

**博士論文審査結果報告**  
**Report on Ph.D. / Doctoral Dissertation Defense**  
**National Graduate Institute for Policy Studies (GRIPS)**  
**Professor Roberto Leon-Gonzalez**

審査委員会を代表し、以下のとおり審査結果を報告します。

On behalf of the Doctoral Thesis Review Committee, I would like to report the result of the Doctoral Dissertation Defense as follows.

学位申請者氏名 Ph.D. Candidate	Le Ha Thu		
学籍番号 ID Number	PHD17201		
プログラム名 Program	Policy Analysis Program		
審査委員会 Doctoral Thesis Review Committee	主査 Main referee	LEON-GONZALEZ Roberto	主指導教員 Main Advisor
	審査委員 Referee	藤本 淳一 FUJIMOTO Junichi	副指導教員 Sub Advisor
	審査委員 Referee	PORAPAKKARM Ponpoje	副指導教員 Sub Advisor
	審査委員 Referee	諸星 穂積 MOROHOSI Hozumi	博士課程委員会委員長代理 Acting Chairperson of the Doctoral Programs Committee
	審査委員 Referee	各務 和彦 KAKAMU Kazuhiko 神戸大学	外部審査委員 EExternal Referee
論文タイトル Dissertation Title (タイトル和訳)※ Title in Japanese	The Interaction of Interest Rates, Credit, Inflation and Monetary Policy in Vietnam ベトナムにおける金利、クレジット、インフレーション、及び金融政策の相互作用		
学位名 Degree Title	博士（公共経済学） Ph.D. in Public Economics		
論文提出日 Submission Date of the Draft Dissertation	2020年6月12日	論文審査会開催日 Date of the Doctoral Thesis Review Committee	2020年7月10日
論文発表会開催日 Date of the Defense	2020年7月10日	論文最終版提出日 Submission Date of the Final Dissertation	2020年8月19日
審査結果 Result	合格 Pass		

※ タイトルが英文の場合、文部科学省に報告するため、和訳を付してください

Please add a Japanese title that will be reported to MEXT.

## 1. 論文要旨 **Thesis overview and summary of the presentation.**

The final defense was the 10th of July and because of the pandemic it was implemented online using the software Zoom, being open to all faculty and students. The candidate first gave a presentation of about an hour, and after that the examiners gave comments and asked questions to the candidate for about 30 minutes.

This thesis aims to study the interaction of interest rates, banking credit, inflation and monetary policy for the case of Vietnam. It consists of three main chapters. Firstly, in order to assess the predictability of the future macroeconomic movements of Vietnam, this thesis forecasts inflation and economic growth rates of Vietnam using dynamic model averaging (DMA), which can deal with structural changes in macroeconomic relationships and data difficulties of developing countries like Vietnam. The forecasting model includes among other variables the growth rate of money supply M2, the interest rate and banking credit. DMA found high predictive power of money supply and banking credit, suggesting that monetary policy transmission through credit channel is more effective than through the interest rate channel. The second main chapter tests the Expectation Hypothesis on the term structure of interest rates using data of the Vietnamese interbank market, showing that the hypothesis does not hold for the case of Vietnam. The third chapter estimates the effectiveness of the credit channel in Vietnam using a novel Bayesian Vector Autoregression Model with stochastic volatility. It is shown that introducing stochastic volatility substantially improves the empirical model, and permits the estimation of time-varying volatilities and impulse responses. It is found that monetary policy transmission through the credit channel in Vietnam is effective for influencing the inflation rate, but not for affecting the economic growth rate.

**2. 審查報告 Notes from the Doctoral Thesis Review Committee (including changes required to the thesis by the referees)**

All the examiners provided a list of comments for revisions. The candidate revised the thesis taking into account all comments, and provided an explanation to each examiner of how the comments had been taken into account. For brevity I only provide here some of the comments, and answers from the candidate, which were as follows:

Chapter 3:

1st comment:

p25-26: For early years, monthly values of M2 and CRE are created from quarterly values using linear interpolation. As was probably mentioned in the workshop before, this interpolation could affect the results of the analysis. This is especially a concern if these variables exhibit monthly seasonality as for the inflation and growth rates shown in Figures 2.1 and 2.2. Some robustness checks on how the interpolation affect the results are warranted.

2nd comment:

p25: The treatment of FDI is not clear to me. If “this study assumes the disbursed FDI in all three months of a quarter are the same”, are monthly growth rates of the FDI from the first to second month, and from the second to third month of the quarter both zero? That sounds awkward and it seems more natural to assume that the growth rate of FDI is the same for all three months in the same quarter (although it will suffer from the same issue as in the first bullet point).

Answer for both of these comments:

In the revised version, I do not interpolate at all. Instead of that, I use the available information, regardless of different frequencies, to enter the data of predictor  $z_t$ .

Because the main purpose of this analysis is to produce a good forecast, therefore utilizing the available information at the time the forecast is made can be important. In the revised version, I have explained how I deal with missing data and different frequencies at the end of section 3.4 – Data of chapter 3, pages 25-26.

3rd comment:

p27: The results of the ADF test are shown in the table but are not discussed. There should be a brief statement of whether/how these results matter. For example, if non-stationarity were not rejected for some variable, would that call for some changes to your analysis?

Answer:

In the revised version, I have added the discussion on the results of the ADF test for variables employed in the model (please see page 25, the second paragraph).

4th comment:

p28 and elsewhere: The term “good predictor” is ambiguous unless a precise definition is provided. For example, p29, line 1-2 says “posterior inclusion probabilities of good predictors”, but would the statement have a different meaning if this phrase was replaced by “posterior inclusion probabilities of predictors”?

Answer:

In the previous version, on page 28, in the last two lines of the first paragraph, I have explain “a good predictor is defined as the one whose inclusion probability is greater than 50% at least one point in time”. This definition can also be found in previous

literature using DMA to forecast (Koop and Korobilis (2012)). In the new version, this definition can be found in page 27.

5th comment:

p33-34: Table 3.7 seems to suggest that TVP performs the best in forecasting economic growth for  $h = 6$  and 2. I do not disagree that overall DMA and DMS perform better than other methods, but the assessment in favor of DMA and DMS in p33-34 appears too strong.

Answer:

In the previous version, in the introduction of time-varying parameter (TVP) model in sub-section 3.3.2 – Other forecasting methods, I have explain that:

“...the applied package in this study, fDMA package, only produces in-sample forecast for TVP model. Therefore, differently from other forecast methods which are conducted in out-of-sample manner, the forecast by TVP model is conducted in in-sample manner.”

Therefore, TVP tends to produce smaller RMSE and MAE than other forecasting methods, including DMA and DMS, which are conducted in out-of-sample manner. Moreover, despite being conducted in in-sample manner, in many forecasting exercises, TVP even produces greater RMSE and MAE than DMA and DMS produce. All in all, DMA and DMS were found to be good methods in forecasting macroeconomic variables of Vietnam.

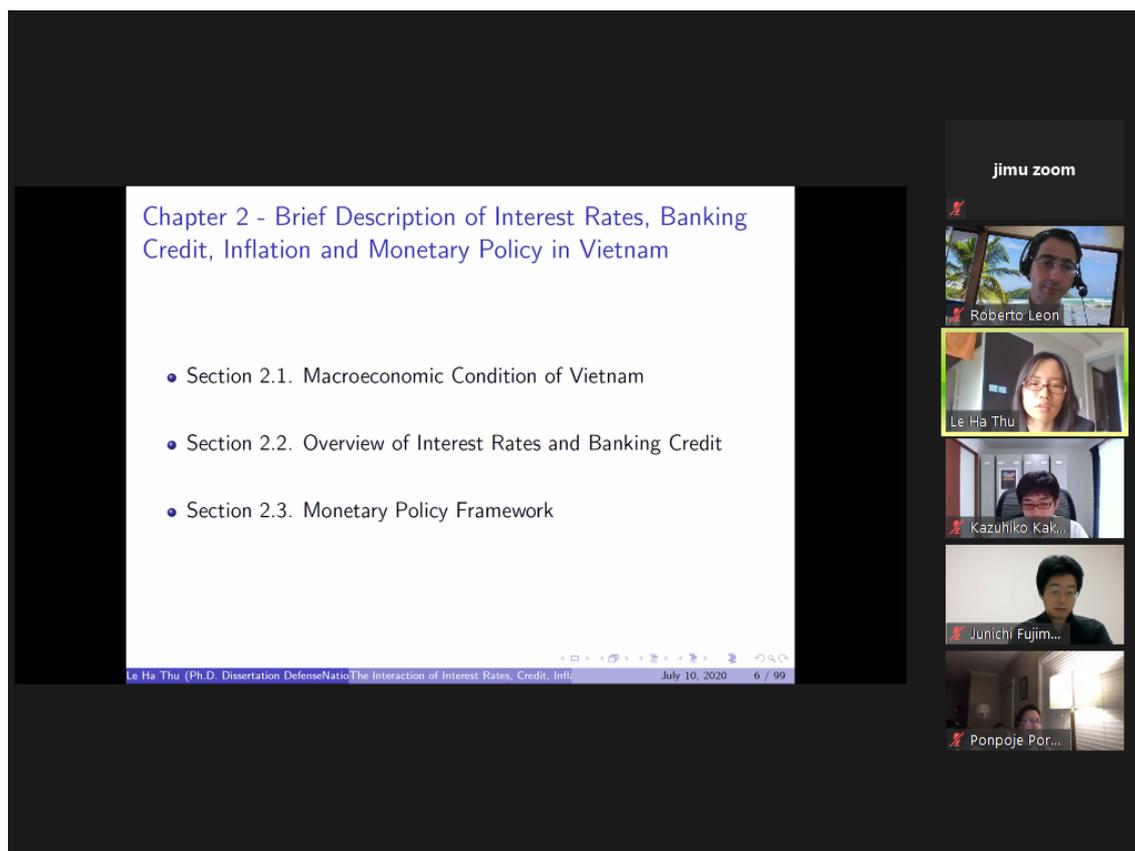
6th comment:

It was not clear to be whether DMS/DMA perform better than other models because they are intrinsically better approaches or because some variables are available only in later period (or the available frequency of some variables changes over time). It would be informative to provide robustness checks of focusing on the period during which all variables used in the analysis are available in the same frequency.

Answer:

All of the evidences in the previous literature showing that DMA is a good method in forecasting inflation rate or economic growth rate (Koop and Korobilis (2012), Filippo (2015)) did not use data with different frequencies or missing data like in my study. In these studies which applies DMA for developed countries, getting a long and unified time-series with same frequency and no missing data is not difficult for developed countries. Therefore, this can be considered as an evidence showing that even for the case of applying to the unified data with same frequency and no missing data, DMA is still a good method in forecasting macroeconomic variables.

In fact, my study is the first study utilizing the properties of DMA to apply this method to data with different lengths and frequencies of Vietnam. This shows that regardless of applying to time-series data with same length and frequency or not, DMA can be a good method in forecasting. Therefore, DMA can be considered as a solution in forecasting macroeconomic variables in the developing countries.



**3. 最終提出論文確認結果 Confirmation by the Main Referee that changes have been done to the satisfaction of the referees**

The candidate revised the thesis following the comments from the examiners. The candidate provided an explanation of how each comment had been taken into account. The main adviser was satisfied with the revisions, and sent them to the other examiners, who did not suggest further comments. A software for plagiarism (Turnitin) was used and revealed no problems.

**4. 最終審査結果 Final recommendation**

The doctoral thesis review committee recommends that GRIPS award the degree of Ph.D. in Public Economics to Ms. Thu Le Ha.