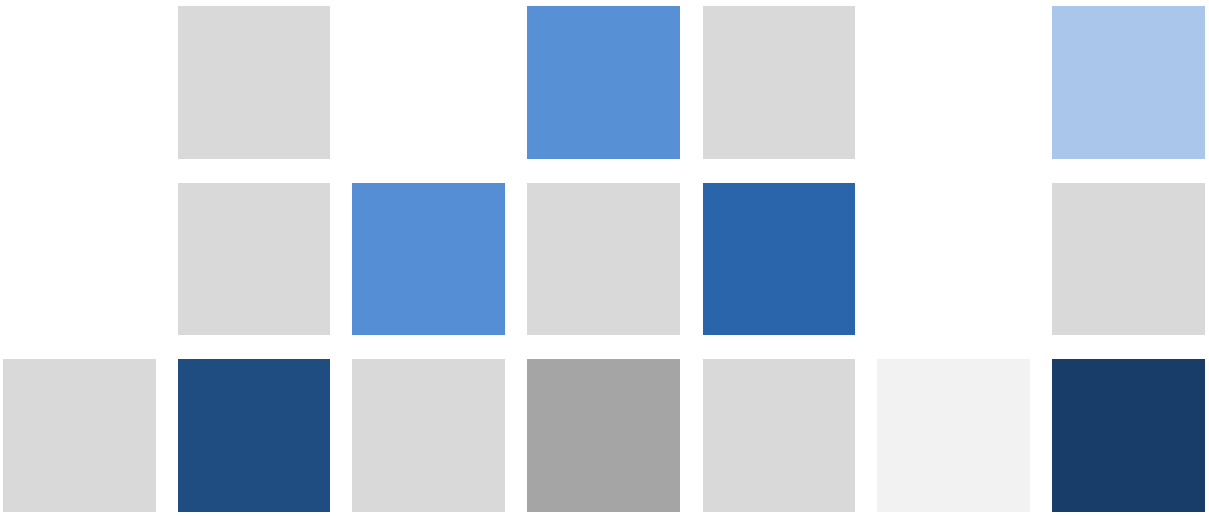
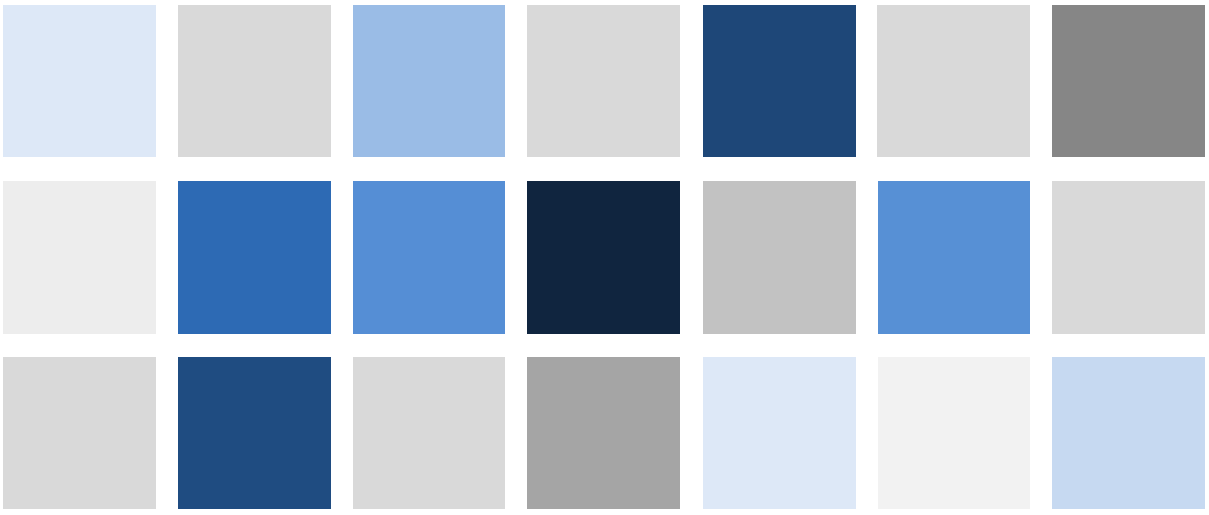


Long-term data for Europe

EURHISFIRM

D4.3: Report on the semantics of data and sources



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1 Introduction

Within the framework of Work Package 4, the current report is intended to advance our understanding of the contents of the sources which have been identified during the previous task (D4.2), the data and sources inventory. The inventory currently contains over 250 historical printed (serial) sources of company information, ranging from simple pamphlets to periodicals which have been published for over 350 years, and a much smaller number of research datasets and databases on mainly financial markets. The solid backbone, however, consists of official gazettes and other official government publications, (official) stock exchange price lists, and yearbooks on publicly-traded companies and joint-stock companies in general. At a first glance, these sources present fairly homogeneous information on the governance, financial instruments, annual accounts and locations of companies. The company and financial market data that EURHISFIRM intends to collect from these sources, however, spans over 200 years and seven countries. Naturally, institutions, legislation, conventions and practices regarding the organisation of companies and the functioning of stock exchanges vary greatly over time and among countries. Superficial similarities in terminology can therefore hide profoundly dissimilar realities. For instance, both the Belgian and Dutch yearbooks on publicly-traded companies (i.e. the *Recueil financier* and *Van Oss' Effectenboek*) provide the names of a company official who is called *commissaris* in Dutch or *commissaire* in French. While the terminology is similar, the position and authority of *commissarissen* in Belgium and the Netherlands differs significantly. In Belgium, *commissarissen* are statutory auditors who are elected by shareholders to scrutinise the books and financial statements of the company and report to the general assembly. In the Netherlands, *commissarissen* are supervisory board members who advise and oversee the executive directors. For the alignment of long-term company data on a Pan-European scale through the elaboration of a common data model (Work Package 5) and the development of data matching and connecting technologies (Work Package 6), the semantic analysis is paramount to identify such idiosyncratic differences at the longitudinal and cross-sectional level.

This report presents an in-depth analysis of the semantics of the types of data which are commonly found in printed serial sources and datasets with governance, financial and geographical information on publicly-traded companies. The semantical analysis will uncover the relationship between the terminology for instance used as section or column headings in sources and datasets covering different time-periods and countries on the one hand and their historical denotation (i.e. their meaning in a certain time and place). It does so by providing a general or country-country overview of legislation, conventions and practises in four fields: (1) identification, (2) corporate governance, (3) capital, debt and securities, and (4) financial reporting.

- Identification includes data on the name, legal form, start, end, registered office (and other addresses), identifiers, purpose and industry of companies. It overlaps partially with the elements from the Legal Entity Identifier (LEI) Common Data File.[1]

[1] https://www.gleif.org/en/about-lei/common-data-file-format/lei-cdf-format

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- The section on corporate governance is concerned with the organization of ownership, management and control in public limited companies through shareholder's assemblies, management and supervisory boards and (semi-)independent auditors.
- The availability of market valuations is a unique feature of publicly-traded companies. The third section deals with their capital, debt and securities and includes, amongst others, a breakdown of share capital, different types of shares, dividends and interest, and the way in which the securities trade worked on the consortium countries' major stock exchanges. The latter is necessary for understanding how security prices were quoted in stock exchange price lists.
- Financial statements, finally, were of great interest to shareholders. Their importance notwithstanding, financial transparency was very weak because of the long-time lack of accounting and financial reporting rules and regulations. The majority of this section discusses the legislation and principles for making-up annual accounts (usually consisting of a balance sheet and profit-and-loss account) (in addition to shorter notes on the fiscal year and statutory rules for the division of profits).

The limitation to governance, financial and geographical information on publicly-traded companies, as in all tasks in Work Package 4, is necessary to make the task manageable. This implies that the semantics of macroeconomic data (e.g. exchange rates) or the data on other types of issuers and securities (most notably public debt) which are commonly found in stock exchange price lists, yearbooks of publicly-traded securities and research datasets fall outside of the scope of this report. This is by no means a negation of the importance of macroeconomic data for the development of the EURHISFIRM research infrastructure or of public debt for the development of financial markets, for instance; but it would simply be impossible to treat in detail the semantics of the available macroeconomic data or the data on other types of issuers and their securities within the time allocated to the current task. The current report, however, can serve as a template for filling these lacunae in the future.

It should finally be clear that the terms which comprise the section and subsection headings and table of contents of this report (and are used for describing the various data elements found in the sources) must not be regarded as a normative standard in this respect. This report will, on the contrary, serve as an input for the elaboration of the national and common data models in Work Package 5. It is up to work package five to accept or refute the terms used in this report and to establish a controlled vocabulary of normative names for data elements as part of the formation and adoption of EURHISFIRM data standards.

2 Identification of companies

2.1 Company name

The **company name** (Dutch: *maatschappelijke benaming*; French: *raison sociale*; German: *Firma*; Polish: *nazwa spółki*; Spanish: *denominación social*) is the legal name of the company. It is chosen at the time of incorporation and recorded in the memorandum of association or deed of incorporation. The company is also registered under this name, so it can be found in official publications (for instance registrar's notices) as well. Company law, in the past, limited the names for corporations. For instance, the Code of Commerce

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(French: *Code de Commerce*) of 1807, which was promulgated in France, Belgium, the Netherlands and parts of Germany, required that public limited companies (French: *sociétés anonymes*) were defined only by their purpose (art. 30) and limited partnerships (French: *sociétés en commandite*) by the name of at least one of the managing partners (art. 25) (see also section 2.2 below). The German Joint-Stock Company Law of 1843 contained a similar provision.[2] Over time, these stringent limitations were relaxed. In Belgium, for instance, a more specific name was allowed for public limited companies per the Law of 13 May 1873. The company name, however, could still not be limited to the name of one of the partners (French: *associés*). This restriction was finally abolished in 1999 (Willems & Buelens, 2005). Currently, company law generally dictates only two restrictions: No two companies can have the same company name and the legal form of the company must be included in the company name in full or abbreviated form (for public limited companies in the Netherlands, for instance, *naamloze vennootschap* or *N.V.*). The company name must be distinguished from the **business name**. The business or trade name is an alternative name or pseudonym, distinct from the company name, under which a company presents itself to the general public. The business name of the brewing company *Anhauser-Busch InBev S.A.*, registered in Belgium, for instance, is *AB InBev*.

Names from other sources than legal documents or government publications present a number of problems in regard to the unique identification of companies. The company name and the business name may be confused, for instance. Names in foreign languages and non-Latin scripts are usually also translated and transliterated in official lists and yearbooks. Moreover, names are generally heavily abbreviated in official price lists. The Belgian railway *Compagnie général de Chemins de Fer et de Travaux publics* was abbreviated to *Ch. de Fer et Trav. Pub (C^ie Gén.)* in the *Cours authentique* of the Brussels stock exchange. Even the full company name in its original language and script, however, is in itself not sufficient to uniquely identify a company. After a merger, for instance, the absorbing company could continue its activities under the name of the absorbed company. This was the case with the Belgian holding company *Groupe Brussels Lambert*, which was taken over by *Electrafina* for financial reasons. GBL (briefly) continued its operations as *Electrafina* in 2001 but later changed its name later back to GBL (example for Belgium, taken from Annaert & Buelens, 2011).

2.2 Legal form

The focus on publicly-traded companies actually limits the number of legal forms of businesses eligible for inclusion in the EURHISFIRM infrastructure. Businesses can be organised in a variety of legal forms, from sole proprietorships to multinational, multi-owner corporations. A broad distinction is usually made between firms (which include, for instance, partnerships) on the one hand and corporations (which include, for instance, public limited companies) on the other hand. Corporate personality, limited liability, entity shielding and perpetual succession are considered to be essential characteristics of the latter category (Hannah, 2014). Present-day publicly-traded companies can be found in this category. Historically, however, businesses in which the ownership was divided into transferrable shares (i.e. joint-stock companies) could take different legal forms which did not always entail all of the characteristics of

[2] "*Die Aktiengesellschaft darf keine Firma annehmen, welche die Namen der Betheiligten ausdrückt, sondern ist nach dem Gegenstande, für welchen sie errichtet worden, zu benennen.*"

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corporations. In the following paragraphs, we will provide a country-by-country overview of the principal legal forms available to joint-stock companies in commercial or company law.

Some of the historical legal forms of joint-stock companies, however, fell outside of the scope of commercial or company law. For instance, in Belgium, not only collieries and quarries, but also railroads and building companies could take the form of a non-trading partnership (Dutch: *burgerlijke vennootschap*; French: *société civile*), which was regulated by the Civil Law Code (Dutch: *Burgerlijk Wetboek*; French: *Code civil*) and subject to the jurisdiction of civil courts (Willems & Buelens, 2005). The non-trading partnership was also widely used in the French mining sector. At the eve of the First World War, two-thirds of the coal mining companies located in the Nord-Pas de Calais region were *sociétés civiles*, the Law of 1893, which allowed them to turn into a *société anonyme* quite easily, notwithstanding. The capital of non-trading partnerships could be divided into shares, a necessary condition for large investments, but they were not subject to the *Code de Commerce*. Thus, for instance, they did not have to publish annual accounts (Mastin, 2010). In Germany and the United Kingdom, mining and shipping companies could also take specific legal forms. The mining company (German: *bergrechtliche Gewerkschaft*) was a legal form particular to mining enterprises in Prussia and later Germany until 1982. It had tradable shares (called *Kuxe* in German) and was subject to the Mining Code (German: *Bergrecht*) (Kolbeck, 1988; Guinnane, 2018). In the United Kingdom, cost-book mining companies in the stannaries of Cornwall and Devon fell under the purview of the Stannary Courts. British shipping companies operated under the jurisdiction of the High Court of Admiralty. Both had tradable shares, separation of ownership and control and some degree of limited liability (Harris, 2000, pp. 186–193; Turner, 2018). While only a small percentage of companies made use of these alternative legal forms, their absolute numbers were quite large and they must not be ignored (Hannah, 2014).

Belgium, France and the Netherlands

On the European continent, the Napoleonic Code of Commerce (French: *Code de Commerce*) of 1807 was promulgated not only in France, but also in Belgium, parts of Germany (i.e. the Confederation of the Rhine) and the Netherlands. This Code of Commerce had already reduced the number of legal forms available to joint-stock companies at the beginning of the nineteenth century to two: (1) the *société anonyme* (or public limited company) and (2) the *société en commandite par actions* (or partnership limited by shares).[3] The ***société anonyme*** much resembles the modern joint-stock company with dispersed ownership, directors who were responsible to shareholders, and limited liability for directors and shareholders. The ***société en commandite par actions*** was a kind of limited partnership in which ownership was divided into transferrable shares. In a *société en commandite*, only the shareholders (in this particular case called *commanditaires* in French) possessed limited liability. The managing partners (called *gérants* in French) were subject to unlimited liability (Freedeman, 1965).

The Netherlands and Belgium retained these legal forms when they implemented their own national company legislation in 1838 and 1873, respectively. A *société anonyme* is called *naamloze vennootschap* or *naamloze maatschappij* in Dutch; a *société en commandite par actions* is a *commanditaire vennootschap*

[3] The existence of the *société en commandite par actions* was implied by article 38 which allowed the capital of the *société en commandite* to be divided into shares.

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op aandelen (Willems & Buelens, 2005). In the Congo Free State (French: *État indépendant du Congo*; Dutch: *Congo-Vrijstaat*), established by the Belgian King Leopold II in 1885, and later in the Belgian colony of Congo (1908-1960), however, the French term *société par actions a responsabilité limitée* was used to designate public limited companies (Decree of 27 February 1887 and Royal Decree of 22 June 1926, published respectively in the *Bulletin officiel de l'État indépendant du Congo* of 1887 and the *Bulletin officiel du Congo* of 1926).

Spain

Spanish commercial legislation in the nineteenth century was strongly influenced by the Ordinances of Bilbao of 1737 and the French Code of Commerce of 1807. The first Spanish Code of Commerce (Spanish: *Código de Comercio*) of 1829 reaffirmed the existence of the ***sociedad anónima*** (or public limited company) and the ***sociedad comanditaria por acciones*** (or partnership limited by shares) in Spain. These legal forms much resemble the French *société anonyme* and *société en commandite par actions* (Guinnane & Martinez-Rodriguez, 2012).

In the second half of the nineteenth century, the Spanish legal framework was increasingly inspired by principles of private contractual freedom and was significantly more flexible compared to other European countries. The Company Law of 1869 (Spanish: *Ley de Libertad de Creación de Sociedades por Acciones y de Crédito*) introduced complete freedom for the establishment of joint-stock companies and gave partners full discretion to define rules in the deed of incorporation and articles of association. The new approach opened the ground to a revision of the principle of *numerus clausus*, under which incorporation could take a limited number of legal forms: collective company (Spanish: *compañia colectiva*), limited partnership (Spanish: *compañia en acomándita*), partnership limited by shares (Spanish: *sociedad en comandita por acciones*), and public limited company (Spanish: *sociedad anónima)*. The Commercial Code of 1885 formally broke the principle of *numerus clausus* by permitting the incorporation under legal typologies not explicitly included in the Code. The most important new legal form was the private limited liability company (Spanish: *sociedad de responsabilidad limitada*), which had been the subject of extensive debate in Spain, inspired by the French law on *sociétés a responsibilité limiteé* of 1863. However, the registration of private limited liability companies was authorized by the Commercial Register (Spanish: *Registro Mercantil*) in 1919. This form became very popular in the 1920s and was widely used for the legal transformation of former *sociedades colectivas*. In fact, the diffusion of *sociedades anónimas* was relatively slow and the private limited liability company remained the prevailing legal form for Spanish companies until the 1950s (Tafunell, 2005). However, this legal form was not officially legislated until 1953. Since the 1950s, *sociedades anónimas* prevailed.

Germany

The Rhine province and Westphalia, which were part of the Napoleonic Confederation of the Rhine, also retained the French Code of Commerce after their annexation by Prussia in 1815. In the rest of Prussia, however, joint-stock companies only existed as chartered companies prior to 1838. There was no equivalent of the French *société anonyme* in the Prussian General State Law (German: *Allgemeines Landsrecht*). The Law on Railway Companies (German: *Gesetz über die Eisenbahn-Unternehmungen*) of 3 November 1838 first introduced a corporate form with some of the characteristics of the French *société anonyme* for joint-stock railway companies. The Law on Joint-Stock Companies (German: *Gesetz über*

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Aktiengesellschaften) of 9 November 1843 made a corporate form with the characteristics of the French *société anonyme* available to all joint-stock companies. These were henceforth called ***Aktiengesellschaften*** in German (in the Law of 1838, the term *anonymes Gesellschaft* was used). The existence of the *Aktiengesellschaft* (or public limited company) was confirmed in the entire German Confederation by the General German Commercial Code (German: *Allgemeines Deutsches Handelsgesetzbuch*, further: ADHGB) of 1861, which also introduced the partnership limited by shares (called ***Kommanditgesellschaft auf Aktien*** in German) in the German Confederation.

Poland

Between 1815 and 1918, there was no independent Polish state. The former Polish-Lithuanian Commonwealth was partitioned between Austria, Prussia (Germany since 1871) and Russia. The laws of the partitioning countries regulated the legal form of businesses in their respective partitions of Poland. The Prussian corporate forms have already been discussed. The ADHGB of 1861 was also introduced in the Austrian Empire in 1862. Hence, corporate forms in the Austrian partition resembled those in the Prussian partition. The situation in the Russian partition was different, however. The Russian Law of 1 January 1807 distinguished two types of stock corporations with limited liability: ***tovarishchestvo na paiakh*** (literally share partnership) and ***aktsioneroe obschchestvo*** (literally joint-stock company). The distinction was in the types of shares they issued (respectively *pai* and *aktsiia* in Russian). There were no partnerships limited by shares in the Russian Empire. Moreover, there was no fixed set of regulations for stock corporations as every company was individually chartered by the tsar (Owen, 1994, 2002, pp. 10–12).

National Polish commercial legislation only appeared after the restoration of Polish independence. A first joint-stock company law (Polish: *Prawo o spółkach akcyjnych*) was promulgated on 22 March 1928, the first Polish Commercial Code (Polish: *Kodeks handlowy*) was announced on 27 October 1933. The only corporation with transferable shares recognized by the Commercial Code of 1933 was the ***spółka akcyjna*** (or stock corporation). No partnerships limited by shares (Polish: ***spółki komandytowo-akcyjnej***) existed in Poland from 1934 until they were re-introduced in 2000 (*Poland company laws and regulations handbook*, 2012).

United Kingdom

Joint-stock companies existed in the United Kingdom under a myriad of legal forms until 1844. Since the Bubble Act of 1720, only **statutory** and **chartered companies** had legal personality. Many joint-stock companies of the first half of the nineteenth century were unincorporated. Legally, these companies were partnerships (firms) and their shareholders were considered to be partners, jointly and individually liable. This is discussed in detail in the book by Freeman, Pearson and Taylor (2012). The Joint-Stock Companies Registration and Regulation Act of 1844 (7 & 8 Vict., c. 110) introduced a new legal form, the **registered company**. This became the mandatory form for joint-stock companies with more than 25 partners. These registered companies had all the properties of modern corporations, except for limited liability. The Joint-Stock Companies Act of 1856 (19 & 20 Vict. cap. 47) introduced limited liability for registered companies and set the minimum number of partners for a registered company at seven. The maximum number of partners in an unincorporated company was set at twenty. The Companies Act of 1862 introduced the term **company limited by shares** for registered joint-stock companies with limited liability. Furthermore, the Act allowed joint-stock companies to register as **companies limited by guarantee** and **unlimited**

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companies. The shareholders of the latter did not enjoy limited liability. This legislation did not apply to banks, however. Banks had their own acts. Also, railroads, public utilities and other companies which required special privileges such as compulsory land purchases still had to incorporate as statutory or chartered companies. The Companies Act of 1907 allowed partnerships with less than seven partners to incorporate as private limited companies which are distinct from **public limited companies**, a new name for the former companies limited by shares (Smith, 1863; Turner, 2018).

2.3 Start date (incorporation)

A natural person acquires legal personality at birth; juridical person do so when they are incorporated in accordance to the law. Incorporation, both historically and currently, is a multi-step process which usually involves signing and registering one or more constitutional documents.[4] Historically, government authorisation was also required for setting up a public limited company in the United Kingdom (until 1844), France (until 1867), Spain (between 1848 and 1869), Germany (until 1870), Belgium (until 1873), Poland (until 1928) and the Netherlands (until 1928). Partnerships limited by shares, however, could be incorporated without government consent. After each step, a company might obtain certain rights and obligations, but full corporate capacity (for instance, the ability to enter into legally binding contracts) is usually acquired only after completion of the last step.

Belgium

According to the Napoleonic Code of Commerce of 1807, the deed of incorporation of public limited companies (French: *sociétés anonymes*) had to be passed before a notary.[5] Limited partnerships (including partnerships limited by shares, French: *sociétés en commandite par actions*) could also be formed by a private deed. Moreover, public limited companies could not exist without government authorisation: the government had to approve the deed of incorporation. This was not the case for partnerships limited by shares (Willems & Buelens, 2005).[6] Hence, public limited companies acquired corporate personality only after the government approved the deed of incorporation.

The Law of 18 May 1873 liberalised the rules regarding the incorporation of public limited companies. The following basic steps in the incorporation of public limited companies and partnerships limited by shares have largely been retained until present. The deed of incorporation of public limited companies and partnerships limited by shares needed to be passed before a notary, but the obligation to seek government authorisation for the incorporation of public limited companies was abolished. Instead, publication of the constitutional document (in full, in the case of public limited companies and partnerships limited by shares) in the *Recueil spécial*, an appendix to the *Moniteur belge*, became mandatory.[7] A copy of the deed of incorporation therefore had to be deposited with the Commercial Courts (French: *Tribunaux de Commerce*) within fifteen days. Publication was an essential step in the process of incorporation.

[4] This depends on whether the articles of association are separate from the deed of incorporation.
[5] Art. 40: "*Les sociétés anonymes ne peuvent être formées que par des actes publics.*"
[6] Art. 37: "*La société* [anonyme] *ne peut exsister qu'avec l'autorisation du Gouvernement, et avec son approbation pour l'acte qui la constitue.*"
[7] In Belgium, companies can be incorporated with a single constitutional document. The articles of association (Dutch: *statute*; French: *statuts*) are an integral part of the deed of incorporation (Dutch: *oprichtingsakte*; French: *acte de constitution*).

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Companies who did not publish their deed of incorporation could not institute legal action, amongst other things (art. 11). The significance of the date of publication is also attested by the legal obligation to print it on share certificates (art. 38) (Louis Bastine, 1876). The dates of the deed of incorporation and the registration can be found in the *Recueil spécial*. Yearbooks such as the *Recueil financier* (1893-1975) and *Memento der effecten* (1944-2011) contain only the date of the deed of incorporation.

The aforementioned freedom to incorporate from 1873 onwards, however, did not apply in the Congo Free State. The Decree of King Leopold II of 27 February 1887 stipulated that all companies had to register their deed of incorporation within six months with the Court of First Instance (Dutch: *Rechtbank van Eerste Aanleg*; French: *Tribunal de première Instance*) under penalty of being declared null and void. Companies limited by shares (French: *sociétés par actions a responsabilité limitée*) also first had to obtain royal consent which was given by a Royal Decree.[8] The Royal Decree of 22 June 1926 confirmed the necessity of seeking royal consent for the incorporation on companies limited by shares in the Belgian Congo.

France

Prior to 1867, the above-mentioned articles of the Code of Commerce of 1807 regulated the incorporation of public limited companies (French: *sociétés anonymes*) and partnerships limited by shares (French: *sociétés en commandite par actions*) in France. The Law of 24 July 1867 (French: *Loi sur les Sociétés*) abolished the requirement to seek government approval of articles of incorporation (French: *statuts*) of public limited companies (art. 21). Public limited companies and partnerships limited by shares could be incorporated by a private or public deed of incorporation (French: *acte de constitution*) which includes the articles of association (French: *statuts*). The incorporation was not complete, however, before all shares were subscribed and all shareholders had paid-up one-quarter of the nominal value of their shares.[9] In addition, the first general assembly of shareholders had to appoint the first board of directors. The approval of the minutes (French: *procès-verbal*) of the constitutive shareholders meeting constituted the incorporation of the company.[10]

Although a Commercial Register (French: *Registre du Commerce*) was introduced in France in 1919, registration did not become an essential element of incorporation until 1953. Per the Decree of 9 August 1953, only registered companies acquired full corporate capacity (Longelin, 2012). This procedure is still in place today: the French *société anonyme* is created by signing the deed of incorporation and articles of association, but does not acquire full corporate capacity until it is registered with the Commercial Register (Dornseifer, 2005, p. 173).

Germany

The process for incorporating public limited companies (German: *Aktiengesellschaften*) in the aforementioned Prussian Law on Joint-Stock Companies of 1843 was very similar to that of the Code of

[8] Art. 6: "*Nulle société par actions, à responsabilité limitée, ne pourra se fonder au Congo qu'après avoir été autorisée par décret.*"
[9] Art 1: "*Elles ne peuvent être définitivement constituees qu'après la souscription de la totalité du capital social et le versement, par chaque actionnaire, du quart au moins du montant des actions par lui souscrites.*"
[10] Art. 25: "[…] *Le procès-verbal de la séance constate l'acceptation des administrateurs et des commissaires present la réunion. La société est constituée à partir de cette acceptation.*"

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Commerce of 1807.[11] Prussian *Aktiengesellschaften* could only be incorporated with government authorisation so they needed to have their articles of association (German: *Gesellschaftsvertrag* or *Statut*) approved by the King (§ 1).[12] The articles of association also had to be passed before a notary (§ 2).[13] Companies acquired legal personality after their articles of association were approved (§ 8).[14] To these provisions, the ADHGB of 1861 added the requirement to register the company in the Commercial Register (German: *Handelsregister*) which was held by the Commercial Courts (German: *Handelsgericht*). Unapproved and unregistered public limited companies were considered as non-existent; those acting on behalf on unapproved and unregistered companies were personally and jointly liable (art. 261).[15]

The requirement to seek government approval was abrogated by the Reform of Joint-Stock Company Law (German: *Aktienrechtsnovelle*) of 11 June 1870 (Bayer & Habersack, 2007, pp. 240–241). Public limited companies could now be incorporated by passing a notarial deed of incorporation and articles of association (art. 208), having the subscription of all shares attested by a notary at a general assembly of shareholders (art. 209) and registering the company with the Commercial Register (art. 210). Unregistered public limited companies were still considered as non-existent (art. 211).[16] Subsequent legislation in 1884 and 1937 did not profoundly change the process of incorporation, but tightened the rules on establishing a corporation (Bayer & Habersack, 2007). Presently, the basic constitutional documents, memorandum of association (German: *Gründungsprotokoll*) and articles of association (German: *Satzung*), still must be made up by a notary. The *Aktiengesellschaft* is established when all shares are subscribed and 25 percent of the share capital is paid-up (as defined in the amendment of the Stock Corporation Law of 1884). However, the company only acquires full corporate capacity after it is registered with the Commercial Register (Dornseifer, 2005, pp. 220–226).

Poland

In partitioned Poland, the laws of the partitioning states, Austria, Prussia and Russia, regulated the incorporation of businesses until 1918. The requirements for incorporating a public limited company in Prussia are outlined above. Austrian and Russian law equally required government authorization for incorporating a public limited company until 1918. The Minister of the Interior and the local courts (in Austria) and the Minister of Finance (in Russia) had to approve the memorandum and articles of association (Greenwood, 1911, pp. 213–214, 214–215; Owen, 2002; Guinnane, 2018). Since the ADHGB of

[11] The aforementioned Law on Railway Companies of 1838 already required approval of the articles of incorporation by the Ministry of Trade (German: *Handelsministerium*). Upon receipt of the approval, which was published in Prussia's collection of laws (German: *Gesetzsammlung*), the company was endowed with "the rights of a corporation or anonymous company (German: "*die rechte einer Korporation oder einer anonyme Gesellschaft*").

[12] "*Aktiengesellschaften* […] *können nur mit landesherrlicher Genehmigung errichtet werden. Der Gesellschaftsvertrag (das Statut) ist zur landesherrlichen Bestätigung vorzulegen.*"

[13] "*Der Gesellschaftsvertrag ist gerichtlich oder notariell aufzunehmen oder zu vollziehen.*"

[14] "*Aktiengesellschaften erlangen durch die landesherrliche Genehmigung die Eigenschaft juristischer Personen.*"

[15] "*Vor erfolgter Genehmigung und Eintragung in das Handelsregister besteht die Aktiengesellschaft als solche nicht. Wenn vor erfolgter Genehmigung und Eintragung in das Handelsregister im Namen der Gesellschaft gehandelt worden ist, so haften die Handelnden persönlich und solidarisch.*"

[16] https://de.wikisource.org/wiki/Gesetz,_betreffend_die_Kommanditgesellschaften_auf_Aktien_und_die_Aktiengesellschaften

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1861 was also introduced in Austria, public limited companies in the Austrian partition were also required to register.

Even after the restoration of Polish independence, these requirements for incorporation were retained in the former partitions. The Decree of 24 December 1918 and the Law of 29 April 1919 (which superseded the aforementioned Decree) confirmed that incorporation of public limited companies (Polish: *spółka akcyjna*) in the former Austrian and Russian partitions required the approval of their articles of association (Polish: *statuts*) by the Ministry of Trade and Industry (or the Ministry of the Treasury in case of financials). The Joint-Stock Company Law of 22 March 1928 and the Commercial Code of 27 October 1933 abolished the need for government approval and extended the registration system to the entire country.

The basic provisions regarding the incorporation of public limited companies are retained in the Commercial Companies Code of 2000, which replaced the Commercial Code of 27 October 1933. Currently, public limited companies must be registered in the Register of Entrepreneurs at the National Court Register. A public limited company obtains full corporate capacity at the moment of entry in the register (Dornseifer, 2005, pp. 691–693)

The Netherlands

The French Code of Commerce of 1807 was introduced in the Netherlands in 1811. Hence, the above-mentioned articles of this Napoleonic code also regulated the incorporation of public limited companies (Dutch: *naamloze vennootschappen*) in the Netherlands. They were retained in the Dutch Code of Commerce (Dutch: *Wetboek van Koophandel*) of 1838: the deed of incorporation (Dutch: *akte van oprichting*, which includes the articles of association) had to be executed before a notary (art. 38) and approved by the King (art. 36). The King would not give his royal consent (Dutch: *Koninklijke bewilliging*) unless the founders owned at least one-fifth of the shares (art. 50) and the company could not start before one-tenth of the capital had been paid-up (art. 51). The Commercial Registries Law of 26 July 1918 (effective from 15 March 1921) made registration in the Commercial Register (Dutch: *Handelsregister*) held by the Chambers of Commerce (Dutch: *Kamers van Koophandel*) mandatory for public limited companies. Unregistered companies could not enforce contracts with third parties.[17]

The requirement to seek royal consent was abolished in 1928. From 1928 until 2011, a declaration of no objection (Dutch: *verklaring van geen bezwaar*, B.W. art. 64) from the Minister of Justice was a necessity for incorporating a public limited company. It had to be presented to the notary before the deed of incorporation was executed. The company acquires legal personality at the time of execution of the deed of incorporation. Registration with the Commercial Register, however, is still mandatory. Directors of unregistered companies representing the company are jointly and severally liable (Dornseifer, 2005, pp. 556–565).

Spain

Contrary to the spirit of the times, incorporation of public limited companies (Spanish: *sociedades anónimas*) did not require government approval in Spain during the first half of the nineteenth century.

[17] Art. 22, § 1: "*Zoolang niet de voorgeschreven opgaaf is gedaan van eenig feit, kan hij die gehouden is die opgaaf te doen, zich niet op dat feit beroepen tegenover derden, die te goeder trouw verklaren dat het hun onbekend was*."

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The Code of Commerce of 1829 (art. 284) allowed commercial companies, including public limited companies, to be established with a single public deed (Spanish: *escritura pública*). Public limited companies, however, could not exist without having their deed of incorporation and articles of association approved by the local commercial court.[18] All companies also needed to register their existence with the Commercial Register (Spanish: *Registro general del comercio*) which was held by the commercial courts. Unregistered companies could not enforce contracts with third parties.[19]

The Law of 28 January 1848, however, made the incorporation of public limited companies subject to government approval of their deed of incorporation and articles of association. The authorisation was granted by a Royal Decree. Half of the capital had to be paid-up before a public limited company could be approved. These provisions were abolished again in 1869. The Law of 11 October 1869 restored the regime of incorporation from the Code of Commerce of 1829. Its basic principles regarding incorporation and registration were repeated in the Code of Commerce of 1885: The deed of incorporation needed to be executed before a notary and registered with the Commercial Register (now called *Registro mercatil* in Spanish, art. 117). Unregistered company deeds could not be opposed against third parties (art. 24). The current procedure for incorporating a public limited company in Spain is still a two-step process of executing a single constitutional document (deed of incorporation containing the articles of association) before a notary and registering the company with the Commercial Register. Legal personality is acquired upon registration (Dornseifer, 2005, pp. 775–776).

United Kingdom

From the Bubble Act of 1720 until the Joint-Stock Companies Registration and Regulation Act of 5 September 1844 (7 & 8 Vict., c. 110), companies could only be incorporated by Act of Parliament or by Royal Charter. Before the repeal of the Bubble Act on 5 July 1825, Parliament was the principal road to incorporation. From 1825, the Crown could grant legal personality through Royal Charter. The aforementioned Act of 1844 for the first time allowed for the incorporation of companies through registration of basic constitutional documents with the Registrar of Companies. Registration initially was a two-step process. Companies first registered provisionally. Registration could then be completed by depositing a deed-of-settlement within one year. The Registrar issued a certificate of incorporation. The process is described in detail by Charles Wordsworth (1844). For the present purpose, it is important to note that only completely registered companies acquired full corporate capacity (or, in the words of the act, were 'invested with the qualities and incidents of corporations') (Wordsworth, 1844, app. p. 188). The provisional registration was abolished by the Joint-Stock Companies Act of 1856 (19 & 20 Vict. cap. 47). The two-step process was replaced with a simple registration of a memorandum of association and articles of association (Wordsworth, 1856; Hannah, 2014). Future Companies Acts did not alter the basic principle of incorporation through registrations of these two basic constitutional documents. Up to the present,

[18] Art. 293: "*És condicion particular de las compañías anónimas que las escrituras de su establecimiento y todos los regíamentos que han de regir para su, administracion y manejo directivo y económico, se han de sujetar al examen del tribunal de comercio del territorio en donde se establezca; y sin su aprobacion no podrán llevarse á efecto.*"

[19] Art. 28: "*Las escrituras de sociedad de que no se tome razon en el registro general del comercio , no producirán accion entre los otorgantes para demandar los derechos que en ellas les hubieren sido reconocidos; sin que por esto dejen de ser eficaces en favor de los terceros interesados que hayan contratado con la sociedad.*"

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joint-stock companies can be incorporated in the United Kingdom in this manner (Dornseifer, 2005, pp. 64–65).[20]

2.4 End date (liquidation)

Just like natural persons, legal entities or companies can die. The process of bringing the existence of a company to an end is called the **liquidation** or winding-up of a company. It involves selling the assets and recovering outstanding debts to the company. These funds are then used to pay the company's creditors. If the assets exceed the liabilities, the balance is distributed amongst shareholders. Liquidation can be either voluntary or compulsory. In both instances, there are a number of important steps in the liquidation process that can be dated. The basic steps of this process are very similar in the different countries of the EURHISFIRM consortium and stable throughout time (although there are, of course, also differences, for instance in the circumstances which require that a company is wound-up).

2.4.1 Voluntary liquidation

Voluntary liquidation is initiated by the shareholders. The general assembly of shareholders can decide to liquidate the company. In case a company is loss-making, company legislation can stipulate a mandatory consultation of the general assembly on the subject of liquidation. In Belgium, for instance, article 72 of the Law of 13 May 1873 obliged directors to put up the liquidation for deliberation at the general assembly if half of the share capital is lost. If the losses accumulate to three-quarters of the share capital, a minority of shareholders holding one-quarter of the shares present at the assembly can decide to dissolve the company. Although the thresholds differ, most countries have similar provisions in their commercial legislation about debating the liquidation of the company at a general assembly in case of loss of capital. If a general assembly decides to dissolve the company, it appoints one or more liquidators (Dutch: *vereffenaars*; French: *liquidateurs*; German: *Abwickler* or *Liquidatoren*; Polish: *likwidatorzy*; Spanish: *liquidadores*). The **appointment of liquidators** by the general assembly is the first step in the liquidation process. The company then becomes a **company in dissolution** (Dutch: *in vereffening*; French: *en liquidation*; German: *in Liquidation*, short: *i.L.*; Polish: *spółka w likwidacji*; Spanish: *en liquidación*). During this phase, the company can continue its business while the liquidators perform all acts necessary for winding-up the company (chiefly selling assets and collecting debts). The liquidators are generally held to annually report to the general assembly about the proceedings of the dissolution and present balance sheets at this occasion. This phase can last for many years. When the dissolution is finished, the liquidators present their final report and accounts to the general assembly. In Belgium, for instance, the general assembly appoints auditors (Dutch: *commissarissen*; French: *commissaires*) who shall investigate the accounts and fix a date for a final general assembly. At this final general assembly, after hearing the report of the auditors, the shareholders deliberate the **acquittal of the liquidators**. This closes the liquidation and dissolves the company. The company will then typically be struck off the company register, sometimes after a vesting period. In Spain, for instance, companies are struck off the Commercial Register 40 days after the publication of the final balance sheet (Dornseifer, 2005, p. 808).

[20] Currently, the memorandum includes information on the name, registered office, purpose (object) and status (type) of the company; the articles contain rules for corporate governance.

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The judicial dissolution of a company, however, economically does not necessarily constitute its end. Dissolution could be immediately followed by the **reconstitution** of the company under the same or a different name. Reconstitution could have an almost infinite number of reasons. The Belgian mixed bank *Banque de Bruxelles*, for instance, was incorporated in 1871 with an authorised capital of 50 million Belgian francs. In 1876, the bank was confronted with a depreciation of its portfolio and the German shareholders wanted to withdraw their investment. The articles of association, however, did not include provisions on buying back their shares. The general assembly therefore decided to dissolve and reconstitute the company with a reduced capital of 19 million Belgian francs (i.e. without the German shareholders) in 1877 (Chlepner, 1930, p. 70). Dissolution of one or more companies could also take place in case of a merger. A **merger** is a transaction involving two or more companies and can take two forms. Firstly, one of the merging companies, the non-surviving company, can be dissolved. Its equity and shareholders are then taken over by the surviving company. Secondly, both merging companies can be dissolved and their equity and shareholders can be consolidated in a newly formed company (Dornseifer, 2005, p. 799).

In should be noted here, that, historically, companies were incorporated for a limited **duration**. In Belgium, for instance, the aforementioned Law of 1873 stipulated that the maximum duration of *sociétés anonymes* was limited to the duration of their concession (e.g. for railways) or 30 years for all other companies. A similar form of liquidation upon expiration of the term set forth in the articles of association, for instance in cases where the duration of the corporation was linked to specific concessions or patents, was also provided in Prussian company legislation since the Joint-Stock Company Law of 1843 (Dornseifer, 2005). In France, the initial maximum duration is currently limited to 99 years, but this can be extended by subsequent periods of equally 99 years (Dornseifer, 2005, p. 174). The Dutch Law of 1928, on the other hand, assumed that the duration of public limited companies was indefinite unless the articles of association prescribed otherwise. At expiration, an extraordinary general assembly had to deliberate the **prolongation** of the company. A negative decision would also initiate a process of voluntary liquidation.

2.4.2 Compulsory liquidation

Compulsory liquidation is usually, although not always (see below), initiated by a company's creditors. In case of insolvency, creditors can request the court for a **winding-up order**. In case of a court-ordered liquidation, one or more liquidators are appointed by the court. Court-appointed liquidators (Dutch: *curator*; French: *syndic*; German: *Konkursverwalter* or, since 1999, *Insolvenzverwalter*; Polish: *syndyk*; Spanish: *liquidadores judiciales*) are equally invested with the management of the company in lieu of the directors for the purpose of realising its assets to satisfy the creditors. A compulsory liquidation is closed by an order of the court. By this order, the liquidator is discharged and the company is dissolved.

The Prussian Joint-Stock Company Law of 1843 stipulated a number of additional causes, other than insolvency, for compulsory liquidation. The King, for instance, could revoke a company's concession at discretion "for the greater good of the public (§6). The courts could equally revoke a concession in case of misuse (§7). Companies whose capital was reduced by 50 percent should also disclose their balance sheet. The government could then decide to dissolve the company (§ 25). Finally, the court ex officio had open bankruptcy (German: *Konkurs*) proceedings againt companies whose liabilities exceeded their assets (§ 26). Only the latter two provisions were retained in the ADHGB of 1861.

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2.5 Registered office

The **registered office** (Dutch: *maatschappelijke zetel*; French: *siège social*; German: *Sitz*; Polish: *siedziba*; Spanish: *domicilio social*) is the official address of a legal entity. It is chosen at the time of incorporation and recorded in the memorandum of association or deed of incorporation. The company is also registered under this address, so it can be found in official publications (for instance registrar's notices) as well. A company receives its official communications at this address. The registered office must be distinguished from the **head office** or headquarters. The head office is the business hub of the company. For instance, the executives have their office at the headquarters and the books are kept there. The head office is not necessarily located at the registered address. Yearbooks sometimes also include **other addresses** such as those of branches and production sites (e.g. factories, mines and quarries). This constitutes important geographical information which is recorded with various levels of detail (from locality only to full address) in different sources. In any case, the ability to distinguish between a company's country of residence and the location of its major production facilities from this type of information in yearbooks and others sources is very relevant for historical research (see for instance: Annaert, Buelens, & De Ceuster, 2012).

Apart from various addresses, more recent editions of yearbooks also include additional contact details such as e-mail addresses, URL's and telephone numbers. Older editions may give the telegraphic addresses of the company. The **telegraphic address** has become an oddity in the twenty-first century. A telegraphic address much resembles a URL in form and function. It was not only a unique set of characters, for instance the company name or a part thereof (because telegraphic addresses had to be as concise as possible), which enabled telegraphic service providers to look up to the physical address of the addressee and deliver the telegram. Having a recognizable telegraphic address was also very important for companies for marketing purposes during the late nineteenth and early twentieth century (Wenzlhuemer, 2013). The telegraphic address could, for instance, be a contraction of the company name. The *Union Agricole et Chimique*, a Belgian producer of fertiliser, went by the telegraphic address *Unachim-Bruxelles*. The telegraphic address can also reveal hierarchical relationships between companies. The telegraphic address of the Belgian *Société Générale d'Exploitations Electriques de Lodz et extensions*, for instance, was *Bruxelles-Tractionel*. In this case, the telegraphic address reveals that this company was in effect controlled by another Belgian company, *Traction & Electricité*.

2.6 Identification codes

With the introduction of commercial registries, Commercial Courts and registrars also began issuing identification numbers. Since 2014, the Global Legal Identifier Foundation (GLEIF) has been promoting the Legal Entity Identifier (LEI) as an international standard identifier for companies and other legal entities involved in financial transactions (this includes public companies). The LEI is a unique 20-character, alpha-numeric code based on the ISO 17442 standard. It allows unambiguous, worldwide identification of legal entities (https://www.gleif.org). The LEI complements national identifiers that remain in use. Within national boundaries, different administrations may maintain their own set of identification numbers.

Belgium

All Belgian companies and partnerships were assigned a commercial register number (Dutch: *Handelsregisternummer*) by the Commercial Courts upon their first entry in the commercial register since

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1927. This was not a unique national identification code, however. Each Commercial Court issued its own numbers. Duplicates are therefore possible. Knowledge of the Commercial Court which issued the number is therefore essential. Normally, this would be the Commercial Court in whose jurisdiction the company had its registered address. Several other administrations issued their own identification numbers, for instance the social security employer identification number (Dutch: *RSZ-nummer*; French: *numéro ONSS*) and the VAT identification number (Dutch: *BTW-nummer*; French: *numéro de TVA*). In 2003, the Ministry of Economic Affairs introduced the Crossroads Bank for Enterprises (Dutch: *Kruispuntbank van Ondernemingen*; French: *Banque-Carrefour des Entreprises*) and the 10-digit enterprise number (Dutch: *ondernemingsnummer*; French: *numéro d'entreprise*). This is a unique, national identification number which replaced the commercial register numbers.

France

In France as well, the first attempt to create an identification code for companies had its origin in the Commercial Register (French: *Registre du Commerce*). A commercial register was created in France by the Law of 18 March 1919 which came into effect in 1920. In addition to the articles of incorporation, the *Registre* included all modifications experienced by companies (for instance, changes of registered address and modifications of the share capital) in a chronological order. The initial plan was to assign an identification code to each company and merchant (French: *commerçant*) operating in France. The registers, however, were organised on a regional level which prevented the identification of a company at the national level. This was still the case after the reform of the Commercial Register in 1954.

After the Second World War, the French National Statistics Bureau (French: *Institut national de la Statistique et des Études économiques* or INSEE) established a nomenclature to uniquely identify French companies. The first step, following the Decree of 15 July 1948, was the creation of the *Fichier des établissements* (literally 'Card index of companies') which assigned an identification number to each company. This number, however, depended on each company's sector of activity and address. Hence, this number had to be modified whenever the firm changed its main activity and/or its registered address. Consequently, this number was rarely used.

The SIRENE system (short for *Système informatique pour le Répertoire des Entreprises et des Établissements*), created by the Decree of 14 March 1973 and also maintained by the INSEE, has been more successful. It created a unique and invariant identification code for each company to facilitate the communication between companies and public administrations. The SIRENE system came into force in 1975 and was extended to state-owned companies by the Decree of 17 February 1983. In 1997, the SIRENE identification code became the official unique identification code for companies.[21] Today, several identification codes exist which are derived from SIRENE identification numbers. For instance, the VAT number (French: *numéro de TVA*) used by French companies consists of the prefix FR followed by two digits and the SIRENE identification code.

[21] From 1 January 2017, the SIRENE database is available online in open data: https://www.sirene.fr/sirene/public/static/acces-donnees?sirene_locale=en

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Germany

From the Commercial Register (German: *Handelsregister*) notices published in Germany's official gazette, the *Reichsanzeiger*, we can discern that German businesses were assigned a register number upon incorporation. This number was referenced in all subsequently published notices. Each commercial court (German: *Handelsgericht*) kept two registers, one for firms (German: *Firmen*) and one for corporations (German: *Gesellschaften*) in their jurisdiction. There was no unique identification code at the national level, however, as each register started its own sequence. This system has been largely maintained until the present. A complete German commercial register number currently consists of the name of the court, followed by the type of register and the individual company number, for instance *Amtsgericht Krefeld HRB 8217*. In this case, the abbreviation HRB refers to *Handelsregister Abteilung B* which is the register for limited companies (both public and private) (partnerships get the abbreviation HRA which is short for *Handelsregister Abteilung A*).

The Netherlands

The Chambers of Commerce (Dutch: *Kamers van Koophandel*) registered each new company since 1921 in the Commercial Register (Dutch: *Handelsregister*). Per the Commercial Register Regulation, each company file was allotted a number. At the time, there were 36 Chambers of Commerce in the Netherlands which each held its own register. As in Belgium, France and Germany, these were therefore not unique identification codes. Until 1996, a company could even have two numbers if its registered office and head office were located in the jurisdiction of different Chambers of Commerce. Moreover, at the occasion of the merge of two Chambers of Commerce, new numbers were allotted (Kamer van Koophandel Nederland, 2016). In 2008, the new Commercial Register Law (Dutch: *Handelsregisterwet*) of 2007 came into effect. All companies henceforth were allotted a unique identification number consisting of eight numbers, which is currently called the Chamber of Commerce number (Dutch: ***KvK-nummer***). In addition to the *KvK-nummer*, since 2010, companies have also been allocated a unique Legal Entities and Partnerships Identification Number (Dutch: *Rechtspersonen Samenwerkingsverbanden Informatie Nummer* or RSIN) which consists of nine numbers (*De nummers van het Handelsregister*, 2018).

Poland

Partnerships and limited liability companies need to register their existence with the National Court Register (Polish: *Krajowy Rejestr Sadowy* or KRS) since 2001. They are identified in the National Court Register by their KRS-number, a unique national identification code. Polish companies also need to register their existence with the Statistical Office for statistical purposes and with the Tax Office for accounting purposes. Upon registration in the National Economic Register (Polish: *Rejestr Gospodarki Narodowej* or REGON), the Statistical Office issues a Statistical Information Number (or REGON-number)[22]; the Tax Office issues a Tax Identification Number (Polish: *Numer Identyfikacji Podatkowej* or NIP) (Brodecki, 2003, p. 103). Since 2007, Polish companies can use the NIP-number as their unique official identification number (Frankowski & Bodnar, 2005, p. 202). NIP and REGON number can be found in the National Court Register.

[22] Statistical identification codes for companies are in use in Poland since 1966, but the REGON-number was introduced in 1975 (https://pl.wikipedia.org/wiki/REGON).

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Spain

According to the current legislation, Spanish companies are identified in the Commercial Register (Spanish: *Registro Mercantil*) on the base of their company name (Spanish: *denominación social*) and their fiscal identification code (Spanish: *Número de Identificación Fiscal* or NIF). Companies with a NIF are also assigned an EORI number (short for *Número de registro e identificación de operadores económicos*) to be used in any relationship or transaction with custom authorities within the European Union. The EORI number is the NIF number preceded by the ISO two-digit code corresponding to Spain (ES). Historically, the use of identification codes for fiscal or registry purposes is a relatively recent innovation in the Spanish administration. The Spanish administration introduced a fiscal identification code for companies that were subject to the corporate profits tax for the first time in 1954. However, a general fiscal identification code for all companies was introduced only in 1975.

United Kingdom

All companies registered under the Joint-Stock Companies Act of 1856 and subsequent Companies Acts were allocated a unique official **company number** by the Registrar of Companies. They started at one in 1856 and in 1862, the number 2,920 was allocated. Thereafter, the numbering was restarted at one. To avoid duplication with company numbers 1 through 2,920, the suffix C was appended until 1866. After number 2,920C, the numeration continued without this suffix (i.e. the next number was 2,921) (Richmond, 1992). Companies House continues to issue company numbers until present. The company number currently consists of eight characters. For limited companies registered in England and Wales, the number generally consists of eight numbers starting with zero (e.g. 01234567). For limited companies registered in Scotland and Northern Ireland, the company number consist of a prefix (SO and NI respectively) and six numbers (e.g. SO123456). Other prefixes are in use for different types of companies (e.g. LP for limited partnerships in England and Wales or RC for Royal Charter companies) (for a full list of prefixes, see: *Uniform Resource Identifiers (URI) Customer Guide*, 2011).

2.7 Purpose

The **purpose** or objective (Dutch: *maatschappelijk doel*; French: *objet*; German: *Unternehmensgegenstand*; Polish: *przedmiot działalności*; Spanish: *objeto social*) is the main business or activity the company intends to engage in (i.e. the mission statement of the company). It is chosen at the time of incorporation and recorded in the memorandum of association or deed of incorporation. The purpose clause stipulates what a company can and cannot do. This is important with respect to the liability of directors, who can only represent the company within the limits set by the constitutional documents (Dornseifer, 2005, pp. 64, 558).

The purpose, however, is generally a poor indicator of the actual activities a company engages in. As the purpose is part of the constitutional documents, changing the purpose is an onerous procedure. Companies may try to avoid this by phrasing the purpose as vaguely or widely as possible. Apart from the purpose, yearbooks therefore often also include a more precise description of the business and/or add an industry classification.

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2.8 Industry

An **industry** is a group of companies who produce or provide similar goods or services. To help investors find information on securities and their issuers, official lists and yearbooks usually group companies according to industry. They have a choice between one of many standardised national and international industry classifications or can devise their own scheme. Examples of industry classifications from international statistical agencies are the United Nations' International Standard Industrial Classification (ISIC), the United States' Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS), and the Statistical Classification of Economic Activities in the European Community (abbreviated as NACE).

National statistical agencies have also elaborated their own classifications which, in recent years, have been aligned with international standard classifications (most notably NACE in Europe):

- The Belgian NACE-BEL (currently version 2008) is maintained by Statbel, the Belgian statistical office.
- The Nomenclature of French Activities (French: *Nomenclature d' Activités françaises* or NAF, current version NAF rév 2 - 2008) was created by the Decree of 2 October 1992. It complies with the European NACE and is maintained by the INSEE. Under the aegis of the INSEE, several industry codes have been implemented in France after the Second World War. The first attempt to classify industrial activities, the Unified Nomenclature of Companies and Firms (French: *Nomenclature unifiée des Entreprises et des Établissements*) dated back to 1947. It was updated and renamed to Nomenclature of Economic Activities (French: *Nomenclature des Activités économiques* or NAE) in 1959 and replaced by the Nomenclature of Activities and Products (French: *Nomenclature d' Activités et de Produits* or NAP) in 1973. The NAE and NAP were used in the SIRENE system until NAP was replaced by the aforementioned NAF classification in 1992.
- The German Industries Classification (German: *Klassifikation der Wirtschaftszweige* or WZ, (currently version 2008) is maintained by the Federal Bureau of Statistics (German: *Statistisches Bundesambt*).
- The Dutch Central Bureau of Statistics elaborated its own Standard Classification of Economic Activities (Dutch: *Standaard Bedrijfsindeling* or SBI) based on NACE and ISIC. The current version is SBI 2008.
- Polish industries are classified according to the Polish Classification of Activities (Polish: *Polska Klasyfikacja Działalności* or PKD). The current version, PKD 2007, complies with NACE Rev. 2.
- Spanish industries are currently classified according to the National Classification of Economic Activities (Spanish: *Clasificación Nacional de Actividades Económicas* or CNAE). The current version, CNAE-2009, replaced CNAE-93 Rev. 1 and complies with NACE Rev. 2.
- The UK SIC (currently version 2007) is maintained by the Office for National Statistics.

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Financial service providers such as Thomson-Reuters and Bloomberg use their own classifications. Rather than using established classifications, stock exchanges usually use their own industry classification schemes for subdividing official lists. These often amalgamate several (loosely related) industries into super-groups, however, and also contain a residual category (*miscellaneous industries*) which makes them less suitable for scientific analysis. It is therefore advised to check and refine the industry classifications by means of additional sources (Annaert et al., 2012).

3 Corporate governance

In public limited companies, there is a separation between ownership and management. Shareholders, the owners, are generally not involved in running the company on a day-to-day basis. This is left to directors and professional managers, who in turn are controlled by supervisory board members or shareholder's auditors and, ultimately, by the general assembly of shareholders. The system by which companies are directed and managers are controlled is referred to as corporate governance (Byttebier, Piu, & Roeland, 2003). Although not strictly part of the corporate governance structure, some information on providers of financial and legal services to companies is also included in this section.

3.1 General assembly of shareholders

Shareholders (Dutch: *aandeelhouders*; French: *actionnaires*; German: *Aktionäre*; Polish: *akcjonariusze*; Spanish: *accionistas*) are partial owners of a company. Each shareholder owns a part of a company proportionate to his or her number of shares. Shareholders can be either individuals or other companies. Presently, pension funds and specialised holding companies are important institutional investors. Historically, mixed or universal banks such as the Belgian *Société générale* played an important role in this respect. Mixed banks are banks which, in addition to offering the usual range of financial services, also act as long-term investors, taking for instance controlling interests in industrial companies. Yearbooks such as the Belgian *Recueil financier* give information on the portfolio of mixed banks (Van Overfelt, Annaert, De Ceuster, & Deloof, 2009). *Vice versa*, yearbooks sometimes also give the names of the most important investors in a company. Names of shareholders may also be found in official publications.

The **general assembly of shareholders** is the highest authority in public limited companies. Within the limits set by company law, the articles of association prescribe the periodicity of the meetings, the publicity of the invitation and agenda, voting rights of shareholders, the quorum, and the prerogatives of the general assembly. A distinction can be made between ordinary and extraordinary meetings. **Ordinary meetings** are generally held once per year. The date (and sometimes hour) of the ordinary meetings is specified in the articles of association. At ordinary meetings, shareholders hear the reports of directors and auditors, and approve the annual accounts and the proposed dividend. They may also elect directors and auditors or supervisory board members (if there are vacancies). **Extraordinary meetings** can be convened at any time to vote on changes in articles of association (e.g. a capital increase). A special quorum usually applies to extraordinary meetings.

Belgium

The Code of Commerce of 1807 contained no explicit reference to the general assembly (Dutch: *algemene vergadering*; French: *assemblée générale*), but an Instruction of the Minister of the Interior of 20 February

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1841 contained detailed provisions. There had to be at least one ordinary meeting each year. It had to be announced at least twenty days in advance. All shareholders with five shares of 1.000 *francs* had access to the meeting and no shareholder could have more than five votes. The directors and statutory auditors (see section 3.2 below) had to inform the general assembly about the finances and management of the company (French: *les affaires de la société et la gestion sociale*). The general assembly could dismiss directors and decide to liquidate the company. Modifications to the articles of association had to be approved at an extraordinary meeting (Troplong, 1843, pp. 363–365). The Law of 10 May 1873 and Royal Decree of 25 May 1913 contained more detailed provisions about the periodicity and publicity of the meetings, the quorum, and voting rights of shareholders. For instance, all shareholders had the right to vote according to the one share-one vote principle, but no shareholder could have more than 20 percent of the total number of votes or 40 percent of the votes present. The one share-one vote principle could be circumvented, however, by issuing multiple voting shares. These became increasingly popular during the interwar period before being outlawed in 1934 (Willems, 2000; Moortgat, Annaert, & Deloof, 2017). The basic prerogatives of the general assembly were unaltered by the legislation of 1873 and 1913, as well as by subsequent company legislation of 1935 and 1999. The shareholders remain, until today, authorised to appoint and dismiss directors and auditors, approve the annual accounts and proposed dividend, liquidate the company and modify the articles of association at extraordinary meetings (e.g. increase or decrease capital).

France

The Commercial Companies Law (French: *Loi sur les Sociétés*) of 24 July 1867 distinguished three types of general assemblies (French: *assemblée générale*) of shareholders. During the constitutive general assembly (French: *assemblée générale constitutive*), the company was officially incorporated. This required a quorum of half the number of shareholders. The main role of the first general assembly was to check that the company was created in compliance with commercial legislation, approve the articles of incorporation and appoint the first directors and statutory auditors. The ordinary general assembly (French: *assemblée générale ordinaire*) had to be held at least once a year at a date set in the articles of incorporation, primarily to nominate or dismiss directors and statutory auditors, approve the financial statements prepared by the directors and the auditors and allocate profit (if any). This required a quorum of at least one-quarter of the shareholders. The extraordinary general assembly (French: *assemblée générale extraordinaire*), finally, had to be convened by the directors for the modification of the articles of incorporation, the extension of the duration or the liquidation of the company. A quorum of half the number of shareholders was required. The constitutive general assembly is currently no longer required to incorporate a public limited company, but the general and extraordinary general assemblies continue to exist until present with roughly similar competences, albeit, for instance, with slightly different quorums (Dornseifer, 2005, pp. 179–181).

As far as voting rights are concerned, the one share-one vote principle was the most common in France. It currently also is the general rule (Dornseifer, 2005, p. 180). Per the Law of 24 July 1863, companies could, however, decide in their articles of association the number of shares necessary to attend the ordinary and extraordinary general assemblies and the number of votes per share (art. 27). In the 1910s, multiple voting shares (French: *actions à vote plural*) became fashionable. Bearer multiple voting shares were forbidden

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in 1933. Registered multiple voting shares were still allowed, but were subject to restrictions by the Law of 13 November 1933. Until the Law of 23 January 1929, profit shares could carry voting rights as well.

Germany

The Prussian Joint-Stock Companies Law of 1843 required public limited companies to stipulate in their articles of association how their "members" (German: *Mitglieder*) would be convened and how they could exercise their voting right (§ 2). This law, however, contained no further directives on the organisation or competence of shareholder meetings. The competence of the general assembly (German: *Generalversammlung*) was first laid out by the ADHGB of 1861 (art. 237). According to the ADHGB, the general assembly was the highest organ in the *Aktiengesellschaft*. Its competence was extended by the *Aktienrechtsnovelle* of 1884. Here, it was determined that the general assembly could elect the supervisory board, amend the articles of association and approve a change of the share capital. Since the *Aktiengesetz* of 1937, the general assembly was called *Hauptversammlung* in German (Bayer & Habersack, 2007). The Law of 1937 severely curtailed the powers of the shareholders in favour of the executive directors. In day-to-day management, the directors became largely independent from the general meeting of shareholders. Their influence was curbed in particular concerning the approval of the annual financial statements, which from then on only had to be approved by the supervisory board. The Stock Corporation Law of 1965 did not structurally change this distribution of powers.

The Netherlands

The Dutch Commercial Code of 1838 stipulated that the directors annually had to inform the shareholders about the profits and losses incurred by the company. They could choose to do so at a general assembly (Dutch: *algemene vergadering*) or otherwise. It was not until the Law of 1928 that it became legally obligated to organise at least one general assembly per year. Article 43 stipulated that the general assembly of shareholders had a residual authority: within the limits set by the Law and the articles of association, it could exercise all the prerogatives which were not assigned to the directors or others.[23] This, at least in theory, extensive authority of the general assembly of shareholders was at the same time curbed by the Law of 1928 in regards to the nomination of directors and supervisory directors. The Law made it possible the restrict the shareholders' choice to a shortlist of nominees and up to one-third of the supervisory directors could be nominated by others. This was the precursor of a more extensive limitation of shareholders' rights in this field by the Law of 3 May 1971 (the so-called *Structuurwet*) (this is discussed in more detail in section 3.2). Currently, companies should organise at least one meeting within six months after the end of the fiscal year. At the annual general assembly, shareholders can vote on the adoption of the annual accounts and the discharge of management and supervisory board members from liability regarding the duties performed by them during the financial year. They are also entitled to get all the information they ask for from the boards (Dornseifer, 2005; De Jong, Mertens, & Roosenboom, 2006; De Jong, Röell, & Westerhuis, 2014).

The Commercial Code of 1838 left it up to the articles of association to decide shareholder's voting rights. One person, however, could have maximum three votes if the company had issued less than 100 shares

[23] "*Aan de algemeene vergadering van aandeelhouders behoort, binnen de door de wet en de akte van oprichting gestelde grenzen, alle bevoegdheid, die niet aan het bestuur of aan anderen is toegekend.*"

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and maximum six votes if more than 100 shares were issued (art. 54). The Laws of 1928 left companies a choice between the one share-one vote principle or the voting regime from the Commercial Code of 1838. No quorum was fixed in the Law, although the articles of association could decide otherwise.

Poland

The Polish Code of Commercial Companies (Polish: *Kodeks Spólek Handlowych*) of 2000 distinguishes ordinary (Polish: *zwyczajne walne zgromadzenie* or ZWZ) and extraordinary general assemblies (Polish: *nadzwyczajne walne zgromadzenie* or NWZ) of shareholders. Ordinary meetings are normally convened by the management board and must be held annually within six months after the end of the fiscal year. At the ordinary meeting, shareholders approve the annual report and financial statements, adopt a resolution on the distribution of profits and discharge the management and supervisory boards. The supervisory board and any shareholder or group of shareholders representing at least ten percent of the capital can call an extraordinary general assembly. The prerogatives of the extraordinary meeting include, amongst others, the amendment of the articles of association, decide on some actions that have an effect on the balance sheet of the company (e.g. increase or decrease capital, redemption of shares, buy or sell real estate and issue convertible bonds) and take resolution on the continuation of the company (e.g. liquidation, merger, division or transformation) (Dornseifer, 2005, pp. 696–697; Frankowski & Bodnar, 2005).

According to the Code of Commercial Companies, all shareholders need to be treated equally. Hence, as a rule, one share equals one vote. There are exceptions, however. Multiple voting shares are allowed but a single share may not carry the right to more than two votes. Non-voting shares are also allowed and the voting rights of shareholders representing more than one-fifth of the capital may be limited (Frankowski & Bodnar, 2005, p. 240)

Spain

The legislation affecting the organization and prerogatives of shareholders' general assemblies (Spanish: *junta general de accionistas*) is rather limited in Spain: the Joint-Stock Company Law of 1869, the Commercial Code of 1885 and the new Joint-Stock Company Law of 1951. In fact, the liberal legislation of the nineteenth century hardly regulated the administrative, management and supervisory bodies of joint-stock companies, giving partners full discretion to define their rules in the deed of incorporation and articles of association. Specific norms related to shareholders' general assemblies were introduced only by the Law of 1951, which differentiated between ordinary and extraordinary assemblies and set out their rules of functioning (call, publicity, voting, majority) and prerogatives. It established rules under which the general assembly could initiate legal action against directors on behalf of the company. It also introduced some legal mechanisms for the protection of minority shareholders, such as proxy voting, the right to challenge assembly's decisions in court and the obligation for directors to call a general assembly if requested by shareholders representing at least ten percent of the paid-up capital. Decisions about the amendment of the articles of association, capital operations, bonds issues, transformation, merger or liquidation of the company could be taken only by two-thirds of the shareholders and paid-up capital (in case of registered shares) or by two-thirds of paid-up capital (in case of bearer shares); a lower threshold (50 percent of paid-up capital) applied to assemblies in second call. These provisions remain largely in

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place until today, albeit with slightly different quorums and majority requirements (Dornseifer, 2005, pp. 783–786).

United Kingdom

As a common law country, the United Kingdom has typically not created legislation that interferes with general assemblies of shareholders, the voting rights of shareholders or the prerogatives of the general assembly. These issues are decided in the company's articles of association. Under the Companies Act of 1862 and its successors (1900, 1929, 1948, 1967, 1984 and 2006), the operation of general assemblies (annual general meetings or extraordinary general meetings in UK parlance) is left to the rules decided upon in the articles of association. The Companies Act of 1900 provided shareholders holding ten percent or more of a company's shares the right to call an extraordinary general meeting of the company. However, this right was already afforded by most companies in their articles of association (Acheson, Campbell, & Turner, 2019).

3.2 Management and audit

Directors, on the one hand, are in charge of the financial and operational management of the company and legally represent the company in external affairs. Companies generally have several directors who form the **board of directors**. Two systems can be distinguished: (1) a one-tier model with a unitary board of directors, and (2) a two-tier model with an executive board of directors and a supervisory board (Organisation for Economic Co-operation and Development, 2015):

- In the **one-tier model**, the board of directors generally consists of both executive and non-executive members. Executive directors are employed by the company (e.g. as managers); non-executive directors are independent and have no other relationship with the company (e.g. they are not employees). Present-day corporate governance codes usually insist on a minimum number of non-executive directors in unitary boards to ensure its independence from management. The board of directors can delegate tasks to a general manager (currently known as chief executive officer) who can also be a member or the chairman of the board of directors. Directors are appointed by the general assembly of shareholders. Other officials of the company are, for instance, the secretary in the United Kingdom.
- In the **two-tier model**, there is a separation between the executive board of directors (or management board) in charge of managing the company and the supervisory board of non-executive, supervisory directors charged with monitoring and advising the executive directors. Depending on national company legislation, executive directors can be appointed either by the supervisory board or by the general assembly of shareholders.

One-tier boards are prevalent in the United Kingdom, Belgium and Spain; two-tier boards in Germany, the Netherlands and Poland. In France, companies can currently choose between both models.

It should be noted here that **companies in liquidation** are no longer managed by directors, but by one or more liquidators who are appointed by the general assembly to manage the winding-up of the company and report to the general assembly.

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Auditors, on the other hand, monitor the company's finances on behalf of its shareholders. They are usually appointed by the general assembly to investigate the company's books and the annual accounts submitted by directors and report about the financial management to the general assembly. While auditors were often laymen during the nineteenth century, the development of accounting standards and legislation professionalised their office during the twentieth century. Currently, company legislation requires that companies hire registered accountants for auditing their accounts.

Belgium

One-tier boards are prevalent in Belgian companies. The board of directors is called *conseil d'administration* in French (Dutch: *raad van bestuur*). The Code of Commerce of 1807 stipulated in articles 31 and 32 that *sociétés anonymes* were managed by temporary and deposable directors (Dutch: *bestuurders*; French: *administrateurs*) who were not personally liable for the company's debts.[24] The aforementioned Instruction of 20 February 1841 introduced the function of statutory auditor (Dutch: *commissaris*; French: *commissaire*) to Belgian company legislation. Whereas directors were charged with the management (French: *la gestion*) of the company, the statutory auditors supervised the financial management and reported about it to the general assembly. The Law of 10 May 1873 stipulated that there had to be at least three directors (art. 45) and one or more statutory auditors (art. 54). Their prerogatives were generally unchanged, but described in more detail. The directors and statutory auditors deliberated separately (art. 56), but the articles of association could also provide for the establishment of a general board of directors and statutory auditors (French: *conseil général*). The Law of 1873 also provided that the daily management of the company could be commended to a general manager (French: *directeur-gérant*) who could also represent the company (art. 53). If the general manager was a director, he is usually called *administrateur-délégué* in French (Dutch: *gedelegeerd bestuurder*). Neither the Instruction of 1841 nor the Law of 1873, however, radically changed the management of public limited companies. Articles of association of companies formed prior to 1841 already contained, for instance, provisions which regulated the composition, competence and deliberation of the board of directors, the appointment of statutory auditors, the establishment of a *conseil général* and the appointment of general managers. Generally, more extensive powers of representation and deliberation (for instance in case of a deadlock) were attributed to the chairman (French: *président*; Dutch: *voorzitter*) of the board of directors who was elected by the directors among themselves. This basic organisation of management was generally unaltered by the Royal Decree of 25 May 1913 and later modifications of company legislation. From 2004, Belgian public companies also have to comply with the Belgian Corporate Governance Code (also known as the *Code Lippens*, updated in 2009).

The Royal Decree of 1913 did, however, mark the start of the professionalization of auditing.[25] Article 55 stipulated that statutory auditors could be assisted by expert-accounts while investigating the company's

[24] "*Elle est administrée par des mandataires à temps, revocables, associés ou non associés, salariés ou gratuits.*"

[25] Greenwood (1911, p. 125) was sceptic about the function of statutory auditors in Belgian (and French) companies: "Our [the British] system of compulsory audits of the accounts of public companies, by independent professional auditors, is unknown in Belgium and France. Lay auditors are appointed from amongst the shareholders. These positions are considered as consolation prizes for would-be directors and relations of directors. As a check on the issue of inaccurate or fraudulent Balance Sheets, such audits are in many cases useless."

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books.[26] Subsequent company legislation introduced more stringent audit requirements for companies. Per the Law of 1 December 1953, publicly-traded companies had to appoint a company auditor (Dutch: *bedrijfsrevisor*; French: *réviseur d'entreprises*) (Willems & Buelens, 2005; Moortgat et al., 2017). The obligation to appoint registered accountants as company auditors was later expanded to all large public limited companies. Since 2008, public companies have to establish an audit committee (Dutch: *auditcomité*; French: *comité d'audit*) of non-executive directors who oversee the appointment and independence of company auditors.

France

Whereas the Code of Commerce of 1807 contained few provisions on the subject (see the subsection on Belgium above), the Law of 24 July 1867 contained detailed provisions on the management and audit of *sociétés anonymes*. It confirmed the one-tier model from the Code of Commerce whereby companies are managed by one or more temporary and dismissible directors (French: *administrateurs*). These directors were first appointed at the constitutive general assembly for six years at the most (the maximum duration was three years when directors were appointed in the articles of incorporation). Each director had to be a shareholder of the company (art. 22). Holding one share was sufficient to become a director according to the Law, but each company had the possibility to set in its articles of incorporation a minimum threshold of shares to be held (art. 26). Initially, there were no further requirements posed to directors. Having the French nationality, for instance, was no prerequisite for being a director of a French company. Over time, however, nationality requirements were introduced in some industries. For instance, during the First World War, all directors of banks had to be French (Law of 13 March 1917). The same rule later applied to French oil companies (art. 5 of the Law of 20 May 1955). Legal entities (French: *personnes morales*) such as companies could be directors of other companies. In this case, they appointed a representative on the board of directors. Legal entities, however, could not be chairman of the board (art. 12 of the Law of 4 March 1943). Initially, there also was no limit on the number of boards in which a director could serve. After 1940, however, no one could be a member of more than eight boards of directors of French companies and be chairman of more than two boards (Law of 16 November 1940).

The directors could choose (and used to choose) to delegate the everyday management to a manager (French: *directeur*). This manager could be a director or, if the articles of association allowed it, an external trustee (French: *un mandataire étranger à la société*). The directors, however, remained liable in case of, for instance, fraud by the management or bankruptcy (art. 22). The liability of directors, as well as sanctions for directors have incrementally become more stringent since 1867. For instance, the Decree-law of 8 August 1935 and the Law of 16 November 1940 exacerbated personal sanctions against directors and the chairman in particular in case of bankruptcy and liquidation.

Under the current French commercial legislation, companies can choose between a one-tier model with a single board of directors (French: *conseil d'administrateurs*) and a two-tier system of a directorate (French: *directoire*) and supervisory board (French: *conseil de surveillance*). In the former case, there have to be at least three directors and only one-third can be employed by company. The board of directors can delegate

[26] "*Les commissaires peuvent se faire assister par un expert en vue de procéder à la vérification des livres et comptes de la société.*"

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the power of representation to a general manager (French: *directeur général*). If the power of representation is not delegated, the chairman (French: *président*) of the board of directors is the legal representative of the company. The chairman or the general manager can also be assisted by one or more deputy general managers (French: *directeur général délégué*). In the latter case, the directorate, consisting of at least two individuals, is appointed by the supervisory board to function as the management body of the company. The supervisory board members, in turn, are elected by the shareholders to supervise the directorate (Dornseifer, 2005, pp. 183–185).

The Law of 24 July 1867 also introduced into French commercial legislation the function of statutory auditor (French: *commissaire*) for public limited companies (they had already been introduced for private limited companies by the Law of 23 May 1863). One or more statutory auditors, shareholders or otherwise, were elected annually by the ordinary general assembly to audit the books and financial statements and report about the financial situation of the company to the general assembly. If the general assembly failed to nominate a statutory auditor, this was the responsibility of the president of the commercial court. Nevertheless, the auditor profession remained poorly regulated. It was only in the 1930s, after several financial scandals, that companies had to begin choosing at least one of the auditors from a list of certified auditors (French: *commissaires agrées*) (Decree-laws of 8 August 1935 and 30 July 1937). The office of statutory auditor still exists today (Dornseifer, 2005, p. 188).

Germany

Germany has a mandatory two-tier system of management since 1870. The Prussian Joint-Stock Company Law of 1843 mentions only the board of directors (German: *Vorstand*). The possibility of separating management and control by establishing a (facultative) supervisory board (German: *Aufsichtsrat*) to monitor the board of directors (German: *Vorstand*) was first established in the ADHGB of 1861 (art. 225). The two-tier system became mandatory per the first Reform of Joint-Stock Company Law (German: *Aktienrechtsnovelle*) of 11 June 1870 (art. 209) and the competence of the supervisory board was described in more detail in the *Aktienrechtsnovelle* of 1884 (Bayer & Habersack, 2007).

The *Aktienrechtsnovelle* of 1884 regulated that supervisory board members were elected by the general assembly and that mandates in the executive and supervisory board were mutually exclusive. Since then, supervisory boards were empowered to supervise the management of the directors and to audit the annual accounts and proposed dividends. In addition to its supervisory tasks, administrative tasks could be assigned to the supervisory board. This, however, was formally abolished in 1937 by the Stock Corporation Law, which simultaneously assigned the appointment of the directors to the supervisory board. Already before and after the First World War, there were considerations to reform and complement the controlling function of the supervisory board to make its role more efficient, because practice showed that the board was often overstrained due to an accumulation of mandates and a lack of expertise. The introduction of auditors and experts already played a role in these reform considerations.

As a response to the banking crisis, the Emergency Decree of 1931 reverted to this concept by limiting the accumulation of supervisory mandates and introducing independent mandatory audits of the annual accounts. Since the nineteenth century, it was mainly accounting experts commissioned by the courts that were active in the profession of auditor. The *Deutsche Treuhandgesellschaft*, which was founded in 1890

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by banks and initially concerned with the preservation of entrusted assets, also took over auditing duties as of 1902. Further reform efforts since the 1950s concentrated on the improvement of accounting standards and the independence of the auditors – this not only with the aim to protect creditors but above all to protect shareholders. The auditor's function was extended more and more towards the role of guarantor for good management and investor protection (Bayer & Habersack, 2007).

The Netherlands

Today, two-tier boards are prevalent in the Netherlands. Although it was not mandatory, Dutch corporations would typically have a management board and a supervisory board in the nineteenth and twentieth century. Article 44 of the Dutch Code of Commerce of 1838 stipulated that public limited companies were managed by executive directors (Dutch: *bestuurders*) who were elected by the shareholders and could also be dismissed. In general, the executive directors were responsible for the daily operations and strategy. Supervisory boards were optional, not mandatory.[27] This was left to the founders of the company to decide in the articles of association. The role of the supervisory board members (Dutch: *commissarissen*) could be limited to supervising the executive directors, in which case they could audit the accounts and acquit the executive directors in lieu of the shareholders if provided for by the articles of association. Supervisory boards, however, could also participate in the management of the company. The Law of 1928 largely retained the basic principles of the Code of Commerce in regards to executive and supervisory directors. It was again left to the articles of association to decide on the establishment and role of the supervisory board. Supervisory boards were made mandatory for large limited companies (so-called *structuurvennootschappen* with a share capital of 10 million guilders and 100 employees or more) by the Law of 3 May 1971 (the so-called *Structuurwet*). This Law also described in more detail the role of supervisory directors in all companies. Supervisory directors were charged not only with controlling, but also with advising the executive directors in the interest of the company (and not its shareholders). The supervisory boards of *structuurvennootschappen* had extensive powers which included the nomination and dismissal of executive directors, the adoption of the financial statements and the approval of management decisions. New members were also no longer elected by shareholders, but co-opted by the supervisory board. These provisions are presently still in effect (Wiersma, 1971; Dornseifer, 2005; De Jong et al., 2006).

Poland

The restoration of Polish independence in 1919 did not constitute a major break in regards to commercial legislation. The Commercial Code (Polish: *Kodeks handlowy*) of 1934 was, in effect, modelled after German and Austrian company law. The current Code of Commercial Companies (2000) was inspired mostly by German legislation. In the field of corporate governance, Poland therefore adopted the two-tier board system of management board (Polish: *zarząd*) and supervisory board (Polish: *rada nadzorcza*). The competencies of the management board include the management and representation of the company. The supervisory board oversees the activities of the company. Supervisory board members are appointed and dismissed by the general assembly of shareholders; members of the management board are elected by the supervisory board for renewable periods of five years. Executives can be dismissed at any time,

[27] "*De vennootschap wordt beheerd door daartoe, door de vennooten, aangestelde bestuurders, deelgenooten of anderen, al dan niet loontrekkende, met of zonder toezigt van commissarissen.*"

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however, by the general assembly of shareholders and by the supervisory board. There must be at least one executive and three supervisory directors (Dornseifer, 2005, pp. 708–711; Sołtysiński, 2013).

Spain

As in the case of shareholders' assemblies, the Spanish legislation of the nineteenth century was virtually silent about the duties and prerogatives of the board of directors (Spanish: *consejo de administración*). Its guiding principle was the preservation of the "freedom and initiative" of directors (Spanish: *administradores*). The aforementioned Law of 1951 introduced basic rules for the eligibility of directors, as well as the functioning of the board of directors, i.e. regulated the delegation of responsibilities to an executive committee (Spanish: *comisión ejecutiva*), and their responsibilities. It also introduced minor reforms, such as the principle of proportional representation to favour the appointment of representatives of minority shareholders. The Law did not create any supervisory body. In turn, the general assembly was given the right to appoint auditing shareholders (Spanish: *accionistas censores*) in charge of revising annual accounts and issue a report to the assembly.

United Kingdom

One-tier boards are prevalent in the United Kingdom. The United Kingdom never had supervisory boards. The first general companies' legislation in the UK was Companies Act of 1862. This Act and its successors (1900, 1929, 1948, 1967, 1984, 2006) have never dictated "who will have managerial authority in the company or the method by which managers are selected" (Cheffins, 2008, p. 30). Instead, this is left to the articles of association. This makes the UK different from most other European jurisdictions.

Auditors were appointed by shareholders under the powers of the articles of association long before it was required by law. The Companies Act of 1900 required companies to appoint an auditor, but all companies were already providing for this in their articles of association (Acheson et al., 2019).

3.3 Service providers

The **financial service provider** (Dutch: *financiële dienst*; French: *service financier*; German: *Zahlstelle*), usually a bank (and therefore also called *banker* in British yearbooks), is the cashier who paid dividends or interest to share- and bondholders upon presentation of their coupon. This was important information for investors, so yearbooks usually mention the financial service provider. The cashier received a commission in return for his services. Since this was a lucrative business, the financial service provider may reveal bank interlocks.

Yearbooks from the United Kingdom also mention other service providers with a more limited role. **Solicitors**, for instance, played no role apart from providing legal advice to the company. **Promotors** helped companies get a public listing and marketed their shares at IPO.

4 Capital, debt and securities

4.1 Share capital

Capital is an amount expressed in a certain currency. A company's share capital (Dutch: *kapitaal*; French: *capital*; German: *Kapital*; Polish: *kapitał akcyjny*; Spanish: *capital*) represents one of two major sources of

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finance (the other being debt, see section 4.5 below). In public limited companies, the amount of capital is divided into a number of parts or shares which can be transferred freely. Capital, however, is a broad term that requires specification. A distinction must be made between authorised, issued and paid-up capital, whereby the total amount of each category must be equal or lower than the previous.

4.1.1 Authorised capital

The **authorised capital** (Dutch: *sociaal kapitaal* or *maatschappelijk kapitaal*; French: *capital social*; German: *Grundkapital*; Polish: *kapitał podstawowy*; Spanish: *capital social*) is the maximum total amount of shares that a company can issue (i.e. the nominal value of shares multiplied by the number of shares into which the capital is divided, see sections 4.2 and 4.3 below). The amount at the time of incorporation is stated in the articles of association. Company legislation currently dictates a minimum amount of capital for public limited companies. The capital can only be reduced or augmented with the consent of an extraordinary assembly of shareholders. Subsequent modifications of capital had to be announced in official publications. Yearbooks usually include a chronicle of modifications of a company's capital.

4.1.2 Issued capital

The **issued** or **subscribed capital** (Dutch: *uitgegeven* or *voltekend kapitaal*; French: *capital émis* or *souscrit*; German: *Emissionskapital*; Polish: *wyemitowany kapitał akcyjny*; Spanish: *capital emitido* or *subscrito*) is the total amount of shares that have effectively been allocated to shareholders. In Belgium, France and Spain, the capital has to be subscribed in full prior to incorporation since the Laws of 1867 in France and 1873 in Belgium. In Germany, the capital has to be subscribed in full prior to entry in the Commercial Register since 1870 (Dornseifer, 2005, pp. 176, 778, 221). There was no obligation to issue all shares in the other countries of the EURHISFIRM consortium. In all countries, however, company legislation dictates the minimum amount of capital that has to be paid-up at incorporation (see section 4.1.3 below).

4.1.3 Paid-up capital

The **paid-up capita**l (Dutch: *gestort kapitaal*: French: *capital versé*; German: *eingezahltes Kapital*; Polish: *kapitał opłacony*; Spanish: *capital desembolsado*) is the total amount of capital that has been effectively deposited by shareholders. At incorporation, companies often only require a part of their authorised capital to start their activities. Shareholders therefore do not need to pay the full amount of their shares. Company legislation dictates the minimum amount paid-up on shares as a prerequisite for incorporation. In Germany, for instance, the original ten percent minimum amount of paid-up capital was increased to 25 percent with the *Aktiengesetzesnovelle* of 1884. The part of the capital that has not been paid-up is called **uncalled capital** (Dutch: *niet gestort kapitaal*; French: *capital non versé*; German: *nicht eingefordertes Kapital*; Polish: *kapitał nieopłacony*; Spanish: *capital no desembolsado*). If capital requirements increase over time, the company's directors can decide to make subsequent calls on shares (French: *appels de fonds*), i.e. request shareholders to deposit the unpaid amounts on their shares in the company's accounts. Shares that have been paid-up entirely are called *volstort* in Dutch, *entièrement libérée* or *tout payé* in French, *voll eingezahlt* in German, *opłacone całkowicie* in Polish and *totalmente liberadas* in Spanish. In Belgium, shareholders can voluntarily pay-up uncalled amounts on their shares. In this case, the shareholder is entitled to an interest (Greenwood, 1911, pp. 142, 156). It should be noted that shares can be issued not only in exchange for specie, but also in exchange for contributions in kind.

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4.2 Number of shares

The capital is divided into a number of shares (Dutch: *aandelen*; French: *actions*; German: *Aktien*; Polish: *akcji*; Spanish: *acciones*). Each share represents a part of the share capital. The number of **authorised shares** is the maximum number of shares a company is allowed to issue and is determined in the articles of association. The number of **issued shares** is the number of shares that have effectively been allocated to shareholders. Unissued shares are called *actions à la souche* in French because they are literally still attached to the talon. The number of **outstanding shares** is the number of issued shares minus the number of **redeemed shares** or, more recently, treasury shares. Redemption of shares (Dutch: *aflossing*; French: *amortissement*) was historically quite common in Belgium and France. Annual drawings (Dutch: *trekkingen* of *uitlotingen*; French: *tirages*) determined which shares were to be repaid. Shares were reimbursed at par value and replaced by *actions de jouissance* (see sections 4.3 and 4.4 below) (for instance, Greenwood, 1911, pp. 75–76; Antoine & Cornil, 2002, p. 44). In Germany, the redemption of shares was banned in 1870, which was a very specific German circumstance. As early as 1884, however, these regulations were relaxed again. Redemption of shares was used extensively for share price stabilisation during the Great Depression. The Emergency Decree of 1931 therefore tightened the rules again. Until present, companies can only repay shares up to a maximum of ten percent of the authorised share capital and for very specific reasons (e.g. avoid serious and imminent danger to the company). These shares are regarded as treasury shares and not as redeemed shares, however (Dornseifer, 2005, p. 236; Bayer & Habersack, 2007). **Treasury shares** are shares that have been issued, but were later bought back by the company. Contrary to redeemed shares, treasury shares continue to exist and can be transferred (e.g. to employees as a benefit). As long as they remain in the hands of the company, the rights pertaining to treasury shares remain dormant. The amount of treasury shares is sometimes restricted by company legislation (Dornseifer, 2005). The number of outstanding shares is instrumental for calculating market capitalisation (number of outstanding shares multiplied by their market price, see section 4.6 below) and constructing value weighted indices. In case of publicly-traded companies, two more numbers can be added to this list: the number of shares admitted to the stock exchange and the public float. The **number admitted** (French: *titres admis*; German: *zum Handel zugelassen*) is the maximum number of shares that the stock exchange authorities allow to be traded publicly. The **public float** or free float (French: *titres en circulation*; German: *Streubesitz*) is the number which is potentially available for public trade.

The number of shares is affected by **capital operations** such as stock splits, reverse splits, exchange of shares (for instance during a merger), bonus shares (for instance when companies issue a stock dividend) etcetera. Although capital operations do not affect the share capital, they do have an effect on share prices and must be taken into account for the correct calculation of returns. For Belgian companies, for instance, capital operations are well documented in various sources (Annaert et al., 2012).

4.3 Nominal value of shares

The **nominal value** or **par value** (Dutch: *nominale waarde*; French: *valeur nominale*; German: *Nennwert*; Polish: *wartość nominalna*; Spanish: *valor nominal*), of shares is, historically, a fixed amount that was indicated on the printed share certificate. Company legislation may impose a minimum nominal value for shares. In Germany, for instance, the minimum nominal value of shares was changed repeatedly. In 1894,

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it was fixed at 1,000 *Reichsmark*. After the Second World War, it was set at 100 *Deutsche Mark* and lowered later on to 50 *Deutsche Mark*. Since 1999, the minimum nominal value is set at one euro per share. No-par shares (i.e. shares without par or nominal value) can be issued in Belgium and France (Dutch: *zonder nominale waarde*; French: *sans valeur nominale*, short: *s.v.n.*). No-par shares (German: *Stückaktien*) were also introduced in Germany in 1998 (Dornseifer, 2005, pp. 174–175, 233). These represent a variable part in the share capital that is determined by the total number of shares. No-par shares are not allowed in the Netherlands (Spray, 1964, p. 221), Poland (Dornseifer, 2005, p. 280), Spain (Kent, 1973, p. 383) and the United Kingdom (Dornseifer, 2005, p. 63).

The nominal value of shares can be found in various sources. It is an essential element of the articles of association and, in many countries, it was mandatory to specify the nominal value of shares in the articles of association. Apart from official publications of articles of association or extracts of articles of association, yearbooks and official lists usually also contain the nominal value of shares.

4.4 Classification of shares

Based on the form of the share certificate, two types of shares can be distinguished: bearer shares and registered shares. Ownership of **bearer shares** (Dutch: *aandelen aan toonder*; French: *actions au porteur*; German: *Inhaberaktien*; Polish: *akcje na okaziciela*; Spanish: *acciones al portador*) is established by simple possession (i.e. the person holding the share certificate is considered to be the owner of the share). Ownership of **registered shares** (Dutch: *aandelen op naam*; French: *actions nominatives*; German: *Namensaktien*; Polish: *akcje imienne*; Spanish: *acciones nominativas*) is established by entry in a register of shareholders held by the company. Registered shares are the norm in the United Kingdom as well as in the United States. Bearer shares are the most common type in continental Europe, although the registered form may be mandatory as long as shares are not paid-up in full. **Bearer certificates** (Dutch: *certificaat aan toonder*; French: *certificat au porteur*; German: *Inhaberzertifikat*; Polish: *kwity depozytowe*; Spanish: *certificado al portador*) facilitate trading of registered shares on continental exchanges. Bearer certificates are issued by trust foundations or administration offices (Dutch: *administratiekantoor*; German: *Kapitalanlagegesellschaft*) who are the actual (registered) shareholders, but the owners of certificates have a right to profits and assets (although usually no voting rights) (Spray, 1964, pp. 215–216; De Jong et al., 2014).

Beyond this formal distinction, there are many **classes of shares**, each with their own characteristics regarding the rights of shareholders to profits (dividend rights), assets at liquidation (redemption rights) or to vote at the general assembly (membership rights) (Briston, 1973). Although company law generally obligated companies issuing different types of shares to describe their properties in their articles of association, there was no fixed terminology. The meaning of, for instance preference shares, could therefore differ not only between countries, but also between companies in the same country. The following list therefore provides only an indication of the general properties of the most common classes of shares and the national terminology used to distinguish them.

Following Antoine, Broquet, & Capiau-Huart (1988, pp. 31–36), we distinguish first and foremost between capital shares and profit shares. Contrary to profit shares, capital shares (i.e. ordinary and preference shares) are issued in remuneration of a contribution to the company's share capital in cash or kind and

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represent a part of the company's share capital (capital shares are therefore also called *parts social* in French). Profit-bearing certificates represent a third category which closely resembles profit shares.

- **Ordinary shares** (also called common shares or common stock): Ordinary shareholders regularly share in the profits of the company (i.e. they receive a dividend) and, at liquidation, receive part of the assets remaining after creditors have been paid (i.e. the balance). In addition, they have voting rights at the general assembly. Ordinary shares are called *gewone aandelen* in Dutch, *actions ordinaires* in French, *Stammaktien* in German, *akcje zwykłe* in Polish and *acciones ordinarias* in Spanish. Companies can issue more than one class of ordinary shares with different dividend, redemption and voting rights. These are distinguished by a letter, for instance A and B shares.

- **Preference shares** (also called preferred shares or preferred stock): Owners of preference shares generally have priority over other shareholders in regard to the distribution of profits (i.e. dividends) and/or assets, but no voting rights at the general assembly. Their preferential dividend usually is a fixed percentage which is determined in the articles of association. Other shareholders are entitled to dividends only after preferential dividends have been distributed. At liquidation, owners of preference shares receive their part of the balance before common shareholders. Preference shares are called *preferente aandelen* in Dutch, *actions privilégiées* or *actions à dividende fixe* in French, *Vorzugsaktien* in German, *akcje uprzywilejowane* in Polish and *acciones privilegiadas* in Spanish. Several subclasses of preference shares exist, for instance:

  - **Participating preference shares** (Dutch: *preferente winstdelende aandelen*; French: *actions privilégiées participantes* or *actions à dividende variable*; German: *Vorzugsaktien mit prioritätischem Dividendenanspruch*; Polish: *akcje uprzywilejowane co do dywidendy*; Spanish: *acciones participaciones privilegiadas*) are also entitled to a (variable) ordinary dividend on top of the (fixed) preferential dividend.

  - **Cumulative preference shares** (Dutch: *cumulatief preferente aandelen*; French: *actions privilégiées cumulatives* or *actions à dividende fixe récupérable*; German: *Kumulative Vorzugsaktien*; Polish: *skumulowane akcje uprzywilejowane co do dywidendy*; Spanish: *acciones privilegiadas cumulativas*) are entitled to accumulated unpaid dividends, i.e. if a company has missed a dividend payment, ordinary shareholders (or ordinary preference shareholders) are only entitled to next year's dividend after the arrears on cumulative preference shares have been paid.

- **Profit shares** (Dutch: *winstaandelen*; French: *parts bénéficiaires*; German: *Gewinnanteilsscheine*; Polish: *akcje uprzywilejowane co do udziału w zysku i podziału masy upadłościowej*; Spanish: *acciones de beneficio*): Owners of profit shares are entitled to part of the profits and assets at liquidation. Since profit shares do not represent a part of the company's share capital, they only share in the profits after owners of capital shares have received their first (statutory) dividend (see also section 5.3 below). In case of liquidation, owners of profit shares equally only receive a part of the assets remaining after debt and equity is reimbursed (this is called the *boni de liquidation* in French). Depending on the provisions regarding this class of shares in the articles of association,

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profit shares can carry voting rights. This category includes founder's shares (Dutch: *oprichtersaandelen*; French: *parts de fondateur*; German: *Gründeraktien*; Polish: *akcje właścicielskie za wniesiony aport*; Spanish: *partes del fundador* or *cédulas del fundador*) which were given to the founders of a company in return for their contribution of intangible assets (e.g. know-how).

- **Profit-bearing notes** (Dutch: *winstbewijs* or *bewijs van deelgerechtigheid*; French: *action de jouissance* or *part de jouissance*; German: *Genusscheine*; Polish: *certyfikaty uprawniające*; Spanish: *acción de goce*) were given to owners of redeemed shares (Dutch: *geamortiseerde aandelen*; French: *actions amorties*; German: *eingezogene Aktien*; Polish: *akcje umorzone*; Spanish: *acciones amortizadas*). These carried similar rights to dividends and assets at liquidation as profit shares. The dividend on profit-bearing notes, however, could not exceed the dividend of capital shares. Owners of profit-bearing notes also had voting rights at the general assembly.

In the United Kingdom, an additional distinction is made between shares and stocks. Shares have a fixed nominal value; stocks represent a variable part of a company's capital. Whereas shares can be bearer or registered (registered being the principal form in the United Kingdom), stocks are always either registered at the offices of the company or inscribed at the Bank of England (François-Marsal, 1931, pp. 479–480).

4.5 Bonds

As an alternative to issuing new shares, companies that require additional capital can also borrow money by issuing **bonds** (Dutch: *obligatie*; French: *obligation*; German: *Anleihe*; Polish: *obligacje*; Spanish: *obligación*). The state and other public authorities (provinces of municipalities, for instance) can also issue bonds. To distinguish corporate bonds from public bonds, corporate bonds are also called debentures. Bonds represent debt and are therefore distinct from shares: bondholders are creditors, while shareholders are owners. Bondholders therefore have preference over shareholders at liquidation. Bondholders are also always entitled to the interest on their bonds, whereas shareholders only receive their dividends if the company makes a profit.

The total amount of bonds is called **debenture capital** (Dutch: *obligatiekapitaal*; French: *capital-obligations*; German: *Obligationskapital*; Polish: *kapitał dłużny*; Spanish: *capital-obligaciones*). Company legislation or the articles of association can restrict the amount of debenture capital. For instance, in Belgium, the Law of 10 May 1873 stipulated that the debenture capital could not exceed the paid-up capital (art. 68). In France, a company could issue debentures only when its share capital was fully paid. Once the share capital was fully paid, an issue of debentures could be proposed by the directors and was then decided during a general assembly. There was no limit to the amount of debentures a French company could issue. Nevertheless, it was common, especially for French railway companies, to limit the debenture capital to the amount of share capital. The Commercial Code of 1885 limited the volume of bonds that private Spanish banking companies could issue to the amount of securities existing in their portfolio and reported in their balance sheet. This limitation did not apply to other *sociedades anónimas*. The debenture capital can be comprised of one or more **debenture loans** (Dutch: *obligatielening*; French: *emprunt obligataire*; German: *Obligationenanleihe*; Polish: *pożyczka obligacyjna*; Spanish: *préstamo obligacionario*). Subsequent debenture loans are distinguished by their year of issue and interest rate.

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Each debenture loan is subdivided into a number of bonds of a certain **nominal value** which was printed on the bond certificate. Usually, bonds of various **denominations** (Dutch: *coupures*; French: *coupures*; German: *Stückelung*; Polish: *wartości nominalnej*; Spanish: *denominación*) are issued. Official lists may therefore publish the amount instead of the number of bonds issued and outstanding. Bonds can be issued at a price equal to their nominal value (Dutch: *a pari*; French: *au pair*; German: *zum Nennwert* or *zu pari*; Polish: *po wartości nominalnej*; Spanish: *a la par*), above their nominal value (Dutch: *boven pari*; French: *au-dessus du pair*; German: *über pari*; Polish: *z premią*; Spanish: *con prima*) or below their nominal value (Dutch: *onder pari*; French: *au-dessous du pair* German: *unter pari*; Polish: *z dyskontem*; Spanish: *con descuento*). At **maturity**, i.e. when the term of the loan had ended, the amount of the bond is repaid to the bondholder. Bonds can be repaid at a higher value than the issue price (bonds issued below their nominal value can be repaid at par, for instance). The (positive) difference between the issue price and the reimbursement price is called **maturity premium** or **redemption premium** (Dutch: *aflossingspremie*; French: *prime de remboursement*; German: *Einlösungsprämie* or *Rückzahlungsprämie*; Polish: *premia z tytułu wykupu*; Spanish: *prima de reemboslo*). Bonds can be redeemed before maturity (Dutch: *aflossing*; French: *amortissement*; German: *Anleihetilgung vor Fälligkeit*; Polish: *prawo przedterminowego wykupu*; Spanish: *amortizacion*), for instance through annual drawings (Dutch: *uitloting*; French: *tirage*; German: *Auslosung* or *Ziehung*; Polish: *losowanie*; Spanish: *por sorteo*). If bonds are redeemable through drawing, official lists may mention the annual **draw dates**. Until they are redeemed, bonds yield a regular **interest** (Antoine & Cornil, 2002, pp. 364–366). This is discussed in detail in section 4.7 on dividends and interest below.

Apart from **ordinary bonds**, which yield a fixed interest and can be redeemed with or without a maturity premium, several other **classes of bonds** exist. For instance:

- **Lottery bonds** (Dutch: *premielening*; French: *obligation à lots*; German: *Losanleihe*; Polish: *losowane*) also have a fixed rate of interest, but only certain bonds (which are randomly determined by drawing) receive a maturity premium or other advantage.
- **Floating rate notes** (Dutch: *obligatie met veranderlijke rente*; French: *obligation à intérêt variable*; German: *Variabel verzinsliche Anleihe*; Polish: *obligacje o zmiennym oprocentowaniu*; Spanish: *bonos de renta variable*) have a variable interest rate.
- **Participating bonds** (Dutch: *winstdelende obligatie*; French: *obligation avec participation au bénéfice*; German: *Gewinnschuldverschreibung*; Polish: *z udziałem w zysku*; Spanish: *bonos de participación*) receive a dividend on top of their fixed interest (in case the company is profitable).
- **Convertible bonds** (Dutch: *converteerbare oblicatie*; French: *obligation convertible*; German: *Wandelanleihe*; Polish: *obligacje zamienne*; Spanish: *bonos convertibles*) can be converted into shares or other assets at the request of the bondholder.

The variety of bonds is even greater than the variety of shares. A more detailed discussion of bond types in Belgium can be found in Antoine, Broquet and Capiau-Huart (1988, pp. 59–63, 67–72).

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4.6 Market price of securities

The **market price** of securities is the price at which securities are bought and sold on the market, for instance on a stock exchange. Securities' prices, together with interests and dividends, constitute essential information for investors and are therefore quoted in many sources, including stock exchange official lists, newspapers, magazines and yearbooks. Behind this seemingly simple concept, however, is a great variety of variables with different informational values and uses.

Firstly, securities can be traded on spot or cash and forward markets. Securities traded at **spot markets** (Dutch: *contantmarkt*; French: *marché au comptant*; German: *Kassamarkt*; Polish: *rynek natychmiastowy* or *rynek spot*; Spanish: *al contado*) had to be paid and delivered immediately; securities traded at **forward markets** (Dutch: *termijnmarkt*; French: *marché à terme*; German: *Terminmarkt*; Polish: *rynek terminowy*; Spanish: *a plazo*) only had be paid and delivered at the end of a predetermined or agreed period. The forward market is the domain of speculators and the most liquid segment of the securities market. Not all securities were traded at the forward market, however, so forward prices are only available for a limited number of frequently traded securities. Moreover, securities were often traded in a different manner on spot and forward markets, resulting in deviating systems of quotation and publication of prices.

Secondly, we have to distinguish between bid and ask prices and the prices at which actual transactions were effected. The **bid price** is the highest price at which a potential seller is willing to buy. The **ask price** is the lowest price at which a potential seller is willing to sell. If the two parties made a bargain, their agreed **price** was quoted. It should be noted, however, that not all prices were officially quoted and that not all officially quoted prices were published in the official lists. Prices could be quoted continuously or at specific moments (for instance at the opening and closing of the exchange). Official lists could print only a selection of prices (for instance the lowest and highest price of the day). When prices were quoted as well as which prices were published in the official list depended on the regulations and customs of the exchange. Yearbooks rarely published daily prices. Publication of prices in yearbooks was generally limited to the closing price on 31 December (or the last day of trade) of the previous year and/or the highest and lowest price of the previous year.

Thirdly, securities' prices could be quoted either **in percent of their nominal value** or as an absolute **amount per unit** (i.e. a single share or bond). If prices were quoted in absolute amounts, the currency naturally varied between countries (or, in the case of Germany before 1871, between member states of the German Confederation) and over time (for instance from *real* to *peseta* in Spain, from the old to the new *franc* in France and the British pound before and after decimalisation). How prices were quoted depended on the regulations and customs of the market on which they were traded and could vary between different types of securities (e.g. bonds and shares) and issuers (e.g. governments and companies).

Finally, we have to distinguish clean prices from dirty prices. Future dividends and accrued interests are included in **dirty prices** and excluded in **clean prices**. The price of shares usually includes the dividend until the ex-dividend day. Whether bonds are traded with or without interest depends on the regulations and customs of the market on which they are traded.

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Belgium

The organisation of the Brussels Stock Exchange resembled very much that of France. Historically, before the introduction of screen trading in 1989, securities were traded through the open outcry method (French: *à la criée*) on the Brussels Stock Exchange. Stock brokers (French: *agents de change*; Dutch: *wisselagenten*) enjoyed a monopoly of securities trading on the stock exchange. They would gather on the *parquet*, an elevated platform in the centre of the exchange, between fixed hours. There and then, potential buyers and sellers would call out their respective bid and ask offers. When two brokers reached an agreement, their agreed price was called out by the *crieur public*, a stock exchange official, and if there were no objections, the price was recorded in the official list. If no transaction was made, the official list recorded the bid and/or ask price, whereby ask prices were indicated by the letter A (for *argent*) and bid prices by the letter P (for *papier*) (Limauge, 1864).

From the second half of the nineteenth century, a dual system of quotations developed. Multiple prices were published only for a selection of frequently traded securities. These were traded *en groupe* at fixed limits (French: *à cours fixe*). Other transactions were effected at the middle or mid-price (French: *au cours moyen*) which was established daily between fixed hours. Only the *cours moyen* was published in the official list (Greenwood, 1911, p. 146; François-Marsal, 1929, pp. 583–584). This system remained basically unaltered until the end of the twentieth century. Liquid securities with a broad market were traded for cash on the *marché des corbeilles* (literally rings market) and were quoted successively (the opening price was determined *à la criée*, subsequent prices *par opposition*); less actively traded securities were traded for cash on the *marché du parquet* (literally floor market) and were quoted *à la criée* only once per day (Kent, 1973, pp. 51–52, 55–56; De Caires, 1987, pp. 51–52).

There was also a forward market in Brussels. Initially, however, there was a lot of legal uncertainty surrounding forward transactions. Some of this uncertainty was alleviated by the legal reforms of 1867 and, consequentially, the importance of the forward market increased during the second half of the nineteenth century (Willems, n.d.). The forward market, however, closed at the outbreak of the Second World War in 1940 and did not re-open until 1950. Prices were determined *à la criée* and, since the forward market was very liquid, multiple prices were quoted and published in the official list. Transactions on the Brussels futures market were settled fortnightly, on the fifteenth and last day of each month (Spray, 1964, p. 81; Kent, 1973).

Government (state, provincial and municipal) bonds are quoted in percent of their nominal value; corporate debentures and shares in Belgian *francs* per unit. In Brussels, interest and dividends are generally included in the price (dirty price), with Belgian state bonds as the principal exception (clean price) (Greenwood, 1911, pp. 147–148; Knapper, 1924, pp. 454–455; François-Marsal, 1931, pp. 583–584). After the Second World War, the manner in which prices were quoted is clearly indicated in the official list. If prices were quoted in percentages, the heading above the section would be *cotation en pour cent* (French) or *notering in ten honderd* (Dutch); in case of unit quotation, this would be *cotation par titre* (French) or *notering per titel* (Dutch). Clean prices were indicated by the phrase *intérêts à bonifier* (French) or *rente te vergoeden* (Dutch); dirty prices by the phrase *intérêts compris dans le cours* (French) or *rente in de koers inbegrepen* (Dutch).

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France

After re-opening in 1801, the official Parisian market for securities (French: *Parquet*) maintained the French tradition of open outcry (French: *à la criée*). In France, official brokers (French: *agents de change*) monopolised securities trading at official markets (French: *bourses à parquet*). Between fixed hours, the brokers gathered at the *parquet* and made their purchase and sale offers, announcing them aloud by voice. If buyer and seller agreed a price, they took it to the exchange crier (French: *crieur*) who immediately announced it to the public. The prices at which bargains were struck were also published in the official list, the *Cours authentique* (Bresson, 1830, pp. 167–171; Greenwood, 1911, pp. 97–98; Hautcoeur & Riva, 2012).

As a result of the introduction of corporate securities and the growing volume of trade since the middle of the nineteenth century, trading was reformed. Securities were divided into six groups. Each group had its own place on the trading floor. The *agents de change* delegated clerks (French: *commis*) to each group to trade in their name. Only securities from the first group, the French *rentes*, were traded *à la criée*. The others were quoted *par oppositions* (objection to mark). A stock exchange official, called the marker (French: *coteur*), collected buy and sell orders from the *commis*. A *commis* then tried to match supply and demand. The price at which all orders to buy at a higher price and all orders to sell at a lower price could be executed, was quoted by the *coteur* and published in the official list. This process is described in detail, with examples and illustrations, by François-Marsal (1929, pp. 464–481). Both methods of price discovery remained in place at the Paris Stock Exchange until the automatisation of trade in 1986 (Séraqui, 1986; De Caires, 1987, pp. 134–135).[28]

Although forward operations were officially illegal in France before the Law of 28 March 1885, the forward market segment of the Paris *Bourse* was the most active and represented around 90 percent of the traded volume before the First World War. After the war, its importance declined but it remained the main market. On some regional stock exchanges, such as Lyon and Bordeaux, the forward market was the most liquid up to the First World War. On the forward market, two types of contract were available: forward *per se* and option. Historically, options traded in France were close to what we know today as a call option: the buyer of the contract had the right (but not the obligation) to buy a given security at a given price and at a given maturity. The buyer of the contract could choose to exercise the option once a month, during a special day called *réponse des primes*. Forward prices were displayed on the Paris official list from 1844 on. Since numerous operations were done every day, the official list reported only the first, last, lowest and highest prices for each security and each maturity.

In Paris (*Parquet* and *Coulisse*), French and foreign *rentes* were quoted in percentages; bonds and shares were quoted in French *francs* per unit. Prices of securities which were not paid-up in full needed to be reduced accordingly. For instance, two companies issued shares with a nominal value of 500 *francs* which both traded at 600 *francs* on a given day. The shares of company A have been paid-up in full; 250 *francs* have been paid on the shares of company B. The buyer of company A would pay 600 *francs* to the seller; the buyer of company B only 300 *francs*. In case company B calls the outstanding amount on its shares, however, the buyer would have to pay an additional 250 *francs* to the company. Shares of insurance

[28] *Cotation par oppositions* was then known as *cotation par casiers*.

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companies present an exception in this case. These shares usually had a high nominal value and they were not fully paid. Both at the *Parquet* and at the *Coulisse*, insurance companies' shares were therefore quoted using the *net à payer* method. The price mentioned in the official list is the actual amount that the buyer had to pay to the seller. If the shares of insurance company C, with a nominal value of 1,000 *francs* on which 250 *francs* had been paid, were quoted 600 *francs net à payer* in the official list, the buyer would had to pay 600 *francs*. Contrary to other not fully paid securities (such as the shares of company B), the discount was integrated into the price of not fully paid shares of insurance companies. Dividends and interest are included in the prices of shares and bonds (dirty prices) (Knapper, 1924, pp. 453–454; François-Marsal, 1929, pp. 494–499).

Germany

Trade, at the **Berlin Stock Exchange**, could be carried out directly, through mediation of free brokers (German: *freie Makler*) or through mediation of official (sworn) brokers (called *Kursmakler* in German since the Law of 22 June 1896). As their German name suggests, only *Kursmakler* could set official quotations.[29] Official brokers were appointed to trade exclusively in a limited number of securities and always worked in teams of two. They set prices based on the orders they received, the quoted price being the price at which the greatest portion of buying and selling orders could be effected. Until the First World War, all securities traded on the spot market were quoted three times per day, at the opening of the exchange, at mid-day and at closing time. Only the price at mid-day (called *Durchschnittskurs* or *Einheitskurs* in German) was published in the official list. In the official list, quotations were accompanied by abbreviations which indicated to which degree orders were effected at the given price at mid-day. These abbreviations are explained in Table 1. A continuous market was established in Berlin in 1917 as a substitute for the forward market (see below). Only a limited number of important securities were traded in large amounts on the continuous market. These were quoted multiple times per day (German: *fortlaufende Kurse*) and all prices were published on the second last page of the official list (Greenwood, 1911, pp. 184–185, 187–188; François-Marsal, 1931, pp. 528–537).

Table 1: Abbreviations in Berlin's official list

Letter	German	Explanation
B	*Brief*	Literally paper, i.e. bid
G	*Geld*	Literally money, i.e. ask
bz	*bezahlt*	Paid: all orders executed
bz B	bezahlt und Brief	Most orders paid, some offers outstanding
bz G	bezahlt und Geld	Most orders paid, some demand outstanding
etbzB	etwas bezahlt und Brief	Some orders paid, most offers outstanding
etbzG	etwas bezahlt und Geld	Some orders paid, most demand outstanding
-.-	gestrichen	No orders

[29] See also: Valentine (1989, p. 106).

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Source: François-Marsal (1931, pp. 534–535); George & Giddy (1983, sec. 6.4, p. 13)

An important forward market existed in Berlin before the First World War. As a measure against speculation, the forward market remained closed until 1 October 1925. It was closed again during the banking crisis of 1931. After that, it only restarted again in 1990 with the opening of the *Deutsche Terminbörse*. As a rule, minimum amounts of 6,000 *Reichsmark* or multiples thereof were traded on the forward market. Transactions were settled once a month, normally on the last trading day of the month. Buyers or sellers could also choose to settle their transaction with another transaction in the opposite directions (i.e. buy or sell the same number of securities and compensate for the difference in price) or prolong the settlement until the next liquidation day. On the day of the prolongation, a liquidation price (German: *Liquidationskurse*), which corresponded with the price of the day, was fixed. Only a limited number of important securities were listed on the forward market, but since this was a highly liquid market, multiple prices per day may be published in the official list. There existed in Berlin also an options market (German: *Prämiengeschäfte*), but prices of options were not officially quoted nor published in the official list (François-Marsal, 1931, pp. 537–543).

After the Second World War, the **Frankfurt Stock Exchange** became the most important exchange in the Federal Republic of Germany (colloquially called Western-Germany until 1990). Prior to the introduction of a completely electronic trading system in 1997, its organization was very similar to that of Berlin during the previous period. Official brokers or *Kursmakler* acted as specialists, matching supply and demand and setting prices for specific securities at designated trading posts scattered over the trading floor. The number of times a security was quoted depended on its liquidity. For most securities, the *Kursmakler* set one price per day (German: *Einheitskurs*). Only frequently traded securities were quoted continuously (De Caires, 1987, pp. 145, 149–150; Deutsche Börse, 2010; Valentine, 1989, p. 106).

At the **Hamburg Stock Exchange**, there was only continuous (variable) price fixing (German: *variabler Kurs*) and no single price fixing. The official *Kursmakler* could also include prices originating from trade in which they did not take part themselves, but which were settled by companies that were members of the Association of Members of the Stock Exchange (German: *Verein de Mitglieder der Wertpapierbörse*) (Oppermann, 1957, p. 45).

In Berlin, Frankfurt and Hamburg, nearly all securities were quoted in percent of the nominal value, the main exception being shares of insurance companies (German: *Versicherungs-Aktien*) which were quoted in absolute amounts per unit. Interest is excluded from the prices of bonds (clean prices) (Knapper, 1924, pp. 458–460; François-Marsal, 1931, pp. 533–534). Due to hyperinflation in the 1920s, prices were temporarily quoted in multiples of one percent. Especially in 1924, severe inflation caused prices to be subsequently quoted in million, billion and even trillion percentages (Henning, 1992, p. 237). Today, only bonds are still quoted in percentages of the nominal value since the *Stückaktiengesetz* of 25 March 1998 introduced no-par shares which are quoted in euro.

The Netherlands

Contrary to France or Belgium, the Amsterdam Stock Exchange was generally not an open outcry market. The basic division of tasks between brokers, intermediaries who traded on behalf of their clients, and market makers (called *hoeklieden* in Dutch), dealers who were always willing to buy or sell shares,

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developed already during the seventeenth century, when a secondary market for shares in the Dutch East India Company (VOC) emerged in Amsterdam (Petram, 2011). It remained in place until the merger with the exchanges of Brussels and Paris in 2001.

Since the beginning of the nineteenth century, controversy over the method of quoting security prices was run-of-the-mill at the Amsterdam Exchange (this recurring issue was called the *noteringsvraagstuk* in Dutch) (Polak, 1924; De Vries, 1976). The first organisation governing the securities trade in Amsterdam, the *Collegie tot het Nut der Obligatiehandel*, was established at the end of the eighteenth century with the express purpose to provide reliable securities quotations. Since 1795, their quotations were published in the *Prijscourant*, Amsterdam's first official list. The *Prijscourant* initially printed only the **highest** (Dutch: *hoogste*) and **lowest** (Dutch: *laagste*) price of the day. Prices were quoted with wide margins in the *Prijscourant*, however. For instance, a typical quotation, taken from the *Prijscourant* of 9 January 1800, was "*Nationale schuld-brieven à 3 pct. – 41 ½ à 42*". This notation suggests that two or more transactions were effected at prices fluctuating between 41 ½ and 42. In this case, however, all trade probably took place at a price of 41 ¾ because prices were habitually increased and decreased with one-quarter of a percent in the *Prijscourant*. We cannot be sure, however, as prices were also rounded to one-quarter of a percent (e.g. a price of 41 $^{5}/_{8}$ would also be quoted as 41 ½ à 42) ('Prijscourant der effecten: Beurs van Amsterdam', 1833). In 1829, the **closing price** (Dutch: *gebleven koers*) was added.

In 1832, dissatisfaction with the official system of notations first led to the publication of prices at which bargains had actually been struck. From 6 July 1832, these were published below the official list in the newspaper *Algemeen Handelsblad*.[30] In 1833, disgruntled stockbrokers established a competing organisation, the *Nieuwe Handel-Societeit*, and, from 1 May of the same year, published their own quotations list in the *Algemeen Handelsblad*. For this purpose, the *Societeit* hired an official who collected prices at which transactions had been effected during exchange hours. After hours, a special commission deliberated the results and decided which prices were admitted to their quotations list. Then, the lowest, highest and closing price, precise up to one-sixteenth of a percent, were published. Hence, from 1833 until 1857, two official lists are available as the *Collegie* continued to publish its own quotations in the *Prijscourant.* In 1857, both organisations merged, however, and the newly established *Effecten-Societeit* made up to the official list according to the standard set by the *Nieuwe Handel-Societeit*. This method persisted until the interwar period because this notation supported the habit of settling orders received before exchange hours at the mean price (Dutch: *middenkoers*). Only the **previous price** (Dutch: *vorige koers*) was added in 1886. The previous price was the mean of the highest and lowest price on the last day a security was quoted. If a security had not been quoted for four weeks, the previous price was no longer recorded.

After the stock market got its own building in 1913, access to the Amsterdam Stock Exchange was restricted to members of the Association of Stockbrokers (Dutch: *Vereeniging voor den Effectenhandel*) and their employees. The aforementioned division of tasks persisted between members of the *Vereeniging*. The so-called *hoeklieden* (literally: corner men), however, by now specialised in trading a limited number of securities (similar to the *jobbers* in London). For most securities, potential buyers or

[30] The heading read: "*Fluctuaties der Prijzen van sommige Effecten*".

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sellers would approach a *hoekman* to receive a bid and ask quote. Only a limited number of securities for which a large market existed were traded in so-called open groups through the open outcry method. If two parties came to an agreement, the price was quoted by stock exchange officials situated in a booth at the centre of the exchange. As mentioned before, two or three prices were published in the official list during the nineteenth century. At the beginning of the twentieth century, however, dissatisfaction with the aforementioned *middenkoersstelsel* resulted in a reform of the *Prijscourant.* Prices of Dutch state bonds were quoted in three timeslots for the first time on 7 November 1924. During the next three years, the *Vereniging* gradually increased the number of timeslots and the number of securities quoted in this manner. From 1929, Dutch state bonds and other frequently traded shares were quoted seven times, other shares twice and other bonds once. For each timeslot, either a single price (in case only one price was quoted) or the highest and lowest price (if multiple prices were quoted) were published in the *Prijscourant* (François-Marsal, 1931, pp. 568–572; De Vries, 1976, pp. 151–153). The dual system of price discovery through open outcry for a handful of active stocks and specialist *hoeklieden* quoting bid and ask prices for all other securities was in place until the introduction of automated trading in 1998 (De Caires, 1987, p. 316; 'Van vloer naar scherm', 2015).

Before the opening of the European Options Exchange on 4 April 1978, there was no official forward market in Amsterdam. Prior to the Second World War, there existed forward dealing in shares of the *Nederlandse Handelsmaatschappij*. These transactions were settled monthly and prices were published in the official list (Knapper, 1924, p. 447; François-Marsal, 1931, p. 571). After the Second World War, so-called premium brokers specialized in forward and options trading (Spray, 1964, p. 228; Kent, 1973, p. 330).

In Amsterdam, interest is not included in the price of bonds (clean prices); dividends are included in the price of shares (dirty prices). Before the Second World War, prices of Dutch securities were generally quoted as a percentage of the nominal value. In the exceptional case that prices were quoted in Dutch *guldens* per unit, prices were preceded by the letter f (short for *florin*) (Dinger, 1851, pp. 1–2; Algemeen Beurs-Comité, 1856, p. 15, art. 1; Van Milligen & Fikkert, 1866, pp. 140–141; Knapper, 1924, pp. 441–447). During the second half of the twentieth century, prices were increasingly quoted in *guldens*. The shares of the Royal Dutch Oil Company (Dutch: *Koninklijke Nederlandse Petroleum Maatschappij*) were the first to be quoted in *guldens* in 1956. From May 1974, all shares were quoted in *guldens* (Spray, 1964, pp. 221–222; Lettinga-Vegter, 1985, p. 174).

Poland

The Warsaw Stock Exchange (WSE) reopened on 16 April 1991. All trading must be conducted through brokerage firms which are member of the exchange. Its organisation was modelled after the Lyon Stock Exchange, albeit with some modifications. To improve liquidity, for instance, specialist brokerage firms may act as market makers (Polish: *animator rynku*) and match buy and sell orders. They are not obliged, however, to make a two-way market in shares. There are two order-matching systems: single-price auction or single-price quotation and continuous trading or continuous price quotation. The WSE Board determines the system of quotations for a given security. The former is used for low liquidity securities. All transactions during a session are effected at the price that ensures maximum liquidity and equilibrium. The later was introduced first in 1996. After an opening price is announced, orders can be executed at any

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time during a session if there is an appropriate opposite order. A summary of transactions prices (i.e. opening, highest, lowest and closing price) are published in the official price list (Blommestein & Spencer, 1994, p. 185; Brodecki, 2003, p. 327; Wójcik, 2011).[31]

Spain

The organisation of the Madrid Stock Exchange, established in 1831, mirrored that of Paris. Official brokers (Spanish: *agentes de cambio*) held the monopoly on all securities trading which was conducted through open outcry (Spanish: *a voz*) on the *parquet* until the introduction of a computer assisted trading system in 1989. At the end of the trading session, brokers met with a stock exchange official to compare quotations. After resolving discrepancies, prices were declared to be official and published in the official list, the *Boletin oficial de cotizacíon* (Spray, 1964, pp. 389–390; De Caires, 1987, p. 397; Moore, 2010; Bolsas y Mercados españoles, n.d.). According to Moore (2010, pp. 78–79), official brokers "took buy or sell orders from clients and attempted to find an *agente* with an order for the opposite transaction. Given this microstructure, there were no bid and ask quotes in Madrid; only records of transaction prices and the nominal value of securities transferred." The *Boletin,* Madrid's official list*,* therefore lists the prices at which securities were traded on the spot market as well as on the forward market.

In the Madrid stock exchange, forward transactions (Spanish: *operaciones a plazo*) were permitted until 1936 both on public securities (mostly government bonds) and corporate shares. However, only a minority of private companies had shares traded forward and volumes were generally low compared to the spot market. The stock market regulation established that the settlement of forward operations (Spanish: *liquidación*) should be either at the end of the current month (Spanish: *fin corriente*) or at the end of the next month (Spanish: *fin próximo*). In forward operations, sellers were not legally obligated to hold the securities sold at the time of the stipulation of the contract. They only had to possess them at the agreed delivery date. The Madrid Stock Exchange, however, intervened from time to time to limit speculation by giving buyers the right to ask for delivery with 24 hour notice or by obliging sellers to specify the serial numbers of the securities sold in the contract. Forward trading was completely prohibited after 1940.

As a rule, share prices were quoted in percent of paid-up nominal value. However, some shares were quoted in *pesetas* per share. As far as we know, the Madrid stock exchange did not use dirty prices that included interests or dividends. However, the official list reported ex dividend prices with an asterisk (*).

United Kingdom

As in Amsterdam, access to the London Stock Exchange was reserved for members only. Trade, in London, was conducted between brokers and jobbers. Brokers were intermediaries who bought and sold securities on behalf of their clients. Jobbers were dealers who often specialised in a certain type of securities which they sold to or bought from brokers. When a broker received an order from a client, he would turn to a jobber and ask for a buy and sell offer, without revealing whether he wanted to sell or buy. If the broker agreed, he would reveal his intentions and the price was fixed. Broker or jobber could note their agreed price on a slip of paper and deposit it in a box. This price would then be quoted in the official list under the heading *Business done*. If several transactions were effected at the same price, this price quoted only once.

[31] Opening, highest, lowest and closing price are the same for securities traded under the single price quotation system.

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There was also no obligation to register transactions in this way. Bargains marked in the official list therefore do not give a comprehensive picture of actual dealings. At the end of the day, around three o'clock, specialist jobbers also indicated a bid and ask price which would be published in the official list under the heading *Closing quotations* (or simply *Quotations*) (François-Marsal, 1931; Spray, 1964, pp. 190–191; Kent, 1973, pp. 522–523).

There also existed forward trading in London. Very little is known, however, about the development of future markets in the United Kingdom. In an organised sense, it is a fairly recent phenomenon. The practice, however, is as old as the stock market itself. François-Marsal (1931, pp. 480–481), amongst others, provides some information on the forward market during the interwar period. Forward trading was re-instated in 1922, after being suspended during the First World War. Most transactions in London (British government bonds excepted) were settled on fortnightly account days. Two days before the account day, on the so-called contango day, buyers could chose to defer payment until the next account day. The interest due to the seller is called contango. One of the principal differences with forward trading in Brussel, Paris or Berlin, is that almost all securities can be traded forward in London. As on most other exchanges, it was also possible to trade options in London. A call (buy) or put (sell) option gave the right to buy or sell securities during a fixed period, usually three months, at a price fixed on the day the option was taken out (the so-called striking price). In addition to call and put options, a third option existed in London: the put and call or double option which gave the right to either sell or buy. The price of the option itself is called option money or option premium. Options dealings were suspended during the Second World War and did not resume until October 1958. Tradable call and put options were introduced in London in 1978 and 1981 respectively (Knapper, 1924, p. 456; Spray, 1964, p. 187; Kent, 1973, pp. 524–528; George & Giddy, 1983, Chapter 6.3, pp. 42–43).

In London, government bonds were quoted in percent of nominal value. Railway bonds and shares were generally quoted in British *pounds* (£) per piece (American bonds and shares being the exception here). Industrial and financial bonds and shares could either be quoted in British pounds per piece or in percent premium or discount, whereby premium and discount denote the amount of shillings and pence to be added (premium) or subtracted (discount) per 100 GBP of the paid-up amount. After the Second World War, quotation in terms of money became the norm for ordinary shares. Dividends and interest are included in the prices of shares and bonds (dirty prices) (Knapper, 1924, pp. 456–458; Kent, 1973, pp. 522–523).

4.7 Dividend and interest

The yield on shares is called a dividend, the yield on bonds interest. The **dividend** is a participation in the profits of the company. The part of the profits that is distributed to shareholders is determined by the statutory **allocation of profits** (see section 5.3 below). The amounts distributed generally vary from year to year in accordance with profits. Some types of shares (preference shares, for instance), however, have a fixed dividend (see section 4.4 above). The **interest** on bonds is a fixed percentage of their nominal value. Dividends or interests were historically paid upon presentation of a **coupon**, a numbered slip of paper that the share- or bondholder had to cut from a sheet attached to the share or bond certificate. Official lists may mention coupon numbers (last detached or first attached) as this is important information to

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investors. Interests can be paid annually, semi-annually, or sometimes even quarterly or monthly. The interest on bonds is paid at fixed dates and official lists usually mention the date(s) when interest is paid. This date is also referred to as the **coupon date**. The dividend on the other hand has to be approved by the general meeting of shareholders and, hence, the date on which the dividend is paid to the shareholders (the **dividend payment date**) is contingent on the date of the general assembly. The **ex-dividend day** precedes the dividend payment date and is the first day on which shares are traded without coupon, meaning the seller and not the buyer is entitled to the dividend. Official lists usually indicate if a share is traded ex-dividend. This has an effect on the share price.

4.8 Traded volumes

The number of securities which changed owners during a certain period is important information for assessing the liquidity of securities, but is not very often included in official lists or yearbooks. Only the *Prijscourant der Effecten*, the Amsterdam Stock Exchange's official list, included the turnover (in guilders) of the previous day since 10 September 1940. Aggregated data on traded volumes or turnover can, however, sometimes be found in stock exchanges' annual reports or statistical bulletins. In France, where no indications of traded volumes at the security level are available throughout the nineteenth and twentieth centuries, for instance, the *Compagnie des Agents de Change de Paris* (which merged with other regional *Companies des Agents de Change* to become the *Compagnie Nationale des Agents de Change* in 1967), published aggregate volumes in its yearly publication, *L'Année Boursière*, from 1964. For earlier periods, scholars have used fiscal data, notably a securities transaction tax (French: *impôt sur les opérations de bourse*) created in 1893 and abrogated in 2007, as a proxy for aggregate traded volumes. One has to take into account that in quote-driven markets such as the London Stock Exchange, volumes are reported by brokers and double-counts occur. This is not the case in order-driven markets where volumes are reported by the exchange.

4.9 Identification codes

Currently, securities are uniquely identified by their ISIN-code. ISIN is an abbreviation of **International Securities Identification Number**. The first ISIN-codes were assigned in 1981, but the code only became widespread from 1989. It is a 12-character alphanumerical code consisting of a country code (2 digits), a national identification number (8 digits) and a control character (1 digit) (the details of the ISIN-structure can be found in ISO 6166) (*Coordinated portfolio investment survey guide*, 2002). As such, ISIN-codes are dependent on older, national systems for (unique) identification of securities.

The French Sicovam (short for *Société interprofessionnelle pour la Compensation des Valeurs mobilières*), for instance, was created in 1949. This four- to six-digit numeric code remained in use until 2003, when is was replaced by the international ISIN-code. Germany introduced a six-digit numeric Securities Identification Number (German: *Wertpapierkennummer* or WKN) in 1954. The five-digit predecessor of the WKN was already introduced in 1928. These were published by the *Bank des Berliner Kassenvereins* in a so-called *Wertpapier-Numerierungsbuch*. After the Second World War, the new six-digit identification codes for German shares were published in a new *Kenn-Nummernbuch* for the first time in 1954 (later on, additional volumes for German fixed-income securities, foreign shares and foreign fixed-income securities were published) (Müller & Löffelholz, 1973, pp. 1899–1900). In Belgium, the SRW-code or SVM-code (an

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8-digit numerical code) was issued by the Secretariat for Securities (Dutch: *Secretariaat voor Roerende Waarden* or SRW; French: *Secrétariat des Valeurs Mobilières* or SVM). The Secretariat was a cooperative society established by Belgian financial institutions in 1983, but was acquired by Euronext Brussels (i.e. the Brussels Stock Exchange) in 1999. SIX Financial Information Belgium S.A./N.V. currently issues securities identification codes on behalf of Euronext.

In addition to these national systems, individual stock exchanges often also applied their own codes or numbers. The SEDOL (short for Stock Exchange Daily Official List) code is issued by the London Stock Exchange, but is also an national code for the identification of securities on markets in the United Kingdom. All SEDOL codes have seven characters, split into two parts: the first six characters are an alphanumeric code, and the seventh character is a trailing check digit. SEDOL codes that were issued before January 2004 were strictly composed of numeric characters, SEDOL codes issued after January 2004 begin with a letter (Kenton, 2018).

5 Financial reporting

Historical financial statements present a challenge to a multi-national and historical project such as EURHISFIRM because accounting and financial reporting principles and practices do not only vary from country to country, but also change over time. European harmonization of accounting and financial reporting started only in the 1970s with the implementation of subsequent European Economic Community (EEC) directives into national legislation. The most recent development in this respect is the elaboration of international standards such as the International Accounting Standard (IAS) and the International Financial Reporting Standard (IFRS). Until the second half of the twentieth century, however, there was no or only very limited regulation of accounting and financial reporting even at the national level. Company legislation from the beginning of the nineteenth century, such as the French *Code de Commerce* (1807) and the Dutch *Wetboek van Koophandel* (1837) only required that companies, like all merchants, kept a journal of receipts and expenditures and annually made a statement of assets and liabilities or balance sheet. Financial reporting requirements were only introduced during the second half of the nineteenth century. Company legislation in Germany (ADHGB of 1861), France (Law of 24 July 1867) and Belgium (Law of 10 May 1873, art. 62), for instance, required that financial statements such as the balance sheet and profit-and-loss account were disclosed to shareholders or even published. These laws, however, contained almost no rules regarding the organization and contents of accounts or the valuation of assets and liabilities. Accounting and financial reporting practices could therefore even differ between companies within the same country and time frame. The lack of regulation before the Second World War, however, does not necessarily imply anarchy. Accounting doctrines were already published as textbooks for merchants and students in commercial colleges since the late fifteenth century, for instance, and the accounting and financial reporting practices of large holdings exerted influence on the companies within and even outside their control. These changes in accounting and financial reporting theories, norms and practices are studied by accounting historians. Over the past decades, accounting history has emerged and matured to a fully-fledged discipline with its own societies, conferences and journals (Fleischman & Radcliffe, 2005; Napier, 2006). The result is a vast and specialised literature which we cannot sufficiently summarise within the scope of this report. We will therefore limited ourselves to a country-by-country

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overview the national legislation and regulation on financial reporting, dominant accounting doctrines and a reference the most important studies and scholars of accounting.

5.1 Fiscal year

The **fiscal year** is a fixed period (usually twelve months) used for calculating the annual accounts (balance sheet and profit-and-loss account). It does not necessarily coincide with the calendar year. The duration of the fiscal year is specified in the articles of association. The last day of the fiscal year is usually included in yearbooks because this is interesting information for investors. It determines, for instance, the date of dividend payments.

5.2 Annual accounts (financial statements)

Presently, annual accounts typically consist of a balance sheet, a profit-and-loss account and notes. A **balance sheet** is a snapshot of a company's assets on the last day of its fiscal year. The balance sheet is divided between liabilities and assets, whereby the former can be subdivided further, for instance, in capital, reserves, short- and long-term debt and the latter in fixed assets (e.g. buildings) and liquid assets (e.g. cash). The **profit-and-loss account** accumulates a company's earnings and expenses during the fiscal year. The **notes to the financial statements** contain additional information which is important for interpreting the balance sheet and profit-and-loss account (e.g. valuation rules). There are two types of annual accounts: single and consolidated accounts. **Single accounts** and **consolidated accounts** respectively present the financial position and results of a stand-alone company and of a group of companies (i.e. subsidiaries) under the control of a parent company. The consolidated account of the parent aggregates the single accounts of the parent and its subsidiaries into one group account. It is important to distinguish consolidated from single accounts because the single account of a parent company is only a partial and sometimes even distorted reflection of its financial position and results (e.g. in case of a deeply indebted subsidiary).

Belgium

The legal origins of financial reporting in Belgium can be found in the Law of 10 May 1873. The only provisions in this respect, however, were that the board of directors had to make a balance sheet (Dutch: *balans*; French: *bilan*) and a profit-and-loss account (Dutch: *winst- en verliesrekening* or *resultatenrekening*; French: *compte de pertes et profits* or *compte de résultat*) which had to include depreciations (Dutch: *amortisatie*; French: *amortissement*) (art. 62), disclose it to shareholders (art. 63) and publish it in the official journal *Moniteur belge* (art. 65). The Law of 9 July 1913 for the first time prescribed the minimum contents of balance sheets. According to article 75, the following six posts were mandatory: fixed assets and current assets on the assets side and equity, debentures, guaranteed (e.g. mortgaged) debts and unguaranteed debts on the liabilities side (De Beelde, 2003).[32] The first extensive regulation of financial reporting was introduced in Belgium only in 1975, in anticipation of the Fourth EEC Company Law Directive of 25 July 1978. The Law of 17 July 1975 regulated both accounting and financial reporting. It prescribed schemes for the balance sheet, profit-and-loss account and notes and valuation

[32] "*Le bilan mentionne séparément l'actif immobilisé, l'actif réalisable et, au passif, les dettes de la société envers elle-même, les obligations, les dettes avec hypothèques ou gages et les dettes sans garanties réelles.*"

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rules. All the aforementioned rules applied only to single accounts, however. Consolidated or group accounts did not become obligatory until 1990 (Royal Decree of 6 March, implementing the Seventh EEC Company Law Directive of 13 June 1983). These national regulations about financial reporting were integrated in the Companies Code in 2001, but their contents remain largely unaltered until today. Since the late 1990s, however, the aforementioned tendency to international harmonisation also affected Belgium. From 1998 until 2005, internationally operating companies could request an exemption from Belgian regulations and make up their accounts according to the international standard IAS or even a foreign national standard such as the United States Generally Accepted Accounting Principles (US GAAP). From 2005, publicly-traded companies have to make up their financial statements according to IFRS (De Beelde, 2003; Jorissen, Lybaert, Reyns, & Vanneste, 2004, vol. 1, pp. 176–179; Van den Brand, 2005).

The lack of legal obligation notwithstanding, Belgian companies already disclosed and even published annual accounts prior to 1873. The *Société Générale*, for instance, had very extensive annual accounts consisting of a report from the management board, balance sheet and profit-and-loss account printed every year and many smaller companies published balance sheets in financial newspapers such as the *Moniteur des Intérêts materiels*.[33] The organisation of accounts from the *Société Générale* were, according to De Beelde (2003), influenced by the accounting charts proposed for industrials by H. Godefroid in his textbook *Cours de comptabilité pratique, industrielle et commerciale* (1861). In turn, the *Société Générale* accounts exerted influence on other companies in the heavy industries. Another highly influential textbooks was Hector Blairon's *Cours complet de comptabilité des industries manufacturières* (first edition 1926). He introduced a decimal classification of accounts which was used by many Belgian companies during the interwar period. This also formed the basis of an accounting code tailored to the Belgian industry that was developed during the Second World War by the *Belgian National Committee for Scientific Management*. Hence, even in the absence of regulation, accounting doctrines resulted in a certain degree of harmonisation (De Beelde, 1995, 2003).

Additional information on accounting and financial reporting practices in Belgian companies can be found in the theses of Ignace De Beelde (1992) and Bob van den Brand (2005). These scholars have published extensively on the subject of accounting and financial reporting in Belgium during the nineteenth and twentieth centuries and discuss, amongst others, the evaluation and depreciation methods used.

France

Financial transparency was initially very weak in France. The Code of Commerce of 1807 only stipulated that public limited companies, like all merchants, had to keep accounts and make an annual inventory. The Law of 24 July 1863 obligated the directors to annually make up an inventory, balance sheet and profit-and-loss account. These had to be audited by statutory auditors (see section 3.2 above) who reported to the general assembly. Shareholders could also take note of the inventory at the company's registered office and request a copy of the balance sheet. It was not until the late 1950s that listed companies first had to publish financial statements in the *Bulletin des annonces légales et obligatoires* (or BALO), an official

[33] Financial statements may have been harmonised in the financial press for the convenience of investors. This was for instance the case in the *Recueil financier* which published an explanatory note about their recoding and regrouping of items in the volume for 1911.

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gazette. These statements included a balance sheet, a profit-and-loss account, the value of the turnover and the list of securities held by the company. Some companies did naturally publish summaries of their financial statements, for example in financial newspapers, before this obligation. Before the introduction of accounting principles by the *Plan comptable général* in 1943 and the standardization of balance sheets by the Decree of 5 February 1946, it was nevertheless difficult to compare financial statements from one company to another. This lack of regulation is also reflected by the diversity of the balance sheets published in the French stock exchange yearbooks (*Annuaire des valeurs admises à la cote officielle* and *Annuaire Desfossés*). There was no standardisation of accounts before 1933. The balance sheet items may therefore vary from one company to the other within the same edition of a yearbook, as well as from one edition to another for the same company. A certain degree of homogenisation was achieved in 1936. Henceforth, five and four items were reported in the liabilities and assets sides respectively.[34]

Useful books and articles on accounting, financial reporting an auditing in France were written by Lemarchand (1993), Mikol (1993), Touchelay (2011) and, more recently, by Bensando, Praquin and Touchelay (2016).

Germany

The introduction of public limited companies during the first half of the nineteenth century provided an important impetus for setting legal requirements to determine the distribution of profits. Hence, a reliable accounting system was needed to ensure that distributions of profits were limited to net profits. This would guarantee the preservation of capital for reasons of creditor protection. The Law on Railway Companies of 1838 and the Prussian Joint-Stock Company Law of 1843 introduced the first, very limited, requirement on financial reporting for joint-stock corporations. The Law of 1843, for instance, stipulated that the directors had to make up a balance sheet within three months after the end of the fiscal year and disclose it to the local government (§ 24). More detailed accounting regulations were included in the ADHGB.

The ADGHB stipulated that the articles of association of a public limited company (German: *Aktiengesellschaft*) must stipulate the principles for accounting and profit calculation. It must also regulate how the auditing of the annual financial statements is done, and if there is a supervisory board, that the supervisory board assumes this role. The executive board is required to submit the financial statement of the previous year within the first six months of the following year. Since the Law of 1870 initiated a transition from a concessions regime (whereby incorporation of a joint-stock company was subject to government approval) to a normative system (whereby companies are automatically incorporated of the meet a number of legal requirements), the compliance with these rules was no longer ensured by state supervision. An attempt was therefore made to compensate this by appropriate disclosure requirements. After the so-called *Gründerkrisis* of 1873, the *Aktienrechtsnovelle* of 1884 tightened the accounting standards and particularly distinguished itself from previous legislation by specifying valuation rules. In addition, the general assembly had to approve the balance sheet and obtained the right to appoint auditors for the audit of the financial statements. Disclosure was improved insofar that a balance sheet

[34] https://wiki.dfih.fr/wiki/Balance_sheets

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and a profit-and-loss account had to be presented. Annual accounts also had to be submitted to the Commercial Register.

After the First World War, the intention was no longer to prevent a harmful dividend policy, but to improve the validity of the financial statements. The focus was on silent reserves as well as disclosure obligations. The Emergency Decree of 1931 implemented some of the previously drafted reforms at short notice. The annual reports had to become more informative and the auditing of the annual financial statements became mandatory. The revisions of the corporation laws in the 1950s and 1960s brought about a shift of emphasis towards investor protection in the accounting principles, not only in regards to the valuation principles, but also in the disclosure requirements. The further development was decisively influenced by European public law and accounting guidelines (Bayer & Habersack, 2007).

The Netherlands

The Dutch Code of Commerce of 1838 required all merchants to create an annual inventory and balance sheet. There was no obligation to disclose it, however, except in the case of public limited companies (Dutch: *naamloze vennootschappen*). The directors had to report annually to the shareholders about the profits and losses of the past year either in a general meeting, by sending a statement to each shareholder or by granting them access to the company's accounts. A lengthy process of company law reform, aimed at increasing shareholder protection, started in the 1870s. This finally resulted in the Laws of 2 July 1928 and 25 June 1929. The former stipulated that directors of public limited companies should disclose annual accounts consisting of a balance sheet, profit-and-loss account and notes explaining the valuation rules to shareholders. Companies were free in their choice of valuation methods, however. Shareholders could also mandate an expert to examine the books and report to the general assembly. The later prescribed that the balance sheet should consist of at least eleven items on the assets side. There was no mandatory disclosure on the liabilities side of the balance sheet or in the profit-and-loss account. These provisions notwithstanding, the quality of financial statements remained low. Many companies for instance continued to have secret and undisclosed reserves and remained vague about the valuation methods that were used. The Law on Annual Financial Statements of 1970 did not profoundly change financial reporting legislation in the Netherlands as the Law left companies much freedom in regard to valuation and measurement rules and did not prescribe mandatory formats for financial statements or notes. It also did not impose a strict legal obligation to draw up consolidated financial statements. The law only stipulated that financial statements should give an insight in the financial position of the company (art. 2) and comply with acceptable standards (art. 5). The Tripartite Study Group (Dutch: *Tripartiet Overleg)* was set up to make an inventory of these standards. The Fourth and Seventh EEC Directives were implemented in the Netherlands in 1983 and 1988. The former introduced, for the first time, compulsory formats for the balance sheet and profit-and-loss account and valuation rules; the latter made consolidated or group accounts mandatory (Zeff, Van der Wel, & Camfferman, 1992; K. Camfferman, 1996; Van den Brand, 2005).

Poland

Current regulation of accounting and financial reporting in Poland can be found in the Accountancy Act of 1994 and the Code of Commercial Companies of 2000. All Polish public limited companies should keep their books in accordance with accepted standards for accounting and make up annual financial statements according to the templates attached to the Accountancy Act of 1994. The financial statements

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should consist of a balance sheet, profit-and-loss account, notes with clarifications and a report from the management board. The annual accounts of public limited companies have to be audited by an expert accountant and approved by the general assembly of shareholders. After approval, the financial statements, auditor's report and the resolution of the general assembly have to be published in an annex to the official gazette (*Monitor Polski B*) (Brodecki, 2003, pp. 140–142; Dornseifer, 2005, pp. 712–716).

Spain

Accounting requirements in the Commercial Code of 1829 (i.e. the obligation to keep a journal, ledger and inventory) were similar to those in the French Code of 1807. Disclosure was not required: accounting information was deemed confidential, although shareholders could, upon request, inspect the books at specific dates fixed by the articles of association. Active disclosure of financial statements to shareholders was required first by the Joint-Stock Companies Act of 1848. A balance sheet had to be presented and approved at the annual general assembly. Balance sheets should also be sent to the provincial governor for inspection, after which they were published in the provinces official newspaper. The obligation to publish balance sheets in national and provincial official newspapers was retained in the Joint-Stock Companies Law of 1869 (art. 4) (Bernal Lloréns, 2000). The Commercial Code of 1885 too submitted firms to very light accounting regulation. It established that corporate accounts were secret and could be disclosed only after judicial decision in cases of suspension of payments, liquidation or dissolution. Annual accounts should include a balance sheet and a profit-and-loss account. The only requirement was that they should be "redacted with clarity and show a faithful picture" of the firm's equity and financial situation, and follow "generally accepted accounting principles". The only exceptions were banking companies, which since 1921 had to follow a standardised format for their annual accounts. The Company Law of 1951 introduced partial reforms and defined with some more detail the structure and composition of assets and liabilities, as well as the items to be included in the profit-and-loss account, and the specific accounting principles and rules to follow. However, the Spanish legislation did not reflect the evolution of international accounting standards, auditing and publicity of annual accounts. For instance, external auditing was not required and could be imposed only by judicial decision. Instead, auditing was entrusted to auditing shareholders (Spanish: *accionistas censores*). No principles or rules of consolidated accounts for corporate groups were specified. A significant reform of corporate accounting legislation was passed only in 1973, followed by a new reform introduced by the Company Law of 1989, which completed the modernization of the Spanish accounting legislation. Mercedes Bernal Lloréns (1998, 2000, 2004b, 2004a, 2008; 2007, 2008; 2010) has published various articles on accounting and financial reporting by joint-stock companies and banks in Spain during the nineteenth century.

United Kingdom

Prior to 1900, most companies were not required by law to produce audited accounts. Nevertheless, the vast majority of companies freely did so – it was stipulated by their articles of association. The Companies Act of 1900 made the production of audited accounts compulsory, but the distribution of the balance sheet to shareholders and the production of an income statement were voluntary. However, new stock exchange requirements in 1902 and 1909 changed this.

In terms of the homogeneity and quality of accounting information, audit concentration in different industries may have permitted some degree of standardisation. It was the Companies Act of 1929,

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however, that prescribed guidelines on balance sheet format and required directors to file publicly an annual report on the company's affairs. This was followed by the Companies Act of 1948, which introduced compulsory consolidated accounting, a distinction between reserves and provisions and numerous new disclosure requirements for all companies. Further standardisation came with the Companies Act of 1981. The final era in the evolution of standardisation came with the establishment of the Accounting Standards Board in 1990 and the mandating of International Financial Reporting Standards in 2005.

In terms of professional bodies and the professionalisation of the accounting profession, the Institute of Chartered Accountants of Scotland received a Royal Charter in 1854, the Institute of Chartered Accountants in England and Wales was established by Royal Charter in 1880, and Chartered Accountants Ireland was established by Royal Charter in 1888.

John Richard Edwards has recently published several works on the history of accounting and financial reporting in the United Kingdom (Edwards, 1981b, for instance: 1989a, 2019).

5.3 Profit allocation

The **allocation of profit** (Dutch: *winstbestemming*; French: *repartition des bénéfices*; German: *Gewinn-Verteilung*; Polish: *podział zysku*; Spanish: *reparto de beneficios*) determines how (net) profits will be distributed among various interested parties. It is chosen at the time of incorporation and recorded in the articles of association. Generally, a percentage of the profits is retained in the company to build up **reserves**. This could be required by law. In Belgium, for instance, the Law of 10 May 1873 required that public limited companies annually retained at least five percent of their profits until the reserves amounted to ten percent of the authorised share capital. The directors and supervisory directors also received a percentage of profit as part of their fee (French: *tantième*). The rest was usually divided as dividend among the shareholders of the company, but sometimes the management and the personnel would also receive a share in the profits.

This was important information for investors, so yearbooks usually describe the allocation of profits. The allocation of profits determines the order and proportion in which dividends were distributed amongst various classes of shareholders and, hence, is very helpful for identifying the properties of shares. For instance, the capital of the Belgian glassworks *Verreries de Hamendes* was divided into *actions série A* and *actions série B*. Profits were allocated in the following manner: first, five percent went into the reserves; next, the *série A* shares received a statutory interest of 4,25 percent of their nominal value; then, the *série B* shares received the same statutory interest; the rest (the *super-bénéfice* in French) was equally distributed amongst both classes of shareholders. In this case, the *actions série A* can be regarded as participating preference shares and the *actions série B* as ordinary shares (*Recueil financier*, 1944, p. 101-102). In the Netherlands as well, the articles of association often called for a fixed percentage (typically five percent) of the nominal value of shares to be paid out to shareholders before the remainder of the profit was distributed to shareholders, directors, managers and reserves (De Jong et al., 2014).

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6 Conclusions

While this report shows that the semantic diversity was considerable, there were, from time to time, also tendencies towards harmonisation among companies. The French *Code de Commerce* of 1807 initially led to the unification of commercial law in France, Belgium, the Netherlands, Spain and parts of Germany. This was most notable in the fields of legal forms and incorporation. The absence of detailed rules on corporate governance and financial reporting, however, led to the development of national traditions in this field which were codified from the second half of the nineteenth century. In the case of the German *Handelsgesetzbucher*, new commercial legislation at the national level induced a new round of unification, albeit on a smaller scale. The ADHGB of 1861, for instance, was also introduced in Austria and the Austrian and Prussian partitions of Poland. German commercial legislation remained in force for some years after the restoration of Polish independence. Germany also shared with the Netherlands (and later also partially France) the corporate governance system of two-tier boards. The United Kingdom, a common law country, in this respect remained an outlier. In the field of financial reporting, progressive economic integration in the European Economic Community drove harmonisation from the 1970s. It should be noted, however, that, increasing detailed provisions in commercial legislation and progressing stock exchange regulation notwithstanding, companies had and still have a considerable degree of freedom regarding the organisation of, for instance, their corporate governance. A company's constitutional documents (i.e. deed of incorporation and articles of association) are paramount for discovering the particularities of each company's idiosyncratic implementation of commercial legislation and regulation. No general semantic analysis can replace this.

Finally, we take from this survey of data semantics a number of important issues to consider in future work on identification, the elaboration of the common data model and matching and connecting datasets:

- The use of ambiguous names for the same company in different sources and languages and the lack of unique national identifiers during most of the post-1815 period increases the importance of secondary identification criteria such as date of incorporation or registered office address for identifying and matching companies. The same is true for natural persons. Birth dates or addresses can help to differentiate different people with the same name (homonyms). These secondary criteria need to be collected from sources with the highest possible degree of accuracy and detail (e.g. not only the year, but also the month and day of incorporation). This will often be official government publications with an authentic character (e.g. notices from commercial registries).
- Present-day terminology of legal forms, for instance the Entity Legal Forms Code List from the Global Legal Entity Identifier Foundation (GLEIF), is focused too narrowly on commercial companies, partnerships and firms. These do not acknowledge the historical diversity of non-commercial joint-stock companies such as the *bergrechtliche Gewerkschaft* or the cost-book mining companies and other legal entities with dispersed ownership and (partial) limited liability regulated by specific legislation and courts. These moreover fail to address historical terminology used for exiting legal forms. The term public limited company, for instance, was introduced in the United Kingdom only in 1907 and replaced the term company limited by shares which had been in use since 1862 to designate joint-stock companies with more than seven partners and limited

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liability. We must finally be prudent not to equate present-day and historical legal forms. Registered company, for instance, is not simply an outdated term for a public limited company because it lacked one of the fundamental characteristics of the latter, namely limited liability.

- Due to changing legislation on the incorporation of companies and national differences in company law, there is no uniform event (i.e. passing the deed of incorporation, obtaining government approval or registration with a commercial court or register) which constitutes the incorporation of a company. While most secondary sources publish the date of incorporation, they may remain silent about the actual event that occurred on this date. The only sound solution for this problem is looking up the dates of all steps in the process of incorporation in official sources and match undefined dates from other sources. The same holds for the dates of different steps in the process of liquidation, whereby only the last step (i.e. the approval of the final balance sheet and acquittal of the liquidators) constitutes the end of a company's activities.

- In the case of share classes, ambiguous terminology is historically rule rather than exception. The classification of shares therefore requires thorough semantic analysis. The primary source of information on the characteristics of shares is the company's articles of association. A sound classification of shares should be based on the properties found there, rather than on the terminology alone.

- Beware of currencies. Currencies naturally change over time and differ between countries, but stock exchange price lists may also use different currencies when reporting about a single issue. In the case of foreign securities, the price may be quoted in the stock exchange's domestic currency while the nominal value and dividend are reported in the issuer's domestic currency (for instance ruble in case of a Russian company listed in Brussels).

- Because of the lack of legislation or regulation in the field of financial reporting prior to the Second World War, financial statements can be very diverse. The French case illustrates that different items may be reported on the balance sheets of different companies or of the same company in different years. While this complicated the comparison of financial statements between companies or fiscal years, it is nevertheless important to conserve the original terminology after harmonisation. This allows for future updates or revisions of classifications.

7 References

Acheson, G. G., Campbell, G., & Turner, J. D. (2019). Private contracting, law and finance. *The Review of Financial Studies*. https://doi.org/10.1093/rfs/hhz020

Algemeen Beurs-Comité. (1856). *Reglement voor den handel in publieke fondsen ter Beurze van Amsterdam, d° 23 December 1856*. Amsterdam: H.W. Weijtingh.

Annaert, J., & Buelens, F. (2011). Het Belgische beurswezen, 1935-2010. *Bank- En Financiewezen / Belgisch Financieel Forum. Studiecentrum Voor Het Financiewezen*, *75*(7–8), 420–429.

This project has received funding from
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under grant agreement N° 777489

Annaert, J., Buelens, F., & De Ceuster, M. J. K. (2012). New Belgian stock market returns: 1832–1914. *Explorations in Economic History*, *49*(2), 189–204. https://doi.org/10.1016/j.eeh.2011.11.004

Antoine, J., Broquet, C., & Capiau-Huart, M.-C. (1988). *Titres et bourse. Tome 1: Traité*. Bruxelles: De Boeck Université.

Antoine, J., & Cornil, J.-P. (2002). *Lexique thématique de la comptabilité: Dictionnaire spécialisé explicatif* (7e édition). Bruxelles: De Boeck.

Bastine, Louis. (1876). *Code de la Bourse ou exposé méthodique de la législation et de la jurisprudence belges sur les bourses de commerce, les agents de change et les opérations de bourse*. Bruxelles: Bruylant-Christophe & Compagnie.

Bayer, W., & Habersack, M. (2007). *Aktienrecht im Wandel* (Vols 1–2). Tübingen: Mohr Siebeck.

Bensadon, D., Praquin, N., & Touchelay, B. (Eds.). (2016). *Dictionnaire historique de comptabilité des entreprises*. Villeneuve d'Ascq: Presses universitaires du Septentrion.

Bernal Lloréns, M. (1998). En torno a la regulación contable en el Código de Comercio de 1829. *Revista Española de Financiación y Contabilidad*, 887–912.

Bernal Lloréns, M. (2000). The crisis of 1847-1848 and the regulation of company accounting in Spain. *Accounting History*, *5*(2), 13–30. https://doi.org/10.1177/103237320000500203

Bernal Lloréns, M. (2004a). Financial crises and the publication of the financial statements of banks in Spain, 1844–1868. *Accounting Historians Journal*, *31*(2), 1–26.

Bernal Lloréns, M. (2004b). La regulación de las sociedades anónimas y la información contable publicada en la 'Gaceta de Madrid' a mediados del siglo XIX. *Revista española de financiación y contabilidad*, *33*(120), 65–94. https://doi.org/10.1080/02102412.2004.10779514

Bernal Lloréns, M. (2008). Regulación contable y publicidad: Los estados contables de las sociedades anónimas bancarias (1844-1855). In E. Hernández-Esteve & M. B. Prieto-Moreno (Eds.), *Nuevos estudios sobre historia de la contabilidad: Orare et rationem reddere* (pp. 28–30). Burgos: Diputación Provincial de Burgos.

Bernal Lloréns, M., & Ballesta, J. P. S. (2007). La información contable publicada por los bancos de emisión en España a mediados del siglo XIX. *Spanish Journal of Finance and Accounting / Revista Española de Financiación y Contabilidad*, *36*(133), 31–53. https://doi.org/10.1080/02102412.2007.10779613

Bernal Lloréns, M., & Ballesta, J. P. S. (2008). Normalización contable de la banca española en los inicios de la industrialización. *Revista de Historia Industrial*, (36), 45–82.

Blommestein, H. J., & Spencer, M. G. (1994). The role of financial institutions in the transition to a market economy. In G. Caprio, D. Folkerts-Landau, & T. D. Lane (Eds.), *Building sound finance in emerging*

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market economies: Proceedings of a conference held in Washington, D.C., June 10-11, 1993 (pp. 139–189). Washington D.C.: International Monetary Fund.

Bolsas y Mercados españoles. (n.d.). History of the Stock Exchange. Retrieved 18 January 2019, from Bolsa de Madrid website: http://www.bolsamadrid.es/docs/BMadrid/docsSubidos/Historia_Bolsa_%20Espa%C3%B1ola_English.pdf

Bresson, J. (1830). *Des fonds publics français et étrangers et des opérations de la Bourse de Paris* (Sixième édition totalement refondue). Paris: Bachelier. https://gallica.bnf.fr/ark:/12148/bpt6k6567017h.

Briston, R. J. (1973). *The stock exchange and investment analysis* (Second edition). London: George Allen & Unwin.

Brodecki, Z. (Ed.). (2003). *Polish business law*. The Hague, London & New York: Kluwer Law International B.V.

Byttebier, K., Piu, P., & Roeland, S. (2003). *Corporate governance: Eigendom, bestuur en controle van vennootschappen*. Antwerpen & Apeldoorn: Maklu.

Camfferman, K. (1996). *Voluntary annual report disclosure by listed Dutch companies 1945-1983* (Unpublished doctoral disseration, Vrije Universiteit Amsterdam). Retrieved from https://research.vu.nl/en/publications/voluntary-annual-report-disclosure-by-listed-dutch-companies-1945-3

Cheffins, B. R. (2008). *Corporate ownership and control: British business transformed*. Oxford: Oxford University Press.

Chlepner, B. S. (1930). *Le marché financier belge depuis cent ans*. Bruxelles: Falk.

Coordinated portfolio investment survey guide (second edition). (2002). Retrieved from https://web.archive.org/web/20170614080658/http://www.imf.org/external/pubs/ft/cpis/2002/pdf/cpis_index.pdf

De Beelde, I. (1992). *Accounting information and its use in a number of Belgian coalmines during the first half of the twentieth century* (Unpublished doctoral dissertation, Ghent University). Retrieved from http://hdl.handle.net/1854/LU-8564817

De Beelde, I. (1995). *The evolution of industrial accounting thought in Belgium in the first half of the 20th century: A textbook approach* (Department of Accounting and Management Control. Working Paper No. 95/13). Retrieved from University of Gent website: http://wps-feb.ugent.be/Papers/wp_95_13.pdf

De Beelde, I. (2003). The development of a Belgian accounting code during the first half of the 20th century. *The Accounting Historians Journal*, *30*(2), 1–28.

De Caires, B. (1987). *The GT guide to world equity markets*. London: Euromoney Publications.

This project has received funding from
the European Union's Horizon 2020 research and innovation programme
under grant agreement N° 777489

De Jong, A., Mertens, G., & Roosenboom, P. (2006). Shareholders' voting at general meetings: Evidence from the Netherlands. *Journal of Management & Governance*, *10*(4), 353–380. https://doi.org/10.1007/s10997-006-9006-1

De Jong, A., Röell, A., & Westerhuis, G. (2014). The evolving role of shareholders in Dutch corporate governance, 1900–2010. In K. E. Sluyterman (Ed.), *Varieties of capitalism and business history: The Dutch case*. https://doi.org/10.4324/9781315768069

De nummers van het Handelsregister (Versie 3.0). (2018). Retrieved from https://www.kvk.nl/download/De_nummers_van_het_Handelsregister_tcm109-365707.pdf

De Vries, J. (1976). *Een eeuw vol effecten: Historische schets van de Vereniging voor de Effectenhandel en de Amsterdamse Effectenbeurs, 1876-1976*. Amsterdam: Vereniging voor de Effectenhandel.

Deutsche Börse. (2010). 1585-2010: Deutsche Börse celebrates an anniversary. A chronology efficient markets. Retrieved 21 January 2019, from http://deutsche-boerse.com/blob/2532458/42eaf74d142137134dac3985bfb4b6f0/data/jubilaeum425-1585_en.pdf

Dinger, J. (1851). *Overzigt van alle ter beurse van Amsterdam verhandeld wordende binnen- en buitenlandsche effecten, met opgaven, zooveel mogelijk, van derzelver geschiedkundigen oorsprong de hoegrootheid en de voorwaarden der negotiatieën waaruit dezelven zijn gesproten, de termijnen van aflossing, rentebetaling, enz. enz / door J. Dinger, Makelaar en Commissionair in Effecten te Amsterdam*. Amsterdam: H. Van Vucht.

Dornseifer, F. (Ed.). (2005). *Corporate business forms in Europe: A compendium of public and private limited companies in Europe*. München: Sellier. European Law Publishers.

Edwards, J. R. (1981b). *Company legislation and changing patterns of disclosure in British company accounts, 1900-1940*. London: Institute of Chartered Accountants in England and Wales.

Edwards, J. R. (1989a). *A history of financial accounting, 1830-1974*. London & New York: Routledge.

Edwards, J. R. (2019). *A history of corporate financial reporting in Britain*. In *Routledge Studies in Accounting*. New York & Oxon: Routledge.

Fleischman, R. K., & Radcliffe, V. S. (2005). The roaring nineties: Accounting history comes of age. *The Accounting Historians Journal*, *32*(1), 61–109. Retrieved from JSTOR.

François-Marsal, F. (1929). *Encyclopédie de banque et de bourse. Tome quatrième: Bourse I* (Vol. 4). Paris: Imprimerie Crété.

François-Marsal, F. (1931). *Encyclopédie de banque et de bourse. Tome cinquième: Bourse II* (Vol. 5). Paris: Imprimerie Crété.

This project has received funding from
the European Union's Horizon 2020 research and innovation programme
under grant agreement N° 777489

Frankowski, S., & Bodnar, A. (2005). *Introduction to Polish Law*. The Hague, London & New York: Kluwer Law International B.V.

Freedeman, C. E. (1965). Joint-stock business organization in France, 1807-1867. *The Business History Review*, *39*(2), 184–204. https://doi.org/10.2307/3112696

Freeman, M., Pearson, R., & Taylor, J. (2012). *Shareholder democracies? Corporate governance in Britain and Ireland before 1850*. Chicago & London: University of Chicago Press.

George, A. M., & Giddy, I. H. (Eds.). (1983). *International finance handbook*. New York: Wiley.

Greenwood, W. J. (1911). *Foreign stock exchange practice and company laws of all the chief countries of the world: Methods of selling British securities abroad, foreign laws affecting British works and branches established abroad*. London: Financial Book Company.

Guinnane, T. W. (2018). German company law 1794-1897. In H. Wells (Ed.), *Research handbook on the history of corporate and company law* (pp. 170–204). Cheltenham & Northampton, MA: Edward Elgar Publishing.

Guinnane, T. W., & Martinez-Rodriguez, S. (2012). *For every law, a loophole: Flexibility in the menu of Spanish business forms, 1886-1936* (Discussion Paper. Economic Growth Center No. 1012). Retrieved from Yale University website: http://www.ssrn.com/abstract=2053639

Hannah, L. (2014). Corporations in the US and Europe 1790–1860. *Business History*, *56*(6), 865–899.

Harris, R. (2000). *Industrializing English law: Entrepreneurship and business organization, 1720-1844*. In *Political Economy of Institutions and Decisions*. Cambridge: Cambridge University Press.

Hautcoeur, P.-C., & Riva, A. (2012). The Paris financial market in the nineteenth century: Complementarities and competition in microstructures. *Economic History Review*, *65*(4), 1326–1353.

Henning, F.-W. (1992). Börsenkrisen und Börsengesetzgebung von 1914 bis 1945 in Deutschland. In *Deutsche Börsengeschichte* (pp. 209–290). Frankfurt am Main: Fritz Knapp Verlag.

Jorissen, A., Lybaert, N., Reyns, C., & Vanneste, J. (2004). *Financial accounting*. Antwerpen: De Boeck.

Kamer van Koophandel Nederland. (2016). *Inventaris van de afgesloten dossiers van het Handelsregister in het archief van de Kamer van Koophandel te Utrecht 1983-2003*. Retrieved from https://hetutrechtsarchief.nl/onderzoek/resultaten/archieven?mivast=39&mizig=210&miadt=39&miaet=1&micode=4012&minr=37922422&miview=inv2

Kent, C. H. (1973). *European stock exchange handbook*. Park Ridge: Noyes Data Corporation.

Kenton, W. (2018, July 17). Stock Exchange Daily Official List - SEDOL. Retrieved 12 March 2019, from Investopedia website: https://www.investopedia.com/terms/s/sedol.asp

This project has received funding from
the European Union's Horizon 2020 research and innovation programme
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Knapper, C. (1924). *Leerboek van het handelsrekenen / Herzien door G. De Bruijn en E. Smit* (13th ed.). Den Helder & Purmerend: C. De Boer Jr. & J. Muusses.

Kolbeck. (1988). Unternehmen II: Wahl der Rechtsform. In W. Albers (Ed.), *Handwörterbuch der Wirtschaftswissenschaft* (Vol. 8, pp. 71–83). Göttingen & Zürich: Vandenhoeck und Ruprecht.

Lemarchand, Y. (1993). *Du dépérissement à l'amortissement, enquête sur l'histoire d'un concept et de sa traduction comptable* (Unpublished doctoral disseration, Université Paris XII Val de Marne). Retrieved from https://tel.archives-ouvertes.fr/tel-00548896/document

Lettinga-Vegter, S. G. (1985). *Beurs en effecten: De beurshandel en de vormen van beleggen*. Utrecht: Veen.

Limauge, E. (1864). *La bourse et les agents de change: Études suivies d'un aperçu sur la lettre de change et d'une notice sur toutes les valeurs cotées a la Bourse de Bruxelles* (Vols 1–2). Bruxelles: Office de Publicité.

Longelin, I. (2012). Le fonds du registre du commerce et des sociétés (1920-1954) et du registre des métiers (1936-1962) du tribunal de commerce de Lille. *Entreprises et histoire*, *n° 68*(3), 132–137.

Mastin, J.-L. (2010). Concentration dans l'industrie minière et construction de l'espace régional. Le cas du Nord-Pas-de-Calais de 1850 à 1914. *Revue Du Nord*, (387), 793–812.

Mikol, A. (1993). The evolution of auditing and the independent auditor in France. *European Accounting Review*, *2*(1), 1–16. https://doi.org/10.1080/09638189300000001

Moore, L. (2010). Financial market liquidity, returns and market growth: Evidence from Bolsa and Börse, 1902–1925. *Financial History Review*, *17*(01), 73. https://doi.org/10.1017/S0968565010000016

Moortgat, L., Annaert, J., & Deloof, M. (2017). Investor protection, taxation and dividend policy: Long-run evidence, 1838–2012. *Journal of Banking & Finance*, *85*, 113–131. https://doi.org/10.1016/j.jbankfin.2017.08.013

Müller, G., & Löffelholz, J. (1973). *Bank-Lexikon: Handwörterbuch für das Bank- und Sparkassenwesen*. Wiesbaden: Springer Fachmedien.

Napier, C. J. (2006). Accounts of change: 30 years of historical accounting research. *Accounting, Organizations and Society*, *31*(4), 445–507. https://doi.org/10.1016/j.aos.2005.12.004

Oppermann, G. (1957). *Börsen- und Wertpapiergeschäfte*. Frankfurt am Main & Köln: Verlag Wertpapier-Mitteilungen.

Organisation for Economic Co-operation and Development (Ed.). (2015). *G20/OECD principles of corporate governance*. Paris: OECD.

Owen, T. C. (1994). La démographie des sociétés anonymes dans l'Empire russe, 1821-1914. In M. Moss & P. Jobert (Eds.), *Naissance et mort des entreprises en Europe, XIXe-XXe siècles* (pp. 99–122). Dijon: Université de Bourgogne.

This project has received funding from
the European Union's Horizon 2020 research and innovation programme
under grant agreement N° 777489

Owen, T. C. (2002). *The corporation under Russian law, 1800-1917: A study in tsarist economic policy*. Cambridge: Cambridge University Press.

Petram, L. (2011). *De bakermat van de beurs: Hoe in zeventiende-eeuws Amsterdam de moderne aandelenhandel ontstond*. Amsterdam: Atlas Contact.

Polak, N. J. (1924). Het nooteringsvraagstuk aan de Amsterdamse effectebeurs in de eerste helft der negentiende eeuw. *Economisch-Historisch Jaarboek*, *10*, 198–218.

Poland company laws and regulations handbook. (2012). Washington, DC: International Business Publications.

Prijscourant der effecten: Beurs van Amsterdam. (1833, May 2). *Nieuwe Amsterdamsche Courant En Algemeen Handelsblad*, p. 1.

Richmond, L. (1992). The records of the Registrar of Companies. *Business Archives*, *64*, 43–50.

Sánchez-Ballesta, J. P., & Bernal Lloréns, M. (2010). Monitoring, reputation and accountability in issuing banks in mid-nineteenth-century Spain. *Explorations in Economic History*, *47*(4), 403–419. https://doi.org/10.1016/j.eeh.2009.08.006

Séraqui, J. (1986). *La Bourse pour tous: Comprendre pour gagner*. In *Collection Jean Pradel*. Paris: L'Instant.

Smith, J. W. (1863). *A handy book of the new Law of Joint Stock Companies (25 & 26 Vict., c. 89) with directions for forming a company (etc.) 2. Thous*. London: Effingham Wilson.

Sołtysiński, S. (2013). Corporate boards in Poland. In P. Davies, K. Hopt, R. Nowak, & G. Van Solinge (Eds.), *Corporate boards in law and practice: A comparative analysis in Europe* (pp. 511-). Oxford: Oxford University Press.

Spray, D. E. (1964). *The principal stock exchanges of the world: Their operation, structure, and development*. Washington D.C.: International Economic Publishers.

Tafunell, X. (2005). Empresa y bolsa. In A. Carreras & X. Tafunell (Eds.), *Estadísticas históricas de España, siglo XIX y XX* (pp. 707–835). Bilbao: Fundación BBVA.

Touchelay, B. (2011). *L'État et l'entreprise: une histoire de la normalisation comptable et fiscale à la française*. In *Collection 'Histoire'*. Rennes: Presses universitaires de Rennes.

Troplong, R. T. (1843). *Commentaire du contrat de société en matière civile et commerciale*. Bruxelles: Meline, Cans et Compagnie.

Turner, J. (2018). The development of English company law before 1900. In H. Wells (Ed.), *Research handbook on the history of corporate and company law* (pp. 121–141). Cheltenham & Northampton, MA: Edward Elgar Publishing.

This project has received funding from
the European Union's Horizon 2020 research and innovation programme
under grant agreement N° 777489

Uniform Resource Identifiers (URI) Customer Guide (Version 1.1 (05/12)). (2011). Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/426891/uniformResourceIdentifiersCustomerGuide.pdf

Valentine, S. (1989). *International dictionary of the securities industry* (2 ed.). London: Macmillan.

Van den Brand, B. R. C. J. (2005). *Financial reporting, environmental factors and their relationship in Belgium and the Netherlands: A comparative international and longitudinal study* (Unpublished doctoral dissertation, Tilburg University). Retrieved from https://research.tilburguniversity.edu/en/publications/financial-reporting-environmental-factors-and-their-relationship-

Van Milligen, G., & Fikkert, L. B. (1866). *Theoretisch en practisch volkshuishoudkundig rekenboek*. Rotterdam: H. Nijgh.

Van Overfelt, W., Annaert, J., De Ceuster, M., & Deloof, M. (2009). Do universal banks create value? Universal bank affiliation and company performance in Belgium, 1905–1909. *Explorations in Economic History*, *46*(2), 253–265. https://doi.org/10.1016/j.eeh.2008.07.001

Van vloer naar scherm. (2015). Retrieved 12 September 2018, from BeursgeschiedenisNL website: https://www.beursgeschiedenis.nl/

Wenzlhuemer, R. (2013). *Connecting the nineteenth-century world: The telegraph and globalization*. Cambridge: Cambridge University Press.

Wiersma, K. (1971). De nieuwe structuur voor de grote Nederlandse vennootschap. *Tijdschrift Voor Privaatrecht*, *8*, 387–410.

Willems, H. (2000). Het meervoudig stemrecht in de algemene aandeelhoudersvergadering in België tijdens het interbellum. *Belgisch Tijdschrift voor Nieuwste Geschiedenis*, *30*(3–4), 431–492.

Willems, H. (n.d.). *Het "exception de jeu" en de termijntransacties*. Retrieved from http://www.scob.be/publicat/TERMIJNMARKT.pdf

Willems, H., & Buelens, F. (2005). Belgische vennootschapsvormen in de negentiende en de twintigste eeuw. In C. Vancoppenolle (Ed.), *Een succesvolle onderneming: Handleiding voor het schrijven van een bedrijfsgeschiedenis* (Nieuwe herwerkte uitgave, pp. 171–208). Brussel: Algemeen Rijksarchief.

Wójcik, D. (2011). *The global stock market: Issuers, investors, and intermediaries in an uneven World*. Oxford: Oxford University Press.

Wordsworth, C. (1844). *The Law of Joint Stock Companies* (Fourth edition). London: William Benning & Co.

Wordsworth, C. (1856). *The Joint Stock Companies Act, 1856: With introduction, notes, index, forms and instructions how to form a joint stock company*. London: Shaw and Sons.

This project has received funding from
the European Union's Horizon 2020 research and innovation programme
under grant agreement N° 777489

Zeff, S. A., Van der Wel, F., & Camfferman, K. (1992). *Company financial reporting: A historical and comparative study of the Dutch regulatory process*. Amsterdam: North-Holland.

This project has received funding from
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