Proceedings of the 4th International Conference on Financial Technology and Business Analysis
DOI: 10.54254/2754-1169/2025.BJ30424

Theory vs. Practice: Revisiting the Applicability of CAPM and Black-Scholes in Real-World Markets

Guoyi Pei

Wardlaw Hartridge School, Edison, USA
ppei@whschool.org

Abstract. This study is an empirical assessment of the Capital Asset Pricing Model (CAPM), the Black–Scholes option pricing model (Black-Scholes), and the Put–Call Parity principle (PCP)in China's A-share equity market and the U.S. derivatives market. Using data from 2020 to 2023, the research will investigate whether these classical models can reliably describe real-world market behaviors. Precisely, the low R^2 obtained from CAPM analysis of Kweichow Moutai and the CSI 300 Index suggests that the model is not sufficient to explain market dynamics. In the meantime, beta coefficients in the standard CAPM are negative and statistically insignificant, indicating the failure of single-factor risk measures to capture the market dynamics properly. For derivatives, testing of European options on AMZN and SPY shows that the Black–Scholes model does have directionally consistent pricing. However, systematic deviations and volatility smiles indicate that, in a real market, there are persistent and unavoidable violations of constant volatility assumptions. Also, the put–call parity principle, although generally held, has small but persistent deviations caused by transaction costs, liquidity constraints, and other market frictions. All in all, findings show that the empirical accuracy of CAPM, Black–Scholes and Put-Call Parity is limited by market structure, behavioral factors, and unrealistic assumptions. This study further demonstrates the need for multifactor modeling approaches that could enhance the validity of asset pricing models.

Keywords: Financial Mathematics, Capital Asset Pricing Model, Black–Scholes option pricing model, Put–Call Parity principle

1. Introduction

The modern portfolio theory has been significantly influenced by CAPM, Black–Scholes and Put-Call Parity. Investors depend so much on financial models when assessing the expected returns, managing systematic risk, and evaluating pricing efficiency of different investment alternatives. It is, therefore essential to conduct validity and accuracy tests of those financial models. A question remains as to whether such classical models are still valid in practice within various markets. In this paper, to what extent can CAPM, Black Scholes, and Put-Call Parity explain real-world markets? On the equity side, it conduct a statistical analysis, focusing on Guizhou Maotai and the HS300 index, to determine if the risk-return relationship inherent in them is well expressed by the CAPM model. For derivatives, the authors investigate options on AMZN and SPY to establish whether their real

DOI: 10.54254/2754-1169/2025.BJ30424

market prices agree with the theoretical estimates under the Black–Scholes model and the Put–Call Parity model. The significance of the research topic is twofold: First, the findings would contribute to the already existing literature on asset pricing and derivative valuation. They can also give judgements on the applicability of models in modern markets with multi-factored variables. The outcome can show investors and risk managers how much they should trust them and open ways for more complex and multi-factored modeling approaches. Moreover, the present study through testing such foundational models in comparison to the modern market data of the Chinese and American markets present a timely inquiry of their strength and possible weakness within an environment of fast dissemination of information and globalized finance.

2. Literature review

Asset pricing calculates the fair value of stocks and derivatives and can guide investment decisions. This is why it is at the bedrock of financial modeling. The Capital Asset Pricing Model, the Black-Scholes model, and Put-Call Parity holistically cover both equity markets and derivative markets. It is worth testing their reliability. However, empirical evidence has indicated that there are persistent deviations which seem to repudiate their validity. Therefore, there is a demand for a closer review of how these models perform in practice.

The Capital Asset Pricing Model was originally developed to explain the relationship between risk and return and help investors determine whether an investment's potential return makes up for its risk. An early empirical study in developed markets by Eugene F. Fama and James D. MacBeth provided supportive evidence that higher beta risk is associated with higher returns [1]. However, a series of subsequent studies documented various anomalies that could not be explained within the framework of CAPM, such as the size effect, the value premium, and momentum persistence [2]. In the Chinese stock market, distinct features such as a high proportion of retail investors, policy-driven interventions, and relatively low market efficiency further complicate the applicability of CAPM. Empirical studies find mixed results, with some evidence supporting the positive risk-return tradeoff, and other studies undermining its reliability [3]. This leaves conclusions fragmented and far from consensus.

The BS formula was a breakthrough in financial modeling because it provided a closed-form solution for the price of a European option, and very soon it became the industrial standard. Options are financial contracts, which give their holder the right but not the obligation to buy or sell an asset at some time in the future, with the purpose of hedging against risks or speculating on market fluctuations. An important assumption in the BS formula is that the volatility of the underlying is constant, while it varies with time and market conditions [4]. One obvious signature of this discrepancy is the so-called "volatility smile", that the implied volatilities inferred from option prices depend systematically on strike and maturity, instead of being flat [5]. The appearance of such patterns demonstrates the limitations of the BS model in real world scenarios. Several extensions have been proposed to improve these deficiencies, such as local volatility and stochastic volatility models, which both describe option markets better and preserve the analytical tractability of no-arbitrage pricing.

Put-call parity establishes a fundamental no-arbitrage relationship between European calls and puts that are written on the same underlying asset. It states that the combined value of a call option and a discounted strike price must be equal to the combined value of a put option and the current stock price [6]. The intuition is simple: if this parity fails, arbitrageurs can build offsetting portfolios that have the effect of locking in riskless profits, thereby forcing prices back into alignment [7]. However, frictions in real markets can cause deviations from PCP. Transaction costs, bid-ask

DOI: 10.54254/2754-1169/2025.BJ30424

spreads, interest rate asymmetries, dividend adjustments, and short-selling constraints all impede arbitrage activity and allow small mispricing to remain [8]. Thusly, in real markets, put-call parity is observed to hold only conditionally. Large deviations are rare, but minor departures can exist. This underlines the importance of empirical tests that incorporate realistic market frictions when examining no-arbitrage relations.

All in all, the literature on CAPM, the Black–Scholes model and Put–Call Parity shows that each of them faces their empirical challenges. Because most studies in the literature limit their analyses to either equity markets or derivatives markets, the understanding of asset pricing performance remains insufficient [9]. There is a lack of existence in integrated analyses that assess stock pricing and option pricing models together in the same framework. This appears more significant when there is a comparison between markets with different structures, such as the Chinese equity market and the U.S. derivatives market, wherein differences in investor composition, liquidity, and regulation can drastically influence model validity [10]. By testing CAPM, Black–Scholes, and Put–Call Parity together, this study should help both the academia and investors understand the limits of classical asset pricing theory.

3. Data and methodology

This study extracts data from Yahoo Finance and Sina Finance. The OLS regression and descriptive statistics are computed using Excel [11].

The overall research logic is the following: first, it examines how well CAPM performs for stock returns in the Chinese A-share market; second, the validity of the Black-Scholes model in the derivatives market is evaluated; finally, it tests the put-call parity model to assess whether the market satisfies the no-arbitrage equilibrium condition.

The sample period is from 2020 to 2023. This research also conducts standardized cleaning and formatting of the data to ensure that analysis holds scientific rigor.

3.1. Testing the CAPM

For the CAPM model, the study adopts the following regression equation:

$$Ri - Rf = \alpha i + \beta i(Rm - Rf) + \varepsilon i \tag{1}$$

where R_i represents the return of Kweichow Moutai stock (data obtained from CSMAR or Sina Finance), R_m denotes the market portfolio return proxied by the CSI 300 Index, and R_f is the risk-free rate, measured by the yield on the one-year Chinese government bond or SHIBOR (from the PBOC or Sina Finance).The coefficient β_i is a measure of the systematic risk and is estimated using ordinary least squares (OLS). The data is also public in Sina Finance. The intercept α_i is the abnormal returns (Jensen's Alpha), and if it is statistically different from zero, then CAPM fails to explain fully the variation of stock return. The sample period comprises 2020–2023 with frequency data on a weekly basis, excluding Mondays and Fridays. All returns are in logarithmic form. Before regression analysis, the series has been tested for stationarity and heteroscedasticity to avoid setting errors.

3.2. Testing the Black-Scholes model

The study then examines the Black-Scholes option pricing model using its standard pricing equation:

DOI: 10.54254/2754-1169/2025.BJ30424

$$C=S_0N(d_1)\text{-}Ke^{(-rT)}N(d_2) \quad (2)$$

where C is the theoretical call option price, S_0 the current underlying price (AMZN and SPY are selected as representative assets), K the strike price, r the risk-free rate, T the time to maturity (in years), and σ the volatility of the underlying asset.

The volatility is estimated by the historical daily return's standard deviation. The theoretical price derived from the model is compared with the actual market price of the same date, the same strike price (2000-3000) and the expiration time (12 months)/ (6 months) from Yahoo Finance. The mean absolute error (MAE) is calculated to find the degree of deviation between the model and reality.

Furthermore, the implied volatilities for different strike prices are inverted and plotted to detect the presence of volatility smiles or skews so that the utility of the model's theoretical assumptions can be determined.

3.3. Testing the put-call parity relationship

The no-arbitrage condition underlying this model can be expressed as:

$$C + Ke^{-rT} = P + S0 \quad (3)$$

If the relationship is perfect, then the difference between both sides should be equal to 0.

To measure deviations, the study defines a deviation metric:

$$Dt = (Ct + Ke^{-rT}) - (Pt + S0) \quad (4)$$

The study compute various statistical measures for the distributional features of Dt over the three-year sample period. These are the mean, standard deviation, and extreme values. The economic meaning of these deviations is discussed in terms of transaction costs, arbitrage risks, and market frictions.

4. Results

Kweichow Moutai (600519.SH) is used as a representative stock, and the CSI 300 Index is used as the market portfolio proxy. Weekly return data from January 10, 2020, to December 29, 2023, were employed, with rolling regressions over 1-year, 3-year, and 5-year windows to test the model's stability across different periods.

Table 1. CAPM regression results for Guizhou Maotai (600519)

Analysis Period	β	α	R^2	t-stat(β)	t-stat(α)	Avg Stock	Avg Market
1 year	-0.172	0.008310	1.28%	-0.83	1.31	0.84%	0.29%
3 years	-0.106	0.003436	0.40%	-0.80	0.93	0.37%	0.21%
5 years	-0.021	0.000028	0.02%	-0.19	0.01	0.05%	0.23%

Data Source: SINA Finance

First, the regression results in Table 1 show that the Beta coefficient of Kweichow Moutai is negative in all observation periods. To be specific, the 1-year Beta is -0.172, the 3-year Beta is -0.106, and the 5-year Beta is -0.021. That goes against classical financial theory, which states that

Beta should be positive because it means the move of an asset's return goes in the same direction as the market. It follows from the negative Beta value that Kweichow Moutai's price trend moved inversely with the movement of the general market. But none of them is statistically significant ($|t| < 1.96$), which means this relation is not robust and could be due to some temporary event or industry cycle.

As for abnormal returns, the alpha value was 0.00831 in the short term (one year); however, the figures rapidly decreased and approached zero when the period of observation extended to three and five years and failed the significance test in all instances. This suggests that after controlling market risk, Kweichow Moutai has not been able to consistently provide significant excess return. More notable is the model's goodness of fit. The R^2 values of all regressions are very low, ranging from a high of just 0.0128 to a low of 0.0002 for the one-year period and the five-year period, respectively. This indicator strongly suggests that the market risk factor, has little ability to explain Kweichow Moutai's return fluctuation, and the vast majority of stock price fluctuations stem from other factors that the model fails to capture.

It follows that the CAPM model is unable to explain, the relationship between risk and largely return for Kweichow Moutai. The negative coefficient of beta is perhaps linked to the company's industry of consumer goods, some policy environments, such as the regulatory policies for the liquor industry or policies in governing banquets, or its unique "safe-haven" status within the A-share market. The exceedingly low R^2 suggests that asset pricing analysis in the Chinese market should take a multiple-factor consideration beyond the CAPM framework, involving factors like size, value, momentum, and other unconventional factors.

European options of AMZN and SPY in the U.S. market, the pricing accuracy of the Black-Scholes model. Contracts with maturities of 270 days were selected; the risk-free rate was 4.50%. Both historical and implied volatilities were used for theoretical versus market price comparisons.

Table 2. Summary statistics of Black-Scholes pricing deviations

	AMZN Call	AMZN Put	SPY Call	SPY Put
Sample Size	14	14	16	16
Absolute Deviation	1.19%	1.09%	1.29%	0.75%
Relative Deviation	0.67%	0.57%	0.24%	0.13%
Historical Volatility	35.00%	35.00%	18.00%	18.00%
Implied Volatility	33.90%	34.84%	18.01%	17.00%

Data Source: Yahoo Finance

From Table 2, the average absolute deviation for AMZN call and put options was \$1.191 and \$1.095, while the average relative deviations were 0.668% and 0.574%, respectively. For SPY options, the average absolute deviation for calls was \$1.291. For puts, it was \$0.752. The average relative deviations are respectively 0.235% and 0.133%. This indicates that the Black-Scholes model is more precise in pricing SPY options than AMZN options. The average relative deviations are generally below 1%, which indicates that the model is mostly directionally correct. However, persistent absolute deviations show that systematic pricing errors still exist.

By analyzing the parameters of volatility, the results have observed that the historical volatility of AMZN is 35%, and its implied volatilities are slightly lower, standing at 33.9% and 34.8%, respectively. For SPY, the historical volatility is 18%, and the average implied volatility in options is about 18.01%, which is highly consistent with the historical values. Obviously, this difference can

DOI: 10.54254/2754-1169/2025.BJ30424

be seen to indicate that the Black-Scholes model fits more precisely in gauging volatility for liquid index products like SPY that are more diversified. On the other hand, implied volatility analyzed by strike price for AMZN options shows the existence of a "volatility smile", that is: the implied volatility of out-of-the-money and in-the-money options far exceeds that of at-the-money options. This contradicts the main assumption of the Black-Scholes model, and reveals its flaw in the area of capturing expectations with respect to extreme market price fluctuations.

Therefore, the Black-Scholes model's pricing bias stems primarily from its overly restrictive assumptions. Its assumptions of a lognormal distribution of asset prices and constant volatility is not realistic and the main cause of the model's bias. It is difficult for the model to capture the true value of options in real markets because investors have concerns about tail risks and a time-varying volatility. This bias is especially obvious for individual stock options.

Put-call parity implies that any deviation from this relationship presents an arbitrage opportunity. The paper assesses the practicableness of this relationship with AMZN and SPY options for maturities of 90, 180, 270, and 365 days.

Table 3. Summary of put-call parity deviation statistics

	Deviation
Overall Average Deviation	-$0.0428
Overall Average Absolute Deviation	$0.2630
Average Relative Deviation	-0.0135%
Maximum Positive Deviation	$0.7209 (Call options relatively overvalued)
Maximum Negative Deviation	-$0.7274 (Call options relatively undervalued)
Standard Deviation of Deviation	$0.3224

Data Source: Yahoo Finance

Table 3 presents the statistical results for the whole sample. Calculating it, the average deviation is -$0.0428 USD, with an average absolute deviation of $0.2630 USD and an average relative deviation of about -0.0135%. From this negative average, one may infer a slight but statistically significant systematic undervaluation of call options and overvaluation of put options. Considering the range of [-0.5, 0.5] USD, which accounts for more than 85% of the total sample, one can see that in most cases, the parity relationship approximately holds true. However, due to the largest positive deviation being $0.7209 USD and the largest negative one being -$0.7274 USD, one may conclude that arbitrage opportunities with relatively large deviations are still at play in the market.

Data by maturity indicate that the absolute value of the deviation increases monotonically with maturity. The average absolute deviation of the options with a 90-day expiration is 0.1688, while that for 365−day options rises to 0.3138. Such a phenomenon may be associated with lower liquidity, higher capital costs, and market frictions like dividend payments for long-term options. In comparing the deviations of the underlying assets, AMZN and SPY present a similar deviation pattern to that of the whole sample, but SPY's deviation is slightly larger, probably because of the special borrowing cost and dividend mechanism as an ETF product.

Despite these deviations, statistical tests indicate that the average of the total sample's deviation does not deviate significantly from zero statistically, with a t-stat of -1.4062. This suggests that, from a large-sample statistical perspective, the relationship of put-call parity holds in general in the real market. Minor deviations could be mainly attributed to frictions in the real market, such as transaction costs, bid-ask spreads, liquidity constraints, and short-selling restrictions. All these

DOI: 10.54254/2754-1169/2025.BJ30424

factors make it hard to effectively capture arbitrage opportunities and realize risk-free profits in practice, though theoretically they exist.

5. Discussion

Drawing on existing literature and market realities, it explores their economic implications, academic value, and practical implications. The findings also align with evidence that CAPM's performance weakens in emerging markets. Likewise, the volatility smile contradicts Black–Scholes' assumption. Put–Call deviations stem from market frictions.

5.1. Analysis of CAPM limitations

This study finds that the CAPM model does not sufficiently explain Kweichow Moutai's stock returns in the A-share market. This is consistent with findings from existing studies on emerging markets. Essentially, CAPM comes with a series of rigorous assumptions, such as market efficiency, investor rationality, and frictionless trading. It is more unpredictable regarding how the model performs in emerging markets, such as China's, because they maintain structural differences in market organization and investor profile, compared with mature markets.

First, Kweichow Moutai's negative beta should be of note. According to classical finance theory, beta should be positive and reflect systemic risk. However, as a core asset in the A-share market and representative of high-end consumer goods, Moutai is different from theory, and they are not fully synchronized with the macroeconomic cycle. During some stages, when the market declines due to expectations of an economic downturn, defensive funds flowing into stocks such as Moutai drive up their prices and cause them to decouple from the market index, given that these are generally recognized as "value-preserving" stocks. This behavior implies a unique logic for asset pricing within the Chinese market, where the influence of industry policies, investor sentiment, and capital structures may far outweigh the market risk factors assumed by classical models.

Secondly, the extremely low R^2 indicates that market risk factors only explain a tiny portion of Kweichow Moutai's stock price fluctuations. This strongly suggests that single-factor models are insufficient for asset pricing analysis in the A-share market. Academics have long found that factors such as size, book-to-market ratio, and momentum have significant explanatory power for stock returns (the Fama-French three-factor or multi-factor models). The results of this study provide strong empirical support for introducing and constructing multi-factor models more tailored to the Chinese market. Furthermore, unique Chinese factors, such as shifts in industrial policies and the evolving regulatory environment, may also be a significant contributor to the CAPM's failure.

Therefore, the findings not only raise questions regarding the universal applicability of the CAPM but also offer a future direction for research: asset pricing model building that is able to reflect specific characteristics of the Chinese market.

5.2. Sources of bias in the Black-Scholes model

The systematic biases in the Black-Scholes model of option pricing arise out of the contrast between its perfect assumptions and imperfect reality. This study confirms two key phenomena: first, that the model prices highly liquid index options much better than individual stock options; second, that there is a striking "volatility smile." Liquidity differences are one of the main reasons for these pricing biases. SPY, as one of the most liquid ETFs in the world, enjoys a very efficient market with fast information response and a smooth arbitrage mechanism, which means its price is closer to the

DOI: 10.54254/2754-1169/2025.BJ30424

theoretical value. On the other hand, individual stock options of AMZN, although highly traded, depend heavily on company-specific risks such as financial reports, executive changes, and product introductions. These types of idiosyncratic risks cannot be perfectly diversified away by hedging strategies and bring in an element of risk premium which the model cannot capture and hence materialize as pricing biases.

More fundamentally, the prevalence of the "volatility smile" alone contradicts the model's basic assumption of constant volatility. It simply implies that market participants subconsciously disagree with the idea of an asset price following a perfect lognormal distribution. They priced higher volatility quotes for deeply in-the-money and out-of-the-money options, pricing in extreme price fluctuations or equivalently, tail events. It is thus in tune with the mostly prevailing "jumps" and "fat-tailed" distributions of the asset prices. These systematic, non-random deviations that the Black-Scholes model displays must therefore point toward the oversimplification of its risk structure in the real world. Further research on option pricing, such as the stochastic volatility model, the Heston model, or a jump-diffusion model, had to be developed on the grounds of this failing.

The findings support the direction of these theoretical developments, since the process of financial model development is dynamic and there are continuous adaptations to the market realities, one such process being the revision of simplifying assumptions.

5.3. Market frictions and the put-call parity relationship

The results find that the put-call parity, while theoretically a cornerstone in arbitrage-free pricing, has observable yet insignificant systematic deviations coming within a small range. These subtle deviations are an excellent window into how frictions in a market influence the theoretical equilibrium.

The first and primary explanation of why the parity may never hold precisely involves the transaction costs: brokerage commissions, bid-ask spreads, and exchange fees. If the theoretical arbitrage profit is less than the total cost of executing the arbitrage strategy, then the rational arbitrageurs will not trade, which perpetuates the deviation.

Second, short-selling constraints make it difficult to maintain parity. Some arbitrage strategies involve the process of selling the underlying options short. There might be regulatory restrictions in place against short selling, such as greater margin requirements, or problems and high costs in stock borrowing. These complications diminish the arbitrageurs' capabilities to quickly rectify price deviations. This is most pronounced for individual stocks like AMZN.

Finally, differences in liquidity and funding costs are critical factors ignored in the analysis. Options with different strike prices or different expiration dates can exhibit sharply different underlying liquidity profiles, impacting both immediacy and the costs of trading. Most arbitrage strategies involve leverage, and if investors' financing rates exceed the risk-free rate of 18% in the model, then arbitrage's potential of earning profits will be diminished. The increase of bias with increasing maturity observed here could be well explained by the friction factors. Longterm options typically have lower liquidity, wider bid-ask spreads, and involve longer periods of capital. This results in greater uncertainty and raises the arbitrage threshold.

5.4. Limitations of this study

This study also has several limitations. First, the data period is limited because it focuses primarily on recent years and fails to cover a full economic cycle. For example, it excludes periods of extreme market conditions such as the 2008 global financial crisis. Second, the sample selection only

DOI: 10.54254/2754-1169/2025.BJ30424

includes a single stock on the stock side, and only two typical options were selected. Future research will need to expand to a wider pool of stocks and options products to draw more general conclusions. Finally, this study focuses on testing the model itself and lacks exploration of underlying factors, such as behavioral finance factors and micro-market structure. These limitations also indicate the need for further research.

6. Conclusion

The study has analyzed the Kweichow Moutai stock, the CSI 300 Index, and options on AMZN and SPY through data from China's A-share market and the U.S. derivatives market, to evaluate how well these models hold up in today's financial markets. The analysis has three key findings.

First, the CAPM does not satisfactorily explain China's equity market. The negative and statistically insignificant beta coefficients for Kweichow Moutai and the extremely low R^2 values suggest that it is not adequate to explain stock return variation. It cannot explain factors like policy influences, investor composition, and behavioral biases that are crucial to asset pricing in emerging markets, such as China's A-share market. Second, analysis indicates that the Black-Scholes model is still applicable, but it has the drawback of systematic mispricing. From the greater deviations that results have observed from AMZN, compared with SPY, it has found the existence of a volatility smile. It indicates that the model fails to capture time-varying volatility and tail risk. This result is consistent with prior literature and again emphasizes that, for properly modeling market dynamics, there is a need for more sophisticated models, such as the stochastic volatility or jump-diffusion models. Third, analysis suggests that, with small and persistent deviations, the put-call parity relationship mostly holds in the U.S. options market. The deviations widen with the maturity of the option and seem to be mainly generated by transaction costs, bid-ask spreads, and funding constraints. The minor deviations also reflect the influence of market frictions and microstructure effects on theoretical arbitrage conditions.

The study's contribution is two-fold. On the theoretical side, it expands existing empirical literature by testing three foundational models jointly. On the practical side, it can give insights to investors and risk managers regarding the reliability of these models in different markets. Moreover, this study has multiple shortcomings. The sample period of the study is rather short and does not capture complete market cycles. Its focus on only a single stock and two options restricts its generalizability. In the future, research should expand to analyzing more diverse assets, longer time horizons, and incorporate multifactor frameworks such as the Fama-French three-factor model. Additionally, the integration of behavioral finance and institutional factors can give better explanations for model deviations.

References

[1] Fama, E. F., & French, K. R. (2025). Michael C. Jensen's empirical work. Journal of Financial Economics, 104119.

[2] Wang, J., & Chen, Z. (2023). Exploring low-risk anomalies: A dynamic CAPM utilizing a machine learning approach. Mathematics, 11(14), 3220.

[3] Ghazi, S., Schneider, M., & Strauss, J. (2025). Market Ambiguity Attitude Restores the Risk-Return Trade-Off. Management Science.

[4] David, A., & Veronesi, P. (2022). A survey of alternative measures of macroeconomic uncertainty: Which measures forecast real variables and explain fluctuations in asset volatilities better?. Annual Review of Financial Economics, 14(1), 439-463.

[5] Kim, S. (2021). Portfolio of Volatility Smiles versus Volatility Surface: Implications for pricing and hedging options. Journal of Futures Markets, 41(7), 1154-1176.

DOI: 10.54254/2754-1169/2025.BJ30424

[6] Seo, S. B., & Wachter, J. A. (2019). Option prices in a model with stochastic disaster risk. Management Science, 65(8), 3449-3469.
[7] Keller, L. (2024). Arbitraging covered interest rate parity deviations and bank lending. American Economic Review, 114(9), 2633-2667.
[8] Rime, D., Schrimpf, A., & Syrstad, O. (2022). Covered interest parity arbitrage. The Review of Financial Studies, 35(11), 5185-5227.
[9] Bagnara, M. (2024). Asset pricing and machine learning: A critical review. Journal of Economic Surveys, 38(1), 27-56.
[10] Trebbi, F., & Xiao, K. (2019). Regulation and market liquidity. Management Science, 65(5), 1949-1968.
[11] Schield, M. (2017, July). Teaching Logistic Regression using Ordinary Least Squares in Excel. In ASA Proceedings of the Section on Statistical Education.