Plumbers and Visionaries

Securities Settlement and Europe’s Financial Market

Peter Norman

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Plumbers and Visionaries
Further praise for Plumbers and Visionaries

“Anyone interested in understanding the extraordinary growth of international capital markets should read Peter Norman’s Plumbers and Visionaries and his vivid account of the evolution of the securities custody and settlement systems on which both our markets and our monetary arrangements have come to rely.”

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“Peter Norman has written a fascinating and seminal account about one of the most arcane, yet critical market segments for European financial integration. This lively book shows how complicated it is to make progress; how diverse are the actors and their interests. For students of European economic integration – here is an important empirical case to study.”

—David Wright, Deputy Director-General for the Internal Market and Services in the European Commission

“Excellently researched and sound in judgment Plumbers and Visionaries offers a fund of lessons to be learnt in the ongoing pursuit of higher efficiency in the European post-trading space.”

—Dr Werner Frey, CEO, European Securities Forum
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The origins of this book can be traced to a lunch in the City late in 2004. Over coffee, Chris Tupker, then the chairman of Euroclear, suggested it would be a service to posterity if somebody could record the reminiscences of the pioneers who helped create the modern securities settlement industry in Europe.

Nothing happened immediately. But shortly afterwards, Deutsche Börse made its approach to take over the London Stock Exchange and a more ambitious project began to form.

Europe’s exchanges and post-trade infrastructures appeared to be entering an end-game of restructuring and consolidation in a fast changing regulatory environment which would be governed by new rules expected from the European Commission in Brussels. The time seemed ripe to start a broader history of the European securities settlement industry, incorporating the memories of the founding fathers but also focusing on the difficulties and challenges of cross-border transactions, which had by this time been identified as hampering Europe’s economic growth.

Three years on and the eventual shape of Europe’s post-trade infrastructure is still undetermined despite much change in the meantime. But the book, *Plumbers and Visionaries: Securities settlement and Europe’s financial market*, is complete.

*Plumbers and Visionaries* is the story of a financial sector that has grown hugely in importance in the 40 years since Euroclear was created to deal with a settlement crisis that threatened to smother the international capital market in its infancy.

The book follows the development of securities settlement across Europe’s frontiers from the free-wheeling days of the Eurobond market in the 1960s through the growing integration of the European Union to the highly regulated and efficient multi-trillion euro business it is today. It is the story of a sector strongly influenced by developments in the US that has nonetheless developed in a uniquely European way.

Securities settlement may appear to be an abstruse subject. The first chapter of this book seeks to explain why it has a wider significance than may at first be apparent. With this in mind, I have tried to write a book that reaches beyond the specialist to the reader with a more general interest in economics, finance, business and the political economy of Europe.

This book has been made possible by the support of Euroclear plc, which helped finance its research. The story of Euroclear forms part of this book. But throughout, the relationship between company and author has been one at arm’s length. The book is not an official history of Euroclear or any other company in the sector.
I am indebted to many people who have helped with the research of this book. Written sources on the securities settlement industry are few and far between, reflecting the tendency of fast growing, IT-based companies to consign archives to the skip each time they move office.

My thanks go to members of the settlement, regulatory, policy making and media communities who gave freely of their time and, with good humour, dealt with questions that must sometimes have appeared tedious and often naïve. They include: Walter Allwicher, Marc Bayle, John Berrigan, Luc Bomans, Benoît Bourtembourg, Bruce Brackenridge, Rolf-E Breuer, Massimo Capuano, Diana Chan, Alastair Clark, Ignace Combes, Clifford Dammers, Godfried De Vidts, Martine Dinne, Diana Dijmarescu, Oliver Drewes, Philippe Duvieusart, Bill Ellington, Pierre Francotte, The Financial Times Library, Werner Frey, Jean-Paul Frising, Ambassador Evan Galbraith, Matthias Ganz, Alberto Giovannini, Jean-Michel Godeffroy, David Green, Sean Greenaway, Judith Hardt, Gerd Häusler, Walter Imthurn, Pierre Jaans, Piia-Noora Kauppi, Pen Kent, Tom Ketchum, Fritz Klein, Walter Koller, John Langton, Sir Andrew Large, Olivier Lefebvre, André Lussi, André Lutgen, Michael March, Jacques-Philippe Marson, Tim May, Joël Mérère, Paul Mousel, Mario Nava, John Nordstrom, Michael Patterson, Tom Perna, Denis Peters, Agnès Petiau, Albert Petersen, Patrick Poncelet, Herschel Post, André Roelants, Stanley Ross, Bruno Rossignol, Iain Saville, René Schmitter, Stephan Schuster, Werner Seifert, John Serocold, Hugh Simpson, Ian Steers, Peter Sucaet, Paul Symons, Brian Taylor, Jeffrey Tessler, Yolande Theiss, Jean-François Théodore, Martin Thomas, Bernie Till, Gertrude Tumpel-Gugerell, A. Chris Tupker, Charles D’Ursel, Gérard Van Nieuwenhove, Rüdiger Von Rosen, Sir David Walker, Sir Nigel Wicks, David Wright, Eddy Wymeersch, Stanislas Yas sukovich, Carlos Zeyen.

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At no time did they, or anyone else at Euroclear, seek to influence this work. The judgements and any errors in the pages that follow are mine.
Part I

New Problems. New Solutions
Settling Securities Across Borders

1.1 TURNOVER IN THE TRILLIONS

By any standards, 450 trillion is a big number. Forty five followed by 13 zeros defies easy comprehension.

Put a euro sign in front of that 450 000 000 000 000 and you have nearly 40 times the annual output of goods and services of all 27 members of the European Union as measured by gross domestic product. Divide the €450 trillion into €1 coins and imagine them piled up, one on top of the other: the column of coins would stretch 1.05 billion kilometres into space – a distance seven times greater than that between Earth and the Sun. Shared out, €450 trillion would be €920 000 for every man, woman and child in the EU.

This almost unfathomable sum is the annual turnover of a group of companies, headquartered in an anonymous office block in Brussels. Euroclear, the company in question, and the other members of the Euroclear group, settled securities transactions with a value of €452 trillion in 2006. Euroclear is not a household name. Stop any passer-by and ask them to describe what the company does. Unless you are in the immediate vicinity of that office building at lunchtime, it is a fair bet that no one will know.

Yet without Euroclear and companies like it, the world economy as we know it could not exist. As the biggest company of its type in Europe, Euroclear is one of a number of companies around the globe providing vital infrastructure services for the world’s financial markets.

The world’s securities markets have been enjoying a golden age. Impersonal, unsentimental and transmitted as bits and bytes by the latest information technology, footloose funds flash round the world at the speed of light seeking the best possible return. At the centre of the markets are mighty commercial and investment banks with financial power that dwarfs many a nation’s economy. We all depend on these markets: the businessman seeking finance to expand; the pensioner looking for a better return on meagre savings; the young family wanting to move to a new house and the government that borrows to cover its budget deficit.

Securities will change hands many times to fit the needs of these very different customers. The security might be an equity share in a company, a bond issued by a government or corporation or a share in a collective investment, such as a unit trust or mutual fund. It may be transformed, diced and sliced into a completely different financial instrument – a derivative – to redistribute risk or boost yield. The place where the security is traded may be a registered securities exchange, such as the stock exchanges located in London, Paris and Frankfurt, an ‘over-the-counter’ market such as that for international bonds where dealers trade using telephones or trading screens, or the trading book of a big investment bank.

Central to any securities market is the transfer of ownership of the security from seller to buyer in return for payment. That is where the idea of an exchange comes from. But if language followed logic, the world’s securities exchanges would no longer glory in that name. Securities are listed on exchanges, they may be traded on exchanges. But the actual exchange of the securities is handled by the various specialised ‘post-trade’ services which are commonly lumped together under the heading of clearing and settlement.
Companies like Euroclear provide the ‘settlement’ and related services that follow the trade of a security and enable the markets to work. Clearing and settlement are often regarded as the ‘plumbing’ of securities markets: a series of electronic ‘pipes’ linking customers with electronic ‘storage tanks’ which keep customers’ securities accounts. Although this end of the securities business is unglamorous and unheeded unless things go wrong, it is of existential importance for the markets.

No matter how sophisticated or speedy the platform on which securities are traded, the market in question cannot serve its purpose without an apparatus that actually completes the transfer of securities from seller to buyer and ensures payment flows in the other direction from buyer to seller. All trading venues have a vital interest in a settlement infrastructure that is fast, efficient and as cost effective as possible and that can meet demands for additional services that can enhance the profitability of those companies that use them.

Just as exchanges and the instruments that they trade have grown more technologically advanced and complex over the past half century, so too have the companies that handle post-trade arrangements.

For much of this period, however, Europe’s post-trade service providers were neglected by policy makers so that the sector remains ill adjusted to the needs of the European Union’s single market and a globalised world.

The sector is fragmented, posing a major challenge for executives and politicians alike. Its activities – and its efforts to overcome barriers to greater efficiency in Europe – are the subject of this book.

So too is the story of Euroclear, which has grown to be a €450 trillion business in 40 years despite the imperfections of Europe’s still incomplete single market.

Securities have always been traded across national frontiers in Europe, historically in small volumes and at a price. Unremarked at the time, 21 July 1967 marked a turning point. The day was Belgian national day. King Baudouin, the Belgian monarch, would have been inspecting his troops in the Rue de la Loi near the centre of Brussels. Not everybody was taking that Friday off, however. A few hundred metres away, in a building of Morgan Guaranty, the US bank, bankers and technicians were launching a securities settlement service to try to overcome a paperwork crisis that threatened to throttle a still young international capital market: the Eurobond market.

That pilot scheme became Euroclear1 the following year. That it should grow into a business with a turnover of €450 trillion in four decades reflects the dynamic forces that have shaped capital markets and the securities settlement industry in the intervening years.

The first is technology. The calendar was still BC – ‘before computers’ – when the Eurobond market was created in 1963. True, the integrated circuit was invented in 1959. But a few years would pass before its potential was recognised. In 1965, Gordon Moore, co-founder of US chip maker Intel, observed that the number of transistors per square inch on integrated circuits had doubled every year since 1959 and the trend would continue. In 1975 Moore revised his prediction to a doubling every two years. Moore’s law – in synthesis, the rule of thumb that computer power doubles every 18 months or so – has proved an uncannily appropriate predictive tool for the growth of Euroclear’s business ever since.

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1 The service was in fact called Euro-clear, with a hyphen. The hyphen was part of Euroclear’s name and used in the company logo from its foundation in 1968 until 1990. To avoid confusion, this book will refer to the company throughout as Euroclear except when citing in full the company name as used before the rebranding of 1990.
Technology was a necessary but not sufficient condition to unleash the next important force: financial innovation. The growing power of computers and the rapid development of information technology enabled the replacement of physical securities held in the form of paper certificates by electronic records stored in computer memories. Once free of their vaults, securities settlement providers could expand the services they offered in scale, scope and speed in line with the power of computers. But it required financial expertise to develop ever more elaborate financial instruments and additional post-trade services, such as securities lending and borrowing in the 1970s. Financial innovation in turn helped clients make money and capital markets to grow.

That such inventiveness could flourish reflects another factor: liberalisation and the spread of market forces. The Eurobond market that spawned Euroclear was a reaction to national financial restrictions in the US. The UK’s ‘Big Bang’ liberalisation of the London Stock Exchange in 1986, the fall of the Berlin Wall in 1989, the ensuing collapse of Communism in Russia and eastern Europe, the entry of China and India into the world economy were all milestones in a process of liberalisation that fuelled the growth of financial markets and the activities of financial infrastructure providers.

Liberalisation both thrives on and feeds the exchange of ideas. This has been especially true for financial markets and their infrastructure providers. Ideas flowed back and forth, notably across the Atlantic. The expertise that created Euroclear in the late 1960s contributed to the establishment in 1973 of the Depository Trust Company in New York to immobilise equity and bond certificates and transfer title of ownership by book entry. An influx of US investment banks into Europe after Britain’s Big Bang raised demands and expectations for improvements in securities settlement arrangements.

The gradual consolidation of equity settlement in the US that culminated in November 1999 with the foundation of The Depository Trust & Clearing Corporation (DTCC) as a low cost, user-governed, regulated monopoly serving a continent became for many in Europe a model of how the industry in the EU should develop.

As it happened, Europe has not followed the US example. The development of the US post-trade infrastructure for equities originated in a decision of Congress in the mid-1970s, before liberalisation and free market economics became global mega-trends. Instead, post-trade infrastructures have developed far more haphazardly in Europe, reflecting the way European integration – a hugely important overarching force – impinged upon the post-trade sector, but only after considerable delay.

Although half a century has passed since the foundation of the European Common Market and a decade and half since European Union leaders agreed in Maastricht to create a European single currency, the task of creating a deep, liquid and efficient EU-wide capital market has yet to be completed. For financial infrastructure providers, integration came late to the party, long after technological advance, financial innovation and market liberalisation had wrought changes in structures that served national markets in Europe.

Europe’s fragmented post-trade infrastructure developed along national lines before the introduction of the euro and was shaped in each country by national regulations and historical traditions. Developments in the industry during the 1990s accentuated national specificities. Vertically integrated structures linking activities along the value chain from trading to clearing and settlement developed in most member states because this was judged the best way of securing fast and efficient straight-through processing of securities transactions. Also in vogue was demutualisation which turned securities exchanges and infrastructure providers into for-profit businesses. Although most at that stage still worked in the interests of their users, the
The link between user and owner was eroded in the 21st century when some of the demutualised exchanges obtained stock exchange listings.

In general, the post-trade tasks of clearing and settlement operate efficiently and at low cost within each EU member state. Complications start once securities trade across borders. Barriers are created by different tax systems, legal systems, market practices and business models among service providers. These factors, combined with vested interests at all levels of the securities business, increase the cost of clearing and settling securities across Europe’s internal political borders to several times the cost of a domestic trade. The EU’s fragmented financial infrastructure amounts to a significant impediment to the creation of a competitive, continent-wide capital market for Europe.

However, it would be wrong to be too harsh on the architects of Europe’s single market or the euro for failing to notice the importance of clearing and settlement. Throughout most of history Europe’s infrastructure providers have toiled in obscurity so that post-trade activities in Europe have evolved in an almost tribal environment, where the members of the tribe are a coterie of experts versed in the intricacies of securities markets.

Until around the start of this century, the experts, with their specialisations in computer and information technology, the law, accountancy and local procedures, practices and conventions, were distant from the preoccupations of politics and mainstream business.

Nowadays, the systems they design, build and manage set constraints and create opportunities for generating revenues in the front offices of securities firms the world over. The settlement business has become increasingly IT intensive over the years, with sharply rising investment needs and risks. Securities settlement is more than ever a business subject to economies of scale and scope: the bigger the capacity and the more comprehensive the market coverage, the lower the cost of providing the service should be – so long as the settlement provider can attract the right amount of business, ensure that the IT works and is properly regulated.

Even so, the activities of the financial infrastructure experts are often little known to the top management of the financial conglomerates that depend on the efficient execution of post-trade functions and which sometimes own the businesses that carry them out.

At the level of the expert, post-trade activities offer a world of comradeship and competition that sometimes spills over into personal antagonism. Post-trade issues have a tendency to split those who work in the sector into rival sects. To an outsider, disputes over competing business philosophies such as ‘vertical’ versus ‘horizontal’ integration seem arcane. (A vertical silo is where the activities of securities trading, clearing and settlement are integrated often in one company; horizontal integration is where the trading activity is separately controlled from the clearing and settlement activities but where one or all of these activities are integrated with those of other providers according to function.) As with religious wars throughout history, such schisms among infrastructure providers can be a cloak for vested interests.

Securities settlement is a world where everybody in the business knows everybody else. But, despite its tight-knit character, it is also a world with no common language for telling the outside world what it does. There is no standardised terminology covering post-trade activities. Different words mean different things to different people. That makes it difficult for outsiders, such as policy makers, to master the intricacies of the trade. In so far as practitioners have interacted with a growing EU public policy agenda on clearing and settlement, the result has often been perplexity on both sides.

Nonetheless, since the start of this century the business of cross-border settlement in Europe has moved from being a matter of concern to the small number of financial professionals and their clients to a vital public policy issue in the development of the EU’s single market. The
growing integration of the EU, the introduction of the euro, the increasing sophistication of financial markets, globalisation and the mind boggling scale of the transactions settled have all helped propel the economics of cross-border securities trades out of the ‘back offices’ of banks and brokerages to the centre-stage of EU politics.

Clearing and settlement have climbed up the priority list of EU policy makers, occupying finance ministers, central bankers and dedicated officials in the European Commission’s directorates general for the internal market and competition.

The reasons were highlighted by Alberto Giovannini, an Italian financial expert who has helped devise a strategy to overcome Europe’s post-trade fragmentation, in the second of two reports he prepared for the European Commission. Writing in 2003, Giovannini noted how:

> Clearing and settlement are at the core of any financial system; inefficiencies in these processes have serious consequences. When clearing and settlement are too costly or complex, financial transactions are discouraged. In the context of the EU, the result is that national markets have remained isolated: resources are not pooled efficiently, the allocation of economic resources across time and space is sub-optimal, the techniques that allow the trading of risk are too expensive and financial asset prices fail to convey all information that is available to market participants.

Giovannini composed his report four years after the launch of the euro and 11 years after Europe was supposed to have created a single market for goods and services. He concluded that ‘the EU financial market cannot be considered an integrated entity but remains a juxtaposition of domestic markets’.

To a considerable extent, this state of affairs still applies today. It means trading securities across national frontiers in the European Union carries extra cost. The precise amount of these extra costs and the factors that cause them are a matter of debate among practitioners and academics. Much attention has focused on the fees charged by individual post-trade infrastructure providers. Although these have fallen in recent years and often account for only a small proportion of the overall cost of a trade, their impact can be considerable when trading volumes are increasing rapidly. There are structural problems too. Compared with domestic transactions, cross-border securities transactions in Europe usually involve far more intermediaries along the value chain from trading, through clearing to settlement, so adding to costs. The overall complexity of completing securities transactions among different jurisdictions and traditions necessitates bigger and more labour intensive back office operations. These factors make the whole value chain expensive and put Europe’s financial market at a competitive disadvantage compared with the US: a comparable, continent-sized economic area.

This handicap is important. The more sophisticated the world’s big economies become, the more persuasive is the proposition that their financial systems should be based on markets, where financial assets are pooled and traded in response to decisions taken by millions of anonymous savers and investors. For some years, this arm’s length system has been hailed as one reason for the consistently superior performance of the US economy compared with that of Europe.

As the European economy has grown in scale and scope with the enlargement of the EU and the introduction of the euro, so too have the reasons for it to move more towards a financial system based on securities markets. Family-based finance may be the only option available in a less developed economy. Bank-based finance might have advantages in a smaller scale or more developed economy where the bank can know its clients and when to support them. But

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above a certain size, deep and liquid securities markets – provided they are clean, transparent and well organised – are the more efficient means of mobilising the surplus funds of savers and channelling these to investors at prices that mark the equilibrium between supply and demand. They can also be more efficient in transmitting messages to and from savers and users of capital about the efficiency of the allocation of capital in an economy.

Europe’s fragmented financial infrastructure means the cost of capital is higher than it need be. Bankers argue that integrated financial markets pool risk more efficiently. The more risk is pooled, the less volatile should be the prices of financial instruments. The less the volatility, the less the need for banks and other intermediaries to retain capital. The less capital they require, the cheaper their services should be.

Sub-optimal arrangements for completing securities trades across borders also hinder the development of a pool of liquidity in Europe comparable to that in the US. The cost of trading securities falls in an inverse relationship to the size and depth of the pool of liquidity in a financial market. The lower the cost of trading a given security, the lower the cost of capital that security represents.

Cheaper capital is obviously of interest to companies. It is one of the factors that can help them compete in today’s highly competitive globalised world. It is also of huge importance to the average citizen. The lower the cost of capital, the better the company profits that should accrue to pension funds or mutual funds and the lower the cost of borrowing when necessary.

The specific savings to be gained on any transaction from more efficient financial infrastructures may be tiny – measured in terms of fee reductions of a few hundredths of a percentage point. But such savings mount up in a world where investors’ holdings of assets across borders amount to roughly $60 000 billion or about 120% of annual global output. 3

The good news is that work is in progress to overcome the fragmentation of clearing and settlement in the EU. A host of actors from the private and public sectors – including Euroclear – are engaged in building the single market for clearing and settlement in Europe.

- The European Commission is overseeing an industry code of conduct to increase competition and lower costs along the value chain from trading to settlement.
- More controversially, the European Central Bank is consulting with the industry on its own plans for a settlement platform.
- Euroclear is building a ‘domestic market for Europe’ which will cut costs sharply for investors. The group is implementing a 214 point plan to harmonise market practices in the EU member states where it settles domestic securities.

The bad news is that overcoming Europe’s fragmentation in clearing and settlement is a slow process. This is:

- partly a problem of the rules having changed in midstream. The coming of the euro was meticulously planned by public authorities in every area except clearing and settlement. Change now means changing long established structures and practices.
- partly a problem inherent in infrastructure investments. These take an inordinately long time to arrange in a European Union of 27 member states. Although benefits can accrue to smaller clusters of countries and markets, they only become wholly effective when the last component of the investment is in place.

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3 According to Kenneth Rogoff, former chief economist at the International Monetary Fund, writing in the Financial Times, 8 February 2007.
The situation is in some ways analogous to the investments in railway infrastructure in the 19th century. The investments of the Union Pacific and Central Pacific railway companies that built the first US transcontinental railway with one company starting from the east and the other from the west only bore full fruit once the final piece of track was hammered into place in the middle.

Achieving harmonisation and interoperability among existing infrastructures is even more tortuous. In a 2003 report, the Group of 30, a top level think-tank comprising eminent financiers and influential former policy makers from around the world, suggested that the rewards from making clearing and settlement systems better able to interact with each other could be as great as those gained from the national standardisation of railway track gauges in the US in the 19th century.

The G30 report did not mention that it took from 1862 when Congress specified the northern four foot eight and a half inch gauge as standard for US transcontinental railways until 1886 when the southern states finally converted their five foot wide tracks to achieve standardisation: a 24 year delay despite the South having in the meantime lost the Civil War.

This book will start a century later: in the 1960s.

After a guide to the processes and participants in post-trade activities, the story begins with the settlement crisis in the Eurobond market. It describes how Euroclear and later Cedel, its arch-rival, were founded to solve it. The book will follow Euroclear’s development as a cross-border settlement provider for a growing range of securities in the context of the European securities settlement market as a whole. It will demonstrate how securities settlement became an issue for public policy after the stock market crash of 1987 and how the problems of cross-border settlement moved rapidly up the European policy agenda after the euro's launch. It is a story of companies and computers, institutions and ideas, markets and managers.

It makes no apology for being an empirical work and for highlighting the sometimes unpredictable role of individuals in shaping Europe’s securities settlement industry and its prospects – both for good and ill. Some often larger-than-life characters have toiled in an unglamorous area of the financial world to build an infrastructure on which Europe’s economic growth and well-being depends.

If this book has a theme, it is that financial markets and the infrastructure services that support them do not develop according to any grand design or plan. They are the result of a complex interplay between global macro-financial forces, competition between companies, developing technology, national politics and laws and above all the vision and drive of people working away in financial markets.

This book seeks to trace the complex and often messy interplay of these forces in the development of securities settlement, especially in the European Union over the last few decades.

1.2 PROCESS AND PLAYERS

‘Clearing and settlement are basic functions in a financial system, but they are also very complex processes.’ Alberto Giovannini’s observation is both pithy and true.

Defining the functions and the providers of post-trade services is no easy task. When the European Commission produced a working document on definitions of post-trading activities
in 2005 with the help of practitioners\(^4\) the preface contained a clutch of disclaimers and the observation that those experts in the group with a banking background disagreed with the approach taken.

Given the lack of a common terminology for the business, the following cannot be a definitive guide to securities settlement and related activities. It is a simplified guide to the processes and players involved in clearing and settlement in the broader context of post-trading functions.\(^5\)

A securities transaction passes through a number of stages once the *trade*, the binding agreement between two counterparties to exchange securities and cash at a future date, has been completed.

The first is **verification**, which is the process of comparing and, if necessary, reconciling discrepancies in the transaction or settlement details. There is some dispute whether verification – which covers issues such as price, quantity and settlement date of the trade – should properly be described as a post-trade activity because it is commonly handled at or close to the point of trade. It is preliminary to rather than part of clearing and settlement.

**Clearing** comes next. Clearing was defined in the Commission document as ‘the process of establishing settlement positions, possibly including the calculation of net positions, and the process of checking that securities, cash or both are available’. Clearing, according to this definition, ensures that all the prerequisites for settlement are in place. It focuses on establishing the respective obligations of the buyer and the seller.

In recent years, however, clearing has come to have other meanings of greater importance than the calculation of who owes what to whom following a trade. Clearing in the modern sense refers to the activity of ‘central counterparty clearing’ or CCP clearing, which is provided by a central counterparty or CCP, a specialised financial institution that is placed between the buyers and sellers of securities.

The Commission distinguishes between *counterparty clearing* and *central counterparty clearing*.

Counterparty clearing is defined as ‘the process by which a third party interposes itself, directly or indirectly, between the transaction counterparties in order to assume their rights and obligations’. In this process, the CCP assumes the credit risk of the participants in the trade, possibly by guaranteeing a transaction.

In central counterparty clearing, the CCP not only assumes the rights and obligations of the counterparties, it also acts ‘as the direct or indirect buyer to every seller and the direct or indirect seller to every buyer’.

Central counterparty clearing activities of CCPs are an increasingly important part of financial market infrastructure. By being placed in the middle of a vast number of transactions, a CCP is able to net the gross obligations it incurs. In other words, the CCP offsets the amounts it owes and is owed by market participants and reduces its obligations to (usually small) residual amounts that become single debits or credits between itself and each of its members.

CCPs and netting developed hand-in-hand with derivatives trading from the 1970s onwards. The netting process is of vital importance for these markets where contracts are usually closed out and very rarely settled in the sense of transferring an asset with finality from one investor to another in return for payment.

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\(^5\) The working document is one of several sources of information consulted by the author for this section.
Central counterparty clearing began to appear in securities markets in Europe in the late 1990s, providing many benefits. CCP clearing simplifies the management of counterparty risks by supplying a single counterparty instead of several. It increases liquidity through netting and cuts settlement costs by reducing the number and value of transactions that have to be settled. It also enables counterparties to remain anonymous to one another.

CCPs assume the risk of default of the counterparties to trades and therefore need to have adequate capital and sophisticated risk management techniques in place. On the other hand, once up and running, they are well placed to exploit economies of scale and scope.

Clearing, as conducted by a CCP, is a separate business to settlement. Although there are some cases – the Deutsche Börse group being one – where clearing forms part of a value chain from trading, through clearing to settlement in what is known as a ‘silo’, it is a functionally different activity. There is no necessity for clearing to be included with other functions of the securities business in the same business entity.

Unless suitable corporate governance arrangements are in place, a case can be made from a competition policy viewpoint for keeping the CCP separate from both trading and settlement. The CCP acts as a funnel by netting all transactions after the trading level and can be in a dominant position to decide where the netted trades will be settled. At the end of the clearing process, the instructions for the transfer of the securities and the funds to pay for them are transmitted to the settlement organisation.

Unlike central counterparty clearing, the settlement of securities transactions has been necessary for the functioning of bond and equity markets for as long as these markets have existed. Securities markets are unthinkable without settlement systems because the transfer of equities and bonds from seller to buyer is only final when delivery and payment have been completed.

In Europe, the vast majority of securities are either immobilised or dematerialised which means, in effect, that they no longer are traded as physical certificates but only as records – nowadays usually in electronic form – in accounts held by the issuer or an approved institution.

An immobilised security is one where the physical certificates have been placed in a vault or depository, often in the form of one ‘global’ instrument that represents the entire amount of the security issue, so that subsequent transfers can be made by book entry. Dematerialisation occurs when the physical securities or documents of title that represent ownership of securities are eliminated so that the securities exist only as accounting records.

According to the Commission, settlement by book entry is ‘the act of crediting and debiting the transferee’s and transferor’s accounts respectively, with the aim of completing a transaction in securities’.

This, however, is a minimalist definition of settlement that does not include the many additional stock-related activities that are linked to the security itself and are independent of the completion of the trade. Nor does it deal with the institutions involved or how payment for the securities should be made.

The Commission identifies four main stock-related activities: establishing securities in book entry form; deposit; account providing and asset servicing.

The establishment of securities in book entry form is defined as the ‘initial representation and subsequent maintenance of securities in book entry form through initial credits and subsequent credits or debits to securities accounts’. The book entry can be established on the basis of information from the issuer or by counting the number of physical securities on deposit in the vault.

Deposit refers to the storage of physical securities on behalf of others. Account providing refers to the maintenance of securities accounts for the client, or account holder. Asset
servicing covers the provision of services for the investor arising from events affecting the security. These events are called corporate actions and range from the very simple, such as payment of interest or a dividend, to the very complex, such as put options on a structured product. They could affect, for instance, an investor in equities who could expect to be asked to vote for or against the company’s dividend and its board, would be invited to attend the annual meeting, would be informed of approaches from a possible bidder and perhaps asked to subscribe to a new share issue or react to a takeover bid. Asset servicing could also include the valuation of portfolios, the processing of tax reclaims or withholding tax to pay to government authorities.

There are three types of providers of settlement services: the Central Securities Depository or CSD; International Central Securities Depositories or ICSDs and intermediaries – a catch-all term that covers other commercial organisations engaged in settlement activity. These are usually banks, acting as agent banks, and/or global custodians.

The CSD is the basic building block of a modern settlement infrastructure. It is a special financial institution created to remove the need to shift securities in physical form from one investor to another.

CSDs have several functions. In some countries, they are the public notaries for securities because the names of the account holders on their electronic systems are the definitive record of title. They often provide the simple (non-CCP) clearing services. The CSD is the institution responsible for immobilising securities in its depository so that the buying and selling of securities can be settled on its books by adjusting investors’ securities and cash accounts. In some cases, CSDs carry out extra services such as corporate action services.

It is difficult to generalise about CSDs because they are national institutions with differing rules and competences. This reflects the national structure of the securities business in Europe and the way that domestic securities have traditionally been settled on a national basis. Companies that list their shares on a country’s stock exchange place their shares in the national CSD. Because each CSD is governed by different national legal requirements covering activities such as corporate actions, they tend to function as monopolies for some services. It is difficult, for example, for a company that has issued shares in one country to move its share to the CSD of another country.

Post-trade services are not a competition-free zone, however. There is some competition among CCPs, between CSDs and CCPs and among CSDs. As this book will make clear, competition is fierce among ICSDs. There is also competition between CSDs and their clients. In some markets, local banks are strong competitors of the CSD for at least some of its services, notably settlement. It is estimated that half the securities settlement in France is handled by banks away from the books of the national CSD in a process known as internalisation of settlement. A study in 2002 suggested that more than half of transactions by non-resident investors in Italy were settled outside the CSD where the security was issued.

Membership of a CSD is generally reserved for banks and other financial institutions that meet strict eligibility criteria. There are some exceptions. In Scandinavia, CSDs provide the registrar function for individual investors in their jurisdiction and so maintain millions of accounts which are operated by a handful of banks. Euroclear UK & Ireland Ltd, the British and Irish CSD, maintains accounts for some 40,000 ‘personal’ members.

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6 Euroclear UK & Ireland Ltd has been the legal and operating name of the CSD previously known as CRESTCo since 1 July 2007. In this history, the company is usually referred to by its original name. The CSD’s processing system continues to be known as CREST.
When buying or selling securities, the investor interacts with the CSD through an intermediary, such as a bank or stock broker, which is a member of the CSD.

As will be described in some detail in this book, the International Central Securities Depositories or ICSDs were set up by banks in the late 1960s to be the CSDs of the stateless Eurobond market, which is now more usually known as the international bond market. Euroclear and Cedel (later Clearstream) have pursued an intense rivalry ever since. The ICSDs diversified into settling domestic bonds and equities from the 1980s onwards and have formed groups with CSDs since the beginning of the 21st century. Euroclear took over the CSDs of France, the UK, Ireland, the Netherlands and Belgium. Cedel first merged with the German settlement company owned by Deutsche Börse and was eventually fully taken over by Deutsche Börse. In Switzerland, SIS SegaInterSettle combines functions of a CSD and ICSD.

By holding securities in the form of electronic information, CSDs and ICSDs hold a stock of financial assets that the securities’ owners can allow to be lent and borrowed and used as collateral by market participants. Once this attribute of securities in a CSD or ICSD was linked to the power of modern computers and a sophisticated banking infrastructure, there was a huge increase in the use of securities as collateral, powering a securities repurchase or ‘Repo’ market worth billions of euros a year.

The two big ICSDs and SIS differ from most CSDs in one important respect: they are banks. For example, Euroclear Bank, the ICSD of the Euroclear group, has a banking licence which allows it to extend credit and make profits from banking activities, although these are strictly linked to securities settlement.

The provision of such value added services creates dilemmas for the settlement business. Is it, or should it be, comprised of utilities serving the market, or a profit making activity, or both? What competitive forces or competition rules should exist to ensure no single settlement provider is ripping off other participants in the securities industry value chain? Are there generally accepted rules of corporate governance that can ensure the business generates enough money to invest but not so much as to act as a tax on the capital markets?

Such tensions are not limited to the post-trade sector, of course. The securities business can be very profitable at all stages of the value chain from trading to settlement, triggering conflicts of interest between users, owners and managers of the systems. Company decisions are variously dictated by market requirements, executive ambition and technical achievements and failures.

The Euroclear group strives to overcome these problems by being user owned and user governed. But in general, the tensions arising from these questions have grown in line with the growth of securities markets in Europe and will reappear frequently in the pages that follow.

For a securities’ transaction to settle there must be payment for, as well as delivery of, the security. The payment of funds typically involves a CSD or ICSD and the banking and payment systems. The cash leg in national systems is usually provided by the central bank, which is the source of central bank money, the safest of all means of payment. Where settlement takes place in central bank money, payment moves directly and irrevocably between accounts on the books of the central bank.

There can be no central bank behind the international bond market served by the ICSDs, because this is a stateless market. In this case, the cash leg of settlement is transacted in commercial bank money with payment moving between the accounts of the ICSDs.

But while central bank money provides the safest form of payment in a securities settlement transaction, commercial bank money is often the payment medium of choice for big commercial and investment banks. It can be cheaper and more flexible because it allows transactions to be
secured against assets denominated in currencies other than that issued by the central bank in question.

Issues of payment have proved to be neuralgic throughout the history of the securities settlement business because, in aggregate, transactions involve huge sums of money. The fear that failure could put at risk the financial system of a nation or group of nations is never far from the thoughts of supervisors.

The quest for delivery versus (simultaneous) payment in order to mitigate risk became a preoccupation of the industry’s executives and policy makers for a decade after the worldwide stock market crash of October 1987. More recently, the sensitivity of some national central banks in the eurozone about the outsourcing of the cash leg of settlement transactions in central bank money to CSDs has prompted the European Central Bank to embark on a project, dubbed Target2-Securities, to build a settlement platform of its own to serve the euro area. Instead of outsourcing, T2S, as it is called, would ‘insource’ the core securities settlement function of the eurozone CSDs to a platform operated by the ECB.

Commercial enterprises with a speciality in securities settlement form the third group of institutions involved in the business. Grouped together as intermediaries, they are, in fact, a heterogeneous bunch. Generally, they are custodian banks which hold securities for their customers and provide value added services such as access to national CSDs or settlement on their own books.

ICSDs also provide such intermediary services. Euroclear and Clearstream have each forged links with about 30 CSDs in addition to those that are members respectively of the Euroclear and Deutsche Börse groups.

Custodian banks exist to overcome the complexities that persist for securities settlement across borders. The settlement of securities is easy to handle in a national framework: securities are held in a CSD, and intermediaries have direct or indirect access to the system for settlement in a single jurisdiction. A cross-border transaction, by contrast, requires the receipt and delivery of securities held in different countries in return for payments passing between different jurisdictions. It means gaining access to a settlement system in another country or ensuring that the different settlement systems can interact.

As mentioned earlier, a cross-border securities transaction usually means a sharp increase in the number of intermediaries involved in its settlement, raising the costs of execution and the risks of the transaction failing. In his 2001 report, Giovannini found that a cross-border equity transaction required as many as 11 intermediaries compared with only five for a corresponding domestic deal and as many as 14 instructions between parties and as many confirmation messages.

It is the job of custodian banks to smooth away these worries – at a price. They divide into two types: the local agent banks and the global custodians. It is easy to confuse the two categories, not least because since the mid-1990s several banks have entered and exited one or the other of the two markets in a wave of corporate restructuring in the sector. There are also some banks, such as Citigroup and BNP Paribas, which are active in both fields through different business lines.

The agent bank typically is a local bank with access to the national CSD and whose business it is to provide the non-resident investor with all the services associated with ownership of the security. This route, which gives the foreign investor the benefit of local expertise, has characteristically been used for cross-border equity investments.

Agent banks come in all shapes and sizes. Deutsche Bank provides typical agent bank services in Germany and also, for historic reasons, in some other European and Asian countries
where it is a custodian. Deutsche is not, however, a global custodian, having pulled out of that business. A local agent bank can be a one market agent, like Intesa in Italy or Bank of Bangkok in Thailand. It can be a two or three market agent, like Santander in Spain, which serves Spain, Portugal and Latin America but no other market. There are also multi-market agents, serving 10 or more markets such as BNP Paribas, Citigroup, Euroclear Bank and Clearstream Banking Luxembourg.

The agent banks are the true beneficiaries of Europe’s fragmented markets and never more so than when they are able to settle a transaction on their own books. While access to the local CSD is at the heart of the agent bank’s business, it will, whenever possible, settle trades on its own books through a process known as settlement internalisation. This can take place when two counterparties in a trade are already on the bank’s books so that the transaction is settled without using the CSD.

A **global custodian** is a large globally active bank, such as State Street or The Bank of New York Mellon\(^7\) of the US which can cover many markets. A global custodian provides more sophisticated value added services via a single access point for investors to national CSDs through a network of local agents including ICSDs, and in rare cases, such as Citibank, through its own subsidiaries or branches.

A global custodian would typically be able to hold a range of assets such as bonds, equities, mutual funds and derivatives on behalf of customers in perhaps more than 100 markets. There has been a process of concentration among global custodians over the past decade as the companies involved have reacted to market pressures for economies of scale and the need to make substantial investment in information technology to support their networks.

There is a hierarchy of services offered by the various types of custodian. The global custodians offer the high margin, sophisticated, upmarket services such as portfolio valuation for pension funds, corporations and insurance companies in the largest number of markets. The agent banks provide settlement, custody, sometimes collateral management, but also financing services in the form of credits and securities lending. The CSDs and ICSDs offer basic services for financial intermediaries, such as no-frills settlement, custody and some collateral management.

Whereas the agent banks will lend clients’ securities with the specific aim of making money for them in what is known as **Street Lending**, the securities lending and borrowing programmes of the ICSDs exist to increase settlement efficiency and prevent transactions failing. Says Pierre Francotte, chief executive of Euroclear: ‘We match supply with a very specific demand, which is only to settle the securities. We do not have a lending desk, a Street Lending desk, offering securities to the market.\(^8\)

But there is also overlap among the custodian banks and ICSDs. A global custodian, for example, will offer basic services such as safe keeping of securities to foster other client relationships. While it is the ICSDs’ job to provide commoditised services to the market, there is a tendency for the scope of such services to go up-market and include activities that only a few years before were among the high margin offerings of the global custodians. This, according to Francotte, is a natural business trend.

Things that the global custodians were doing 10 years ago have become commoditised. They used to make margins of 30% or 40% and then everybody copied what they were doing, and they make

\(^7\) The Bank of New York Mellon was formed in July 2007 through the merger of The Bank of New York Co. Inc. and Mellon Financial Corp. The references to The Bank of New York elsewhere in this book refer to BoNY before the merger.

\(^8\) Conversation with the author, 24 November 2006.
margins of perhaps 10% on these services now. That’s when they push it to Euroclear. Proxy
voting is an example. When I arrived at Euroclear in the early 1990s, proxy voting was the most
sophisticated thing. Within five years, people were saying, why doesn’t CREST [the UK CSD in
the Euroclear group] do it? And now CREST does it. That’s a cycle of things being very exciting,
making a lot of money at the beginning, becoming commoditised, and being put into the CSDs.

In this crowded and competitive world, the global custodians and ICSDs appear to have
achieved a modus vivendi. Relations are far less harmonious between the agent banks and
the ICSDs because their activities overlap far more. Since Euroclear’s acquisition of national
CSDs, Citibank and BNP Paribas – in their roles as agent banks – have emerged as Euroclear’s
bitterest rivals. All three companies are competing for the same kinds of business – and es-
pecially the settlement of equity trades. Euroclear’s plan of a ‘domestic market for Europe’
based on harmonised market practices and a single settlement platform threatens to disinter-
mediate the agent banks’ services for cross-border transactions.

Disintermediation, overlapping activities and the blurring of distinctions are inevitable con-
sequences of financial change and innovation. One side effect has been an increase in the
difficulties of defining and describing the market for securities settlement.

The words clearing and settlement are often uttered in the same breath as if they are a single
activity. As this guide makes clear, they are not. They are different functions in the post-trade
process.

The confounding of the two activities dates back at least to the 1960s. Then, at the begin-
ning of our story, post-trade activities were less complex. The business known as securities
settlement was often called clearing or clearance because clearing in the sense of ‘who owes
what to whom’ was invariably the stage before settling a securities transaction. When in 1968,
Morgan Guaranty of New York set up its business to secure safe settlement of securities traded
on the recently established Eurobond market, nobody thought it odd that it should be called
Euroclear.

Habits persist. Nearly 30 years later, when Deutsche Börse, the German stock market oper-
ator, consolidated Germany’s securities settlement activities in one company, it chose the name
Deutsche Börse Clearing. When in January 2000, the newly merged business of Deutsche Börse
Clearing and Cedel, the Luxembourg-based settlement system for international securities and
cross-border transactions in domestic securities, was rebranded, it was launched under the
name of Clearstream International.

Words such as clear, clearance and clearing will recur time and again in the story of the
securities settlement industry since the 1960s, often as part of company names. However, the
functions of clearing in its modern usage will only appear to any significant degree towards
the end of the narrative when CCPs and central counterparty clearing help shape the securities
settlement industry as it is today.