

Master of Science Investments

Developed, fully taught and awarded by University of Birmingham, UK

MODULES

FINANCIAL MODELLING AND FORECASTING TECHNIQUES (20 credits)

This module focuses on some key statistical techniques relating to the analysis of real world financial data in order to understand how to model and forecast financial variables. The module covers financial time series modelling, or broadly time series econometrics as applied in finance, financial economics, securities and investments. Theoretical as well as practical issues are considered.

This module aims to equip students with a sound knowledge of some key modern econometric techniques commonly employed in the finance literature, especially for financial modelling and forecasting with a view to use in the Summer dissertation and beyond. The module also aims to provide training in the use of one of the main econometric packages, EViews.

The key topics covered are:

1. Introduction to financial modelling and forecasting techniques
2. Model building with the Classical Linear Regression Model (CLRM)
3. Univariate time series modelling and forecasting
4. Multivariate models
5. Testing for unit root and cointegration in modelling long-run relationships in finance
6. Modelling and forecasting volatility
7. Doing a dissertation in empirical finance

FOREIGN EXCHANGE AND INTERNATIONAL MONEY MARKETS (20 credits)

Adopting a formal (i.e. mathematical) approach, the module deals with the foundations of economics, examining the behaviour of the two most basic agents of the economy, the consumer and the firm, their interaction in markets, and social decisions.

This module is about the markets for foreign exchange and other foreign financial assets. Different methods of determining foreign exchange rates are considered together with the reasons for variation in exchange rates. Some techniques of hedging foreign exchange risk are also considered.

The key topics covered are:

1. Introduction to foreign exchange markets – organisation
2. Foreign exchange rate quotations
3. Alternative exchange rate systems
4. Foreign exchange rate theories
5. International parity conditions
6. Currency risk management I
7. Currency risk management II
8. Currency risk management III
9. International money markets

FINANCIAL STATEMENT ANALYSIS FOR INVESTORS (10 credits)

The Financial Statement Analysis for Investors module is designed as an introduction to financial reporting and financial statement analysis, for students with little or no background in accounting.

The key topics covered are:

1. How does business work? Where does a company's money come from and where does it go?
2. An overview of accounting and financial reporting. How do business transactions and activities appear in a company's financial statements?
3. Financial ratio analysis. Analysing the financial statements to gain an understanding of the underlying business.
4. How accountants measure and report. What values do the financial statements contain?
5. Business combinations and consolidated accounts
6. Creative accounting and fundamental analysis

FUND MANAGEMENT (10 credits)

This module deals with the management of portfolios, largely from an institutional standpoint. Ethical issues, asset allocation strategies, portfolio construction and optimisation methods are discussed. The efficient market hypothesis (EMH) will be very briefly reviewed and its implications for portfolio management will be discussed in terms of screening strategies, active, passive, core–satellite, high speed trading and international diversification strategies. Aspects of behavioural finance will be reviewed and its relevance to investment decisions. Bond portfolio management will be discussed in terms of duration, convexity and immunisation strategies. The uses of derivatives for modifying asset allocation and mitigating market and currency risk exposures will be illustrated using hedging examples. Key elements of hedge fund strategies will be reviewed and their risks discussed. The final topic will deal with the various methods for evaluating the performance of portfolio management.

The key topics covered are:

1. Introduction to the principles of investment management, ethics and regulatory issues
2. Portfolio construction and optimisation techniques
3. EMH, high speed trading, screening models
4. Behavioural finance and its implications for investors
5. Socially responsible investing
6. Emerging markets and international investment
7. Derivatives and hedging in fund management
8. Structured debt and bond portfolio modification
9. Hedge fund strategies
10. Performance evaluation

INVESTMENT MATHEMATICS, CONCEPTS AND MARKETS (10 credits)

The aim of this module is to teach students a wide range of techniques of valuation of different debt instruments and securities. Students will also learn the techniques of valuation of consumer credit and the meaning of investment statistics that are usually published in the Financial Times and other

similar publications.

The key topics covered are:

1. Interest rate theory I
2. Interest rate theory II
3. Interest rate theory III
4. Interpretation of the statistics of gilt edged securities published in the FT, investment concepts and markets I
5. Interpretation of the statistics of gilt edged securities published in the FT, investment concepts and markets II
6. Valuation of index-linked bonds
7. Valuation of corporate debt instruments and securities with allowance for income tax and capital gains tax
8. Valuation of corporate debt instruments and securities with sinking fund provision and/or call provision
9. Valuation of consumer credit

PORTFOLIO THEORY AND INVESTMENT ANALYSIS (10 credits)

The course provides students with an understanding of the pricing and risks of financial securities, both individually and in portfolios. The international context of investment is also reflected in the module. The CAPM and APT are discussed as are various models for valuing options and futures. The use of options and futures in speculative activities and risk management will also be considered. The course is a pre-requisite for Fund Management.

The key topics covered are:

1. Introduction: Capital market characteristics, risk and return
2. Portfolio Theory: Combining securities into portfolio, capital allocation with risk-free asset and index model
3. Pricing Financial Assets: CAPM and APT
4. International capital markets and investments
5. Futures pricing and strategies
6. Option pricing models and strategies

PRIVATE EQUITY AND VENTURE FINANCE (10 credits)

The module deals with private equity and venture finance from inception of the idea to harvesting (exiting) of the investment. The first half of the module deals with institutional background of new venture financing and differences between entrepreneurial and 'traditional' corporate finance. The second half will cover aspects of initial valuation and alternative ways to harvest equity investments. In particular, we deal with the initial public offerings (IPO) process and financial performance of venture-backed- companies.

The key topics covered are:

1. Venture finance and traditional corporate finance theory
2. Raising and structuring private equity funds

3. Information, incentives and contracting
4. Initial valuation in private equity settings
5. Exiting private equity investments
6. Post exit market valuation
7. Decision trees and real options

RISK MANAGEMENT (10 credits)

This module is concerned with investment management from a risk management perspective. Various risk exposures and their relevance to fund management explained. Derivatives – futures, options, credit and swaps- are briefly reviewed and illustrations of their application to managing various risks are presented. Value-at-Risk (VaR), Expected shortfall, and Credit models are discussed and illustrated. The roles of stress testing and back testing of models are reviewed. A review of developments in credit risk management will be covered at a cursory level.

The key topics covered are:

1. Introduction to risk management
2. Interest rate hedging strategies of fixed income securities
3. Duration, convexity and immunisation for fixed income portfolios
4. Swaps contracts and the mechanics of interest rate swaps
5. Options and futures trading strategies
6. Value-at-Risk (VaR) and the use of back and stress testing models
7. Credit risk models and the application of credit derivatives

SECURITY ANALYSIS AND VALUATION (10 credits)

This module examine different ways in which analysts and investors can determine the value of underlying firms. It focuses on applying fundamental analysis to evaluate business strategies and security value through qualitative research in the public domain. Through financial statement forecasting, through relative valuation techniques and through the use of financial statements.

The key topics covered are:

1. Introduction, measuring earnings and value
2. Introduction to strategy analysis
3. Strategy analysis case study applications
4. Dividend, earnings and cash flow valuation models
5. Forecasting key information for valuation models
6. Anchoring value and terminal value estimation and growth
7. Key ratios – ROE, ROA decomposition and their drivers
8. Financial statement analysis - balance sheet, earnings statement and cash flow
9. Relative valuation methods including P/E ratios

TRADING TECHNIQUES (10 credits)

This module is a detailed introduction to global macro fundamental analysis, advanced technical analysis, risk management, behavioural finance, modern day monetary policy and asset class

correlations. This is a very practical module where students will be taken through key theoretical concepts used by today's traders and investors. Practical application of these theoretical concepts will then be carried out in trading tutorials where students will manage their own professional trading system allowing them to analyse, trade and manage positions in real-time market movement.

The key topics covered are:

1. Introduction to financial markets, macro fundamentals and technical analysis
2. Exchange rates and international macroeconomics
3. The banking system, money supply and money demand
4. Commodity markets
5. Behavioural finance, trading psychology and ethics

DISSERTATION (60 credits)

Following the completion of the taught part of the programme, you will be expected to complete a 10,000 to 12,000 word dissertation. The dissertation is an in-depth individual research study of a particular issue within the field of investments. It will outline understanding of current theory and literature, describe in detail methodology of data gathering, outline the evidence gathered, analysis and interpretation; and finally explore conclusions, and if relevant to the study, recommendations.

A supervisor will be assigned to guide you with your dissertation. The dissertation topic will be your choice and you should try to link your topic to possible opportunities that may relate to the next steps in your future/existing career.