

**The London Institute
of Banking & Finance**

Derivatives and Risk Management



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MODULE SPECIFICATION

1. Title	Derivatives and Risk Management	
2. Start date	2016	
3. Level of module	Level 6 FHEQ	
4. Number of credits	30 Credits	ECTS Value
		15
5. Status	<ul style="list-style-type: none"> • Compulsory 	
6. Recommended prior modules	<ul style="list-style-type: none"> • Fixed Income Markets 	
7. Programmes of study to which module contributes	<ul style="list-style-type: none"> • BSc (Hons) in Finance, Investment and Risk 	
8. Campus/Partner	N/A	
9. Syllabus overview	<p>Over the last 20 years, the use and complexity of derivatives has increased exponentially with market participants such as banks, fund managers, traders, and corporate treasurers using an increasingly diverse array of exotic instruments to hedge, speculate and undertake arbitrage. The way in which derivatives are traded continues to evolve, largely influenced by global regulators. The use of derivatives exacerbated the impact of the 2007/2008 financial crisis with derivatives such as credit default swaps and OTC derivatives in general being singled out. The use of derivatives clearly has a wide ranging impact beyond just the financial sector and impacts a wide range of stakeholders.</p> <p>In addition to systemic events, many companies and banks have experienced huge trading losses through the trading of derivatives. In recent years banks, such as Societe Generale and JP Morgan, have reported large trading losses as a result of derivatives. Many banks have not only had to deal with the losses but have also been hit with huge fines from regulators across the world for having “unsound” practices. Examples of derivatives losses can also be found in the corporate world, with companies such as Southwest Airlines being good examples of sub optimal hedging strategies.</p> <p>The regulation of derivatives is a constantly changing paradigm as regulators seek to put in place greater control over the way in which derivatives are used and reported. There has been, and continues to be, huge reforms in the way derivatives are regulated, such as those regulations laid out in the Dodd-Frank ACT and in the European Market Infrastructure Regulations. These changes, and the increased scrutiny of derivatives, are set to continue for a long time.</p> <p>Overall, this module aims to investigate the pricing and use of a range of equity, foreign exchange, interest rate commodity and exotic derivatives along with developing students’ ability to evaluate the systemic impact the risks associated with derivatives pose. Students will also investigate the main participants in the derivatives market and analyse the regulatory developments which are shaping the derivatives market today.</p>	

10. Intended subject specific learning outcomes and, as appropriate, their relationship to programme learning outcomes

On completion of this module, students will be able to:

- a) Evaluate the use of derivatives throughout the global financial system and the systemic risks that they can create.
- b) Demonstrate a detailed and critical appreciation of the use of a range of derivatives for hedging, speculating and arbitrage and the trading / settlement systems that are used by market participants.
- c) Undertake complex calculations and analysis to demonstrate the use and pricing of fixing (ie futures, forward and swaps) and options instruments.
- d) Critically evaluate the pricing and use of exotic derivatives, such as credit and weather derivatives.
- e) Analyse the ways in which derivatives are regulated globally and the standards required of the market participants when trading them.

These intended module learning outcomes contribute to the following programme learning outcomes:

- BSc (Hons) in Finance, Investment and Risk: A2, A3 and A5.

11. Intended generic learning outcomes and, as appropriate, their relationship to programme learning outcomes

On completion of this module, students will be able to demonstrate achievement of the following generic learning outcomes:

1. Critical thinking skills.
2. Ability to learn through reflection on practice and experience.
3. Ability to work with complex material.
4. Ability to analyse problems and identify appropriate solutions.
5. Ability to work and study independently and in groups, and utilise resources effectively.
6. Communication and report writing skills.

These intended generic learning outcomes contribute to the following programme learning outcomes:

- BSc (Hons) in Finance, Investment and Risk: B–D.

12. Learning and teaching

A. Learning hours

For a module of study worth 30 credits, the total expected study hours are 300 (ie ten hours per credit). The contact hours will depend upon the student's mode of study.

B. Tuition Support

Distance Learning

Distance learning allows students to study independently within a clear framework, but at a pace that suits their personal circumstances and study needs. Over their course of study (24 weeks), students will be provided with comprehensive learning materials, study guides and will be assigned to a subject specialist academic tutor to support their studies. Distance learners will have regular contact with The London Institute of Banking & Finance Academic Tutor and further practical support is available from The London Institute of Banking & Finance Student Services.

Flexible Learning

Flexible learning allows distance learners to opt for three face-to-face workshops of approximately six hours each, evenly spread at appointed dates in each session (24 weeks).

Dispersed campuses

Dispersed campus students will have regular face-to-face sessions over each session of study. The timing will depend upon local timetabling arrangements (eg via evening classes).

Full-time students

Full-time students will study on a semester basis supported by their module lecturer. The weekly timetable will be advised at the start of the programme.

C. Learning materials and learning outcomes

The teaching and learning strategy is designed to ensure that the students achieve the learning outcomes by the end of the module. The teaching and learning methods include formal lecture and tutorial (full-time), online learning support from an appointed lecturer (distance / flexible learning), private study of text and other supporting materials, a formal coursework assignment, informal exercises (both individual and group-based), and pooling of experience and knowledge through class / forum and individual discussion. The assessment strategy is designed to achieve a balance between testing the student's skills of knowledge recall and understanding and those of research and application.

D. Reading

Students will be provided with a set text or equivalent, as detailed below but will also be expected to read and research a variety of sources. Lecturers will also recommend additional reading throughout the module.

Essential reading

- Hull, J. (2014) *Options, futures and other derivatives*. 9th edn. Prentice Hall.

Further reading

- Chisholm, A. M. (2010) *Derivatives demystified: A step by step guide to forwards, futures, swaps & options*. 2nd edn. Wiley Finance.
- Steiner, B. (2007) *Mastering financial calculations*. 2nd edn. FT Prentice Hall.
- Taylor, F. (2011) *Mastering derivatives markets*. 4th edn. FT Prentice Hall.

Journals

- Journal of Derivatives
- Journal of Banking and Finance
- The Economist
- Financial World

Each student will have access to the Virtual Learning Environment (VLE) and to *KnowledgeBank* learning resources (an electronic library service). Students will be issued with a study guide to support their learning on the module.

It should be noted that due to the rapidly changing environment that encapsulates the financial services sector, the reading list above is indicative only. It is subject to review and update at the discretion of the module team. An up-to-date reading list is made available to students at the commencement of the module.

13. Assessment

Component	Duration / Length	Weighting
Component 1 Summative assignment	4,000 words including quotations and in-text citations	30%
Component 2 Examination	three hours (plus 15 minutes preparation time)	70%

Component 1: Summative assignment

This component will contribute 30% of the overall assessment and will be based upon the submission of one assignment (maximum 4,000 words including quotations and in-text citations). The focus of the assignment will be on exploring the relationships between issues and topics within the module syllabus focusing on contemporary developments.

The pass mark for this component is 40%.

Component 2: Examination

This component will contribute 70% of the overall assessment. A variety of question styles and approaches may be included in the examination. Questions might require responses that involve both discursive and quantitative elements. Students will typically be required to explore and compare specific aspects of an issue or to apply their technical abilities and understanding to, for example, solve a problem or provide a recommendation.

The question paper will be structured as follows:

- **Section A:** One compulsory 40-mark question.
- **Section B:** Three 20-mark questions, from a choice of four.

The pass mark for this component is 40%.

Time allowed: 3 hours (plus 15 minutes reading time).

You may use a scientific calculator but it must not be programmable, nor have a wireless-communications capability, nor be capable of storing textual information. It must also not require a mains electricity supply. Calculators with any further functions are not allowed in the examination room.

At regular intervals during the course of study, students will be expected to complete formative assignments and tests. Specifically, students will be expected to utilise the online question bank to test their progress on the quantitative content of the module. This will provide good preparation for the exam, and highlight areas of weakness and knowledge gaps which need to be addressed. Other formative assignments will take the form of developmental learning activities towards the assessed coursework and unseen examination components and will be integrated within the study plan. They will provide students both with opportunities to reinforce their learning as they progress through the course of study and the opportunity to prepare for both the summative assignment and unseen examination.

Whilst these formative assignments will not contribute to the overall assessment, students are strongly advised to take the opportunity to complete them, as feedback will be provided from their lecturer on their progress through the course of study.

Students should be aware of the regulations governing the award of credit and the arrangements for compensation, condonement and the capping of marks. Students should also be aware of the regulations relating to the resitting of assessment components and / or the retaking of modules. This information is contained within The London Institute of Banking & Finance General and Academic Regulations for Students sections 7, 8 and 9.

Module Grading

A student's module performance grade is determined by their overall weighted average percentage score in accordance with the following:

3 rd	40%	-	49%
2.2	50%	-	59%
2.1	60%	-	69%
1 st	70%	-	100%

14. Syllabus

1. Concept of Risk and Derivatives

This section will introduce the nature of the global derivatives market and the main participants. Students will also explore some of the past crises caused by derivatives and establish some of the broad advantages and disadvantages of their use. Students will establish the difference between exchange traded and over the counter variants and then move onto establishing the relationship between cash market instruments and the pricing principals of derivatives. The key topics this section will cover include:

- The size of the derivatives market.
- Participants in the derivatives market.
- Financial engineering and risk.
- Cash instruments versus derivatives.
- Risk Management and Derivatives.
- Derivatives and Leverage – on balance sheet and off balance sheet.
- Risk in derivatives transactions.
- OTC derivatives and exchange-traded derivatives.
- Impact of derivatives on wider economy.
- Principals of derivatives pricing.

2. Fixing Instruments

This section will investigate the use (ie arbitrage, hedging and speculation) of fixing derivatives such as futures, forwards and swaps. Each type will be introduced and then detailed investigation will be carried out on their use, pricing and trading. Key issues such as the credit risk derived from their use and settlement conventions will be explored along with key concepts such as margin requirements. Complex numerical examples will be worked through to demonstrate how each type can be used for hedging, speculation and arbitrage. The key topics this section will cover include:

- Equity, commodity, interest rate, foreign exchange and other futures.
- Trading futures.
- Initial margin (SPAN methodology) and variation margin requirements.
- Futures pricing.
- Futures trading strategies for hedging, speculation and arbitrage.
- Futures vs forwards.
- Settlement of forwards and close outs.
- Equity, commodity, interest rate, foreign exchange and other swaps.
- Swap pricing and credit risk.
- Swap settlement conventions and early close out calculations.
- Swaptions.

3. Option Instruments

This section will take a similar approach as section two, namely investigating the use (ie arbitrage, hedging and speculation) and pricing of derivatives but instead focusing on options. A detailed understanding will be gained on option pricing and the Black Scholes option pricing model along with the assumptions which underpin pricing models. The key topics this section will cover include:

- Exchange traded and over the counter principles.
- Equity, commodity, interest rate, foreign exchange and other options.
- Option quotation principles.
- Option pricing, binomial trees and Black Scholes.
- Option trading strategies.
- Gamma and delta hedging.

4. Exotic Derivatives

This section explores some of the key developments in the derivatives market in terms of product innovation and some of the more advanced derivative contracts which market participants use. This section builds on the principals of the vanilla products covered earlier in the module and provide additional complexity for students to understand and to apply to practical situations. The key topics this section will cover include:

- Credit derivatives.
- Weather derivatives.
- Death / longevity derivatives.
- Other exotic derivatives and trading strategies.
- Structured products.
- Advanced option contracts.
- Synthetic ETFs.

5. Current Issues in Derivatives and Regulation

This section provides a valuable insight into the way in which derivatives are regulated and the key regulatory changes over the last few years. The regulations and changes will be investigated from the prospective of banks, companies and other market participants. Students will also look at the valuable role of back and middle office functions in managing derivatives positions and risk along with the importance of culture and ethics in trading derivatives. This topic will evolve over time given the pace of change in the derivatives market but will cover the following content:

- Regulation of derivatives under Dodd-Frank and EMIR.
- CVAs, CSAs and FVAs.
- Other derivatives regulations.
- Ethical standards required in derivatives markets.
- Back and middle office roles.
- Emerging issues in derivatives markets and the socially positive impact of derivatives.
- The creation of unknown risks through the use of derivatives.
- The impact of trading psychology and behavioural finance on risk management.