

**DETERMINANTS OF CORPORATE BOND MARKET SIZE: EVIDENCE FROM ASIAN COUNTRIES AND IMPLICATIONS FOR VIETNAM****Dr. Nguyen Thi Ha Thanh, Le Thi Ngoc Mai**

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**Abstract**

After the Asian crisis of 1997, developing countries started paying more attention to the role of corporate bond markets in the economy. Having a strong local currency corporate bond market is expected to help Asian economies like Vietnam better allocate funds into profitable investments and increase resilience of the domestic financial sector to external shocks. The study attempts to explore economic, financial, and institutional developmental factors that contribute to the growth of the size of corporate bond markets by using the data set from ten Asian economies (China; Hong Kong, Indonesia; Japan; Korea; Malaysia; the Philippines; Singapore; Thailand; and Vietnam). The empirical findings by generalized least squares model show that the level of economic development as shown by GDP per capita is one of the most important factors in the development of corporate bond markets. Other significant factors are the availability of domestic bank credit and a thriving market for government bonds. Better creditor rights protection also contributes to the growth of corporate bond markets. Furthermore, the study also intends to provide recommendations to further develop the Vietnamese corporate bond market.

**Keywords:** Asian countries, corporate bond market size, determinants, Vietnam.

**Các yếu tố quyết định quy mô thị trường trái phiếu doanh nghiệp: Bằng chứng từ các quốc gia Châu Á và hàm ý cho Việt Nam**

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**Tóm tắt**

Sau cuộc khủng hoảng tài chính châu Á năm 1997, các quốc gia đang phát triển bắt đầu chú ý nhiều hơn đến vai trò của thị trường trái phiếu doanh nghiệp trong nền kinh tế. Việc xây dựng một thị trường trái phiếu doanh nghiệp bằng nội tệ vững mạnh được kỳ vọng sẽ giúp các nền kinh tế châu Á như Việt Nam phân bổ nguồn vốn hiệu quả hơn vào các khoản đầu tư sinh lợi, đồng thời, tăng cường khả năng chống chịu của khu vực tài chính nội địa trước các cú sốc từ bên ngoài. Nghiên cứu này nhằm khám phá các yếu tố kinh tế, tài chính và thể chế thúc đẩy sự phát triển quy mô thị trường trái phiếu doanh nghiệp, dựa trên bộ dữ liệu từ mười nền kinh tế châu Á (bao gồm Trung Quốc, Hồng Kông, Indonesia, Nhật Bản, Hàn Quốc, Malaysia, Philippines, Singapore, Thái Lan và Việt Nam). Các kết quả thực nghiệm, sử dụng mô hình bình phương tối thiểu tổng quát (GLS), chỉ ra rằng mức độ phát triển kinh tế, được thể hiện qua GDP bình quân đầu người, là một trong những yếu tố quan trọng nhất đối với sự phát triển của thị trường trái phiếu doanh nghiệp. Các yếu tố quan trọng khác bao gồm khả năng cung cấp tín dụng nội địa từ ngân hàng và sự phát triển mạnh mẽ của thị trường

*trái phiếu Chính phủ. Bên cạnh đó, việc bảo vệ tốt hơn quyền lợi của chủ nợ cũng đóng góp vào sự mở rộng của thị trường trái phiếu doanh nghiệp. Hơn nữa, nghiên cứu này cũng đưa ra các khuyến nghị nhằm tiếp tục phát triển thị trường trái phiếu doanh nghiệp tại Việt Nam.*

**Từ khóa:** *Việt Nam, quốc gia châu Á, quy mô thị trường trái phiếu doanh nghiệp, yếu tố quyết định.*

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## **1. Introduction**

The 1997 Asian financial crisis exposed the vulnerability of Asian economies due to their heavy reliance on commercial banks for domestic financing (ADB, 2019). When the crisis struck, a combination of foreign capital outflows, defaults on short-term loans, rising interest rates, and currency depreciation created severe payment challenges for local banks and companies. Similarly, the 2008 global financial crisis and the European sovereign debt crisis underscored the fragility of the Asian corporate sector in the face of volatile foreign capital flows. In response, policymakers across Asia have prioritized the development of local currency corporate bond markets, although progress has been uneven.

By December 2022, the outstanding value of local currency corporate bonds in several Asian countries had reached \$9,142 billion, with an average annual growth rate of 28% from 2001 to 2022 (AsianBondsOnline). China leads the region with \$6,338 billion in outstanding corporate bonds, followed by Korea (\$1,349 billion) and Japan (\$748 billion). Relative to GDP, Korea has the largest corporate bond market at 86.9%, followed by Malaysia (54%), Hong Kong (47%), and China (36.1%). However, markets like Vietnam (12.6%), the Philippines (7.3%), and Indonesia (2.3%) remain small. While corporate bond financing has grown in importance, bank lending still dominates, and the overall size of Asian corporate bond markets lags behind the U.S. and Eurozone.

Understanding the factors that influence corporate bond market size is essential for fostering its development in Asia. Existing studies, such as Eichengreen and Luengnaruemitchai (2004) and Bae (2012), have analyzed bond market drivers using

cross-country data, but they primarily focus on government bonds. More recently, Kowalewski and Pisany (2019) examined corporate bond market development in ten Asian nations. However, empirical research specifically on corporate bond markets, particularly with implications for Vietnam, remains limited.

This study seeks to address this gap by analyzing data from ten Asian economies over 2001–2021. Using regression methods, including random effects and generalized least squares models, it investigates the determinants of corporate bond market size and provides recommendations to advance Vietnam's corporate bond market development.

## **2. Theoretical Framework, Literature Review, and Method**

### **2.1. Indicators of Corporate Bond Market Size**

A corporate bond is a debt instrument issued by a company to investors, distinct from government-issued bonds, and represents a promise to make scheduled payments (Gallagher & Andrew, 2003). The corporate bond market refers to a marketplace where such bonds are bought and sold. It includes the primary market, where corporations issue new debt, and the secondary market, where previously issued bonds are traded among investors).

#### **2.1.1. Total Corporate Bonds Outstanding to Gross Domestic Product**

The ratio of outstanding corporate bonds to GDP is widely used in literature to measure the size of the corporate bond market. It estimates market size by comparing total debt outstanding to the economy's size, offering a simple and accessible indicator. While this measure captures total historical debt rather than current fundraising, it is preferred for cross-country comparisons over time due to its stability relative to annual bond issuance (Kowalewski

& Pisany, 2019). This thesis adopts the ratio of outstanding bonds to GDP as a measure of corporate bond market size because of its common usage and data availability across diverse economies. Notably, the ratio includes both financial and non-financial organizations despite their differing capital needs, primarily due to challenges in consolidating data from various sources.

### 2.1.2. Total Issuance Corporate Bonds

The ratio of total bond offerings to GDP over the course of a year is the second most widely used metric. The fact that the business cycle has a significant impact on corporate debt is a disadvantage of this measure (Gertler & Bernanke, 1989). Kowalewski & Pisany (2019) discover a substitution impact between bank loans and corporate bonds as a result, and they also exhibit a pro-cyclical pattern in the debt structure of businesses. The thesis does not employ this metric as an input to the empirical analysis because to its high sensitivity to business cycle and lack of reliable data source.

### 2.1.3. Other Indicators of Corporate Bond Market Size

Because total bonds outstanding or issuance as a percentage of GDP essentially monitors the primary bond market and might not account for market depth and other significant secondary bond market elements, the afore-mentioned indicators cannot accurately reflect the size of corporate bond markets across countries. There are several other essential factors, whose data are not easily accessible or available to the general public, that also reveal the extent of a corporate bond market, such as liquidity reflecting through the turnover ratio, which is the ratio of annual stock transactions to the total amount of bonds outstanding, price volatility, and bid-ask spreads; term structure serving as a gauge of investor confidence in the market; size of government bond markets; the degree of market infrastructure development and credit rating systems; and the existence of active derivative markets (Bae, 2012).

## 2.2. Literature Review

This study categorizes a wide range of determinants under examination of existing empirical studies into three groups: economic development factors, financial system development variables, and institutional development variables.

### 2.2.1. Literature Review on Economic Development Variables

Concerning the size of an economy and the stage of economic development, Eichengreen & Luengnaruemitchai (2004) argue that small countries could not have the minimal effective scale required for vibrant and liquid bond markets. Less developed economies, furthermore, could have unstable investment climates and significant government interference, which are not conducive to building a well-established corporate bond market. Consistent with these arguments are results by studies of Levine (1997), Eichengreen & Luengnaruemitchai (2004), Mu et al. (2013), Samoui et al. (2017).

The relationship between the openness of an economy and corporate bond market size is argued that less suppression on securities markets occurs in more open economies (Rajan & Zingales, 2001). However, while Eichengreen & Luengnaruemitchai (2004), Bhattacharyay (2013), and Samoui et al. (2017) find a robust positive relationship between two variables; Mu et al. (2013) find a negative relation; Bae (2012) and Kowalewski & Pisany (2019) show there is no significant relation at all.

In terms of exchange rate flexibility, high foreign exchange risk may deter foreign involvement. On the other hand, if stable exchange rates tempt foreign lenders to downplay the risks of loaning to local borrowers, the growth of the local financial intermediation industry may be hindered. Eichengreen & Luengnaruemitchai (2004), Bae (2012), and Samoui et al. (2017) find a negative relationship between exchange rate volatility and the size of corporate bond

market. How, Bhattacharyay (2013), Mu et al. (2013), Park (2017), and Kowalewski & Pisany (2019) show no discernible relationship between the two variables.

### 2.2.2. Literature Review on Financial System Development Variables

Eichengreen & Luengnaruemitchai (2004) highlight the significant role of the banking system in influencing private debt market capitalization. Similarly, studies such as Adelegan & Radzewicz-Bak (2009), Bae (2012), Mu et al. (2013), Bhattacharyay (2013), Park (2017), Samoui et al. (2017), and Kowalewski & Pisany (2019) suggest that dynamic growth in bank lending correlates with corporate bond market size. However, the impact of banking concentration remains debated; while Schinasi & Smith (1998) and Rajan & Zingales (2003) argue that powerful banks may hinder securities market growth, others, including Samoui et al. (2017), find no clear connection.

Interest rate levels and spreads also affect corporate bond markets. Eichengreen & Luengnaruemitchai (2004) observe that high-interest rates reduce issuance, while Bae (2012) and Mu et al. (2013) report a negative impact of interest rate spreads. Conversely, Samoui et al. (2017) find little evidence linking spreads with market size. Interest rate volatility also influences investor preferences; Bhattacharyay (2013) and Samoui et al. (2017) document a strong negative effect, whereas Eichengreen & Luengnaruemitchai (2004) and Kowalewski & Pisany (2019) report no significant impact.

The government securities market also plays a crucial role. Harwood (2000) emphasizes its importance in fostering a robust network of fixed-income dealers, which is essential for corporate bond market growth. Bae (2012) and Kowalewski & Pisany (2019) further confirm that an expanded government bond market positively affects corporate bond market development.

### 2.2.3. Literature Review on Institutional Development Variables

According to Eichengreen & Luengnaruemitchai (2004), institutional traits and regulatory practices

like accounting standards and bureaucratic quality contribute to the capitalization of the private debt market. Samoui et al.'s (2017) argument contends that investment profile and bureaucratic quality are important for the growth of the entire bond market but not as much for the development of the corporate bond market.

The findings of La Porta et al. (1997) imply that the development of a nation's stock market is influenced by its legal system. Moreover, Burger & Warnock (2006) and Park (2017) demonstrate that nations with more concrete institutions also have larger domestic corporate bond markets. The evolution of the corporate bond market is influenced by institutional strength and creditor rights, as demonstrated by Gu & Kowalewski (2016) and Kowalewski & Pisany (2019).

From the review on existing studies, this study, therefore, examines the following hypotheses.

### **The size of the corporate bond market of an economy has:**

Hypothesis 1. A positive relationship with the size of an economy

Hypothesis 2. A positive relationship with the stage of development of an economy

Hypothesis 3. A positive relationship with the openness of an economy

Hypothesis 4. A positive relationship with the size of the banking sector

Hypothesis 5. A negative relationship with bank concentration

Hypothesis 6. A negative relationship with the level of interest rates

Hypothesis 7. A negative relationship with interest rate volatility

Hypothesis 8. A positive relationship with the government bond market development

Hypothesis 9. A positive relationship with bureaucracy quality

Hypothesis 10. A positive relationship with creditor rights protection

## **2.3. Method**

### 2.3.1. Model specification

Given the equation below, the ten aforementioned hypotheses will be tested:

$$Y_{i,t} = \beta_0 + \beta_1 \ln GDP_{i,t} + \beta_2 \ln GDP\_PC_{i,t} + \beta_3 EXP_{i,t} + \beta_4 B\_CR_{i,t} + \beta_5 B\_CO_{i,t} + \beta_6 IR\_S_{i,t} + \beta_7 IR\_V_{i,t} + \beta_8 GOV_{i,t} + \beta_9 BUR_{i,t} + \beta_{10} CRE_{i,t} + \varepsilon_{i,t}$$

Where  $Y_{i,t}$  is the variable representing the outstanding domestic corporate bonds to gross domestic product (GDP) of country  $i$  and year  $t$ ;  $\ln GDP_{i,t}$  denotes for the natural logarithm of GDP with purchasing power parity (PPP) adjusted of country  $i$  and year  $t$ ;  $\ln GDP\_PC_{i,t}$  for the natural logarithm of GDP per capita also adjusted with PPP of country  $i$  and year  $t$ ;  $EXP_{i,t}$  for total exports of goods and services as a proportion of GDP of country  $i$  and year  $t$ ;  $B\_CR_{i,t}$  for domestic credit to private sector by banks as a percentage of GDP of country  $i$  and year  $t$ ;  $B\_CO_{i,t}$  for bank concentration of country  $i$  and year  $t$ ;  $IR\_S_{i,t}$  for interest rate spread of country  $i$  and year  $t$ ;  $IR\_V_{i,t}$  for standard deviation of interest rate of country  $i$  and year  $t$ ;  $GOV_{i,t}$  for the outstanding domestic sovereign bonds to GDP of country  $i$  and year  $t$ ;  $BUR_{i,t}$  for the bureaucracy quality index of country  $i$  and year  $t$ ; last but not least,  $CRE_{i,t}$  for the creditor rights index of country  $i$  and year  $t$ . In addition,  $\beta_0$  is the intercept term,  $\beta_n$  are the coefficients of the independent variables, and  $\varepsilon_{i,t}$  is the error term. Table 1 below gives a summary of variable descriptions.

### 2.3.2. Data

This study examines annual observations from a panel data set of ten Asian countries, including China, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. These countries are selected because their corporate bond market data are covered in the ABO database. The World Bank and International Monetary Fund databases were also used to supplement the data. The panel consists of 210 country-year observations spanning from 2001-2021.

### 2.3.3. Research methodology

Assuming that country effects are uncorrelated with the regressors, the study opts for the random effects technique since its estimates are more accurate than those of the pooled ordinary least squares method. The ability to adjust for unobserved heterogeneity

at the cluster level is another benefit of the random effects method. Furthermore, it allows the estimation of the impact of variables that are consistent over time and between nations, such as creditor rights and bureaucratic quality indices. However, diagnosis tests indicate that the random effects model might have a problem with autocorrelation. Following Eichengreen & Luengnaruemitchai (2004), the generalized least squares method is utilized to address this problem and offer a more robust result.

## 3. Results and Discussions

### 3.1. Results

#### 3.1.1. Random Effects Estimation

The results in Table 2 indicate that all independent variables show the expected signs except for the natural logarithm of GDP (PPP), exports, and outstanding government bonds. Instead of a positive relationship, economic size, trade openness of the economy, and government bond market size show a negative relationship statistically significant at a 1% level with the corporate bond market size. Bank concentration and interest rate volatility are negatively related to the dependent variable but not statistically significant at 10%. Among all of the independent variables, the stage of economic development has the most influential coefficient, demonstrating the strength and magnitude of its link with the corporate bond market size.

#### 3.1.2. Generalized Least Squares Estimation

Generally, the generalized least squares model provides more rigorous results than the random effects model (Table 2). Interest rate spread, government bonds outstanding, and bureaucracy quality index lose significance in the generalized least squares model. This leaves economic size, stage of economic development, trade openness, banking system size, and creditor rights protection remaining statistically significant. Most significant independent variables are at a 1% significance level, while only the natural logarithm of GDP (PPP) is significant at the 5% level. More unexpected

signs appear in the generalized least squares model. Bank concentration and interest rate volatility change their negative signs in the

previous model into positive ones in the latter model. However, they are not statistically significant at any conventional level.

**Table 1.** Result of the Random Effects and Generalized Least Squares Estimation

Variables	Random effects	Generalized least squares
ln GDP (PPP)	-4.325*** (-4.17)	-3.135* (-2.41)
ln GDP per capita (PPP)	13.62*** (6.26)	11.17*** (4.11)
Exports	-0.215*** (-7.35)	-0.151*** (-5.77)
Bank credit	0.136*** (5.41)	0.142*** (5.81)
Bank concentration	-0.002 (-0.05)	0.005 (0.20)
Interest rate spread	-2.971*** (-4.10)	-0.103 (-0.28)
Interest rate volatility	-0.021 (-1.23)	0.001 (0.10)
Government bond outstanding	-0.220*** (7.82)	-0.0546 (-1.78)
Creditor right index	7.433*** (5.05)	7.229*** (3.51)
Bureaucracy quality index	4.249* (2.14)	0.151 (0.06)

z-statistics in parentheses, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Source: Author's construction*

### 3.2. Discussions

#### 3.2.1. Economic Development Variables

The GDP (PPP) coefficient is negative and significant at the 5% level, indicating that a 1% increase in GDP correlates with a 0.03% decrease in corporate bonds outstanding as a percentage of GDP. This consistent result across models suggests weak evidence for a positive relationship between GDP size and corporate bond market size.

Regarding economic development, GDP per capita shows a positive and statistically significant effect at the 1% level. A 1% increase in GDP per capita is associated with a 0.11% rise in corporate bonds outstanding as a percentage of GDP. This provides strong evidence of a positive relationship between corporate bond market size and economic development.

Trade openness, measured by exports as a percentage of GDP, shows a significant negative coefficient at the 1% level. Specifically, a 1% increase in trade openness correlates with a 15 percentage point decrease in corporate bonds outstanding. This finding suggests that economies less integrated into global trade may focus on developing domestic bond markets to meet funding needs (Adelegan & Radzewicz-Bak, 2009). Overall, there is insufficient evidence to establish a positive relationship between trade openness and corporate bond market size.

#### 3.2.2. Financial System Development Variables

The study finds that domestic credit to the private sector by banks, as a percentage of GDP, is positively and significantly associated with corporate bond market size at the 1% level. An

increase of 1% in bank credit relative to GDP corresponds to a 14-percentage-point rise in corporate bonds outstanding. This relationship may stem from similar prerequisites for the growth of both banking systems and bond markets (Burger & Warnock, 2006) and the tendency for vibrant bank lending to signal increased corporate bond issuance (Kowalewski & Pisany, 2019).

Bank concentration, however, exhibits a positive sign contrary to earlier findings, though it is statistically insignificant. The coefficient suggests a slight 0.5-percentage-point increase in corporate bonds outstanding per 1% rise in the share of assets held by the three largest banks. This result might reflect how concentrated banking systems enable governments to channel funds toward preferred sectors, unlike fragmented systems. However, no strong evidence supports a definitive relationship between bank concentration and corporate bond market size.

Interest rate levels show the expected negative sign but lack statistical significance. A 1% increase in interest rate spreads suggests a potential 10-percentage-point decline in corporate bonds outstanding, though this result varies across models and lacks robustness. Similarly, interest rate volatility, measured by its standard deviation, displays an unexpected positive sign, indicating a marginal 0.1-percentage-point increase in corporate bonds for every 1% rise in volatility. However, no significant evidence supports these relationships.

The size of the government bond market has a significant negative relationship with corporate bond market size in the random effects model. A 1% increase in government bonds outstanding corresponds to a 0.5% point decrease in corporate bonds, supporting the crowding-out hypothesis (Adelegan & Radzewicz-Bak, 2009). For example, Japan's substantial national debt likely constrains private-sector credit. When Japan is excluded, government bonds show a positive and significant relationship with corporate bonds, aligning with the notion that a growing

government bond market can complement corporate bond market development.

In summary, while domestic credit to the private sector emerges as a strong determinant of corporate bond market growth, the relationships involving bank concentration, interest rates, and government bond market size require further investigation due to limited or context-dependent significance.

### 3.2.3. Institutional Development Variables

In both models, the coefficient of *creditor protection* is positive and statistically significant at the 1% level. This result implies that an increase of one score on the creditor rights index is linked to an increase of 7.23% of corporate bonds outstanding. So, there is sufficient evidence to conclude that there is a positive relationship between two variables.

Although *bureaucracy quality* does not change its expected positive sign in both models, it is not significant in the most robust result. It is statistically significant, at least at the significant level of 5% in the random effects model. The coefficient implies that an increase of one score on the bureaucracy quality index is linked to an increase of 0.15% of corporate bonds outstanding as a percentage of GDP. The outcome tends to indicate that bureaucratic quality appears to be secondary in creating domestic corporate bond markets as far as market size is concerned. Therefore, there is not sufficient evidence to conclude that there is a positive relationship between two variables.

## 4. Recommendations and Conclusion

### 4.1. Recommendations

Based on empirical findings, previous research such as Bae (2012), and observations of corporate bond markets in countries like Korea and Malaysia, the following stages are recognized in developing domestic bond markets, including corporate bonds: (i) creating essential infrastructure for a liberalized financial system, an active money market, stable fiscal and monetary policies, and an effective regulatory framework to build a strong bond market; (ii) developing a secondary market for long-term

government bonds to create a benchmark yield curve, diversify institutional investors, and improve liquidity; (iii) fostering corporate bond market growth through globally recognized accounting standards, transparency rules, and reliable credit rating agencies. For Vietnam, in addition to creating a favorable macroeconomic environment, several recommendations can help smooth the development of the domestic corporate bond market.

The first priority is to develop the government bond market, particularly by promoting a liquid secondary market, establishing yield curves for benchmark issues, and creating government bond indices. Drawing from Korea's experience, this can be achieved through mandatory exchange trading for government bonds and developing the money market, such as facilitating repurchase agreements.

Improving the regulatory and supervisory framework is also crucial. The government must balance its role between intervening and supervising, ensuring that market participants recognize the government as a supervisor rather than a guarantor. Strengthening the legal framework to protect investors' rights and boost market confidence is essential, as the current weak regulatory framework and underdeveloped infrastructure contribute to low confidence in Vietnam's corporate bond market.

Promoting a well-regulated banking system is important for the corporate bond market's growth. Strengthening oversight, containing systemic risks, and regulating ties between banks and non-financial companies are key strategies. Additionally, encouraging commercial banks to lead the development of financial infrastructure, including niche markets like asset-backed securities, could leverage their expertise for corporate bond market growth.

Further, enhancing credit risk assessment and market-based valuation services is vital. Building a diverse and high-profile investor base, including public long-term savings like the Vietnam Social Security, pension funds, and insurance companies, is recommended. Additionally, new corporate bond instruments

such as project bonds, public-private partnership bonds, green bonds, and asset-backed securities should be developed to meet market infrastructure demands. The government plays a critical role in setting the legal framework to enable the creation of these innovative financial instruments.

### **4.2. Conclusion**

The study identifies weak evidence that a larger economy influences the size of a local corporate bond market. However, economic development, as measured by GDP per capita, emerges as a key factor in corporate bond market growth. Other important contributors include domestic bank credit availability, a robust government bond market, and stronger creditor rights protection. Additionally, less globally integrated Asian countries appear more motivated to establish domestic corporate bond markets to meet financing needs. Factors such as bureaucracy quality, interest rate levels, and interest rate volatility show no significant impact but remain relevant for ensuring secure and liquid bond markets.

The macroeconomic environment and government involvement play crucial roles in corporate bond market development. Early-stage government intervention can stimulate market growth, while transitioning to regulatory and oversight roles is essential for long-term stability. Promoting a dynamic banking system, effective market infrastructure, and mechanisms like a credit rating system is vital for developing Vietnam's corporate bond market.

The study acknowledges certain limitations. First, using corporate bonds outstanding as a percentage of GDP as a proxy for market size does not fully capture the depth of secondary markets. Second, the study focuses on local currency corporate bond markets in only ten Asian economies, mainly in ASEAN and Northeast Asia, limiting generalizability. Expanding the scope to include more economies and innovative fixed-income instruments, such as asset-backed securities and foreign-currency bonds, is recommended for future research.



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