Quantitative Finance in NUS

Quantitative Finance

Questions?

Ask them during our
Q&A Session or contact us!

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Open House 2022

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Quantitative Finance in NUS

Department of Mathematics

Why Quantitative Finance?

- Financial institutions are increasingly using sophisticated mathematical models in order to develop and price innovative financial products, and to quantify and manage risks in their portfolios of financial assets.

- This results in a strong demand from the finance industry for graduates with a high level of quantitative and analytical skills.

What is QF Major?

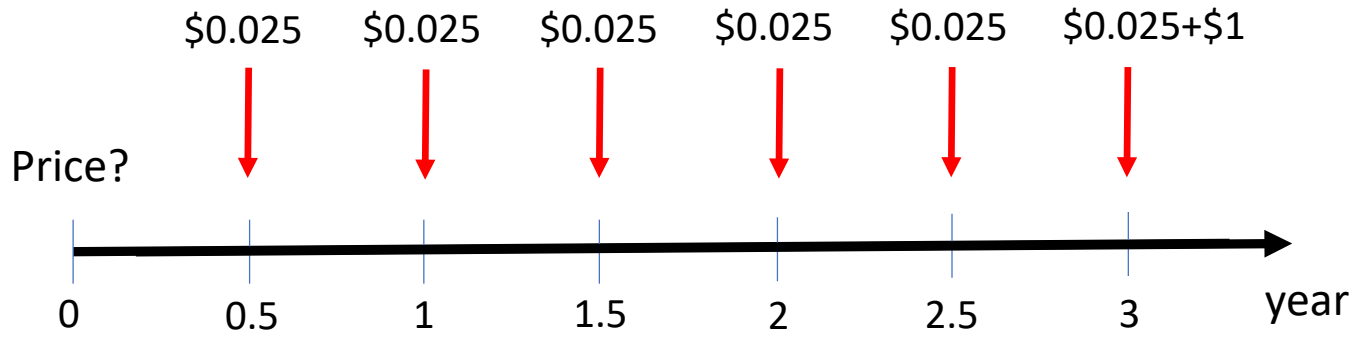
- The QF major is designed to meet the demand of the finance industry and for students who aspire to work in the finance industry as a Quant or Risk analysts.

- A multidisciplinary major that combines Mathematics, Finance, Statistics and Computing with a practical orientation.

- Students admitted to CHS can register to major in QF in year 1.

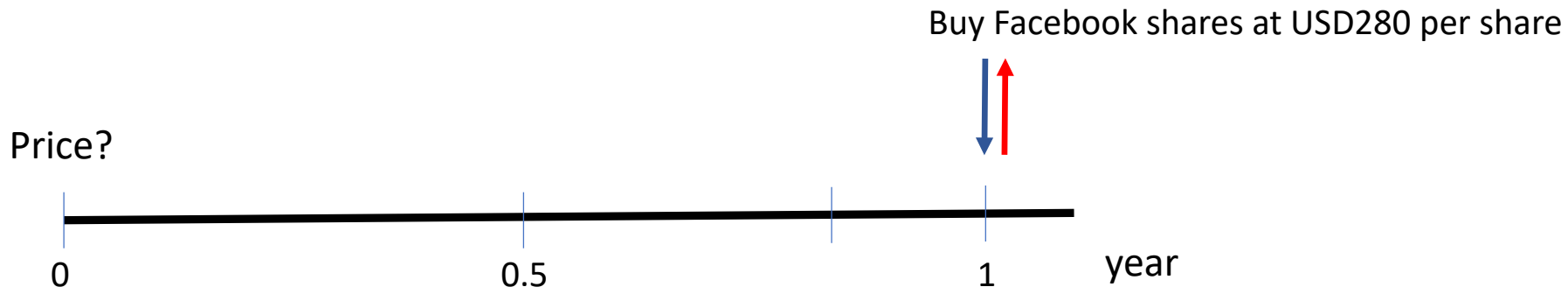
Example QF problem 1

- A bond issued by a government pays coupons at 5% every 6 months for the next 3 years. What should be its current price for every dollar of the principal?



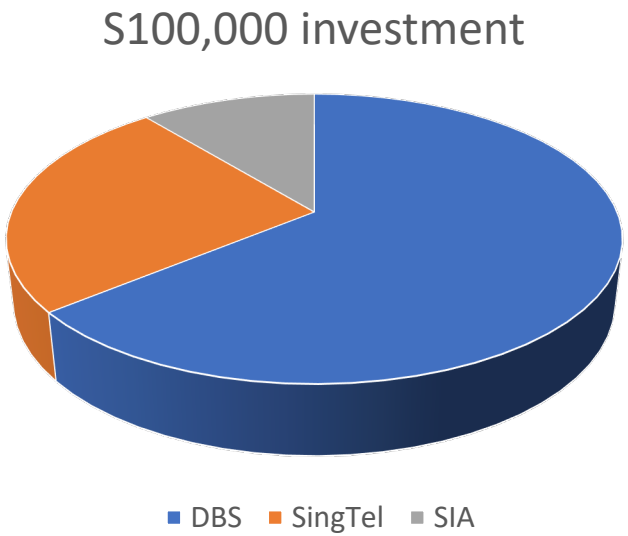
Example QF problem 2

- An option gives the option holder the right to buy 1000 shares of Facebook at USD 280 per share one year from now? What should the current option price be?



Example QF problem 3

- You has $100,000 to invest in shares of SIA, Singtel and DBS for one year. How should the investor allocate the money so that the investment has minimum risk and with an expected return of at least 5%?



Career opportunities

Potential Employers

- Banks
- Investment Companies
- Securities Firms
- Insurance Companies

Career opportunities

Job Scope

- Financial Product Development and Pricing (Structured Deposits, Exotic Derivatives)
- Risk Management
- Investment Decision Making and Fund Management
- Wealth Management

QF Curriculum

The curriculum covers the following areas:

- Mathematical Theory and Tools
- Statistical Methods
- Computing Theory and Techniques
- Financial Theory, Principles and Algorithms
- Core Financial Product Knowledge

QF major requirements

Module Level	Major Requirements	Level MCs	Cumulative MCs
1000	• QF1100 Introduction to Quantitative Finance	4	4
2000	• MA2001 Linear Algebra I • MA2002 Calculus • MA2104 Multivariable Calculus • MA2213 Numerical Analysis I or DSA2102 Essential Data Analytics Tools: Numerical Computation • MA2116/ST2131 Probability • QF2103 Computing for Quantitative Finance • QF2104 Fundamentals of Quantitative Finance	28	32
3000	• QF3101 Investment Instruments and Risk Management • QF3103 Advanced Mathematics in Quantitative Finance • ST3131 Regression Analysis	12	44

4000	• QF4102 Financial Modelling and Computation
	• QF4103 Mathematical Models of Financial Derivatives
	• QF4104 Project in Quantitative Finance and Fintech
	• Pass one module from the following:
	  • QF4211/DSE4211 Digital Currencies
	  • QF4212/DSE4212 Data Science in FinTech
	  • QF4205 Time Series Analysis in Quantitative Finance
		16	60

Thank You