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From Balance Sheets to Headlines: AI-driven Corporate Bond Default Prediction in Thailand

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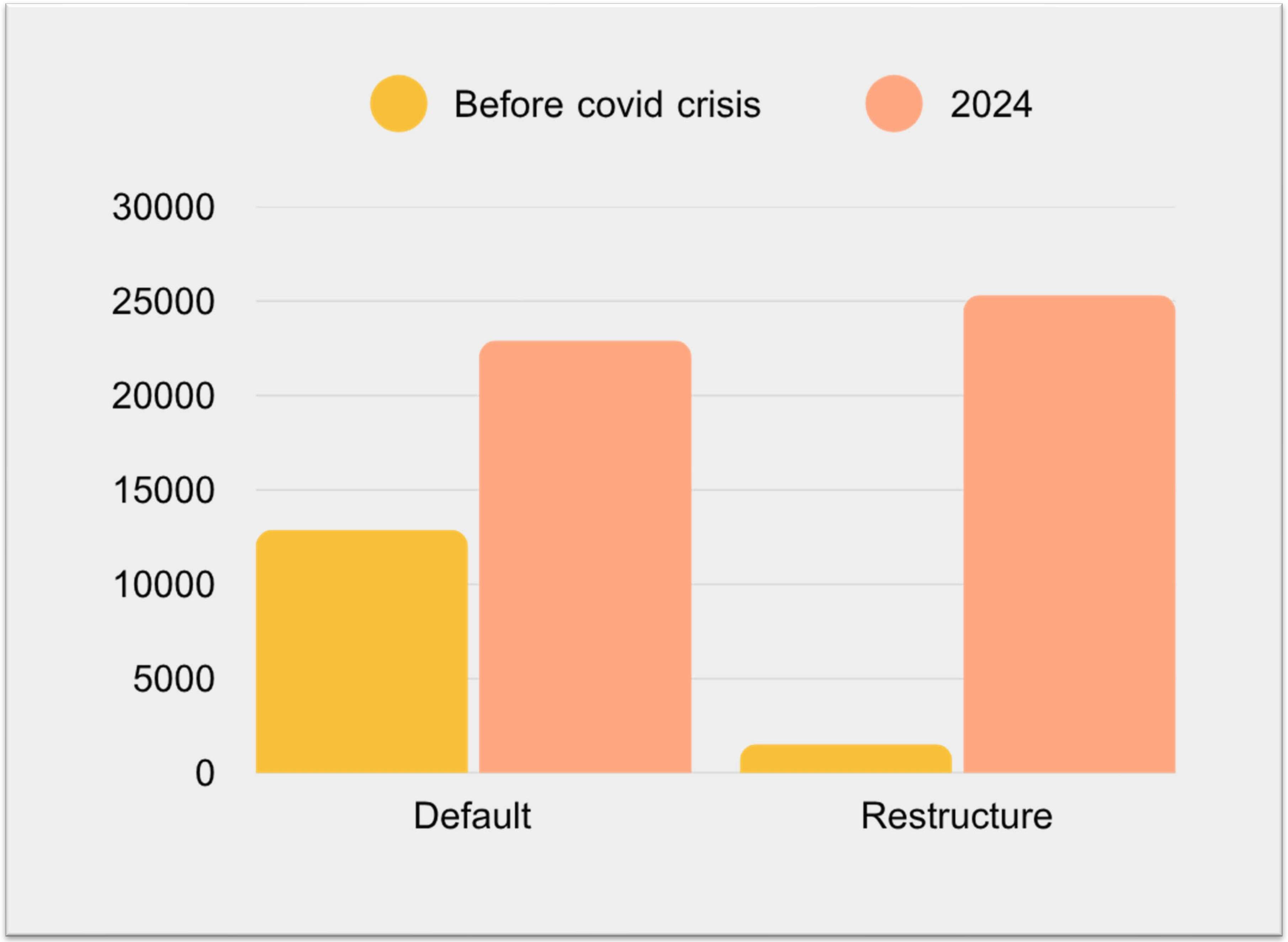
PROBLEM STATEMENT

Corporate Bonds are Crucial for the Thai Capital Market

- Foundation for economic growth
- Supporting business expansion
- Ensuring sustainability

Significant Challenges for Regulators

- Large number of listed companies
- Systematic evaluation of all entities
- Enabling proactive risk management

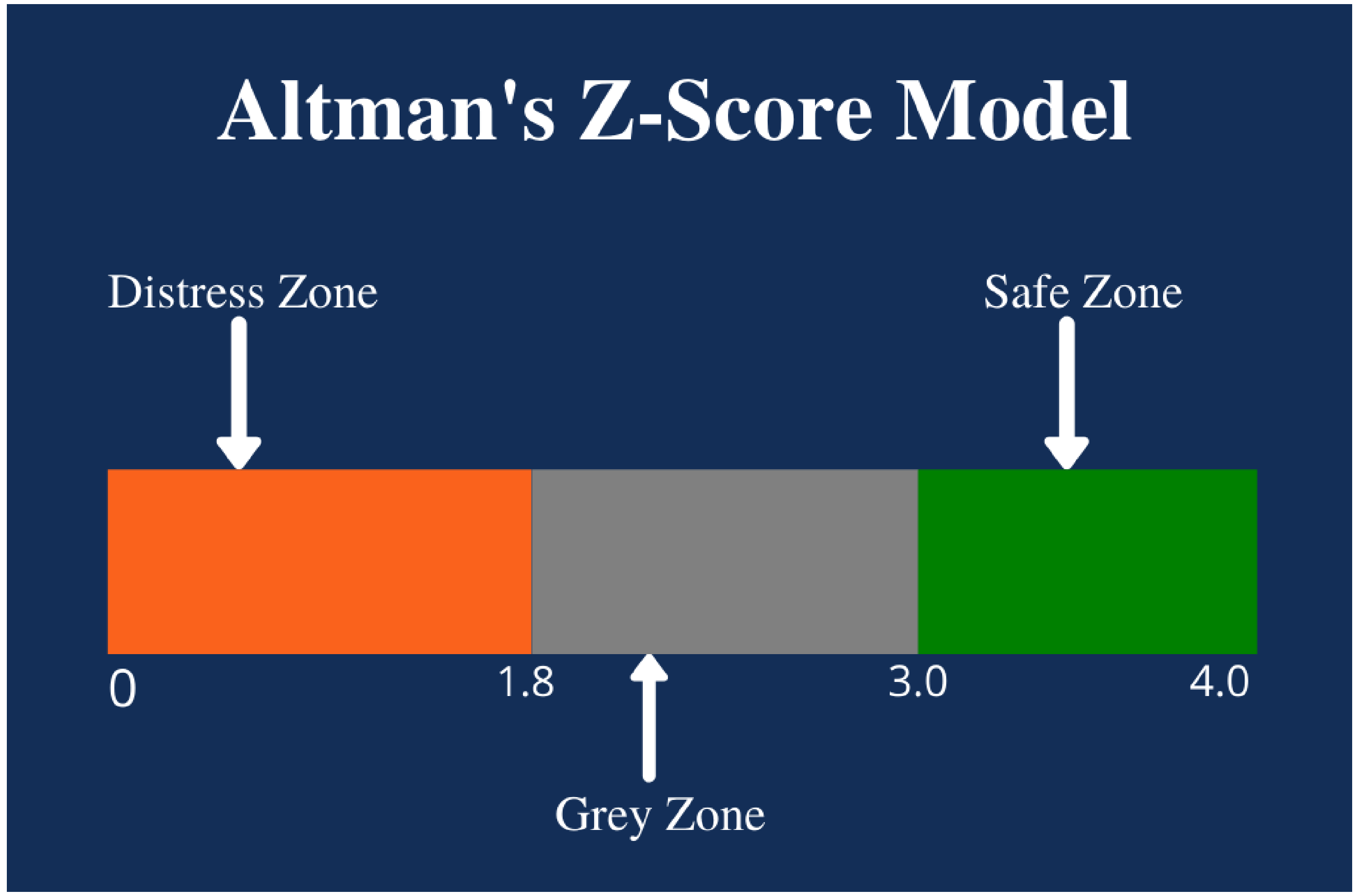


Troubled corporate bonds significantly increased after the COVID-19 crisis

DEFAULT PREDICTION MODEL

The Altman Z-score

- combines key financial ratios to estimate the probability of bankruptcy
- relies on historical and structured data



Integration of soft information

- News headlines
- Auditor’s reports
- Financial notes

RESEARCH OBJECTIVES

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WISDOM for Sustainable Development

01

Develop an AI-driven risk assessment model

integrating LLMs & ML to analyze unstructured financial text.

02

Enhance corporate bond default risk predictions

by leveraging sentiment analysis, entity relationships, and financial narratives with transformer-based AI.

03

Automate cautionary stock classification & alerts

for regulatory bodies to enable proactive risk management.

04

Support a dynamic risk monitoring framework

for the Thai capital market, improving early distress detection & investor confidence.

EMPIRICAL RESULTS

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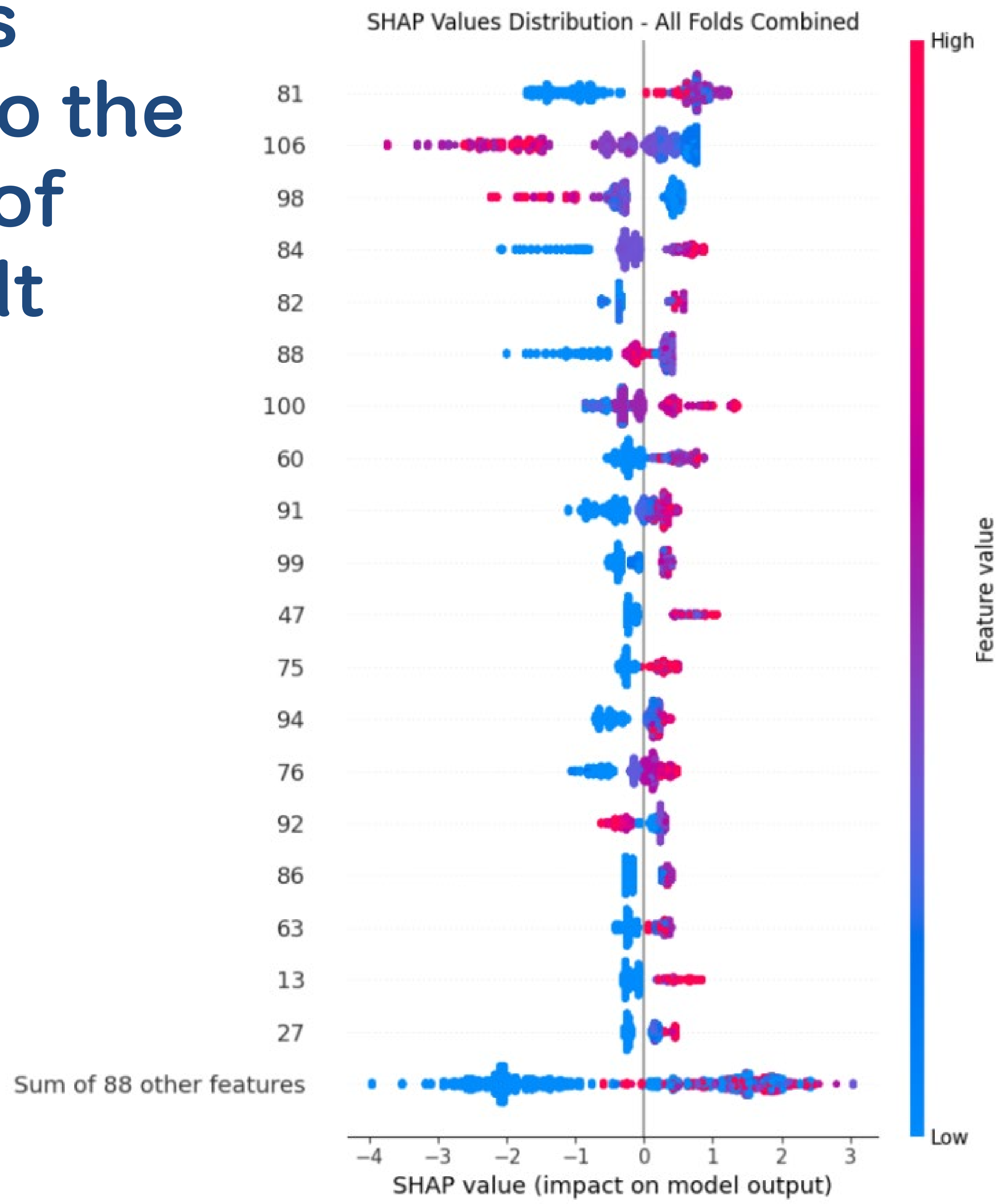
Feature ID	Topic/Key	Data
81	Financial Assistance from Subsidiary	Notes report 1 year before default
84	Accounting Policy Change	Notes report 1 year before default
82	Litigation or Legal Disputes	Notes report 1 year before default
88	Capital Increase	Notes report 1 year before default
100	Accounting Policy Change	Notes report 2-3 years before default
60	Investment Impairment	Auditor report 2-3 years before default
91	Property Sale	Notes report 2-3 years before default
99	Subsidiary Establishment	Notes report 2-3 years before default
47	Shareholder Approval for Liquidity Support	Auditor report 1 year before default
75	Property Sale	Notes report 1 year before default
94	Acquisition	Notes report 2-3 years before default
76	Mortgage on Land, Buildings, and Equipment	Notes report 1 year before default
86	Liabilities Exceeding Current Assets	Notes report 1 year before default
63	Risk from Real Estate Sales	Auditor report 2-3 years before default
13	Change of CFO	SET news -1 to -90 days
27	Capital Increase	SET news -91 to -365 days

Feature ID	Topic/Key	Data
106	Z score	Altman ratio 1 Year before
98	Litigation or Legal Disputes	Notes report 2-3 years before default
92	Mortgage on Land, Buildings, and Equipment	Notes report 2-3 years before default

Key features contribute to the probability of bond default

- Positive
- Negative



CONCLUSIONS

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Integrating both qualitative text-based disclosures and quantitative financial metrics enhances the robustness of default risk assessment.

The AI-driven risk prediction model offers greater effectiveness compared to traditional methods.

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RESEARCH IMPLICATIONS AND POLICY RECOMMENDATIONS

Developing a real-time **early warning system** to enhance regulatory oversight and contribute to the overall stability of the Thai capital market

Creating a **risk scoring** by changing model from a binary to be a regression model

Incorporating broader **indicators** and comprehensive **ESG data**

Thank You