further explore the mechanisms underlying this relationship, showing that this effect is amplified for firms with weak board governance, and when litigation risk and crash risk are relatively low. Employing CEO turnovers, such as those resulting from death, illness, or retirement, as exogenous shocks, we provide robust evidence of this causal relationship. Overall, our results suggest that the individualistic backgrounds of frontier CEOs significantly shape corporate tax behavior, underscoring the role of personal traits in executive decision-making.

Keywords: *Frontier Culture, CEO Individualism, Corporate Tax Avoidance, Board Governance, Firm Risk*

SESSION 3-3 Behavioral finance and risk management

Juicing Profits from Stock Dividends Using Random Forests

Prof. Jimmy Ming-Tai Wu   National Kaohsiung University of Technology
Prof. Mu-En Wu   National Taipei University of Technology
Mr. Howard Cheng-Hao Lee   National Taipei University of Technology
Mr. Chun-Wei Chang   National Taipei University of Technology
Prof. Chien-Ping, Chung*   National Taipei University of Technology

Abstract

This research introduces an optimized trading strategy—"Improved Juicing"—leveraging Random Forest models to enhance the profitability from stock dividend events. Traditional "Juicing" strategies, while popular among high-frequency traders aiming for dividend yields, frequently fail when stocks do not adequately recover their dividend gaps, thus diminishing real returns. To address this, we propose employing classification and regression Random Forest models to predict post-ex-dividend price recoveries, specifically focusing on stocks in the Taiwan market from 2016 to 2022. The proposed framework systematically filters dividend events, evaluates predictions, and selects stocks exhibiting high dividend recovery potential. Through comprehensive backtesting and performance evaluation, our method demonstrates significant improvements in precision, profit factor, and drawdown risk compared to benchmark strategies. Future research directions include incorporating transaction costs, extending features with macroeconomic indicators, and comparative analysis with other machine learning techniques.

Keywords: *Quantitative Trading, Machine Learning, Trading Strategy, Random Forest, Juicing*

An Interpretable Model for U.S. Inflation Density Forecasting and Monitoring via Factor Augmentation and Machine Learning

Prof. Shan-Ying Chu*   Chung-Yuan Christian University
Mr. Hsun-Hao Chang   National Central University
Prof. Jin-Huei Yeh   National Central University

Abstract

Accurate inflation forecasting is fundamental to sound monetary policy, investment strategy, and risk management. Given the global influence of the U.S. economy, robust and interpretable models for predicting U.S. inflation are indispensable. Traditional econometric approaches often falter in capturing the non-linearities and high-dimensional interactions that characterize inflation dynamics. To address these challenges, we propose an innovative framework that integrates Principal Component Analysis (PCA) for dimensionality reduction with advanced machine learning methods, focusing particularly on quantile regression to forecast inflation across its entire distribution. Our methodology combines PCA and QR-LASSO within a rolling-window framework, enhancing both predictive accuracy and model interpretability while mitigating overfitting. A comprehensive evaluation of regression models including linear, Ridge, LASSO, Elastic Net, and quantile regressions reveals that median regression consistently outperforms alternatives in both short- and medium-term forecasts, surpassing benchmarks such as Medeiros and Vasconcelos (2021). Importantly, our model enables precise forecasting of tail risks extreme inflationary and deflationary scenarios by identifying the 0.9 and 0.1 quantiles as dynamic warning thresholds. These quantile-based forecasts not only anticipate historical inflation spikes with high accuracy but also provide actionable insights into the key economic drivers of such events. By tracing the evolving influence and sensitivity of explanatory variables across quantiles, our framework offers transparent and robust support for policy interventions, empowering stakeholders to proactively mitigate inflationary risks.

Keywords: *Inflation Forecasting, Quantile Regression, Machine Learning, Principal Component Analysis (PCA), Model Interpretability*

Enhancing the Financial Sustainability from Machine Learning

Prof. Yu-Ying Tzeng *   National Chengchi University
Prof. Hong-Chih Huang   National Chengchi University
張彤   國泰精算人員

Abstract

The financial sustainability of a retirement fund is crucial for maintaining national social stability.Several retirement funds in our country grapple with severe and entrenched financial turmoil. One approach to ensure the sustainability of these funds is to enhance the fund's investment returns. Over the past decade, the average return on retirement funds has been 4.23%. Equity securities make up 51% of the fund allocation. Therefore, the investment performance of equity securities significantly impacts the accumulation of insurance fund assets. Most investments at the Bureau of Labor Funds still rely on traditional industry report analysis for fund management. However, with the continuous growth of fund size, the average investment amount borne by each investor has increased. In recent years, with the maturation of artificial intelligence (AI) development, the Bureau of Labor Funds needs to utilize machine learning to construct an effective AI investment model. Through the AI investment model, stocks with profit potential can be selected to form an investment portfolio. The goal is to enhance the overall investment return of the fund through effective asset allocation, thus alleviating the long-term financial pressure. This paper aims to achieve financial sustainability by increasing the investment return of the National Pension Insurance Fund. It is essential to assess market conditions and construct the optimal investment portfolio to enhance the investment return. This study adopts an ensemble learning approach, using technical indicators as features for training and incorporating them into the model. The objective is to predict the upward or downward trend of the Taiwan Stock Price Index within a certain period, thereby evaluating the overall stock market trend. This information can guide investment decision-makers in determining whether to adopt an aggressive or conservative investment strategy. Under the screening method, poorly performing stocks are eliminated. Stocks with the highest profit potential are selected as constituents, and different weight calculation methods are applied to compose the investment portfolio, aiming to maximize the portfolio's investment return.

Keywords: *Asset Allocation, Stock Classification, Dynamic Time Warping, Machine Learning*

SESSION 3-4 Artificial intelligence and machine learning

Machine Learning in Valuation, Market, Growth, and Risk Factors

Prof. Hung-Wen Cheng   SooChow University
Ms. Yun-Xuan Hu*   Academia Sinica

Abstract

With the rapid development of information technology, various data processing techniques and artificial intelligence algorithms have been widely applied in the financial field. Machine learningbased quantitative stock selection methods are gradually emerging, which can screen suitable targets through powerful computing power. This can not only avoid the generation of investment blind spots, but also construct an investment portfolio that can control risks and achieve stable returns by fully utilizing historical information. This study selects eight factors and uses four models, including random forest, gradient boosting regression tree, support vector machine, and ordinary least squares regression, to conduct predictions. By backtesting, we observe whether they can be used as effective stock selection factors to create excess returns for investors.

Keywords: *Machine Learning, Factor Investing, Protfolio, Valuation, Market, Growth, Risk*

SESSION 3-4 Artificial intelligence and machine learning

The Application of Generative AI in Insurance Marketing: Enhancing Knowledge Management and Marketing Performance of Insurance Agents through the SECI Model

Ms. Si-Yu Yang*   National Taipei University of Technology
Ms. Hsiu-Yuan Liang   National Chengchi University
Prof. Chien-Ping Chung   National Taipei University of Technology

Abstract

This study explores the integration of Generative AI with the SECI model to enhance knowledge management and marketing effectiveness in insurance brokerage. A smart knowledge management system based on the RAG framework was developed using hybrid retrieval on the Dify platform and large language models, incorporating techniques such as document segmentation, prompt engineering, and role simulation. Experimental results show high accuracy and flexibility in tasks like policy inquiry, product comparison, and marketing recommendations. The study proposes an AI adoption model and knowledge transformation framework as strategic references for intelligent transformation in the insurance industry and other knowledge-intensive sectors.

Keywords: *SECI Model, Generative Artificial Intelligence, Insurance Technology, Knowledge Management, Insurance Marketing*

SESSION 3-5 Banking and bank risk management

Climate Change Risk, Macroprudential Policy and Financial Stability

Prof. Chun-Hsien Wang   National Chiayi University
Ms. Yi-Chun Weng   National Chiayi University
Prof. Jui-Chuan Chang*   National Chiayi University

Abstract

As the extreme climate events become more frequent and accompanied by severe disasters, which have significant impacts on the financial system. Therefore, this study explores the relationship between climate change risk and financial stability using the unbalanced panel data from 128 countries over the period of 2006 to 2021. Since the existing literatures only provide "averaging" impact or "central" tendency of a conditional distribution; that is, they ignore the heterogeneity of the overall conditional distribution, especially the difference between countries with lower and higher financial stability at both ends of the distribution. Through the quantile regression method, we confirm the negative impact of climate change risks on financial stability and further explore the asymmetric marginal contributions of different countries with financial stability; that is, the impact of climate change risks on different financial stability. The higher the country's financial stability, the smaller the influence of the climate change risks. Our results also find that macroprudential policies have a moderating effect. This analysis hopes that governments will formulate relevant climate policies to maintain the stability of their financial systems.

Keywords: *Climate Change Risk, Macroprudential Policy, Financial Stability, Quantile Regression*

SESSION 3-5 Banking and bank risk management

Does Family Firm's Succession Affect Bank Loan Interest Rates? Evidence from Individual Bank Loan Contracts

Ms. I-Hsuan Chang*   National Changhua University of Education
Prof. Yuan Chang   National Changhua University of Education

Abstract

This research examines two hypotheses based on individual loan contract data from publicly traded banks in Taiwan from 2013 to 2022. Firstly, whether banks provide less favorable loan terms, namely, higher interest rates, to firms facing or undergoing family succession. Secondly, whether the ESG performance of family succession firms interfere with the effect of family succession on bank loan interest rates. The main empirical result shows that firm with family succession tends to be charged higher bank loan interest rates, yet, firm's ESG performance helps mitigate the extent to which the family succession increases the bank loan interest rates. This research contributes to the public understanding that banks may adjust loan pricing for firms experiencing family succession due to concerns such as the loss of key specific assets, personal social networks, succession disputes, and insufficient successor capabilities. This provides the government securities regulators and the investors with information and insight on the occurrence of family firm succession for policy regulation, market monitoring, and investment decision-making.

Keywords: *Family Succession, Bank-Loan Rate, ESG Performance*

SESSION 3-5 Behavioral finance and risk management

Impact of Financial Reporting Quality on Behaviors of Institutional Investors in Taiwan

Prof. Chi-lu peng*   National Kaohsiung University of Science and Technology
Prof. An-Pin Wei   National Taichung University of Science and Technology
Ms. Pin-Rong Chen   National Sun Yat-sen University
Prof. Wei-Che Tsai   National Sun Yat-sen University

Abstract

Financial statements are vital for investors, providing crucial insights into a company's financial health, and institutional investors play a key role in monitoring and directing capital market movements. Building on previous research showing that these investors rely on financial reports when making their decisions, this study investigates how changes in financial reporting quality (FRQ) impact the perceptions and behaviors of three major types of institutional investors in Taiwan. The findings reveal that when FRQ declines, foreign investors decrease their holdings, while domestic investors increase theirs. Despite these different reactions, both groups achieve positive abnormal returns in the subsequent quarter. This suggests that Taiwanese investors can gain valuable insights by tracking institutional investors' shareholding changes for future investment decisions.

Keywords: *Jones-CFO Model, Financial Reporting Quality (FRQ), Discretionary Accruals, Institutional Investor Trading Preference*

SESSION 3-5 Behavioral finance and risk management

The impact of trading mechanism reforms on the disposition effect and overconfidence and: Evidence from Taiwan's stock market

Prof. Jui-Cheng Hung*   Tamkang University
Prof. Chien-Liang Chiu   Tamkang University
Prof. Chien-Ming Huang   Tamkang University
Ms. Chun-Pin Liao   Tamkang University

Abstract

This paper investigates how Taiwan's transition to a continuous trading (CT) mechanism in March 2020 has affected two prominent behavioral biases among retail investors: the disposition effect and overconfidence. Using daily margin trading data from 768 listed firms, we estimate behavioral coefficients and margin trading ratios to evaluate changes before and after the reform. The results show that the CT mechanism significantly amplified both biases, particularly in stocks with higher retail participation. Difference-in-differences tests using margin usage and retail trading share confirm the robustness of the findings. Our evidence suggests that faster feedback and increased saliency of short-term returns under CT contribute to more biased and short-term trading behavior, offering insights for behavioral finance and policy in retail-driven markets.

Keywords: *Continuous Trading, Disposition Effect, Overconfidence, Margin Trading*

SESSION 3-6 ESG and green finance

Beneficial to the Society but Harmful to Investors? Early Evidence on the Carbon Fee Policy in Taiwan

Ms. Wen-Hsin Tsai   Chung-Hua Institution for Economic Research
Mr. Pang-Yu Wang   National Taiwan University
Mr. Chun-Yen Wu*   Chung-Hua Institution for Economic Research

Abstract

To reduce carbon emissions, the Taiwanese government introduced a carbon fee policy in 2024. In this study, we aim to evaluate stock investors' perception of the policy by employing an event study to measure cumulative abnormal returns (CARs) around the policy introduction and fee rate announcements. Our findings indicate that the policy's introduction leads to a 0.5% decline in stock returns, while the announcement of the fee rates led to an additional 1% drop. The results provide early evidence on the negative impact of the policy on the Taiwanese stock market.

Keywords: *Carbon Fee Policy, Event Study, Stock Market Impact*

SESSION 3-6 ESG and green finance

Green Bonds, Financing Costs, and Corporate Value: An Empirical Analysis of Chinese Listed Companies

Mr. Fu-Hsien Hsu*   National Chung Hsing University
Prof. Shuh-Chyi Doong   National Chung Hsing University
Mr. Zhi-Ming Wu   Oversea-Chinese Banking Corporation Limited

Abstract

Supported by government policy, China's green bond market has become the largest globally, offering a key financing tool for corporate sustainability. This study examines how green bond issuance by listed Chinese firms (2016–2021) affects financing costs and firm value. Results show green bonds are associated with lower coupon rates, though this benefit may be weakened by factors such as state ownership and policy uncertainty. Green bonds also ease financing constraints and improve flexibility in the issuance year and the next. For private firms, Tobin's Q increases in both years. Additionally, green bond issuance and local government support positively impact ESG performance, though first-time issuers may face market skepticism due to greenwashing concerns. These findings highlight green bonds' role in reducing financing costs and enhancing firm value, offering guidance for future green finance policies.

Keywords: *Green Bonds, Credit Spread, Firm Value, ESG*

The Crowding-Out Effect of ESG Investments in Capital-Intensive Industries: Evidence from Taiwan's Semiconductor and Electronics Firms During the COVID-19 Crisis

Prof. Chia-Ching Lin* Ling Tung University
Prof. Yu-Ting Huang Feng Chia University
Prof. Jing-Hua You Kainan University

Abstract

本研究探討COVID-19 疫情期間，臺灣半導體與電子產業的ESG 投資對企業績效之影響，並檢驗對ESG 的投資是對資源產生排擠效應。研究以2016 年至2024 年臺灣上市半導體與電子業共 433 家企業為樣本，採用固定效果模型，並透過傾向分數配對法(PSM)處理內生性。結果發現 ESG 投資對短期資產報酬率(ROA)呈現顯著負向關係，尤其是以資本密集的半導體產業，其排擠效應更為明顯。此外，ESG 投資對市場評價(Tobin's Q)的影響呈現不顯著，且在半導體產業呈現負向關係，並且企業對 ESG 投資在疫情期間未能發揮預期的調節保護作用。此外，公司治理變數如獨立董事比例與外資持股比例對企業績效具有正向影響。本研究結果支持資本密集產業中 ESG 投資的排擠效應假說，顯示在高技術產業中，ESG 的支出會與其研發及資本投資的產生分配競爭，導致短期財務表現下降。因此，企業應審慎評估ESG 投資的資源配置，並強化ESG 資訊揭露以符合政府政策與獲得長期效益。

Keywords: *ESG、排擠效應、COVID-19、半導體產業*

The Impact of ESG Information Disclosure on Merger and Acquisition: An Empirical Analysis

Prof. Hsiao-Lin Yang   Feng Chia University

Mr. Wei-Xiang Huang*   Feng Chia University

Abstract

本研究旨在探討 ESG 資訊揭露對企業併購機率的影響，以 NYSE、NASDAQ 和 AMEX 三大證券交易所的上市公司作為研究對象。本研究運用FinBERT模型對10-K年報中的MD&A章節進行分析，以量化 ESG 資訊揭露分數，並透過 Logit 迴歸模型分析 ESG 資訊揭露是否會影響企業宣告併購的機率。實證結果顯示，當企業ESG資訊揭露分數越高越有可能成為被併購之目標。本文進一步探討綠色創新、數位創新及市場集中度，在 ESG 資訊揭露與併購機率之間的調節效果。其中，綠色創新可展現企業在 ESG 的實質產出，數位創新表示企業透過數位技術，能有效改進生產流程、商業模式能力，進而降低企業揭露ESG相關資訊的成本。因此，本文預期目標公司的綠色創新與數位創新能力，會增加 ESG 資訊揭露程度與被併購機率的正相關。此外，市場集中度反映企業所屬產業的競爭程度，預期主併公司的產業集中度愈高，會減弱 ESG 資訊揭露程度與被併購機率的正相關。 實證結果發現，綠色創新與數位創新對 ESG 資訊揭露與企業併購機率之間的關係具有正向調節效果，意即當企業具有綠色創新與數位創新能力時，ESG 資訊揭露對其被併購的影響更為顯著。市場集中度則呈現負向調節效果，即在競爭較激烈的市場環境中，ESG 資訊揭露對企業被併購的影響更加明顯。

Keywords: *ESG資訊揭露、FinBERT、併購、綠色創新、數位創新*

SESSION 4-1 ESG and green finance

The Relationship between Green Bond Issuance and Corporate Performance

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Ms. Wei-Ting Chen* Tamkang University
Mr. Yu-Hsiang Hsu Taiwan Research Institute

Abstract

This paper investigates the impact of green bond issuance on corporate performance and its regulatory mechanisms, which provides an overview of focusing on the role of green bonds in sustainable development, particularly within the context of China A-shares listed companies. The study spans data from 2012 to 2022, analyzing how factors like market performance, financial performance, and ESG factors influence corporates performance. The EIV model, a higher-order moment method, is applied in this study, with results indicating that estimated coefficients and standard errors are smaller compared to those obtained through lower-order moment methods. The empirical findings reveal that such as ESG performance, company size, financial leverage, market-to-book ratio during the COVID-19 pandemic, the issuance of green bonds, and the interaction effects associated with green bond issuance all exert significant impacts on both ROA and stock price returns.

Keywords: *Green Bonds, Sustainable Bonds, Corporate Governance, Company Stock Price, Financial Performance*

SESSION 4-1 ESG and green finance

Asian Suppliers' Innovation Response to Global Business Customers For Climate Risks

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Mr. Tse-Jen Lu* National Cheng-chi University
Ms. Han-Ya Chang National Cheng-chi University

Abstract

This study investigates how suppliers respond to climate-related pressures from major customers following the 2017 recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), focusing on climate-related innovation. Using textual analysis of Asian suppliers' annual reports, we develop a composite climate innovation index and apply a difference-in-differences approach to compare Asian suppliers in high- and low-emission industries serving globally leading customers. Results show that high-emission suppliers increase climate-related innovation disclosures post-TCFD, especially when they have access to green finance, demonstrating their efforts to address climate risk under customer demand. However, those with prior green finance experience show less urgency, likely due to earlier transition efforts and enhanced environmental performance. These findings underscore the joint role of customer and financial incentives in shaping suppliers' climate-related innovation across supply chains.

Keywords: *Innovation, Supply-Customer, TCFD, Climate Risk, Green Finance*

Materiality in Sustainability Reports and Information Quality: Evidence from Mandatory Industries in Taiwan

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Prof. Yen-Chih Chen   Feng Chia University
Prof. Hsin-Yu Liang   Feng Chia University

Abstract

Materiality in GRI and SASB disclosure standards are designed as complementary rather than substitute. We aim to fill a gap in the existing literature by cross-examining different sustainability standards. GRI standards pay more attention to all-rounded disclosure, while the SASB standard focuses on financial-related disclosure. Three mandatory industries (Chemical Industry, Food Industry, Financial Industry) in Taiwan are the one with a longer experience and better quality in preparing GRI sustainability reports than other industries for our empirical analysis here. We explore the degree of materiality similarity related in two sustainability disclosure standards during 2021-2024 period for each reporting firm in the three industries. The empirical results show a non-linear relationship between ESG scores and the degree of similarity between the two international standards. For firms with very high similarity rates, this may indicate a reliance on only one framework, which does not reflect the complementary features of the GRI and SASB standards. Alternatively, companies with low similarity may disclose information under both standards in isolation, providing information in a sustainability report without due consideration of both standards, thereby increasing the risk of greenwashing. We further control for the impact of third-party assurance in the regression model of ESG scores and find out some interesting evidence related to the types of assurance of sample firms. Our findings here might provide some policy implications.

Keywords: *Sustainability Disclosure Standards, GRI, SASB, Materiality, Greenwashing*

SESSION 4-1 ESG and green finance

Climate Change Risks, ESG Disclosure, and Disinvestment: Evidence from Cross-shareholders

Prof. Masayo Shikimi*   Nagasaki University

Abstract

We investigate the effect of firms' climate change risk on the disinvestment behavior of firms' cross-shareholders. Using Japanese firm shareholder-matched data, we show that firms with high CO_2 intensity experience disinvestment from their business partners. The shareholders' disinvestment behavior toward climate-risky firms does not differ between shareholders with and without ESG profiles. However, shareholders without ESG reports are more sensitive to the deterioration of their climate riskiness and terminate their relationships. Our findings indicate that cross-shareholders consider firms' climate riskiness and mitigate the future downside risks of their investment assets in their business partners.

Keywords: *ESG, Shareholder, Business partner, Climate change, Risk management*

SESSION 4-2 Corporate finance and governance

Bootstrapping Analysis of ESG Indices in Commercial Banks

Prof. An-Chi Liu   Fujian Business University
Prof. Yang Li*   National Taiwan College of Performing Arts

Abstract

As sustainability, regulatory compliance, and investor preferences continue to gain importance, it is crucial to assess ESG dimensions accurately. The Benefit-of-the-Doubt (BoD) approach, a data-driven method with endogenous weights, has gained widespread use in constructing composite indices. As the BoD method relies on linear programming, this study adopts the bootstrap method to generate sampling distributions of composite ESG indices, thereby enabling hypothesis testing and clustering analysis. Obtained from the annual and sustainability reports of Taiwan's commercial banks between 2019 and 2023, the dataset contains 32 commercial banks and a total of 133 observations. Bootstrapped tests show significant differences in the social and governance sustainability indices between holding and non-holding banks, as well as between old and new banks, while the environmental sustainability index does not exhibit significant differences across these groups. Furthermore, bootstrapped clustering analyses indicate that: (1) Regarding environmental sustainability banks in Cluster 3 with the lowest mean index need to improve all aspects of responsible lending and investment; (2) In terms of social sustainability, Cluster 2 consists of a small portion of banks that need to prioritize improving all their social sub-indicators; (3) For governance sustainability and the composite ESG index, Cluster 2, comprising fewer than one-third of banks, is distinguished by its superior governance and/or composite ESG practices compared to its peers.

Keywords: *ESG, Commercial Banks, Bod Approach, Bootstrapped test, bootstrapped clustering approach.*

SESSION 4-2 Corporate finance and governance

Stock Liquidity and Insider Trading Profitability

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Prof. Guan-Ying Huang*   National Chung Cheng University
Prof. Zhen-Xing Wu   Zhongnan University of Economics and Law

Abstract

This paper examines the influence of liquidity on insiders' profitability and confirms that liquidity improves their profitability. Based on a policy change in 2008 that reduced the reform of stamp duty, the difference-in-difference (DID) analyses confirm the positive impact of liquidity on the profitability of insider trading. Heterogeneous analysis shows that liquidity is more significant in increasing the insider trading profitability of firms with poor corporate governance, high opacity, and low participation in corporate social responsibility. Finally, we extend the DID model to a difference-in-difference-in-difference model and analyze the impact of liquidity on firm operation and performance. We conclude that higher liquidity encourages managers' risk-taking decisions in financing and investment strategies and increases firms' performance.

Keywords: *Liquidity, Insider Trades, Information Asymmetry, Risk Preference*

SESSION 4-2 Corporate finance and governance

The effects of CEOs awards on corporate innovation: The role of investor attraction and talent attraction

Prof. Wen-Ju Liao*   Feng Chia University
Prof. Hao-Chang Sung   National Chung Cheng University

Abstract

This paper examines the relationship between award-winning CEOs and the levels of innovation investment in Chinese-listed companies. The findings indicate that CEOs who have received awards are more likely to foster increased corporate innovation. Additionally, these award-winning CEOs are associated with enhanced long-term operating performance for their firms and reinforce the link between current R&D investments and future operational success. Ultimately, our results suggest that CEO awards can enhance corporate innovation through two primary channels: first, by attracting investors, thereby alleviating financing constraints, and second, by promoting greater engagement from academics and international talent in innovation initiatives.

Keywords: *Award-winning CEOs; Financing; Innovation; Talent; Firm Operating Performance.*

The Impact of the Cross-border E-commerce Pilot Zones on Digital Transformation: Evidence from China

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Prof. Ting-wen Liu   China University of Political Science and Law

Prof. Tzu-Chang Forrest Cheng*   National Sun Yat-sen University

Abstract

This study uses text mining techniques to construct a proxy indicator for corporate digital transformation and conducts an in-depth analysis of the impact of the Cross border E-commerce Pilot Zones (CEPZs) on corporate digital transformation. We find that the policy of cross-border e-commerce pilot zones significantly promotes corporate digital transformation, with government incentives and the improvement of the technological development environment identified as the two major channels driving this improvement. The effectiveness of these interventions varies across firms, with non-state-owned enterprises that are small in scale, highly competitive, and operating in regions with higher government efficiency experiencing more pronounced benefits. In the further analysis, the CEPZs, as significant platforms for promoting corporate digital transformation, provide strong support for enterprises to expand their overseas investments. Our research contributes to a better understanding of the policy-driven mechanisms that facilitate the digital transformation of Chinese enterprises.

Keywords: *Corporate Digital Transformation, Cross-Border E-Commerce, Large Language Models, Overseas Investment*

SESSION 4-3 Banking and bank risk management

Outside CEOs and Borrowing Costs: Evidence from Taiwan

Prof. Wei-Zhong Shi   Providence University
Mr. Run-Chuan Qin*   National Yang Ming Chiao Tung University
Mr. Jian-Ting Liu   Providence University
Prof. Min-Teh Yu   National Tsing Hua University

Abstract

This paper investigates how the appointment of outside CEOs influences firms' borrowing costs, focusing on the roles of ownership structure and macroeconomic context. Using a sample of Taiwanese listed companies and detailed CEO biographical data, we construct an indicator for outsider CEO status based on tenure and prior affiliation. The results show that firms led by outside CEOs face significantly higher loan spreads, particularly during the initial period of their tenure, reflecting lender concerns about information asymmetry and leadership uncertainty. This effect is amplified in family-controlled firms, where outsider CEOs may encounter governance resistance. In contrast, during economic crises— such as the global financial crisis and the COVID-19 pandemic—outsider CEO appointments are associated with lower loan spreads, suggesting that lenders may interpret such appointments as positive signals of strategic reform. The findings contribute to the literature on CEO succession, corporate governance, and the market consequences of leadership transitions.

Keywords: *Outside CEO, Loan Spread, Family Firms, Economic Crisis*

SESSION 4-3 Banking and bank risk management

The Lasting Impact of Inter-Racial Conflicts: Evidence from the Banking Markets

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Prof. Hao-Wen Chang   National Yang Ming Chiao Tung University
Prof. Iftekhar Hasan   Fordham University
Prof. Chih-Yung Lin*   National Yang Ming Chiao Tung University
Prof. Stefano Manfredonia   Fordham University

Abstract

Discrimination against Asians, deeply rooted in historical events, resurfaced with heightened intensity during the COVID-19 pandemic. Using a difference-in differences approach, we find that Asians faced significantly higher mortgage rate spreads since the onset of COVID-19. Importantly, these results cannot be attributed to changes in Asians' creditworthiness. Moreover, our analysis shows that these disparities are more pronounced in regions with historically greater animosity toward Asians, linked to events such as wartime conflicts and the Gold Rush. These findings highlight the enduring influence of historical conflicts on economic transactions.

Keywords: *Mortgage Market, COVID-19, Discrimination*

SESSION 4-3 Behavioral finance and risk management

Stock Return Comovements and Investor Attention: Stocks or REITs

Prof. Bai-Sian Chen*   Chang Gung University
Prof. Hong-Yi Chen   National Cheng-chi University
Prof. Robin K. Chou   National Cheng-chi University

Abstract

This study investigates how the extreme performance of the real estate market affects individual stock return comovements with the stock market through a shift in investor attention. This study finds that the extremely high and low performance of the equity REIT index distracts investor attention from individual stocks, thereby increasing return comovements between individual stocks and the stock market. Moreover, the new and standalone real estate sector and the high concentration of retail investors amplify attention-shifting comovements. Besides, attention-shifting comovements are not derived from investor sentiment, bear markets, and recessions. For robustness, this study provides consistent empirical evidence on search volume indices, the different levels of performance, the performance in the previous month, and the home price index. Lastly, asset reallocation has opposite effects that reduce the return comovements.

Keywords: *Stock Return Comovements, Investor Attention, Attention-shifting Comovements, Real Estate Investment Trusts, Asset Reallocation*

SESSION 4-3 Behavioral finance and risk management

Geopolitical risk and anti-herding behavior in the energy futures market

Prof. An-Sing Chen   National Chung Cheng University
Ms. Huong Thi Nguyen*   National Chung Cheng University

Abstract

This study delves into the dynamic relationship between geopolitical risk and anti-herding behavior in the energy futures market, providing fresh insights into investor psychology and market behavior under uncertainty. Employing daily data spanning 1990 to 2022, we apply a comprehensive methodology that includes static modeling, rolling window analysis, and Quantile regression. By utilizing the Geopolitical Risk (GPR) and Serious Geopolitical Risk (SGPR) indices, our analysis uncovers compelling evidence that heightened geopolitical risk decreases anti-herding tendencies, revealing its profound influence on market participants' decision-making. These findings underscore the importance of enhanced risk communication, proactive market monitoring, and diversified investment strategies, particularly during periods of elevated geopolitical tension. This research offers critical implications for both policymakers and investors navigating the complexities of the energy futures market.

Keywords: *Herding Behavior, Geopolitical Risk, Energy Market, Commodity Market, Quantile*

SESSION 4-4 Derivatives and risk management

Order Spoofing, Price Impact, and Market Quality

Prof. Jian-qiang Chen   Ocean University of China
Prof. Pei-Fang Hsieh*   National Tsing Hua University
Prof. J. Jimmy Yang   Oregon State University

Abstract

This study examines potential spoofing tactics using complete intraday order and trade data from Taiwan's derivatives markets. We find that transaction prices rise (fall) after aggressive limit buy (sell) order revisions, accompanied by opposite-side order placements and trades, consistent with potential spoofing. After such order revisions, prices tend to reverse, market order imbalance decreases, and market quality deteriorates. Using a trading rule that restricts limit order placement as a quasi-natural experiment, we find that such restrictions reduce the price impact of spoofing orders and improve market quality. Potential spoofing tactics significantly affect prices, especially during market openings and closings, trading intervals with larger order revisions or wider bid-ask spreads, and particularly in out-of-the-money options.

Keywords: *Price Impact; Price discovery; Order Revision; Spoofing; Market Quality*

SESSION 4-4 Derivatives and risk management

The comparison of methods for extracting risk-neutral bankruptcy chance

Prof. Chi-Feng Tzeng*   National Tsing Hua University
Mr. Chen-Yi Sun   National Tsing Hua University
Mr. Hong-Cai Chou   National Tsing Hua University

Abstract

Based on the concept of Camara, Popova, and Simkins (2012) and Taylor, Tzeng, and Widdicks (2014), we estimate the risk-neutral density of stock and extract risk-neutral bankruptcy chance from options data. The most popular and parsimonious RND estimation methods- Mixture of lognormal (MLN), GB2, and positive convolution approximation (PCA) – are used to estimate option-implied bankruptcy chance. The sample firms include 54 bankruptcy firms from 2001 to 2022 and their appropriate corresponding non-bankruptcy firms in terms of industry and firm size.

Overall, the findings show that MLN with bankruptcy chance more accurately estimates risk-neutral density in terms of pricing errors and provides more accurately information within 60 trading days before bankruptcy in terms of accurate ratio.

Keywords: *Option-implied bankruptcy probability, Risk-neutral density, PCA, MLN, GB2*

SESSION 4-4 Derivatives and risk management

The Impact of Large Retail Trading on Futures Prices

Mr. Jie Luo*   National Sun Yat-sen University
Mr. Chun-Yo Chen   National Taiwan University
Prof. Shih-Chuan Tsai   National Taiwan Normal University
Prof. Wei-Che Tsai   National Sun Yat-sen University

Abstract

Utilizing the unique account-level transaction dataset from the Taiwan Futures Exchange, we investigate the impact of large retail trading on futures market prices. Our study provides empirical evidence that not all retail investors can be simply categorized as noise traders. We show that the impact of large retail trades on futures prices primarily stems from the information they convey, rather than the price pressure We also find that large sell transactions by retail investors carry more information than buy transactions. Our study further explores this impact, finding that the higher the uncertainty, the greater the value and price impact of information. Retail investors also contribute positively to market liquidity and sophisticated retail investors trade exceptionally actively under low market liquidity.

Keywords: *Large trading, Total effect, Temporary effect, Permanent effect, Futures return*

SESSION 4-4 Derivatives and risk management

A Forward-Looking Index of Physical Market Variance

Prof. Pei-Lin Hsieh*   National Chengchi University
Prof. Rachel J. Huang   National Central University
Prof. Larry Y. Tzeng   National Taiwan University

Abstract

This paper proposes a forward-looking index as a measure of physical market variance. We establish a theoretical foundation for this index and demonstrate that it can be constructed in a timely manner using a set of options currently available in the market. Building upon this index, we introduce a forward-looking variance risk premium and analyze its decomposition. Statistical evidence provides robust support for the index as a predictor of realized variance. The empirical findings suggest a positive variance risk premium and indicate that our proposed forward-looking variance risk premium significantly predicts the equity risk premium.

Keywords: *Variance forecasting, Variance risk premium, Equity risk premium*

Assessing Impact of War on the Stock Markets of Participating Countries: A Comprehensive Event Analysis of War Declarations and Ceasefires

Prof. Jin-Huei Yeh*   National Central University
Prof. Wen-Yu Chen   National Central University
Prof. Shan-Ying Chu   Chung-Yuan Christian University

Abstract

War exerts profound and multifaceted effects on global financial markets, often triggering heightened volatility as investors swiftly adjust their portfolios in response to geopolitical developments. While existing studies, such as Kamal et al. (2023), have established a negative relationship between war declarations and stock market returns, most research has primarily focused on short-term investor reactions. The persistence of such effects over the long term remains insufficiently explored. Furthermore, while investors engage in risk management at the onset of a war, the anticipation of a ceasefire may necessitate distinct investment strategies. The market implications of ceasefire announcements, particularly the differential impact of victory versus defeat, warrant further empirical investigation. This study examines the effects of war declarations and ceasefires on global and regional stock markets, analyzing investor responses to various types of conflicts. Using an event study methodology, we investigate major war-related events from 1970 to 2023, measuring abnormal returns (AR) and cumulative abnormal returns (CAR). Our findings reveal that war declarations exert a significant negative impact on stock markets, with adverse effects persisting up to 30-day post-event. In contrast, ceasefire announcements generate positive long-term market reactions, lasting up to 150 days. Additionally, victory announcements elicit a significantly positive market response, whereas defeat related announcements yield a weaker and statistically insignificant negative effect. These patterns are consistent across different regions. Moreover, industry-level analysis suggests that the positive impact of ceasefires diminishes over time, eventually turning negative. Longer wars are associated with more pronounced adverse effects on sectoral performance. By addressing gaps in the existing literature, this study provides valuable insights for investors and policymakers seeking to navigate financial markets amid geopolitical uncertainty.

Keywords: *War Declaration, Ceasefires, Geopolitical Risk, Event Study, Efficient Market Hypothesis*

SESSION 4-5 Other topics related to financial markets

Decomposing Bid-Ask Spread - A Comparison between Aggregate ARMA and Poisson-HMM Models

Ms. Te-Yun Chiu   National Sun Yat-sen University

Prof. Ping-Chen Tsai*   National Sun Yat-sen University

Abstract

Bid-Ask spread has been shown to consist of several components due to asymmetric information and inventory rebalancing. Such a decomposition, however, is often static and overlook the temporal dynamics of spread or its distributional properties. Enlighted by the slow-decaying autocorrelations of spread as well as its empirical distribution, our first decomposition employs an aggregation of two independent AR (1) models. On the other hand, since the spread is inherently a multiple of the minimum tick size, our second decomposition utilizes a Poisson-HMM (Hidden Markov Model) with high and low intensities to model the integer spread values. Estimation results obtained from 12 years of daily exchange rates USD-GBP, GBP-EUR, and GBP-JPY show that both methods provide reasonable decomposition of spreads. The findings contribute to the existing literature on market microstructure and is an attempt to bridge the gap between two streams of research on bid-ask spread.

Keywords: *Bid-Ask Spread, Foreign Exchange Liquidity, ARMA Model, Poisson HMM, Information Asymmetry, Inventory Effect*

SESSION 4-5 Other topics related to financial markets

Analytic Formulae for Valuing Guaranteed Minimum Withdrawal Benefits under Stochastic Interest Rates

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Prof. Chou-Wen Wang National Sun Yat-sen University
Prof. Sharon S. Yang National Cheng-Chi University

Abstract

This research attempts to derive the analytic formulae for valuing guaranteed minimum withdrawal benefits (GMWB) with Hull and White (1990) stochastic interest rate model. The variable annuity product is assumed to invest in an investment portfolio with equities, bonds, and cash. Different from the existing literature dealing with constant interest rate assumption (e.g., Milevsky and Posner, 1998a; Yang et al., 2020), this paper derives that the probability density function for the infinite sum of the correlated assets under the Hull and White model follows the reciprocal gamma distribution. Thus, approximating the finite sum of the correlated assets by the reciprocal gamma distribution, we derive the analytic formula for pricing GMWB-guarantee. For comparison, we also derive the analytic formulae using lognormal distribution approximation and examine the accuracy of the analytic valuation formulae based on Monte Carlo simulations. The numerical analysis has presented that the proposed analytic formulae based on a reciprocal gamma distribution perform well. Ignoring the effect of the stochastic interest rate would underestimate the fair charge, especially for long-duration insurance contracts. Thus, the pricing formulae taking into account the stochastic interest rate can better evaluate the embedded guarantees for long-duration insurance contracts.

Keywords: *Guaranteed Minimum Withdrawal Benefits, Variable Annuity, Asian Option*

SESSION 4-5 Other topics related to financial markets

Common Ownership and Board Interlocks: Industry Boundary Matters

Prof. Calvin J. Chiou* National Cheng-Chi University
Mr. Zheng Yang National Central University

Abstract

We investigate whether common ownership influences the formation of interlocking directorates between portfolio firms. Using financial institution mergers as quasi-natural experiments, we find that an increase in common ownership reduces the likelihood of a firm sharing an interlocking director with another firm in a different industry. However, within-industry board interlocks become more prevalent under common ownership. These findings suggest that institutional investors actively shape corporate governance by discouraging board interlocks across unrelated industries while fostering governance ties within the same industry.

Keywords: *Common Ownership, Board Interlocks, Corporate Governance*

Co-movement in Cryptocurrency and Stock Market: Spillover Effects of Return and Volatility around COVID-19 Pandemic

Mr. Chia-Hung Chen*   National Yunlin University of Science and Technology
Prof. Chiu-Ming Hsiao   National Yunlin University of Science and Technology
Prof. Ai-Chi Hsu   National Yunlin University of Science and Technology

Abstract

This study investigates the co-movement dynamics of cryptocurrencies, the U.S. stock market, and investor sentiment from the perspectives of returns and volatility across three periods: pre-COVID-19, during the pandemic, and post-pandemic. Utilizing various GARCH-family models, including EGARCH, multivariate BEKK-GARCH, and dynamic DCC-GARCH, the analysis focuses on four representative cryptocurrencies—Bitcoin (BTC), Ethereum (ETH), Litecoin (LTC), and Ripple (XRP)—to examine return and volatility spillover effects both within the cryptocurrency market and in relation to the S\&P 500 index and the investor sentiment proxy, the VIX (also known as the fear index).

The six time series variables exhibit Granger causality, vector autoregression (VAR) relationships, and volatility clustering phenomena. During the COVID-19 period, the return spillovers among the four cryptocurrencies were relatively limited; however, the volatility spillover effects were significant. These effects were not only driven by internal volatility but also influenced by lagged effects from the S&P 500 and VIX indices. Specifically, the S&P 500 exerted a negative unidirectional spillover effect, while the VIX displayed bidirectional transmission. The results also reveal asymmetric volatility effects among the four cryptocurrencies, where negative news induces stronger volatility responses than positive news. This asymmetry became particularly evident in the post-COVID-19 period, with the market reacting more sensitively to adverse developments. Consequently, fluctuations in the U.S. stock market due to negative shocks have a greater impact on cryptocurrency volatility than those caused by positive shocks. The DCC-GARCH model confirms the existence of dynamic volatility linkages among all six variables. Post-pandemic, the dynamic correlations among the four cryptocurrencies remained relatively stable. In contrast, the dynamic correlation between the S&P 500 and the four cryptocurrencies became more strongly positive, whereas the correlation between the VIX and cryptocurrencies turned increasingly negative. These findings suggest that cryptocurrencies continue to function as a hedge under heightened investor fear and uncertainty, reinforcing their role in diversified investment strategies during periods of market stress.

Keywords: *COVID-19 Pandemic, Co-Movement, Cryptocurrencies, VIX, Return Spillover, Volatility Spillover*

Exploring the Impact of Accounting Regulation Changes on Incentive Compensation Structure Using Structural Credit Risk Models

Mr. Yi-Chou Liu *   National Yang Ming Chiao Tung University
Prof. Hao-Han Chang   Chung Yuan Christian University
Mr. Chung-Fei Yu   National Yang Ming Chiao Tung University
Prof. Tian-Shyr Dai   National Yang Ming Chiao Tung University

Abstract

本研究旨在探討美國財務會計準則 FAS123R 實施後，對企業激勵性薪酬結構中員工認股選擇權（ESO）發行量與到期日選擇所造成的影響。傳統觀點認為，會計制度改變導致 ESO 需以公允價值認列費用，進而抑制其發行。然而，本研究從結構性信用風險模型出發，提出 ESO 到期日的變化可能為一項關鍵的內生性因素。本文建構狀態轉移森林模型，模擬企業在不同策略下的最適薪酬組合，並利用 Compustat 與 CRSP 資料庫進行實證驗證。結果顯示，多數公司採用「固定員工確定等值，極大化公司價值」的策略；在此條件下，縮短 ESO 到期日會顯著降低其對員工的吸引力，進而導致發行量下降。相較之下，FAS123R本身對薪酬結構的影響相對次要。

本研究提供薪酬設計與財務決策更具結構性的分析視角，指出會計制度變革與期權設計間的交互關係，並強調應將期權到期日視為影響激勵效果與成本衡量的重要變數。

Banks' Adaptation of Green Lending and Risk-Taking Under Mandatory TCFD Disclosure: Evidence from Taiwan

Ms. Yun-Chieh Lu*   National Cheng-chi University
Prof. Yenn-Ru Chen   National Cheng-chi University
Prof. Chia-Hsiang Weng   National Cheng-chi University
Mr. Tse-Jen Lu   National Cheng-chi University

Abstract

Since 2022, Taiwan has mandated banks to disclose climate-related financial information in accordance with the TCFD Recommendations, aiming to enhance operational resilience and promote sustainable development. Following the TCFD framework and the disclosure guidelines issued by the Accounting Research and Development Foundation, this study examines a sample of 35 Taiwanese banks that disclosed climate-related financial information for the fiscal year 2021 or 2022. We manually assess the level of disclosure and complement the analysis with text mining techniques to evaluate the effectiveness of the policy. The results indicate that the mandatory disclosure policy improved banks' climate disclosure practices and promoted sustainable lending. However, it also increased banks' acceptance of high-risk clients, suggesting a potential trade-off between advancing sustainability goals and maintaining financial stability.

Keywords: *Mandatory Disclosure Policy, TCFD, Sustainable Lending, Risk-Taking*