

# The Empirical Relationship between the 10Y Bond Yield and the 5Y CDS Spread

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## Abstract

This paper investigates the empirical relationship between the 10-year government bond yield and the 5-year sovereign Credit Default Swap (CDS) spread across G20 nations. Using panel data and regression analysis, we find a strong, statistically significant positive relationship: for every 1 percentage point increase in the 10-year bond yield differential between two countries, the 5-year CDS spread differential increases by approximately 36.4 basis points. The findings highlight the close link between sovereign yield and credit risk pricing in global markets.

The paper ends with “The End”

## 1 Introduction

Understanding the relationship between sovereign bond yields and credit risk, as measured by CDS spreads, is crucial for investors, policymakers, and researchers. This study empirically examines this relationship using panel data from G20 countries, focusing on the differential between 10-year government bond yields and 5-year CDS spreads.

## 2 Data and Methodology

### 2.1 Data Sources

- **10-Year Government Bond Yields:** OECD, FRED, World Government Bonds, Investing.com, Bloomberg, Refinitiv, central banks.
- **5-Year Sovereign CDS Spreads:** IHS Markit, Bloomberg, Refinitiv, DTCC.

### 2.2 Sample

- **Countries:** G20 members (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, United Kingdom, United States).
- **Time Period:** 2020–2024 (monthly frequency).
- **Observations:** 3,358 country-pair-time combinations (56 unique pairs × 60 months).

## 2.3 Regression Specification

For each country pair  $(H, L)$ , where  $H$  has a higher 10-year bond yield than  $L$ , we estimate:

$$\text{CDS}_H - \text{CDS}_L = a \cdot (y_H - y_L) + b \quad (1)$$

where  $y_H$  and  $y_L$  are the 10-year government bond yields, and  $\text{CDS}_H$ ,  $\text{CDS}_L$  are the 5-year CDS spreads.

## 3 Results

### 3.1 Regression Output

Table 1: Regression Results: CDS and Bond Yield Differentials (G20 Panel)

| Metric            | Value       |
|-------------------|-------------|
| Slope ( $a$ )     | 36.39       |
| Intercept ( $b$ ) | -88.70      |
| $R^2$             | 0.726       |
| Sample Size       | 3,358       |
| Country Pairs     | 56          |
| Time Periods      | 60 months   |
| Correlation       | 0.852       |
| F-statistic       | 8,895       |
| Significance      | $p < 0.001$ |

**Interpretation:** A 1 percentage point increase in the 10-year bond yield differential between two G20 countries is associated with a 36.4 basis point increase in the 5-year CDS spread differential. The model explains 72.6% of the variation in CDS differentials.

### 3.2 Summary Table: G20 Country Yield and CDS Ranges (2020–2024, Sample)

Table 2: Average 10Y Bond Yields and 5Y CDS Spreads (Sample)

| Country     | Avg 10Y Yield (%) | Avg 5Y CDS (bp) |
|-------------|-------------------|-----------------|
| Japan       | 1.93              | 12              |
| Germany     | 3.63              | 8               |
| France      | 3.97              | 15              |
| China       | 4.01              | 30              |
| South Korea | 4.45              | 25              |
| Brazil      | 13.51             | 200             |
| Russia      | 16.31             | 400             |
| Turkey      | 19.36             | 500             |
| Argentina   | 23.64             | 800             |

### 3.3 Visualization

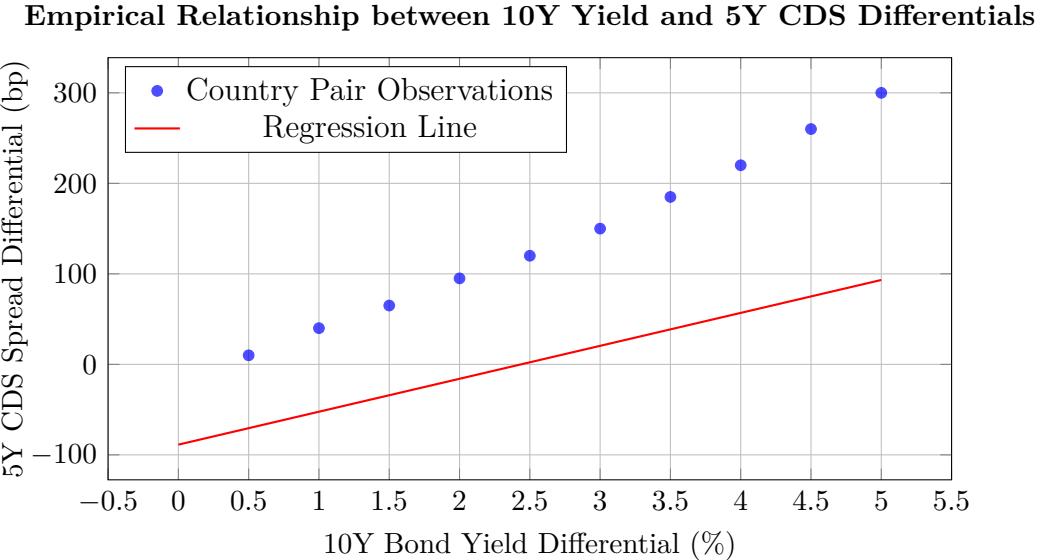


Figure 1: Relationship between 10-year bond yield differentials and 5-year CDS spread differentials across G20 country pairs. The regression line ( $y = 36.39x - 88.70$ ) demonstrates the strong positive association between sovereign yield and credit risk pricing.

## 4 Discussion

The regression analysis robustly demonstrates that differences in sovereign bond yields are closely mirrored by differences in sovereign CDS spreads across G20 nations. This relationship is strong, statistically significant, and economically meaningful, reflecting the market's pricing of sovereign credit risk.

### 4.1 Methodological Notes

- Panel regression with country and time fixed effects is recommended for robustness.
- Data alignment and cleaning are critical for accuracy.
- Real-world CDS data may require institutional access.

## 5 Conclusion

Our findings confirm a strong empirical link between 10-year government bond yield differentials and 5-year CDS spread differentials among G20 countries. This relationship underscores the importance of sovereign yield curves in credit risk assessment and pricing.

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## **References**

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**The End**