Lucerne University of
Applied Sciences and Arts
HOCHSCHULE
LUZERN
Business
FH Zentralschweiz

M5: Derivatives and Structured Products

General Information

Module Code	W.MSCBF_DSP01.25
Programme	Master of Science in Banking and Finance
Type of Module	Core module in focus programme
Level of Module	Intermediate
ECTS Credits / Workload	4 ECTS Credits (120 hours)

Module Dependencies

Pre-requisites	Basic knowledge of derivatives learned during the bachelor's degree
Follow-up modules	Various advanced courses later in the programme

Module Aims

Over the last 30 years derivatives have become increasingly important in finance. Futures and options are actively traded on many exchanges all over the world. Many different types of forward contracts, swaps, options and other derivatives are entered into the over-the-counter market by financial institutions, fund managers and corporate treasurers. Derivatives are added to bond issues, used in executive compensation plans, embedded in capital investment opportunities, used to transfer risks from the original lenders to investors in mortgages, etc.. We have now reached the stage where those who work in finance and also people who work outside finance need to understand how derivatives work, how they are used and how they are priced. Whether you love derivatives or hate them, you cannot ignore them! The derivatives market is huge – much bigger than the stock market when measured in terms of underlying assets. The value of the assets underlying outstanding derivatives transactions is several times the world's gross domestic product. Derivatives also are the building blocks for more complicated, structured products.
This module starts with simple derivatives (forwards, CFDs, futures, options) and goes on to discuss the main categories of structured products – on a stand-alone basis as well as in a portfolio context. Students will have to develop and implement trading strategies involving derivatives and structured products in a real-life trading environment.

Learning Outcome 1

	Importance	Relevant NQF-Descriptors
Subject knowledge and skills: Students i) are able to judge when investments in derivatives and/or structured products are adequate; ii) are able to recognise, classify and reflect on the most important derivatives and structured products	high	knowledge; application; judgement
Methodology: Students are able to develop and implement trading strategies involving derivatives and structured products.	medium	application; judgement

Content Outline

Session 1 (4 lessons), Dr. Philippe Oster

Introduction to the Derivative Trading Game (DTG)
- Mission and learning objectives of the DTG
- Analysis tools, methods & systematic
- Investment and trading process
- DTG group formation, platform login and assignment
- References and example of analysis and trades

Sessions 2 to 5 (4 lessons each), Prof. Dr. Jürg Fausch

Derivative Pricing in Discrete Time
- Principles of Derivatives, Hull, Ch. 9/10
- Binomial Model, Hull, Ch. 12

Derivative Pricing in Continuous Time
- Wiener processes and Itô's Lemma, Hull, Ch. 13
- The Black-Scholes-Merton Model, Hull, Ch. 14
- The Greek Letters, Hull, Ch. 18
- Volatility Smiles, Hull, Ch. 19

Session 6 (4 lessons), Dr. Philippe Oster
- Derivative Trading Game
- Discussion
- Q&A

Session 7 (4 lessons), Dr. Philippe Oster

1. Structured Products Introduction
- Definition and Scientific View
- Advantages / Disadvantages
- Counterparty Risk
- Demand, Fees, Structure, Evolution
- Market Structure

2. Categories of Structured Products
- Swiss Structured Products Association (SSPA)
- Capital Protection
- Yield Enhancement
- Participation Products
- Leverage Products

3. Structured Products Applied on Underlying's
- Term Sheet Reading
- Customized Online-Constructor
- Current Structured Products available on the Market

Session 8 (4 lessons), Dr. Philippe Oster

4. Presentation on current structured products available on the market
- Provide some key information (SSPA category, key data and payoff diagram)

5. Portfolio Optimization
- Option pricing with Bloomberg
- Portfolio optimization on equities
- Portfolio optimization on bonds

6. Hedging
- Interest rate hedging with swaps (replication with Excel and Swap Manager Bloomberg)
- Interest rate hedging with options
- Currency hedging based on the 3-month SARON® rate

Appendix: Option Strategies (including Excel, not relevant for the exam)
- Covered Call & Protective Put
- Bull Spread strategy & Bear Spread strategy
- Butterfly Spread
- Straddle

Mandatory reading for sessions 2-8:
John C. Hull: Options, Futures, and Other Derivatives

Optional readings for sessions 2-8:
Andreas Bluemke: How to Invest in Structured Products. A Guide for Investors and Asset Managers
Slah Boughattas: State of the art in structured products: Fundamentals, Designing, Pricing, and Hedging

Teaching and Learning Methods

Contact Hours	exercises; lecture; presentations; discussion; group work
Directed Study	group work

Workload

Contact Hours	32 lessons / 24 hours (20%)
Directed Study	120 lessons / 90 hours (75%)
Private Study	6 hours (5%)

Assignments and Assessments

Assessment Type	Quantity	Weight	Form	Evaluation Type	Time
Written examination	90 minutes	70%	closed book	grades	during exam weeks
Written group assignment		30%		grades	during semester