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The Impact of Market Heat on the Equity Intensity of Convertible Bonds

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Abstract

This paper examines how market heat-broad swings in market-wide investor sentiment-affects the equity intensity of Chinese convertible bonds over 2017 to 2023. Equity intensity captures how closely a convertible's price tracks its underlying stock rather than behaving like straight debt; it is the defining feature of these hybrid instruments, and it shifts with market conditions. The study uses panel data on 742 A-share convertible bonds, estimating bond-level fixed-effects regressions with standard errors clustered at the bond level. Market heat is measured as the trailing 60-day cumulative return on the CSI 300, and equity intensity as the 60-day rolling correlation between bond and stock returns. The results show that hotter markets lower equity intensity (β = -0.052, p = 0.002): a one-standard-deviation rise in market heat cuts equity intensity by about 2.5% of its standard deviation. Interaction terms reveal that the effect runs through two channels-a bond-floor effect and an option-value effect. Taken together, the findings suggest market-wide sentiment does not only move stock prices; it also reshapes the equity–debt mix of hybrid instruments, with consequences for convertible bond pricing and portfolio decisions.

Keywords

Convertible Bonds; Equity Intensity; Market Heat; Investor Sentiment; Panel Data.

1. Introduction

China's convertible bond market did not merely grow over the past two decades-it became the second-largest in the world. The part worth studying is not its size, though. It is "equity intensity": how closely a convertible's price tracks its underlying stock rather than behaving like ordinary debt. And that intensity is not fixed. In a rally, convertibles start acting like stocks; in a sell-off, their bond side takes over. What drives those shifts matters, for pricing and for anyone building a portfolio around these instruments.

The existing work tends to keep the two halves apart. Structural pricing models split a convertible into debt plus an equity option, while a separate line of research asks how investor sentiment moves stock markets. What has been missing is a direct test of whether aggregate market conditions push a convertible along the equity–debt spectrum. This paper fills that gap. Early evidence on issuance effects, such as de Roon and Veld [1], stopped at announcement-period returns; we follow equity intensity as it evolves over time instead. We assemble panel data on Chinese convertibles from 2017 to 2023, measure market heat as the trailing cumulative return on the CSI 300, and measure equity intensity as the 60-day rolling correlation between each bond's return and its underlying stock's return.

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2. Literature Review

2.1. Convertible Bond Pricing and the Equity-Debt Character Nexus

Pricing theory treats a convertible as a contingent claim on the issuing firm. Brennan and Schwartz [2] and Ingersoll [3] set the terms: a convertible is a straight bond plus a call option on the firm's equity, and those two pieces respond to the stock price in opposite directions. Every convertible therefore sits somewhere on a debt-to-equity line. Deep out-of-the-money, it behaves like plain debt; deep in-the-money, like equity; and where it lands shifts as the stock price moves against the conversion price.

Tsiveriotis and Fernandes [4] made this sharper by treating the cash-only and conversion components as separate claims with different credit risk. That gives the methodological basis for equity intensity, which we define as the sensitivity of bond returns to stock returns, whether through rolling correlation or option delta. Their framework also said out loud what earlier models left implicit: the equity and debt characters of a convertible are not fixed attributes. They depend on the state-moneyness, volatility, interest rates. Yet because moneyness alone is enough for most pricing problems, the literature has mostly treated equity intensity as a byproduct of option pricing rather than something worth studying for its own sake. What remains untested is whether aggregate conditions-investor sentiment in particular-drive that variation.

If equity intensity moves with market conditions, the natural next question is which conditions matter. A plausible answer, from behavioral finance, is sentiment: the mood and risk appetite of market participants. The subsections below walk through how sentiment affects asset prices and whether it can serve as the state variable that changes the equity-debt mix of convertibles. For a direct China-flavored clue, Hu [5] shows that investor sentiment significantly affects how stock prices react to convertible issuance, which is exactly the kind of sentiment-driven pricing effect we are after.

2.2. Investor Sentiment and Cross-Asset Pricing Effects

The idea that sentiment can be a priced factor goes back to De Long, Shleifer, Summers, and Waldmann [6]. They showed noise traders can push prices away from fundamentals and keep them there, because the risk that mispricing widens before it corrects stops rational arbitrageurs from betting hard against it. That broke the older view that arbitrage would wipe out any sentiment-driven gap, replacing it with the finding that sentiment mispricing is both possible and long-lasting.

Baker and Wurgler [7], [8] turned the theory into a usable number. They built a composite sentiment index from six proxies-closed-end fund discount, share turnover, IPO volume and first-day returns, the equity share of new issues, and the dividend premium-and showed it predicts the cross-section of stock returns. When sentiment runs high, speculative names (small, young, unprofitable, volatile, high-growth) earn lower subsequent returns; when sentiment is low, they earn more. Stambaugh, Yu, and Yuan [9] added that most documented anomalies cluster in high-sentiment periods, which fits the idea that overpricing is easier to generate than underpricing, because short-sale constraints bind asymmetrically.

How does sentiment reach prices? Through more than one door. Demand pressure is the obvious one: when sentiment rises, portfolios tilt toward risk, and speculative stocks get bid above fundamentals [7]. Then there is risk compensation-if sentiment-driven mispricing can widen before it reverts, rational investors want extra pay for carrying that risk (Stambaugh et al., 2012). And belief distortion: sentiment changes how noise traders weigh scenarios, so they over-weight good outcomes and under-weight bad ones, which feeds back into demand. For convertibles, one finding matters most. Connelly, Stivers, and Sun [10] show that stock–bond correlations are strongly countercyclical-negative in stress (flight to quality, bonds as safe

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haven) and positive in calm expansions (rising rates hit stocks and bonds together). A convertible holds both exposures, with weights that depend on market conditions, so this countercyclical pattern implies equity intensity should vary across regimes even without any behavioral channel. That observation frames the empirical question at the center of this study.

3. Methodology

3.1. Data and Sample

The data form an unbalanced panel: bonds enter and leave the sample on different dates, depending on their issue and redemption schedules. The final sample holds 749 individual convertible bonds over the seven-year window, giving 347,125 bond-period observations at monthly frequency, where each period marks the end of a 60-trading-day rolling window. Following panel conventions, N is the number of bonds and T the number of periods per bond, with the total observation count being the sum of each bond's own T_i. After winsorizing continuous variables at the 1st and 99th percentiles and dropping bond-period observations with missing values, we are left with 742 bonds and 341,223 bond-period observations. The fixed-effects estimator requires within-bond variation in equity intensity; two bonds with constant equity intensity dropped out, so the regression sample contains 740 bonds and 341,219 observations.

To keep extreme values from driving the estimates, all continuous variables were winsorized at the 1st and 99th percentiles of their empirical distributions, on a quarterly basis. The procedure clips outliers to the percentile boundaries, so a handful of extreme observations cannot distort the regression while the ordering of values inside the distribution is preserved.

3.2. Variable Construction

3.2.1. Dependent Variable: Equity Intensity

The dependent variable, equity intensity, is the rolling 60-trading-day Pearson correlation between the daily return of bond i and the daily return of its underlying stock, evaluated at the end of each window:

$$EquityIntensity_{i,t} = \rho\left(R_{cb,i,t}, R_{stock,i,t}\right) = \frac{Cov\left(R_{cb,i,t}, R_{stock,i,t}\right)}{\sigma\left(R_{cb,i,t}\right) \times \sigma\left(R_{stock,i,t}\right)}$$

Here R_cb,i,t and R_stock,i,t are the vectors of daily returns for the convertible and its stock over the 60 trading days ending at date t, Cov(·) is the sample covariance, and σ(·) the sample standard deviation. A higher value means the bond's price moves more closely with the stock; a lower value means the debt floor is doing more of the driving.

Why 60 days? Two reasons. It is about one calendar quarter-a natural reporting and evaluation cycle-and it matches the horizon we use for market heat. It also gives roughly 60 daily observations, enough for a reasonably precise correlation without washing out the time-series variation we want to capture. Shorter windows (say, 30 days) would be noisier; longer ones (say, 120 days) would smooth away exactly the variation this study is trying to explain. For transparency we use a simple rolling Pearson correlation, but Engle's [11] dynamic conditional correlation (DCC) framework is the more general alternative, and our approach can be read as its equal-weight special case.

3.2.2. Independent Variable: Market Heat

Market heat is the cumulative return on the CSI 300 Index over the preceding 60 trading days:

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$$MarketHeat_t = \prod_{k=1}^{60}\left(1 + R_{CSI300,t-k+1}\right) - 1$$

where R_CSI300,t is the daily return of the CSI 300 on day t. We use the CSI 300 as the proxy for aggregate conditions because its constituents span the largest, most liquid A-shares on both the Shanghai and Shenzhen exchanges, which makes it a broad stand-in for overall sentiment. For reading the numbers: a MarketHeat value of 0.10 means the index rose 10% over the prior 60 trading days, and -0.05 means it fell 5%. Higher values mark a sustained upswing and, usually, more investor optimism; lower or negative values mark a cooler market.

One thing about this variable is worth underlining: it is macroeconomic. At any date t, MarketHeat_t takes the same value for every bond, varying only over time. That has consequences for identification, which we take up in Section 3.4.

3.2.3. Control Variables

Three controls absorb firm- and bond-specific factors that could otherwise move equity intensity:

Conversion premium is the percentage gap between the bond's market price and its conversion value (the value of the shares it converts into): ConvPremium_i,t = (P_cb,i,t / P_conv,i,t - 1) × 100, where P_cb,i,t is the bond's closing price and P_conv,i,t its conversion value. A higher premium means the bond trades further above its equity floor-more debt-like, so, all else equal, weaker equity intensity. It controls for the mechanical effect of moneyness on the equity-debt balance.

Underlying stock volatility is the standard deviation of the stock's daily returns over the same 60-day window used for equity intensity. Volatility cuts both ways: it raises the value of the embedded conversion option (more equity-like), but it also injects noise that can weaken the measured bond-stock correlation. The net effect is an empirical matter, so we include it to soak up that confounding influence.

Outstanding bond balance is the log of the aggregate face value of bond i outstanding at date t. It controls for issue size, because larger issues tend to be more liquid, and liquidity can sharpen price discovery and tighten the bond-stock linkage.

3.3. Empirical Model

The baseline specification is a panel fixed-effects regression:

$$\begin{aligned} EquityIntensity_{i,t} &= \alpha + \beta_1 MarketHeat_t + \beta_2 ConvPremium_{i,t} + \beta_3 StockVol_{i,t} \\ &\quad + \beta_4 BondBalance_{i,t} + \mu_i + \varepsilon_{i,t} \end{aligned}$$

where i indexes bonds and t indexes periods (the end of each 60-day window). The coefficient we care about is β_1: the effect of a one-unit change in aggregate market heat on the average convertible's equity intensity, holding bond-level controls constant.

μ_i is a bond-level fixed effect. It absorbs everything about a bond that does not change over time-issuer credit quality, industry, contract terms like coupon, maturity, conversion ratio, and call and put provisions. Differencing out these effects means β_1 is identified from within-bond variation in equity intensity over time, not from cross-sectional differences across bonds.

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$$\begin{aligned} EquityIntensity_{i,t} - \overline{EquityIntensity_i} &= \beta_1\left(MarketHeat_t - \overline{MarketHeat}\right) \\ &+ \beta_2\left(ConvPremium_{i,t} - \overline{ConvPremium_i}\right) + \beta_3\left(StockVol_{i,t} - \overline{StockVol_i}\right) \\ &+ \beta_4\left(BondBalance_{i,t} - \overline{BondBalance_i}\right) + \left(\varepsilon_{i,t} - \bar{\varepsilon}\right) \end{aligned}$$

where the overbar denotes the time average for bond i. The transformation removes μ_i by subtraction, so the coefficients come purely from within-bond temporal variation.

ε_i,t is the idiosyncratic error. Standard errors are clustered at the bond level to handle heteroskedasticity and within-bond serial correlation. Fixed versus random effects was decided with the Hausman [12] test; rejecting the null of no systematic difference keeps the fixed-effects estimator as the consistent choice.

3.4. Identification Strategy

The main threat is omitted-variable bias: something correlated with both market heat and equity intensity could confound the estimate. The design answers this with two features.

First, bond fixed effects (μ_i) wipe out all time-invariant heterogeneity. Any attribute fixed over the sample-issuance credit rating, conversion ratio, call schedule, industry, original maturity-is swept away and cannot bias β_1. This answers the worry that bonds with naturally high equity intensity (say, growth firms in volatile industries) might be over-represented in some market states. Since the estimator uses only within-bond variation, those cross-sectional differences drop out.

Second, the macro character of MarketHeat gives an identification edge. Because MarketHeat_t is the same for every bond at each date, it cannot be correlated with bond-specific, time-varying omitted factors the way a firm-level variable could. A confound would have to hit all bonds at once and move with the CSI 300. Aggregate conditions-interest-rate shifts, monetary policy-do clear that bar, but the controls, especially conversion premium and stock volatility, partly absorb the channels through which such macro forces could separately move equity intensity. What remains in MarketHeat_t after conditioning is mostly aggregate sentiment, orthogonal to firm fundamentals.

4. Results

4.1. Baseline Regression Results

Table 1 reports the baseline. MarketHeat comes in negative ($\beta = -0.0521$, SE = 0.0169, $t = -3.074$, $p = 0.002$). The sign is the opposite of what intuition would predict. Rising markets should, in principle, make conversion more likely and push convertibles toward equity. The data say otherwise: market heat dampens equity intensity. A one-standard-deviation rise in MarketHeat (8.25 percentage points of CSI 300 cumulative return) lowers EquityIntensity by about 0.0043, roughly 2.5% of its standard deviation.

Table 1. Baseline Results

Variable	Coefficient	Std. Error	t-statistic	p-value	Significance
MarketHeat	-0.0521	0.0169	-3.074	0.002	***
ConvPremium	-0.0141	0.0013	-10.875	<0.001	***
StockVol	5.9061	0.2547	23.187	<0.001	***

What could produce a negative link? Three things, none of them exotic. The bond floor creates an asymmetric payoff: when stocks rise, the debt component anchors the bond’s price from

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below while the call feature caps the upside, so the bond-stock correlation shrinks. The hotter the market, the harder this compression bites-upside participation narrows as the bond converges toward conversion value while the downside stays protected. This bond-floor channel lines up with Gilchrist and Zakrajšek [13], who document that credit spreads widen sharply in contractions; in hot markets the debt component's anchoring intensifies and mechanically lowers equity intensity. A second channel runs through arbitrage: when sentiment runs high, convertible arbitrageurs pile into long-convertible-short-stock trades to exploit pricing gaps (Mitchell and Pulvino [14]). The short-equity leg acts as a hedge and mechanically lowers the bond-stock correlation. As mispricing widens, more arbitrage capital enters, and delta-hedging systematically weakens comovement. Third, rising stock prices raise the odds of issuer calls, cutting short the equity-sensitive phase of a bond's life and pulling measured equity intensity down. The upshot is that correlation drops most sharply exactly when markets are hottest. One worry is that the MarketHeat coefficient might be picking up something mechanical-market heat inflating conversion premiums. But the baseline already controls for ConvPremium, and MarketHeat stays significant, so the dampening does not run only through the premium channel.

Notes: N = 341,219 bond-period observations, 740 bonds. Bond-level fixed effects included. Standard errors clustered at the bond level. *** $p < 0.01$. ConvPremium is the ratio of the convertible bond price to the underlying stock price minus one, expressed as a percentage. StockVol is the standard deviation of daily underlying stock returns over the 60-trading-day rolling window. BondBalance, the logarithm of the aggregate face value of the outstanding bond issue, showed minimal within-bond variation after the fixed-effects transformation and is therefore omitted from the reported table.

Among the controls, ConvPremium enters negative ($\beta = -0.0141$, SE = 0.0013, t = -10.875, $p < 0.001$), consistent with deep out-of-the-money bonds trading like straight debt. StockVol enters positive (5.9061, SE = 0.2547, t = 23.187, $p < 0.001$): higher volatility raises the conversion option's value and tightens bond-stock comovement. BondBalance barely varies within a bond and is largely absorbed by the fixed effects. The within R^2 is 0.227, so the regressors jointly explain 22.7% of within-bond variation in equity intensity.

Table 2. MECHANISM REGRESSION RESULTS

Variable	(1) Baseline	(2) + MHxCP	(3) + MHxVol	(4) Full
MarketHeat	-0.052***	0.057*	-0.201***	-0.062
ConvPremium	-0.014***	-0.014***	-0.014***	-0.014***
StockVol	5.906***	5.908***	5.982***	5.962***
MHxCP	—	-0.008***	—	-0.007***
MHxVol	—	—	5.735***	4.145**
Within R2	0.227	0.229	0.228	0.229

Notes: N = 341,219 bond-period observations across 740 bonds. All specifications include bond-level fixed effects. Standard errors clustered at the bond level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

We test the mechanisms by adding interaction terms. Table 2, column (2) adds MarketHeat × ConversionPremium (MH×CP). The coefficient is negative ($\beta = -0.008$, $p < 0.001$): when a bond trades well above its equity floor, market heat dampens equity intensity more. For bonds near the money, the dampening weakens, and at very low premium levels the conditional MarketHeat coefficient turns positive. Column (3) adds MarketHeat × StockVolatility (MH×Vol); it is positive ($\beta = 5.735$, $p = 0.004$), so in hot markets higher volatility tightens bond-stock

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comovement, as expected if volatility raises the conversion option's value. Column (4) includes both. MarketHeat on its own becomes insignificant ($p = 0.363$), while both interactions stay significant (MH×CP: $\beta = -0.007$, $p < 0.001$; MH×Vol: $\beta = 4.145$, $p = 0.046$). The overall negative effect of market heat, then, operates through these two channels. The results confirm the bond-floor and option-value mechanisms, and they show the headline negative association conceals wide differences across bonds depending on conversion premium and volatility.

4.2. Robustness Checks

We ran several checks on the baseline. Varying the rolling window does not change the story: MarketHeat stays negative and significant at 20 days ($\beta = -0.085$, $p < 0.001$) and 120 days ($\beta = -0.082$, $p < 0.001$), so the 60-day choice is not doing the work. Swapping the 60-day CSI 300 return for its 5-day version keeps the coefficient negative ($\beta = -0.158$, $p < 0.001$). Splitting the sample by regime tells a subtler story: in bull periods (MarketHeat > 0) the coefficient is $\beta = -0.023$ ($p = 0.398$), and in bear periods (MarketHeat ≤ 0) it is $\beta = +0.011$ ($p = 0.677$). Neither is significant within its regime, so the negative full-sample association reflects differences across regimes rather than variation inside bull or bear windows. The sign flip in the bear sample is intriguing but not statistically meaningful. Dropping the 2020–2022 pandemic window weakens the effect and makes it insignificant ($\beta = -0.020$, $p = 0.469$), which suggests the negative association is concentrated in the pandemic years. Taken together, the negative MarketHeat–equity intensity link is robust to alternative window lengths and the alternative proxy, though it attenuates once the pandemic period is excluded.

Table 3. Robustness Checks Summary

Specification	Coefficient	p-value	Sig.	Interpretation
Baseline (60-day window)	-0.052	0.002	***	Negative and significant
20-day window	-0.085	<0.001	***	Robust to shorter window
120-day window	-0.082	<0.001	***	Robust to longer window
5-day cum. return (MH proxy)	-0.158	<0.001	***	Robust to alternative proxy
Bull sub-sample (MH > 0)	-0.023	0.398		Not significant within sub-period
Excl. COVID (2020–2022)	-0.020	0.469		Effect weakens and becomes insignificant

All specifications include bond-level fixed effects. Standard errors clustered at the bond level. *** $p < 0.01$.

5. Conclusion

We study how market heat affects the equity intensity of Chinese convertible bonds. The sample covers 742 A-share convertibles from 2017 to 2023. For each bond, equity intensity is the 60-day rolling correlation between the bond's daily return and its stock's daily return; market heat is the CSI 300's cumulative return over the same window. We estimate bond-level fixed-effects regressions with errors clustered at the bond level, controlling for conversion premium, stock volatility, and bond balance.

The headline result: higher market heat predicts lower equity intensity ($\beta = -0.052$, $p = 0.002$). This runs against the intuition that rising markets, by making conversion more likely, should tighten the bond-stock link. The data show the opposite. The finding survives alternative window lengths (20 and 120 days) and a 5-day market-heat measure. Three mechanisms look plausible. The bond floor caps the upside while debt provides a price floor, so correlations compress in rallies. Convertible arbitrageurs, when sentiment is high, run long-convertible-short-stock positions whose delta-hedging mechanically dampens comovement. And sustained gains raise the odds of issuer calls, cutting short the equity-sensitive part of a bond's life.

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The paper contributes in two ways. First, it shows macro sentiment affects the equity-debt mix of convertibles, taking the Baker-Wurgler framework beyond common stocks. Second, the Chinese setting-retail-dominated, with mandatory calls and price-down resets-adds evidence from a market that differs sharply from developed ones.

The results also have a practical read. Market heat can inform convertible timing. In hot markets equity intensity drops, so investors chasing equity exposure through convertibles may get less comovement than they bargained for. In cooler markets, convertibles can track stocks more than headline indices suggest.

Several caveats apply. Market heat is a returns-based proxy, not a direct sentiment measure, and fixed effects alone do not establish causality. The sample spans 2017–2023, which includes the pandemic; dropping 2020–2022 weakens the effect and makes it insignificant ($\beta = -0.020$, $p = 0.469$), which suggests the negative association is concentrated in the pandemic period. Bond fixed effects absorb time-invariant heterogeneity but not time-varying confounders-macro shifts that move both the CSI 300 and the equity-debt balance of convertibles. IV designs or exogenous policy shocks could strengthen the causal claims in future work. Other extensions: survey- or text-based sentiment measures, heterogeneity across credit ratings and maturities, and direct tests of the three channels.

We do not claim a strictly causal reading of β_1. The fixed-effects specification with a macro regressor and bond-level controls answers the main endogeneity concerns but does not remove every possible confound. The results are best read as a robust conditional association, consistent with the mechanism in Section 2, rather than a definitive causal estimate.

References

[1] de Roon, F. A., & Veld, C. H. (1998). Announcement effects of convertible bond loans and warrant-bond loans: An empirical analysis for the Dutch market. *Journal of Banking & Finance*, *22*(12), 1481-1506.

[2] Brennan, M. J., & Schwartz, E. S. (1977). Convertible bonds: Valuation and optimal strategies for call and conversion. *The Journal of Finance*, *32*(5), 1699-1715.

[3] Ingersoll, J. E. (1977). A contingent-claims valuation of convertible securities. *Journal of Financial Economics*, *4*(3), 289-322.

[4] Tsiveriotis, K., & Fernandes, C. (1998). Valuing convertible bonds with credit risk. *The Journal of Fixed Income*, *8*(2), 95-102.

[5] Hu, M. (2013). Investor sentiment and the stock price effect of convertible bond issuance. *Forecasting*, *32*(1), 48-54.

[6] De Long, J. B., Shleifer, A., Summers, L. H., & Waldmann, R. J. (1990). Noise trader risk in financial markets. *Journal of Political Economy*, *98*(4), 703-738.

[7] Baker, M., & Wurgler, J. (2006). Investor sentiment and the cross-section of stock returns. *The Journal of Finance*, *61*(4), 1645-1680.

[8] Baker, M., & Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives*, *21*(2), 129-152.

[9] Stambaugh, R. F., Yu, J., & Yuan, Y. (2012). The short of it: Investor sentiment and anomalies. *Journal of Financial Economics*, *104*(2), 288-302.

[10] Connelly, R., Stivers, C., & Sun, L. (2007). Commonality in the time-variation of stock–stock and stock–bond return comovements. *Journal of Financial Markets*, *10*(2), 192-218.

[11] Engle, R. (2002). Dynamic conditional correlation: A simple class of multivariate generalized autoregressive conditional heteroskedasticity models. *Journal of Business & Economic Statistics*, *20*(3), 339-350.

[12] Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, *46*(6), 1251-1271.

ISSN: 2692-7608 DOI: 10.6981/FEM.202609_7(9).0001

[13] Gilchrist, S., & Zakrajšek, E. (2012). Credit spreads and business cycle fluctuations. *American Economic Review*, *102*(4), 1692-1720.

[14] Mitchell, M., & Pulvino, T. (2001). Characteristics of risk and return in risk arbitrage. *The Journal of Finance*, *56*(6), 2135-2175.