

## Financial Markets and Institutions

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Written for undergraduate and graduate students of finance, economics, and business, the fourth edition of *Financial Markets and Institutions* provides a fresh analysis of the European financial system. Combining theory, data, and policy, this successful textbook examines and explains financial markets, financial infrastructures, financial institutions, and the challenges of financial supervision and competition policy. The fourth edition features not only greater discussion of the financial and euro crises and post-crisis reforms, but also new market developments like FinTech, blockchain, cryptocurrencies, and shadow banking. On the policy side, new material covers unconventional monetary policies, the Banking Union, the Capital Markets Union, Brexit, and the Basel III capital adequacy framework for banking supervision and macroprudential policies. The new edition also features wider international coverage, with greater emphasis on comparisons with countries outside the European Union, including the United States, China, and Japan.

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**Jakob de Haan** is Head of Research of De Nederlandsche Bank and Professor of Political Economy at the University of Groningen.

**Dirk Schoenmaker** is Professor of Banking and Finance at the Rotterdam School of Management, Erasmus University Rotterdam.

**Peter Wierts** is Senior Economist at the Payments and Market Infrastructures Division of De Nederlandsche Bank and Associate Professor of Finance at VU University Amsterdam.



# Financial Markets and Institutions

*A European Perspective*

Fourth Edition

**Jakob de Haan**

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**Dirk Schoenmaker**

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**Peter Wierds**

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## Preface

As a team of authors we have followed the building of the European financial system from different angles. We have contributed to the academic literature on this topic. Moreover, one of us has been teaching a course on European Financial Integration, from which this book has emerged. On the policy side, the authors have been directly involved in the work of national administrations (i.e. the Ministry of Finance, the Ministry of Economic Affairs in the Netherlands, and the Dutch central bank) as well as the European institutions (i.e. the Council, the European Commission, and the European Central Bank). As part of our job, two of us have participated in many meetings in Brussels discussing the future of European financial markets and institutions, and negotiating new European financial services directives.

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### What Is New in the Fourth Edition?

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Since the first edition of this book, the world's financial system has been through its greatest crisis for a century. What made this crisis unique is that severe financial problems emerged simultaneously in many different countries, and its economic impact was felt throughout the world as a result of the increased interconnectedness of the global economy. Financial innovation also played an important part in the financial crisis. Two chapters deal with (1) financial crises, including an overview of the causes and consequences of the 2007–2009 financial crisis as well as the more recent euro crisis, and (2)

financial innovation, including the role of securitisation and the shadow banking system.

In the fourth edition, the chapters on financial markets and institutions have been updated with new data through 2018 whenever possible. These extensive updates illustrate the impact of the financial crisis and the euro crisis on the process of European financial integration: a breakdown of integration, followed by a partial reversal. New market developments of FinTech, blockchain, and cryptocurrencies are covered in the fourth edition. On the policy side, the fourth edition features an extensive analysis of unconventional monetary policies, the Banking Union, the Capital Markets Union, Brexit, the Basel III capital adequacy framework for banking supervision, the Solvency 2 capital adequacy framework for insurance supervision, and macroprudential policies. Compared to the previous editions, more emphasis is put on the comparison with countries outside the European Union. The fourth edition includes coverage of the Chinese financial system. China has become a major player alongside the United States, the European Union, and Japan in the global financial system.

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## How Does This Textbook Compare with Other Books?

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Different from other textbooks, *Financial Markets and Institutions: A European Perspective* has a wide coverage dealing with the various elements of the European financial system supported by recent data and examples. This wide coverage implies that we treat not only the functioning of financial markets where trading takes place but also the working of supporting infrastructures (clearing and settlement) where trades are executed. Turning to financial institutions, we cover the full range of financial intermediaries, from institutional investors to banks and insurance companies. Based on new data, we document the gradual shift of financial intermediation from banks towards institutional investors, such as pension funds, mutual funds, and hedge funds. In this process of re-intermediation, the assets of institutional investors have quadrupled over the last 25 years. As to policy making, we cover the full range of monetary policy, financial regulation and supervision, financial stability, and competition. We deal with the challenges of European financial integration for monetary, financial supervision, and financial stability policies. Competition and state aid is a new topic for a finance textbook.

The existing textbooks in the field of financial markets and institutions generally describe the relevant theories and subsequently relate these theories

to the general characteristics of financial markets. An excellent example of a more in-depth textbook is *The Economics of Financial Markets* by Roy E. Bailey. The broad coverage of our book is comparable to the widely used textbook *Financial Markets and Institutions* by Frederic S. Mishkin and Stanley G. Eakins. Whereas our book focuses on the EU (with international comparisons to the United States and China), Mishkin and Eakins analyse the US financial system. The early European textbooks (e.g. *The Economics of Money, Banking and Finance – A European Text*, by Peter Howells and Keith Bain) typically contain chapters on the UK, French, and German banking systems, but do not provide an overview of European banking. More advanced textbooks that do discuss the specifics of the European financial system mostly do this in the context of monetary policy making.

Finally, the excellent *Handbook of European Financial Markets and Institutions*, edited by Xavier Freixas, Philipp Hartmann, and Colin Mayer, has a broad coverage of the European financial system, but deals with topics on a stand-alone basis in separate chapters and is not constructed as an integrated textbook. Nevertheless, this handbook contains very useful material for further study of particular aspects of the European financial system.

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## How to Use This Book

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*Financial Markets and Institutions: A European Perspective* is an accessible textbook for both undergraduate and graduate students of Finance, Economics, and Business Administration. Each chapter first gives an overview and identifies learning objectives. Throughout the book we use boxes in which certain issues are explained in more detail, by referring to theory or practical examples. Furthermore, we make abundant use of graphs and tables to give students a comprehensive overview of the European financial system. At the end of each chapter we provide suggestions for further reading. Cambridge University Press provides a supporting website for this book. This website contains exercises (and their solutions) for each chapter. The website also provides regular updates of figures and tables used in the book, and identifies new policy issues.

A basic understanding of finance is needed to use this textbook, as we assume that students are familiar with the basic finance models, such as the standard Capital Asset Pricing Model (CAPM). The book can be used for third-year undergraduate courses as well as for graduate courses. More advanced material for graduate students is contained in special boxes marked by a star (\*). Undergraduate students can skip these technical boxes.

## Countries

### Member States of the European Union

1	Austria	AT	1995
2	Belgium	BE	1951
3	Bulgaria	BG	2007
4	Croatia	HR	2013
5	Cyprus	CY	2004
6	Czech Republic	CZ	2004
7	Denmark	DK	1973
8	Estonia	EE	2004
9	Finland	FI	1995
10	France	FR	1951
11	Germany	DE	1951
12	Greece	EL	1981
13	Hungary	HU	2004
14	Ireland	IE	1973
15	Italy	IT	1951
16	Latvia	LV	2004
17	Lithuania	LT	2004
18	Luxembourg	LU	1951
19	Malta	MT	2004
20	Netherlands	NL	1951
21	Poland	PL	2004
22	Portugal	PT	1986
23	Romania	RO	2007
24	Slovakia	SK	2004
25	Slovenia	SI	2004
26	Spain	ES	1986
27	Sweden	SE	1995

The European Union (EU) consists of 27 Member States as of 2020 after Brexit (the new EU-27). Before the accession of the New Member States in 2004, 2007 and 2013, the EU consisted of 15 Member States, which are usually indicated by EU-15. The 10 New Member States in 2004 are indicated by NMS-10, the total of 12 New Member States in 2004 and 2007 are indicated by NMS-12 and the total of 13 New Member States in 2004, 2007, and 2013 are indicated by NMS-13. EU-28 refers to the EU-15 and NMS-13 before Brexit.

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There are 19 countries in the euro area.

#### Countries in the Euro Area

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	Country	Year of accession
1	Austria	1999
2	Belgium	1999
3	Cyprus	2008
4	Estonia	2011
5	Finland	1999
6	France	1999
7	Germany	1999
8	Greece	2001
9	Ireland	1999
10	Italy	1999
11	Latvia	2014
12	Lithuania	2015
13	Luxembourg	1999
14	Malta	2008
15	Netherlands	1999
16	Portugal	1999
17	Slovakia	2009
18	Slovenia	2007
19	Spain	1999

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## Abbreviations

ABP	Algemeen Burgerlijk Pensioenfonds
ABS	Asset-Backed Securities
ACP	Asset-Backed Commercial Paper
ACP	Autorité de Contrôle Prudentiel
AI	Artificial Intelligence
AIFs	Alternative Investment Funds
AIFMD	Alternative Investment Funds Managers Directive
AIG	American International Group
ALM	Asset and Liability Management
AMF	Autorité des Marchés Financiers
API	Application Programming Interface
APP	Asset Purchase Programme
ASC	Advisory Scientific Committee
ATM	Automated Teller Machine
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BME	Bolsas y Mercados Españoles
BMR	Benchmarks Regulation
BoE	Bank of England
BoJ	Bank of Japan
BOJNET	Bank of Japan Financial Network System
BRRD	Bank Recovery and Resolution Directive
BU	Banking Union
CalPERS	California Public Employees Retirement Scheme
CAPM	Capital Asset Pricing Model
CB	Central Bank
CBPP	Covered Bond Purchase Programme
CCP	Central Counterparty
CD	Certificate of Deposit

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CDC	Collective Defined Contribution
CDO	Collateralised Debt Obligation
CDS	Credit Default Swap
CEA	Comité Européen des Assurances
CEO	Chief Executive Officer
CESR	Committee of European Securities Regulators
CET1	Common Equity Tier 1
CFO	Chief Financial Officer
CLS	Continuous Linked Settlement
CMBS	Commercial Mortgage-Backed Securities
CMU	Capital Markets Union
CoCo	Contingent Convertible
CRA	Credit Rating Agency
CRAAC	CRA Assessment Centre
CRD	Capital Requirements Directive
CRO	Chief Risk Officer
CRR	Capital Requirements Regulation
CSD	Central Securities Depository
DB	Defined Benefit
DC	Defined Contribution
DEAB	Debt Euro-Area Bias
DG	Directorate General
DGS	Deposit Guarantee Scheme
DHB	Debt Home Bias
DMO	Debt Management Office
DNB	De Nederlandsche Bank (Dutch central bank)
DTB	Deutsche Terminbörse
EBA	European Banking Authority
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECB	European Central Bank
ECFI	European Court of First Instance
ECJ	European Court of Justice
ECN	European Competition Network
Ecofin	Council of Economic and Finance Ministers
ECSC	European Coal and Steel Community
ECU	European Currency Unit
EDP	Excessive Deficit Procedure
EEA	European Economic Area

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EEAB	Equity Euro-Area Bias
EEC	European Economic Community
EFAMA	European Fund and Asset Management Association
EFSF	European Financial Stability Facility
EFSM	European Financial Stabilisation Mechanism
EHB	Equity Home Bias
EIOPA	European Insurance and Occupational Pensions Authority
ELA	Emergency Liquidity Assistance
ELB	Effective Lower Bound
EMI	European Monetary Institute
EMIR	European Market Infrastructure Regulation
EMMI	European Money Markets Institute
EMS	European Monetary System
EMU	Economic and Monetary Union
EOE	European Options Exchange
EONIA	Euro Overnight Index Average
EP	European Parliament
EPC	European Payments Council
ERM	Exchange Rate Mechanism
ESA	European Supervisory Authority
ESCB	European System of Central Banks
ESFS	European System of Financial Supervisors
ESM	European Stability Mechanism
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ESTER	Euro Short-Term Rate
ETF	Exchange Traded Funds
EU	European Union
Euratom	European Atomic Energy Community
EUREPO	Repo Market Reference Rate for the Euro
EURIBOR	Euro Interbank Offered Rate
FCA	Financial Conduct Authority
FDI	Foreign Direct Investment
Fed	Federal Reserve
FESE	Federation of European Securities Exchanges
FOMC	Federal Open Market Committee
FPC	Financial Policy Committee
FRA	Forward Rate Agreement
FSA	Financial Services Authority



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FSAP	Financial Services Action Plan
FSB	Financial Stability Board
FSOC	Financial Stability Oversight Council
FSR	Financial Stability Review
FTO	Fine Tune Operation
FX	Foreign Exchange
GDP	Gross Domestic Product
GIIPS	Greece, Ireland, Italy, Portugal, Spain
GLAC	Gone-Concern Loss-Absorbing Capacity
GMI	Governance Metrics International
G-SIB	Globally Systemically Important Bank
G-SII	Globally Systemically Important Insurer
GVA	Gross Value Added
HFT	High Frequency Trading
HI	Herfindahl Index
HQLA	High Quality Liquid Assets
IAIS	International Association of Insurance Supervisors
IAS	International Accounting Standards
IASB	International Accounting Standards Board
ICI	Investment Company Institute
ICMA	International Capital Market Association
ICSD	International Central Securities Depository
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IOSCO	International Organisation of Securities Commissions
IPO	Initial Public Offering
IRS	Interest Rate Swap
ISD	Investment Services Directive
ISDA	International Swaps and Derivatives Association
IT	Information Technology
JSTs	Joint Supervisory Teams
LCR	Liquidity Coverage Ratio
LI	Lerner Index
LIBOR	London Interbank Offered Rate
LIFFE	London International Financial Futures and Options Exchange
LoLR	Lender of Last Resort
LR	Leverage Ratio
LSE	London Stock Exchange

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LTCM	Long-Term Capital Management
LTI	Loan-to-Income
LTRO	Longer-Term Refinancing Operation
LTV	Loan-to-Value
LVPS	Large-Value Payment System
M&As	Mergers and Acquisitions
MBS	Mortgage-Backed Securities
MC	Marginal Cost
MCR	Minimum Capital Requirement
MFI	Monetary Financial Institution
MIF	Multilateral Interchange Fee
MiFID	Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
MMF	Money Market Fund
MoU	Memorandum of Understanding
MPC	Monetary Policy Committee
MR	Marginal Revenue
MREL	Minimum requirements for own funds and eligible requirements
MRO	Main Refinancing Operation
MSCI	Morgan Stanley Capital International
MTF	Multilateral Trading Facility
MTO	Medium-Term Objective
NAV	Net Asset Value
NCA	National Competition Authority
NCB	National Central Bank
NFC	Non-Financial Corporations
NMS	New Member States
NSA	National Supervisory Authority
NSFR	Net Stable Funding Ratio
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OFT	Office of Fair Trading
OIS	Overnight Interest Rate Swap
OMTs	Outright Monetary Transactions
OMX	Options Maklarna Exchange
O-SIIs	Other Systemically Important Institutions
OTC	Over-the-Counter
P&C	Property and Casualty

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PCA	Prompt Corrective Action
PSD	Payment Services Directive
QE	Quantitative Easing
RAROC	Risk Adjusted Return on Capital
RMBS	Residential Mortgage-Backed Securities
ROE	Return on Equity
RQMV	Reverse Qualified Majority Voting
RTGS	Real-Time Gross Settlement
RWAs	Risk-Weighted Assets
RWCRs	Risk-Weighted Capital Ratios
SBA	Stand-by Arrangement
SCP	Structure-Conduct-Performance
SCR	Solvency Capital Requirement
SEA	Single European Act
SEC	Securities and Exchange Commission
SEPA	Single Euro Payments Area
SETS	London Stock Exchange's premier Electronic Trading System
SFTs	Securities Financing Transactions
SGP	Stability and Growth Pact
SIB	Systemically Important Bank
SIFI	Systemically Important Financial Institution
SIV	Structured Investment Vehicle
SMEs	Small and Medium Enterprises
SMP	Securities Markets Programme
SOFFEX	Swiss Options and Financial Futures Exchange
SPO	Secondary Public Offering
SPV	Special Purpose Vehicle
SRB	Single Resolution Board
SRF	Single Resolution Fund
SRI	Socially Responsible Investing
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
SSNIP	Small, but Significant Non-transitory Increase in Prices
SSP	Single Shared Platform
STP	Straight-Through Processing
TARGET	Trans-European Automated Real-Time Gross Settlement Express Transfer System
TBTF	Too Big To Fail

TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the EU
TIPS	TARGET Instant Payment Settlement
TLAC	Total Loss-Absorbing Capacity
TLTROs	Targeted Longer-Term Refinancing Operations
T2S	TARGET2-Securities
TSCG	Treaty on Stability, Coordination and Governance in the Economic and Monetary Union
UCITS	Undertakings for Collective Investments in Transferable Securities
UK	United Kingdom
US	United States
VaR	Value-at-Risk