ACI Diploma New Version

Syllabus

Effective 6 December 2019

Exam Code 003-101

"Setting the benchmark in certifying the financial industry globally"

**8 Rue du Mail, 75002 Paris - France
T: +33 1 42975115 - www.acifma.com**

Examination delivered in English

Introduction

The ACI Diploma New Version builds on the ACI Dealing Certificate and the ACI Operations Certificate, being designed to ensure that candidates acquire a superior theoretical and practical knowledge of the foreign exchange and money markets, their related instruments, environment and applications, and the linkages that exist between those markets and the practice of risk management. Candidates are expected to have acquired a solid grounding in the core subject areas and have the requisite skills in financial mathematics prior to matriculating for the ACI Diploma New Version.

The course of study for the ACI Diploma New Version is designed for:

- ➢ Senior foreign exchange and money market dealers
- ➢ Corporate and bank treasurers
- ➢ Senior operations staff

Whilst recommended, there is no obligation for candidates to have passed either the ACI Dealing Certificate or ACI Operations Certificate in order to be eligible to register for the examination of the ACI Diploma New Version.

There are five core subject areas in the ACI Diploma New Version:
- ➢ Financial Markets Environment
- ➢ Foreign Exchange
- ➢ Rates (Money and Interest Rate Markets)
- ➢ FICC (Fixed Income, Currency and Commodities) Derivatives
- ➢ Financial Markets Applications

1. Financial Markets Environment

Overall Objectives: Candidates will understand how the foreign exchange and money markets operate within the constraints set by the international and domestic policies of governments, and how they are generally implemented by central banks. They will be able to understand and explain the role of fundamental forecasting, their principles and methodologies.

After completing this core area, candidates will be able to:

- Outline the roles of the IMF, the BIS and the OECD

- Distinguish between fixed and floating rate regimes, recognise the graduated nature of floating regimes, and explain the basic economic rationale for each type of regime

- Distinguish between sterilised and unsterilised currency intervention

- Explain why and how central banks intervene in the foreign exchange market and in their domestic money market, and understand their targets of monetary policy

- Outline the main factors affecting money market liquidity

- List the main tools of central bank money market intervention

- Explain the purpose of reserve requirements

- Explain the purpose of exchange controls

- Understand fundamental analysis

- Outline the main items in the balance of payments

- Outline the main items in the national income accounts

- Explain the links between the balance of payments and national income accounts

- Identify the economic and financial indicators that are proxies for the main items in the national income accounts and explain the connection

2. Foreign Exchange

Overall Objective: The objective of this area is to understand the historical evolution and central functions of the foreign exchange market and its related financial instruments and to acquire a broad range of practical skills such as: how to apply FX swaps in exploiting interest arbitrage opportunities and manage spot and forward FX positions, how to apply forward-forward FX swaps in managing interest rate risk and how to value forward FX positions. In addition, candidates are taught to exploit foreign exchange related instruments and understand their interrelationships. They will learn the relevant pricing mechanisms and display a good working knowledge and understanding of the rationale for NDFs.

After completing this core area, candidates will be able to:

- Explain the conventions for fixing the spot rate in both matched and mismatched principal FX swaps and describe the cost or benefit of different choices to the counterparties

- Analyse the impact of a change in the spot rate on an FX swap

- Describe how interest is managed in matched-principal FX swaps

- Calculate the cost of borrowing or lending through FX swaps and identify interest arbitrage opportunities

- Describe how to roll over a spot FX position with tom/next FX swaps; calculate the profit or loss, and identify the risks involved

- Roll-over a forward FX position at a historic rate

- Extend or reduce the term of an outright forward FX using FX swaps

- Describe forward-forward FX swaps, explain the strategies underlying their use and calculate profits or losses

- Calculate both sides of the theoretical swap points from a two-way spot and the bid and offered interest rates

- Calculate a FX cross-rate swap

- Calculate a FX swap over today and over tom

- Calculate the spot-risk hedge necessary for a forward FX position

- Outline the construction of FRAs and calculate synthetic FRAs using forward-forward FX swaps

- Outline the hedging of a forward-forward position using FRAs and / or futures

- Define an NDF and explain its rationale

- Describe the structure and the features of NDFs as well as their pricing and valuation

- Calculate the profit or loss on a spot FX position on T+1 for given revaluation rates

- Calculate the profit or loss on an FX swap position for given revaluation rates

- Calculate the profit or loss on an outright forward FX position at given revaluation rates

3. Rates

Overall Objective: Candidates will understand and be able to describe the central features and functions of the money and interest rate markets and their relationship with other financial markets. Candidates will learn about the cash instruments involved, their relative value and how they are traded. Candidates will understand how a fixed-income instrument works, how it is quoted, how to calculate its fair value and how to measure the interest rate risk. Candidates will learn to use yield-to-maturity, par yields and zero coupon yields in calculating the fair value of a fixed-income instrument, learn when and how to use each type of yield and how to calculate these yields. Candidates will demonstrate a good working knowledge of repos and their market, be able to describe the relationship of repos to the bond market, explain the related cashflows and understand the roles played by various market participants.

After completing this core area, candidates will be able to:

- Describe the principal comparative advantages and disadvantages of each of the main types of cash money market instruments for typical borrowers/issuers and lenders/investors

- Distinguish capital markets from money markets, and debt capital markets from equity and credit (loan) capital markets, and understand how these markets are a source of financing, a home for investment and a tool for trading

- Explain the features and conventions of CPs, CDs and T-Bills and perform the related calculations

- Calculate the holding period yield between the purchase and the sale of a CD or a T-Bill

- Explain the benefits of the programmed issuance of money market securities

- Explain the principal reasons for the spreads between the yields on the different types of instruments

- Distinguish and understand the credit ratings used by the main agencies for short-term instruments from longer-term ratings

- Describe the precise specifications of the most commonly used overnight indexes (OI)

- Distinguish domestic, foreign and eurobond markets

- Understand and distinguish different bond types such as ABS and covered bonds, index-linked bonds, bonds with puts, calls, etc.

- Explain the importance of government bond markets

- Explain the impact of credit risk (and credit spreads) on bond prices and swap rates

- Understand bond quotations in both price and yield terms, including clean and dirty prices, and calculate the accrued interest and dirty price of a bond

- Identify the day count, annual basis and compounding frequency conventions that apply to bond and swap markets in major currencies, and be able to convert among these conventions, and between bond and money market conventions

- Understand bond quotes against benchmark yields, swaps and on an asset-swap basis

- Calculate the fair value of plain vanilla and zero-coupon bonds from yield-to-maturity, the fair value on non-coupon dates, as well as quarterly and semi-annual coupon frequencies

- Explain the relationships between price, coupon and yield on fixed-income instruments

- Explain the interest rate risk profile of fixed rate bonds and measure this risk on a plain vanilla bond by calculating its duration (on a coupon date)

- Calculate the expected change in portfolio value for a given change in yield out of a given modified duration

- Understand the relationship between yield volatility and price volatility

- Understand the concepts of and distinguish the relationship between "yield-to-maturity", "zero-coupon-yield" and "par-yield", and explain the shortcomings of yield-to-maturity as a measure of the rate of return and the assumptions underlying its use in bond quotations

- Calculate a zero-coupon yield from a series of yields-to-maturity using the "bootstrapping" method and calculate a par yield from zero-coupon yields

- Explain the main reasons why initial margin is taken in repo, define margin threshold and minimum transfer amounts

- Calculate the start proceeds of a repo using the concept of the Margin Ratio in ICMA (formerly ISMA) repo documentation and a variety of collateral

- Explain the purpose of margin maintenance and calculate the margin call on a repo

- Describe the 'early termination and repricing' method used in sell/buy backs as an alternative to margining and calculate the payments or transfers due using this method

- Explain why counterparty risk is the primary concern in repo and understand the risks introduced by the usage of collateral

- Describe the working of tri-party repo

- Explain how rights of substitution work in repo

- Explain the main reasons why collateral goes on special and calculate the implied securities lending fee from the repo rate on specials

- Calculate the forward price of a sell/buy-back and recognise this as the forward price of the collateral

- Define an 'open' repo, 'repo-to-maturity' and 'forward' repo

- Explain how to construct a synthetic repo and recognise the difference in price levels between real and synthetic repos

- Calculate the break-even on a forward interest rate position partly derived from covered interest rate arbitrage using a US T-Bill

- Convert from the discount rate to the true yield

4. FICC Derivatives

Overall Objective: Candidates will understand the principles underlying basic option pricing theories, be able to explain the applications of options and describe option trading strategies. They will learn the pricing and application of money market futures and forward rate agreements, as well as money market swaps in hedging, risk-taking and arbitrage, and their interrelationships, and be able to use these instruments as a source of trading information.

At the end of this topic, candidates will be able to:

- Understand the logic underlying the Black-Scholes theory

- Outline some of the alternative pricing models available, including the binomial theorem for major underlying asset classes (Cox-Ross-Rubinstein, Monte Carlo, etc.)

- Define volatility as it is commonly understood in the context of options (ie standard deviation) and distinguish between historic and implied volatility

- Calculate the standard deviation of returns on a given underlying for a specific period

- Calculate the break-even price of an option

- Define a time option and price one from outright forward rates

- Identify the value of the underlying from the prices quoted for puts and calls at different strike prices

- Identify the intrinsic value of an option from the prices quoted for puts and calls at different strike prices

- Explain the skew of implied volatility

- Define put/call parity, and use it to construct synthetic cash, forward and options positions

- Explain delta and gamma hedging, and calculate delta hedges for plain vanilla options

- Explain the interaction of gamma and theta over the life of an option

- Describe the behaviour of the delta and gamma of in-the-money, out-of-the-money and at-the-money plain vanilla and barrier options, when the price of the underlying moves

- Estimate the net delta and vega of a simple options portfolio

- Explain how changes in the spot or forward price of the underlying, the time to expiry of an option, interest rates and volatility impact on the value of an option

- Explain the structure and purpose of straddles, strangles, butterflies, bull and bear call and put spreads, as well as risk reversals

- Define and explain caps, floors, collars as well as swaptions

- Describe the structure and purpose of the following exotic options: knock-in and knock-out, range binary, touch, digital and compound options

- Define a forward curve and explain the relationship between forward curves and the contemporaneous yield curve
- Calculate the exact cost of borrowing or return on lending that is hedged with an FRA
- Define and calculate the three types of basis between money market futures prices and other rates
- Explain how to compensate for the basis using the concept of convergence when hedging with futures
- Define and calculate the bid and offer price of IMM FRAs and swaps from futures strips and explain how to use a strip of futures to price non-IMM periods
- Calculate the hedging ratio on non-IMM periods hedged with futures using simple hedging techniques and the numbers of contracts needed
- Define and calculate the hedge ratio for futures hedges, adjusting for mismatches between the underlying term of the contract and the term of the transaction being hedged
- Outline the structure and purpose of strip and stack futures hedges
- Outline the structure and purpose of calendar spreads and other common types of futures spread strategies, and calculate the profit or loss on such trades
- Explain how to use futures spread trades to hedge the basis risk on futures hedges of non-IMM periods
- Define and explain the usefulness of the volume and open interest statistics on a futures contract
- Define and explain bond Futures
- Identify arbitrage opportunities between FRAs, money market futures and money market swaps
- Outline the problem of the convexity bias between futures and OTC derivatives like FRAs and swaps
- Describe how FRAs, futures and swaps can be used to hedge and arbitrage against each other
- Describe the applications of OIS in risk-taking, hedging and arbitrage
- Describe how OIS can be used to reduce market risk
- Describe the advantages of OIS over traditional term swaps for risk management
- Explain the characteristics of an interest rate swap (IRS) and of a cross currency interest rate swap (CIRS)
- Carry out calculations on proceeds, valuation, pricing and hedging of interest rate swaps (IRS) and cross currency interest rate swap (CIRS)
- Outline the features of forward swaps, amortising swaps and in arrears swaps
- Outline the features of a credit default swap (CDS)

5. Financial Markets Applications

Overall Objective: The objective of this area is to understand the risk governance arrangements and the risk management organisational structure of banks as well as their main functions. Candidates will be able to describe the role of risk capital and the structure of international capital adequacy requirements. Their understanding will extend to the principal methods of risk measurement, including the concept of Value-at-Risk (VaR). Candidates will also achieve a greater understanding of risk mitigation by means of netting positions through the comparison of alternative netting methods.

After completing this core area, candidates will be able to:

- Describe the exclusive roles of the front office, middle office (risk management function) and back office, and explain the need for the segregation of their duties

- Describe the role of the ALCO

- Describe the role of the credit committee

- Describe the role of audits

- Define risk capital, explain its role in covering unexpected losses, distinguish between economic and regulatory risk capital, and outline how capital is raised and re-invested

- Explain the purpose of the Basel Committee and outline the architecture of the Basel II Accord

- Explain the reason for the Market Risk Amendment originally released in 1996, modified in 1997 and revised in 2005 by the Basel Committee

- Explain the purpose of the EU Capital Adequacy Directive (CAD) and understand the BIS / CEBS capital adequacy recommendations

- Distinguish between parametric (statistical) and non-parametric measures of risk, and between the main non-parametric methods, and explain when each approach is appropriate

- Define Value-at-Risk (VaR)

- Explain the key assumptions in a VaR methodology (holding period, observation period and confidence interval)

- Explain the key assumptions underlying VaR (randomness, linearity and normal market conditions)

- Distinguish between undiversified and diversified VaR

- Explain the roles of stress testing and back testing

- Distinguish between payment netting, netting by novation and close-out & set-off

- Explain the working of a central clearing counterparty (CCP)

Examination Procedure

Format: The examination lasts 3 hours and consists of 100 multiple-choice questions. The **overall pass level** is 60% (60 correct answers), assuming that the minimum score criteria for each Topic Basket is met. There is a **minimum score criteria** of 50% for each Topic Basket. One mark is given for each correctly answered question.

Calculators: Some questions will require the use of a calculator. A basic one will be provided on the computer screen. You may also use your own hand-held calculator, provided it is neither text programmable nor capable of displaying graphics with a size more than 2 lines.

	Topic Basket (5)	Types of Questions	Number of Questions	Total Number of Questions	Minimum of Correct Answers	Minimum Score Level
1	Financial Markets Environment	Theory	10	10	5	50%
2	Foreign Exchange	Theory	9	16	8	50%
		Practical Exercises/ Calculations	7			
3	Rates	Theory	15	26	13	50%
		Practical Exercises/ Calculations	11			
4	FICC Derivatives	Theory	22	38	19	50%
		Practical Exercises/ Calculations	16			
5	Financial Markets Applications	Theory	10	10	5	50%
	Total		**100**	**100**	**60**	

Grades

Pass   60% - 69.99%
Merit   70% - 79.99%
Distinction   80% and above

Examination Fee

Euro 350.00, all taxes included.