

GRADUATION THESIS EVALUATION

(For Supervisor)

Supervisor's full name: Trần Thị Ngân

Position: Senior Lecturer

At: Faculty of Applied Sciences, VNUIS

Supervisor for student:

- Student's full name: Vũ Tuyên Hoàng

- Student ID: 21070141

- Major: Business Data Analytics

- Class: BDA2021B

- Thesis topic/ Subject: Forecasting stock price movements of VN30 constituents
based on machine learning method and sentiment analysis

I hereby provide my evaluation for the thesis writing process of student as
following:

1. Awareness, Attitude

Proactive and responsible attitude throughout the thesis process.

2. Result

2.1. Rationale

The topic is practical and aligns well with Vietnam's stock market and current trends

2.2. Research method

Appropriate and well-structured

2.3. Topic's outcome

A fully automated and functional forecasting system was successfully developed.

3. Conclusion

☐ Student is eligible for the thesis defense

☐ Student is ineligible for the thesis defense

Hanoi, date..... month..... year...

Supervisor

(Signature and Full name)

**EXPLANATORY REPORT ON CHANGES/ADDITIONS
BASED ON THE DECISION OF GRADUATION THESIS COMMITTEE
FOR UNDERGRADUATE PROGRAMS WITH DEGREE AWARDED BY
VIETNAM NATIONAL UNIVERSITY, HANOI**

Student's full name: Vũ Tuyên Hoàng

Graduation thesis topic: Forecasting stock price movements of VN30 constituents
based on machine learning method and sentiment analysis

Student's ID: 21070141

Major: Business Data Analytics

Cohort: QHQ2021

Based on the VNU-IS's decision no. QĐ/TQT, on / / about
the establishment of Graduation Thesis Committee for Bachelor programs which degree
awarded by Vietnam National University, Hanoi, the thesis was defended and modified
in the following sections:

| No. | Change/Addition Suggestions by the Committee | Detailed Changes/ Additions | Page |
|-----|--|--|--------|
| 1 | There is a need to improve sentiment analysis model for longer texts | The PhoBERT model was additionally fine-tuned using a manually labeled dataset of 1,000 full-length news articles | 35, 36 |
| 2 | The thesis would be improved by including a brief error analysis | An error analysis was added to explain the forecasting limitations of the LSTM model with specific examples | 50, 51 |
| 3 | Compare to the traditional method | A comparison was added between the LSTM model and the traditional method like ARIMA based on prior studies results. | 49, 50 |

Hanoi, July 7, 2025

Supervisor
(Signature and Full name)

Student
(Signature and Full name)

Reviewers
(Signature and Full name)

Chairman
(Signature and Full name)