Introduction
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The process of railway reform in Europe started at the end of the 1980s and was the result of a few undisputed observations; basically, railways had witnessed a constant and worrisome erosion of their modal market share since the Second World War. They had become a growing burden on the public finances and had been incapable of responding to the new increasingly intermodal and international reality, and incapable of reforming themselves. Starting out as national public monopolies, it became necessary and – in the context of the globalization and liberalization of the 1980s – acceptable to make these railways more management-oriented; this process was notable because it weakened the railways’ close relationships with government and opened up the railway market to competition. Indeed, as it seems, only a certain degree of market pressure seemed to be able to trigger the necessary reforms that governments had not been able to carry out.

This is where the European Union comes into play. Indeed, in the late 1980s the European Commission appeared to become increasingly worried about the sagging European railways, which were losing market share, as road and air transport grew exponentially and started to pose environmental and energy-related challenges. The Commission’s policy was to revitalize the European rail industry by way of market opening, by ending state monopolies and by enhancing technical interoperability in order to lower entry barriers. Further, the Commission ear-marked important funding for rail, notably in matters of trans-European infrastructure projects and interoperability-related rail technology programs. Most importantly, in 1991 the Commission starts engaging in substantial rail regulatory policy developments. Step by step (in the form of three and then four so-called Railway Packages), the Commission created an institutional and legal framework for gradual market opening through non-discriminatory access to rail infrastructures, as well as through interoperability standards and regulations.

This is the first book to take a comprehensive look at European railway transformation of the past 20-plus years. We have entitled the book *Railway Economics, Policy and Regulation in Europe* because all three aspects are equally important:
Economics is important because the underlying features and structuring forces of railways have always been and will continue to be economic. The sector carries significant sunk investments and has been, and will continue to be, heavily subsidized. A large part of the European rail infrastructure and wagon assets is old. All this raises economic questions regarding how the railway sector can be financed and by whom. Are returns on (private) investments sufficient for attracting private capital? Can the European rail industry survive without some public funding in infrastructure and even in rolling stock?

Historically, European railways were developed (and financed) because of public policies pertaining to national economic, social and regional development. Some of these policy concerns have moved to the European level, especially with regard to promoting European (infrastructure) integration and development (such as freight corridors, high-speed), along with decarbonization and a corresponding shift from road to rail. New public policy challenges and concerns have emerged, especially at the regional, agglomeration and urban levels, where the development of mass transit has become a necessity in light of congestion and pollution. All this raises policy questions, such as how many market elements can and should be introduced in order to be able to meet both the economic and policy challenges? And, otherwise, how can a regulatory governance framework be created that is conducive to sustaining and further developing the European railway system and industry?

Regulatory policies and regulation are key. The European railway sector is becoming increasingly fragmented as a result of deregulation and the introduction of market elements. Consequently, regulation, both economic and technical, has become the means for creating stability, coherence and the necessary incentives for the different (market) players. Also, as intermodal competition carries increasing weight in rail economics and policy, questions have emerged regarding intermodal regulation. Can regulation actually be sufficient to safeguard the European rail industry in the long run?

As both academics and practitioners, we are convinced that only such a comprehensive political economy approach can actually shed light on the complex challenges of the transforming European railway industry. Our purpose is to broaden the traditional discussions that correctly point to some significant factors. But we also want to address other, more structural, constraints (such as technological and institutional legacies, as well as the economic fundamentals of rail).

Now, after 20-plus years of European railway transformation, it is
possible to make an initial evaluation of its results and impacts. Has competition emerged? Is the economic performance of the sector sufficient to ensure its sustainable competitiveness? Is the European approach to railway de-regulation and re-regulation paying off? What impact has de-regulation and re-regulation had on the main actors in the sector? We have tried to answer these and other questions by assembling a unique book of 15 original chapters, written by a set of international authors known for their expertise in railways. Most of the authors are involved, in one way or another, with the Florence School of Regulation Transport Area, which was created in 2010 and has been directed since by Professor Matthias Finger at the European University Institute.

Chapter 1, entitled ‘Rail economics and regulation’ and co-authored by Matthias Finger and Pierre Messulam, sets the stage and recalls the fundamentals of rail economics and regulation in the context of de-regulation and re-regulation as promoted by the European Commission.

Chapter 2, ‘Railways and demographic change’, authored by Nacima Baron, lays out another fundamental element of passenger rail from a historic perspective, with particular emphasis on the importance of settlements, cities, migration, and demographics more generally for railway economics.

Chapter 3, ‘Competition and third-party access in railroads’, by Günter Knieps, looks at the economics of railway competition by way of third-party access and argues that such third-party access plays a key role in both the scope and the speed of introducing competition in rail.

Chapter 4, ‘European railway reform: unbundling and the need for coordination’, by Didier van de Velde, takes a critical look at the consequences of EU unbundling policy, as it has led to a need for a re-organization of the coordination within the railway value chain with ensuing costs.

Chapter 5, ‘Commercialization and managerial independence’ by Silvia Olsen, Nils Fearnley and Julie Runde Krogstad, looks closely at the growing market orientation and managerial independence of European railways, also in light of more recent political efforts to control the railways.

Chapter 6, ‘High-speed rail in Europe’, by Marta Sánchez-Borràs, discusses the state of high-speed rail in Europe after approximately 30 years. It pays particular attention to the investment and financing aspects that are essential in order to assess its future prospects.

Chapter 7, ‘Incumbents and new entrants in European rail freight’, co-authored by Roel Gevaers, Jochen Maes, Eddy Van de Voorde and Thierry Vaneelslander, presents the evolution of the European rail freight market, market players and possible strategic developments, also in light of European regulation.

Chapter 8, ‘Incumbents and new entrants’, by Angela Stefania Bergantino, identifies patterns of new entry, as well as types of new entrants
in the long-distance and high-speed passenger rail services and illustrates these patterns by way of numerous case studies from all over Europe.

Chapter 9, ‘Rolling stock companies (Roscos): experience from Great Britain’, co-authored by Matthew Dillon, Alexander Jan and Neil Keogh, looks at the emergence of passenger Roscos from a historical perspective and in the particular context of the UK’s rail industry, concluding that this market has potential.

Chapter 10, ‘What does a best practice railway look like?’, by Chris Nash, looks at what constitutes best railway practice in terms of value for money, examining the Swedish, US, Japanese and Swiss models, all of which have good practices in their given institutional contexts.

Chapter 11, ‘Public–private partnerships in the rail sector’, by Julien Dehormoy, critically assesses 27 PPP railway projects over the past 25 years and concludes that although real success stories are scarce, PPPs remain an option to attract investments.

Chapter 12, ‘Mutual recognition, standards and interoperability’, by Torben Holvad, presents and critically assesses the implementation of the European interoperability initiatives (Technical Specifications for Interoperability and measures for mutual recognition) in the various Member States.

Chapter 13, ‘Non-discriminatory access beyond the tracks’, by Andrew Meaney, looks at European regulation, pricing methods and various practices of providing access to other parts of the railway system (so-called essential services), without which competition cannot exist.

Chapter 14, ‘Rail access charges’, by Pierre Messulam and Matthias Finger, discusses the complexity of rail access charges and concludes that such charges are not a market tool for pricing the use of rail infrastructures, but rather should be seen as public policy tools.

Chapter 15, ‘Looking beyond Europe’, by Fumitoshi Mizutani, concludes our book by showing that there are other, non-European ways, to organize railways, some of which are quite successful. This chapter broadens the perspective to railway systems of Australia, the United States, Russia and Japan.

European rail deserves genuine competition with a strong and fair regulator, which will hopefully eventually transform the industry into a competitive one. However, this will only happen once the overall European policy and regulatory framework is set up in such a way that other transport modes (road and air) will no longer be able to unfairly compete against rail.