Europass Curriculum Vitae

Personal information

Surname / First name	**Hoang Vu Phuong**
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Nationality	Vietnam
Date of birth	December 6, 1991
Gender	Male

Education

02/11/2020-Present	**Phd candidate in Management Engineering** Polytechnic University of Milan, Italy Phd project: Complexity and Connectivity in international economic network of good and services.
09/2016-12/2019	**Master of Science in Economics** Department of Economics and Management University of Pisa and Sant'Anna of Advance Study, Italy
7/2014-1/2015	**Short course in Economics** Vietnam center of research in Economics, Managerment and Environtment, Vietnam
09/2009-10/2013	**Bachelor of Science in Mathematics** University of Science, Ho Chi Minh City, Vietnam **Specialization:** Mathematical analysis

Master Thesis

• Title	**A revised version of the Cathcart & El-Jahel model, application to CDS market**
• Supervisors	Davide Radi

• Description

The main objective of this thesis is to derive a closed form solution for pricing defaultable bond and credit default swaps (CDS) using a revised version of the middle approach model proposed by Cathcart-El Jahel (2004). In particular, we use the Vasicek model instead of the Cox-Ingersoll-Ross (CIR) model to account for possible negative Euribor interest rate that recently occured. Moreover, the goodness-of-fit of model also be studied by first implementing the Maximal Likelihood method (MLE) to estimate the parameter of Vasicek process, then by the explicit formula of CDSs derived, we estimate the parameters of the remaining structural components. The result obtained show a high satisfactory agreement between the result and market data. Besides, the closed form solution ensures a very fast implementation which is essential for practical purposes.

Experience

12/2018-5/2019 **Teaching Assistant**
Management of Business and Economics programme (undergraduate program)
Department of Economics and Management
University of Pisa, Italy
Subject: Principle of mathematics

09/2017-12/2017 **Internship at Italian national institute of statistics (ISTAT)**
Title of project: Analysis on micro and small craft business
Content of project: The training focus on the business analysis of small craft firms based on the use of administrative data sources, time series and statistical technique and program (R)

10/2013-05/2015 **Teaching Assistant**
Faculty of mathematics, University of Science, Ho Chi Minh City, Vietnam.
Subject: Calculus

8/2015-12/2015 **Research Assistant, John Von Neumann Institute**
National University, Ho Chi Minh City, Vietnam.

Languages

Mother tongue **Vietnamese**

Self-assessment
European level(⋆)

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user

(⋆) *Common European Framework of Reference (CEF) level*

Specialization

Mathematics

Functional analysis, Linear algebra Optimization theory Optimal control Ordinary differential equation Partial differential equation

Mathematics for finance	discrete-time stochastic processes, binomial models for pricing pricing and hedging European call and put options, fundamental theory of asset pricing, Discrete market models and numerical methods using Matlab, Continuous-time stochastic processes, Feynman-Kac formula,
Probability	Measurement theory, random variable (discrete and continuous), probability distribution and density function, moment generating function, some typical distribution (normal, student, poison, gamma), hazard process, random sampling, point estimation, interval estimation, Modeling stochastic interest rates and pricing defaultable-bonds: Vasicek and CIR Models, 9. Pricing credit-risk derivatives: structural models, reduced-form models, hybrid models, Levy processes and stochastic calculus for Jump processes
Statistics	Hypothesis testing, T-test, F-test
Econometrics	Ordinary Least Squares (OLS) method, Restricted Least Squares (RLS), Generalized Least Squares (GLS), Maximum Likelihood (ML) estimation, Instrumental Variables (IV), Two Stage Least Squares (TSLS) and control function approach (CF), causal effect, estimate of counterfactual, evaluation desire (from random assigment to quasi experimental evaluation method), non-parametric techniques, bootraps, Bayesian statistical inference, panel data, spartial analysis method.

Computer skills

OS	Good command of Microsoft Office™ family, experience at using LaTex (Texmaker, LyX)
Scientific	Experience at using technical computing programme (Matlab) for numerical computing (ordinary differential equation (ODE) and partial differential equation (PDE), stochastic differential equation (SDE) and simulation (Monte Carlo, Monte Carlo for Valuation at Risk (VAR) model, agent based model). Experience at using statistical programme (R), in particular: important statistical tests, estimation, small area method estimation, spatial analysis, bootstrapping.
Python	Intermediate user: Python list, Functions and Packages NumPy Matplotlib Dictionaries & Pandas Logics, control, flow, Filterring Floop Writing your own functions Default arguments, variable-length arguments and scope, Lambda functions and error-handling, Using iterators in Python-Land List comprehensions and generators Importing data: Flat file, pickled files, Excel spreadsheets, SAS and Stata files, HDF5 , Matlab file, Web data: files or HTML Extract meaningful data from relational databases Extracting data from APIs diving into the OMDB and Library of Congress APIs. Exploring, Tidying, Combining and Cleaning data for analysis. Data visualization with Matplotlib and Seaborn. Explainatory analysis with Linear regression, Logistic Regression, Parameter estimation by optimization, Bootstrap confidence intervals, Hypothesis testing

	Machine Learning with Gradient Descent, Tree-Based Models Deep learning with Neural Network layers

Additional information

Working paper	A revised version of the Cathcart & El-Jahel model. Application to CDS market (with Prof Davide Radi)
Conference	The 8th Vietnamese Mathematical Conference, Nha Trang City, Vietnam
Honours and Award	University of Science Academic Incentive Scholarship 2011 for excellent student