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MPIfG Discussion Paper 17/2

Varieties of Housing Finance in Historical Perspective

The Impact of Mortgage Finance Systems on Urban Structures and Homeownership

Timothy Blackwell and Sebastian Kohl

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MPIfG Discussion Paper 17/2
Max-Planck-Institut für Gesellschaftsforschung, Köln
Max Planck Institute for the Study of Societies, Cologne
February 2017

MPIfG Discussion Paper
ISSN 0944-2073 (Print)
ISSN 1864-4325 (Internet)

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Abstract

In this paper, we argue that the complexion of housing finance systems in OECD countries, both now and historically, has a significant bearing on a number of core housing-related indicators, including housing form, tenure composition, and urban development. Existing literature in the fields of housing studies and comparative political economy, however, has often neglected the historical dynamics of housing finance, while contemporaneously, financial historians have focused almost exclusively on company and not mortgage finance. We identify four different "ideal types" of housing finance systems that developed in mature capitalist economies when organized housing finance institutions began to emerge throughout the long nineteenth century: informal person-to-person lending and state lending as solutions outside specialized banking circuits, and deposit-based and bond-based institutions as banking solutions. We adapt Alexander Gerschenkron's theory of economic backwardness in order to explain the temporal-spatial emergence of these distinct types. We draw a path-dependent conclusion, noting that the more countries developed bond-based mortgage banks in the nineteenth century, the more they tended towards multi-story building structure, low homeownership rates and lower securitization levels in the twentieth century. A collection of unique historical city and country data supports these findings.

Keywords: Housing finance, homeownership, building form, urbanization, Gerschenkron, path dependence, financial history, mortgage banks, building societies, buildings and loans

Zusammenfassung

In diesem Artikel behaupten wir, dass heutige und historische Wohnfinanzsysteme in OECD-Ländern einen starken Einfluss auf eine Reihe zentraler Wohnungsindikatoren wie die Bauform, die Wohneigentumsstruktur und die städtische Entwicklung hatten. Die Literatur des Wohnungswesens und der Vergleichenden Politischen Ökonomie hat die historische Wohnfinanzentwicklung bisher stiefmütterlich behandelt, während Finanzhistoriker sich fast ausschließlich auf Unternehmens- und nicht Hypothekenfinanzierung konzentriert haben. Wir identifizieren vier verschiedene Idealtypen der Wohnfinanzregime, die sich in entwickelten Ökonomien im Übergang zum organisierten Realkredit im langen 19. Jahrhundert entwickelten: informelle personale Kredite und Staatskredite als Typen außerhalb von Banken, einlagen- und pfandbrieffinanzierte Typen von Hypothekenbanken. Wir nutzen Alexander Gerschenkrons Theorie der ökonomischen Rückständigkeit, um die raumzeitlich unterschiedliche Entstehung dieser Typen zu erklären, und ziehen einen pfadabhängigen Schluss: Je mehr Länder im 19. Jahrhundert pfandbrieffinanzierte Hypothekenbanken entwickelten, desto mehr haben sie damals wie heute Mehrgeschossstädte und desto niedriger ist bis heute ihre Wohneigentumsquote sowie ihr Umlauf an hypothekenbesicherten Wertpapieren. Eine Sammlung historischer Stadt- und Finanzdaten stützt diese Befunde.

Schlagwörter: Hausfinanz, Wohneigentum, Bauform, Urbanisierung, Gerschenkron, Pfadabhängigkeit, Finanzgeschichte, Hypothekenbanken, Bausparkassen

Contents

Introduction 1

1 Housing, finance, and late development: A review of literature and the theoretical framework 6

Housing 6

Finance 8

Gerschenkron's theory of economic backwardness 9

2 Historical mortgage finance markets 12

Direct finance 13

Deposit-based finance 14

Bond-based finance 18

State finance 27

3 Exploring some explanatory hypotheses 31

4 Discussion 35

5 By way of conclusion 41

References 43

Varieties of Housing Finance in Historical Perspective: The Impact of Mortgage Finance Systems on Urban Structures and Homeownership

Introduction

This paper begins with a humble statement: the structure of housing finance matters to the constitution of housing systems, both now and historically. This sentiment may appear trite to some readers. Nevertheless, there exists, within the fields of housing studies and political economy, an ostensive reticence to take the sphere of housing finance seriously.[1] Instead, as Manuel Aalbers and Brett Christophers (2014) observe, scholars with an interest in housing tend to view housing in purely policy-related terms, abstracted from the wider politico-economic and financial dynamics of housing system development through time – the study of which is often seen as the reserve of scholars specializing in niche areas of financial and banking history.[2] Contemporaneously, the sphere of housing finance is often neglected by financial historians, who have focused instead almost exclusively on company finance (Fohlin 2012) – with the perennial discussions about universal banks, capital markets, and economic growth – or government finance and debt (Reinhart and Rogoff 2010). Such disciplinary disconnect is, we believe, puzzling when one considers the centrality of housing systems – and the financial systems underpinning them – to *contemporary business cycle dynamics*, and *macroeconomic policy decision-making* in OECD countries today (Jordà, Schularick, and Taylor 2016, 140).[3] The task of understanding how the historically and geographically variegated trajectories of mortgage market dynamics in OECD countries have shaped, and continue to shape, housing system development, then, is an important one.

In this paper, we argue that the complexion of housing finance systems, both now *and* historically, has a significant bearing on a number of core indicators which are generally considered to be of central concern to housing scholars, including housing form,

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Authors are in alphabetical order. We thank Manual Aalbers, Céline Vaz, Tod Van Gunten, David Gosselin and Ewald Engelen for their help.

1 While housing scholars (Aalbers and Christophers 2014; Schwartz and Seabrooke 2008) have begun to look at the sphere of housing finance with more rigor since the Global Financial Crisis, much of this body of research is focused on developments since the 1990s and is preoccupied with the phenomenon of *financialization*, however defined. Mark Boléat's (1985, 483) claim that there is a "marked lack of knowledge about housing finance systems," then, seems as pertinent now as when the claim was made in 1985.

2 These latter disciplines, too, often tend to isolate the study of housing finance from the broader workings of the housing system (see Boléat 1985), and there is little comparative work in this arena (Verdier 2000, 284).

3 After all, the size of private mortgage debt is larger than corporate and government debt in countries such as Denmark and the Netherlands.

tenure composition, and urban development. Using a unique collection of historical city and country-level data, we claim that cross-national differences in institutional forms of housing finance provision, which emerged during the *long nineteenth century*, were ultimately the products of attempts by a range of state and non-state actors to *mobilize capital* during periods of dramatic demographic transition, and/or as responses to exogenous city-level shocks. Further, we argue that these historically differentiated trajectories in housing finance provision have left enduring institutional and behavioral legacies which can go some way in helping to account for cross-national differences in urban form and tenure composition to this day. Ignorance of the historical importance of housing finance to the constitution of housing systems is then, in our view, an oversight.

The story of *capital mobilization* during the *long nineteenth century* manifestly played out differently in different jurisdictions, as we will explore here. Nevertheless, the type of housing finance system that emerged during this formative period *(deposit-based* vs. *bond-based)*, and the level of state involvement (or lack thereof) in national housing finance systems, have all left distinct and enduring legacies. These differences, we contend, can be attributed to the relative levels of economic and financial *backwardness* that existed immediately prior to countries' industrial and urban ascents, as well as to differences in national legal traditions (common vs. civil law), demography, and levels of democratization. In all cases surveyed here, the need to resolve impediments to *capital mobilization* in the face of demographic change and growing demand for housing credit created the fulcrum around which class and sectoral conflicts were played out, and legal factors and levels of democratization played an important conditioning role. State-sponsored support for national housing and finance systems prior to the First World War was, more often than not, a politically expedient response, at first to agrarian demands for credit, and later – as urbanization created ever-greater pressures on towns and cities from the 1870s onwards – demand for housing-related credit in towns and cities in the face of a burgeoning proletariat and the threat of working-class militancy. We argue that the degree of state-sponsored financial support to housing finance systems during this period, broadly speaking, can be seen as contingent upon the level of financial maturity prior to industrial *take-off*. Such an explanation provides an important (and novel) explanatory variable in our analysis to explore both how and why housing finance systems – and in turn, housing systems more generally – evolved distinctly and path-dependently throughout Europe and the West.

To account for these cross-national differences, we draw theoretically upon Alexander Gerschenkron's *theory of economic backwardness*, noting that the variegated forms of housing finance systems that emerged throughout Europe and the West during the *long nineteenth century* harmonize well with the Gerschenkron-inspired company finance typologies (Verdier 2002b); that is to say, capital-market countries depended on specialized deposit-based institutions in the mortgage sector, while countries with universal banks tended to develop bond-issuing mortgage banks. Yet, as far as we are aware, no attempt has been made to apply a Gerschenkronian framework to the study of cross-

national, historical dynamics in housing finance systems. Insofar as rapid urbanization was the product of economic development and industrialization in Europe during this period, we find such a theoretical oversight intriguing.

In the analysis that follows, we seek to adapt Gerschenkron's analytical framework to study the differentiated systems of housing finance that emerged during the *long nineteenth century*. We do this in order to explain how an *orderly system of graduated deviations* (Gerschenkron 1962, 44) from the first industrializer (England) structured housing finance system divergence. We then explain how this, in turn, had enduring ramifications for housing and the built environment in urban centers. Identifying the level of financial maturity and proto-industrial credit institutions as important historical precursors for the institutional templates of urban mortgage finance that developed during the latter part of the nineteenth century in Europe and a selection of OECD countries, we observe four distinct modes of housing finance provision, whose legacies are still recognizable in the landscapes of housing finance today. These are, in order of the degree of credit centralization (from least to most centralized): the *direct finance model*, the *deposit-based finance model*, *the bond-based finance model*, and the *state finance model*.[4]

In terms of the impacts and legacies of these different systems of housing finance provision on housing and the built environment, we observe that each system engendered distinctly different types of urban development *vis-à-vis* housing form and tenure composition. Countries within the *deposit-based* category (which include the UK & Ireland, the USA, Belgium and, to a lesser extent, the Netherlands) tended to favor the construction of single-family dwellings when expanding and reconstructing their towns and cities prior to the Second World War. Conversely, countries with a preponderance of bond-based housing finance institutions, in the *bond-based finance model*, (which include Germany, Switzerland, Denmark, Austria-Hungary and, to a lesser extent, Sweden and France) tended to expand and reconstruct their towns and cities in multi-story tenement form. We note, however, that in all countries, with the exception of Denmark, this form of bond-based finance diminished in importance as the twentieth century wore on, at which time the state and commercial and savings bank actors began to take a more central role.

In countries which continued their reliance upon *direct finance* (chiefly southern European countries), familial arrangements and informal credit networks played the most prominent role (Allen 2004), but deposit-based and bond-based credit institutions were also features in major Italian and Spanish cities during the late nineteenth and early twentieth centuries – albeit to a much lesser extent than in the aforementioned countries. Countries whose cities depended more on the *direct finance* model (as is the case in developing countries today) generally reconstructed their cities in piecemeal fashion, *as they were financed* (Lea 2009, 30). Consequently, the quality of dwellings was often poor,

4 Adapted from Boléat (1985) and Lea (2009) and generalized from the two-country comparison in Kohl (2015).

and in the absence of stringent town planning, cities developed anarchically within the remaining patchwork of old town quarters, or in a sprawling fashion in the outer suburbs (the Spanish *ensanche* and *extrarradio*) (Castrillo Romón 2001, 86). In terms of building form, the multi-dwelling building *(Insula)* tradition in Italian cities dates back to the classical period (Fehl 2007; Lichtenberger 2002; Sabelberg 1984) and can also be traced in Spain (Jürgens 1926, 268) and Portugal (Teixeira and Valla 1999), but the slums which proliferated on the outskirts of southern Europe's cities in the late nineteenth and early twentieth centuries were almost invariably comprised of low-rise dwellings (Allen 2004, 27). Urbanization in multi-dwelling unit form in the early to mid-twentieth century usually made use of the apartment ownership form (Hoekstra 2005).

The *state finance* category is somewhat more indeterminate. States "intervened" in their housing finance systems during their rural-urban transitions in various ways. In Britain, the state directly financed the erection of dwellings as early as 1890, but did little in the way of mediating access to mortgage credit, due to immense hostility from Building Societies (Samy 2008). On the continent (and in the USA from the 1910s onwards), on the other hand, states attempted to improve the supply and availability of mortgage credit in order to bolster housing supply. Various path-dependent means were adopted to achieve this end, reflecting the overall level of financial development. Denmark and Sweden, for instance, established specialized, bond-based urban mortgage institutions (spun off from the earlier rural mortgage institutions) whose interest payments were guaranteed by the state. The bond-based mortgage institutions in France and Spain, however, became *de facto* state monopolies providing mortgages at or below market rates (essentially socializing tranches of the national mortgage market), and in Norway, the activities of the *Kongriket Norges Hypotekbank* were financed entirely by bonds issued by the Norwegian treasury. These latter three countries (particularly Norway) could certainly be considered to fit more comfortably within the *state finance* category *proper* than Denmark, Sweden, and the other *bond-based* countries, but quite clearly, there were institutional overlaps.

State involvement in national housing finance systems, however, was not confined to the pre-1914 period; this can be seen merely as the establishment phase. During the period from 1920 to 1970, we see an extraordinary degree of state involvement in housing in the majority of OECD countries. Here we should note that state intervention in national housing finance systems during the period from 1920–1970 was very much *fused onto the existing institutional nexuses of housing finance provision*, which, as we note, reached back to countries' rural-urban transitions. In Belgium, for instance, the state centralized national savings in order to channel the flow of credit (for example, in the form of the deposit-based State Savings Bank), and in Sweden, when the nation's savings were *socialized* (Jonung 1995, 356) with the introduction of the ATP pension system *(Allmänna Tilläggspensionen)* in the early 1960s, this was accomplished on the basis of purchasing mortgage bonds. The impacts of these varying institutional constellations of state-sponsored housing finance on urban form – very much like the varying scale and scope of state financial mediation therein – are thus more indeterminate and

conditioned by multiple factors such as building traditions, the level of organized credit market development, and the pre-existing institutional nexus of housing finance provision. Thus, states whose housing finance institutions were more localized (such as Great Britain) tended to depend less on direct sources of state-sponsored housing finance.

It is important to note that the *modes* of housing finance presented here are not absolute. They are, and have been, subject to change over time. Indeed, rarely is it the case that a country or region will conform to a single mode *ad infinitum*. For instance, all countries at one point in time corresponded to the *direct finance* mode, making this mode a historical point of departure for essentially all the other housing finance systems. Furthermore, while some country cases are more clear-cut than others, more often than not, a country will exhibit a combination of the characteristics outlined above. Nevertheless, as our analysis shows, there are still distinct characteristics and tendencies within national housing finance systems, which means that applying these categories to the study of housing and the built environment in *urban centers* is conceptually and empirically meaningful. Indeed, as we demonstrate, these systems of housing finance developed into stable equilibria for nearly a century, and new banking forms that deviated from these national *modes* mostly failed until the 1970s, when the territorially bound nature of these institutions' assets and liabilities became (somewhat) decoupled from the geographical regions they were originally established to serve. Such developments, which heralded the advent of *financial globalization* and *financialization*, have had, and are continuing to have, striking impacts on housing and the built environment.

The paper is organized as follows: Section 1 constitutes our review of literature and the theoretical framework, which we divide into three parts. The first pertains to housing studies literature; the second to company finance; and the third seeks to adapt Gerschenkron's *theory of economic backwardness* to the study of housing finance systems. In Section 2, we survey the characteristics of the four different housing finance systems in accordance with the modes outlined above and also seek to explain their origins. In Section 3, we try to explain both the critical juncture of mortgage finance in the nineteenth century and its twentieth-century path dependence using bivariate and multivariate panel analyses. In Section 4, we present our longitudinal empirical findings and analyze the consequences of the historical divergences in European and North American mortgage markets on housing form, tenure composition, and urban development. Finally, some concluding comments are put forward and further avenues for research suggested.

1 Housing, finance, and late development: A review of literature and the theoretical framework

The task of this review of the literature is to critically engage with the well-established typological categories, which have been thoroughly rehearsed and relied upon within the fields of housing studies and financial history over the past few decades. We begin with an overview and critique of housing studies literature. Here, we argue that the failure of this field to properly engage with the sphere of housing finance (both empirically and conceptually) has led to a series of omissions and oversights, which may help to explain why the typological groupings which housing scholars so often rely upon (liberal market vs. social market; residual welfare state vs. mass welfare state) so often confound closer empirical scrutiny. Following this, we explore finance literature. Although this predominantly focuses on the historical development of *company credit* finance, we contend that this strand of literature, which draws inspiration from Gerschenkron, calibrates well with the historical development of housing finance systems. Taking this premise forward, then, we finish this section with an outline of our theoretical approach. We argue that Gerschenkron's *theory of economic backwardness* can offer much explanatory insight *vis-à-vis* the origin of national housing finance systems.

Housing

As noted in the introduction, there is a general conceptual and empirical disconnect between the study of housing and housing finance in mainstream housing studies and the political economy literature. Each domain, it seems to us, is treated as disciplinarily discrete, and housing researchers have generally paid little attention to the historical institutional apparatuses of housing finance – and still less to the implications of housing finance provision on housing form and tenure composition. Considering that fundamentally, *housing finance is what allows for the production and consumption of housing* (King 2009, 3), this strikes us as an extraordinary oversight. Instead, the main focus in housing studies tends to lean towards purely politically driven, ideological explanations in order to explain patterns of divergence and/or convergence in Europe and elsewhere (particularly the so-called *Anglo-Saxon* economies).

One of the first attempts to classify housing systems along comparative lines goes back to Donnison (1967), who made a distinction between the *comprehensive housing policies* of much of Western Europe, and the *assisted free-market approach* of the USA. The main variable Donnison deploys is the degree of governmental intervention in the provision of social housing. Refining these distinctions, Jim Kemeny (1995; 1981) argues for the existence of two discrete housing system typologies: the mass welfare housing model (or *unitary rental system*) apparent in the Germanophone countries and Scandinavia, and the "Anglo-Saxon," profit-maximizing model (or *dualist rental system*). In the former, universally accessible public housing competes directly with the private rental sec-

tor, and rents are mediated by the existence of this competition. This makes renting an altogether more attractive proposition than in Anglo-Saxon countries, which operate a *dualist rental system*, which *residualizes* social housing, *hiving it off* (1995, 51) from competition with the private rental sector and syphoning demand into commodified tenure forms. Kemeny's argument links housing systems inextricably to the composition of welfare states, and societal and cultural predilections towards "solidarity" and "mass welfare" act as explanatory variables to explain differences in levels of homeownership and continuing housing system divergence in Europe and the USA.

More contemporarily, Herman Schwartz and Leonard Seabrooke (2008), drawing intellectually on the works of Kemeny and Gøsta Esping-Andersen (1990), have attempted to construct new typologies centered on what they term *varieties of residential capitalism*. By analyzing levels of homeownership and the degree of mortgage indebtedness in a selection of OECD countries, they argue for the existence of four distinct typologies: *corporatist market*, *liberal market*, *familial*, and *statist-developmentalist*. In the *corporatist market* grouping we find countries with low levels of homeownership, such as Germany, Denmark, and the Netherlands. In the *liberal market* group, we find the Anglo-Saxon countries, as well as Norway, which have high levels of homeownership and mortgage debt. In the intriguing *statist-developmentalist* quarter, we find countries as diverse as Sweden, France, Austria, Japan, Finland, and the Czech Republic, which apparently have low levels of homeownership and mortgage debt. Finally, within the *familial* countries grouping, we find Ireland, Spain, Italy, and Belgium, where it is claimed that homeownership is high, but mortgage debt is low.

Relating to these housing typologies, claims have also been made linking building form to welfare state typologies (Kemeny 1981; 1995). Countries with liberal welfare regimes and high homeownership rates have been associated with low-density, single-dwelling buildings, whereas countries such as Sweden and Germany, which occupy Kemeny's *unitary* or *mass welfare housing model*, have a high prevalence of medium/high-rise, multi-dwelling buildings. Kemeny argues that there is an association between universal welfare states and state-built rental flats as housing form and tenure (Kemeny 1992, 121–25). While these observations, especially regarding the inverse relationship between homeownership and multi-dwelling buildings, are empirically sound outside of Southern Europe (Kohl 2016), there is every reason to be skeptical about the causal associations between the nature of welfare states and building form which these scholars espouse (Hoekstra 2005).

All of the studies reviewed above assume (explicitly or otherwise) that the nature of national welfare systems broadly reflects the nature of national housing systems with regard to tenure composition, urban form, and (in the case of Schwartz and Seabrooke) levels of mortgage indebtedness. Yet closer inspection reveals that these typologies rest on empirically unsound expectations. Sweden and the Netherlands, for instance, now have higher levels of homeownership than the UK, and their households are more indebted than those in the UK and the US; Danish and Swiss households are highly indebted but have homeownership levels akin to Germany; and countries with residual welfare

states (i.e., southern Europe) also have a high prevalence of multi-dwelling buildings. Scandinavia too, until very recently,[5] has often been seen as a homogenous housing region, but a closer examination reveals vast differences *vis-à-vis* housing form, tenure composition, and urban concentration. Further, these studies also fail to acknowledge that many of these trends are relatively recent phenomena: only in the 1970s did the level of homeownership exceed 50 percent in Britain. The claim that tenure composition and urban form are inextricably linked to the composition of welfare states and societal predilections towards "solidarity" and "mass welfare," then, is conceptually and empirically weak, and such claims are often made on the basis of static, cross-sectional comparisons which take little heed of the history of housing system development – especially pre-WWII history.

In terms of causality then, we suggest a different approach. Of all the renowned housing studies reviewed above, nearly all neglect the sphere of housing finance. Even those that do address financial concerns assume that the characteristics of a country's welfare state and levels of inequality should translate into levels of mortgage debt – a proposition which is highly questionable (M. Kuhn, Schularick, and Steins 2015). Furthermore, while comparative, all of the studies lack a historical component. Taking the empirically sound view that historical building form does indeed correlate with contemporary tenure status stretching over a century (Kohl 2016), we suggest that the phenomena and patterns of divergence studied by the scholars above (in terms of tenure composition and urban form) are the products of far more enduring, differential patterns of housing finance system development which date back to the *long nineteenth century*. To theoretically develop this idea further, we now examine company finance literature and seek to adapt it to the housing finance system typologies outlined in the introduction.

Finance

One of the most established typological schemata in the world of countries' financial structures is threefold and derives from Gerschenkron (1962). In the first type of country (the later-industrializing nations such as Germany), companies were financed by large universal banks (bank-led). Wherever those private banks were of no avail to late-industrializers, and where the capital base was insufficient, the state itself occupied the role of accumulating capital to finance companies (state-led), as was the case in *backward* countries such as Russia. Both types are contrasted to the market-led financing in countries such as the UK, the USA, or Belgium (the early industrializers) where the deposit base and securities markets for trading company shares were much more developed. Moreover, once countries were set upon one of these paths, they usually endured there over the century. These distinctions are still used today, even though they are seen more as ideal types to which all countries pertain as hybrids (Fohlin 2012; Zysman 1983).

5 See Bengtsson et al. (2006).

Different explanations have been put forward to account for cross-national differences in financial structure (Fohlin 2000; Verdier 2002b). A first approach is purely economic: the earlier a country's industrialization, the more markets and not banks determined the structure and composition of company finance (Gerschenkron 1962); the higher a country's GDP, the more it moves from person-to-person financial relations to finance being mediated by banks and capital markets (Goldsmith 1969). A second approach relies on legal factors: Common law countries tend to offer better protection for investors (and thus for capital markets) and for smaller peripheral banking structures. A third approach focuses on the influence of political factors: in centralized states with fragmented deposits and a reliable last-resort lender, universal banking tends to emerge (Verdier 2002b).

The literature has been very much focused on the role of finance for *company credit* finance and the importance of *universal* banks. We complement this research by looking at *mortgage* finance as undertaken by the important *specialized* housing finance institutions which emerged throughout much of Europe and the West during the *long nineteenth century*. Our explanation draws upon each of the explanatory traditions from the world of company finance by showing how economically *backward* countries with civil law traditions and an agricultural elite were more likely to develop bond-based mortgage banks than other countries.

Gerschenkron's theory of economic backwardness

Gerschenkron (1962) set about the task of trying to explain *the variety of outcomes that the single historical process of industrialization had generated as it spread across Europe* (Rosenberg 2013, 202), and adapting Gerschenkron's framework has provided fertile terrain for a multitude of scholars focusing on the development of *credit finance* and economic development more generally (see: Forsyth and Verdier 2003; Nordvik 1993; Rosenberg 2013; Selwyn 2011; 2002a; Verdier 2000). The premise of Gerschenkron's theory is simple and revolves around examining the methods by which capital is mobilized during the industrialization process. He identifies three temporally bound stages, beginning with the first industrializer: Britain. Britain's accumulated private wealth and well-capitalized merchant banks were sufficient to mobilize resources for the purpose of investment in "primitive" technology and manufacturing plants. Family fortunes, small loans, and the reinvestment of profits from initial investments, then, provided the blueprint for industrial investment in Britain during her industrialization (Landes 1999, 275).

Gerschenkron observed, however, that this process and these means were not repeated one-to-one elsewhere, noting that subsequent industrial development in relatively more *backward* European countries relied on different methods and means of *capital mobilization*. In the less advanced second group of industrializers, the moderately backward countries of Germany, Denmark, and Austria (which lacked the aforementioned

attributes possessed by British capitalists), used investment banks to mobilize capital and allocate funds to industry. In the case of Germany, this process was highly centralized and state-orchestrated. Countries such as France – and particularly the USA, Belgium, and the Netherlands – however, fall somewhere between Britain and Germany, with less centralization and state involvement (see Table 1 below). Finally, in Gerschenkron's schema, we have the third mode: areas of *extreme backwardness* (Selwyn 2011). In Gerschenkron's writings, Russia was the most obvious example of this. Here, the private capital base was so weak that the state had to assume the central role in mobilizing capital for the purpose of industrialization. These temporally bound stages of industrial *catch-up* produced what Gerschenkron called an *orderly system of graduated deviations* from the first industrializer (Gerschenkron 1962, 44); no two countries would mobilize capital during the industrialization processes in the same way. The company finance literature surveyed above corresponds to this schema, but how should this framework be adapted to theorize cross-national developments in housing finance systems?

As noted in the introduction, rapid urbanization was a corollary of economic development and industrialization in Europe during the *long nineteenth century,* and generally speaking, the later the industrialization and corresponding urbanization, the more dramatic were the impacts of these phenomena on demography (Bairoch 1988). That is to say: later developers tended to urbanize at a relatively faster pace than their industrial antecedents. This, logically, created imperatives in urban areas to accommodate a burgeoning population which, in turn, posed a *capital mobilization* challenge. Producing housing requires labor and time, and this implies upfront capital costs, felt most acutely in later developers. Our claim here, echoing that of Gerschenkron, is that these costs were borne differently in different countries based on their relative degree of *economic backwardness.* If we relate this theory to our housing finance typologies, then, we can observe that the early industrializers in Gerschenkron's first mode (Britain, some of her colonial offshoots, and Belgium) tended to rely on specialized *deposit-based* housing finance institutions for funding the construction of urban dwellings.

Countries in Gerschenkron's second mode (Germany, Denmark etc.) instead relied on long-term financing of urban development by the establishment of specialized *bond-based* mortgage banks, which issued mortgage bonds to raise capital. In the third mode (the countries considered extremely backward, such as Russia and Norway), the *state* played a greater role in mobilizing capital for the purpose of urban housing construction (with varying degrees of success).[6] Those countries that failed to develop specialized housing finance institutions to any significant degree during the late nineteenth century (*direct finance* countries) instead relied on a mixture of notary lending and savings and commercial banks to extend mortgage credit. Although most of these countries could not be considered as backward as Russia during the mid- to late nineteenth

6 In Russia, for instance, state bonds and securities guaranteed by the state, as well as state mortgage bonds, made up roughly 73 percent of the Russian securities market in 1893, whereas private mortgage bond issuing by investment banks made up 14.9 percent (Salomatina 2014, 4).

Table 1 Industrial development, capital mobilization, and housing finance

Period of industrial take-off	Country	Industrial capital mobilization	Urban housing finance capital mobilization
1780s "Advanced Area"	Britain	Capital markets and private, family wealth	Deposit-based housing finance and direct finance
1830s–1860s "Area of Moderate Backwardness (1)"	Belgium USA France Netherlands Australia	Commercial and investment banks	Deposit-based housing finance; capital markets; mortgage banks and direct finance (notary lending)
1870s "Area of Moderate Backwardness (2)"	Germany Denmark Sweden Austria Italy Spain Switzerland	Commercial and investment/ universal banks, with state support	Bond-based mortgage banks (with state support) and direct finance
1880s onwards "Area of Extreme Backwardness"	Russia Finland Norway Iceland Greece Portugal Japan Singapore South Korea	State-driven banks	State-driven mortgage and deposit banks and direct finance

Sources: Adapted from Gerschenkron (1962), Selwyn (2014, 86), and Landes (1999).

century, their development in relation to the rest of continental Europe and Britain was certainly lagging (see Molinas and de la Escosura [1989] for Spain and Italy). Table 1, above, adapts Gerschenkron's schema into four different modes to reflect this.

We must stress again that these types are not absolute, and overlap exists. Sweden, for instance, which could be said to lie developmentally somewhere between Germany and Russia in Gerschenkron's schema, relied upon a mixture of deposits and bond-based lending supported by the state to finance urban expansion (see the section "Bond-based finance" below), and France, which lies somewhere between Britain and Germany (as indicated in Table 1) also had more of a mixed system of notary lending and commercial bank lending, as well as the *de facto* state monopoly, *Crédit Foncier*. We now embark upon a more detailed case-by-case analysis of these four varieties of historical housing finance systems in order to flesh out the theoretical contribution presented here and outline the impacts of these different housing finance systems on housing and the built environment in urban areas.

2 Historical mortgage finance markets

Modern mortgage finance institutions developed mostly in the second half of the nineteenth century in OECD countries as part of the overall establishment of countries' banking systems. The tradition of lending on property was by no means novel (Hromadka 1971), but the displacement of personal credit relations by banks acting as financial intermediaries on a large scale was a new phenomenon. The mid-to-late nineteenth century, then, was the period in which the traditions of informal and unmediated personal credit relations were steadily eroded and displaced by formal, institutional credit transactions mediated by financial institutions, and mortgage credit was no exception here. That being said, informal, person-to-person credit networks (within families or ethnic networks, or mortgages mediated by networks of notaries) still played an important role and persisted well into the twentieth century in much of the West to varying degrees (Clemens and Reupke 2008). However, to the extent that rapid urbanization created capital shortages in local markets, eroded traditional informal religious and ethnic networks, and made the purchasing of urban real estate a profitable industry, countries developed organized systems of mortgage intermediation.

The degree to which the institutionalization of mortgage markets took place during the latter half of the nineteenth century, and the types of mortgage intermediation that developed during this process, differed across countries, as noted above. Nearly all developed specialized housing finance institutions whose main (and often only) function was to supply mortgages. These *special circuits* persisted for about a century, when financial liberalization in the 1970 and 1980s led to the integration of many of these specialized banks into the overall capital market. In the following section, we characterize and historicize four different *ideal type* configurations which emerged during the *long nineteenth century*, roughly comparable to Boléat's (1985). The fourfold distinction can be summarized along two dimensions: the degree to which finance is centralized, and the degree to which finance is intermediated by institutions (see Table 2).

Table 2 Varieties of historical mortgage finance

Degree of banking maturity and centralization	*Centralized*	*Decentralized*
Banked	Mortgage bond-based	Deposit-based
Unbanked	State-based	Direct finance

We now present these chronologically, in accordance with the increasing degree of capital centralization.

Direct finance

Direct modes of finance (i.e., those not mediated by banks or state institutions) can take a variety of different forms. They often, but not always, correlate with a low level of financial development and thus describe the type of finance found in pre-capitalist societies, or in developing countries today (Chiquier and Lea 2009, 30). However, this form of finance also characterizes a minor (or in some cases, even dominant) part of financing in the OECD countries under study here, even as late as the late nineteenth century. Taken to extremes, direct finance might not involve any credit relationship at all and may just mean very high down payments or levels of self-build. In German-speaking countries (Kurz 2004), high down payments are still quite regular, and particularly countries with a tradition of building wooden single-family houses, such as Canada (Harris 1996) or Finland (Ruonavaara 1999, 99), have high rates of self-build units even today.

Once this subsistence mode of production no longer satisfied demand, external credit relations were entered into, based on kinship, neighborhood, or notary trust. In such a system, capital is local and remains mostly local in its use. While legal frameworks may have been established, lending was primarily based on informal, personal relationships between borrower and lender, possibly involving a non-bank intermediary such as a solicitor. Such lending secured against real estate may not even have been publicly registered (making it difficult to quantify) and even persisted in highly banked mortgage environments: "Estimates suggest that in 1900 traditional intermediaries were doing between 32 and 65% of mortgage lending in Britain, Germany, and the United States too, even though they all had highly developed financial systems and large mortgage markets" (Hoffman, Postel-Vinay, and Rosenthal 2015). Prior to the early 1920s in Sweden, for instance, it is estimated that over 25 percent of households' liabilities were in the form of informal debts (Waldenström 2016), most of which were secured against mortgages (Lindgren 2002).

In Germany, this figure is estimated to have been even higher, with around 54 percent of all mortgage lending in 1914 supplied by informal, person-to-person credit networks (Lütge 1949, 355); and in the USA, that figure is estimated to have been as high as 75 percent in the 1890s (Frederiksen 1894). Estimates for France in 1899 attribute 83 percent of all loans to the traditional notary networks (Hoffman, Postel-Vinay, and Rosenthal 2015), as was still the case for 40 percent of loans in Belgium as late as 1939 (Godfirnon 1958; van Put 1966). If one includes, for instance, the non-registered, interpersonal mortgages, then an estimated 90 percent of all mortgages in Canada were interpersonal around 1900 (Harris and Ragonetti 1998). The same holds true for southern European countries such as Portugal or (southern) Italy, where institutional mortgage banking remains lower than in other countries to this day. This type of finance survives even the development of dense banking systems such as Switzerland's and is estimated to amount to up to one-third of all mortgages following the Second World War (Morgenthaler 1962). Though often still high in number, their volume is often relatively small and restricted to non-primary mortgages.

In France, Germany, and Belgium, these networks were mostly organized by notaries, as they had privileged access to information through the legal property inscription process. In England, solicitors organized similar networks (Muthesius 1982, 20; Offer 1981, 11). In Spain, mortgage cooperatives were already a much more organized, club-like mutual provision of mortgage credit (Vorms 2012, 186). One other type of capital collection outside of the banking circuit and similar to the cooperative mode of capital accumulation was the apartment house building, where individual future apartment owners pooled capital – directly or via a real estate or construction firm – to build a multi-story structure with "horizontal ownership." Especially in the capital-scarce interwar years, this mode of direct finance became a popular means to overcome the breakdown of the capital market, especially in southern Europe. Between 1925 and 1938, for instance, 75–90 percent of new units constructed in Italian cities were in the condominium form (Wander 1947, 32), and in post-WWII Rome this number was over 90 percent (Schärpers 1956). This form of capital-pooling for apartment construction was also a traditional means of city reconstruction after disasters such as in Genoa or Rennes (Raymond 1971).[7] These decentralized, bottom-up forms of capital formation can explain how larger, multi-unit building projects could emerge without a reliance on organized capital markets.

Deposit-based finance

In the second type of mortgage finance model, *deposit-collecting* institutions are the most important. These include a broad gamut of different institutions. There are the *specialized deposit-based institutions* specializing in housing, such as the mutual *building societies*, and the more *universal* banking institutions such as savings banks, whose deposits are only partially used for extending mortgage credit.[8] The same holds true for another type of universal deposit bank, namely credit cooperatives.[9] Contrary to European savings banks, which were *top-down* institutions mostly founded and governed from *above* by municipalities or philanthropists, credit cooperatives were member-based, *bottom-up* institutions that collected members' deposits to give out loans, often for business and not mortgage purposes (Aschhoff and Henningsen 1995). Virtually all Anglo-Saxon countries developed building societies, which retained the dominant mar-

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7 In Scandinavian countries, the early cooperative housing associations served a similar purpose prior to the First World War (Sørvoll 2013, 106), whereas central European countries rather relied on municipal and non-profit rental housing (G. Kuhn 2007).

8 Thus, US mutual savings banks invested about 50–75 percent into mortgages until the 1940s (Lintner 1948, 53); German *Sparkassen* had invested 63 percent into mortgages in 1913 (Pohl 2005, 69), with a Prussian law even restricting this amount to 40 percent to avoid shortages for the *Sparkassen's* municipal finances; and 68 percent of loans issued by Swedish savings banks were mortgages in 1910 (Nygren 1985).

9 For example, credit unions and mutual savings banks, which followed the ideas of Schulze-Delitzsch and Raiffeisen.

ket share until the 1970s, but such institutions did not emerge on the European continent prior to the 1920s, and had limited market shares prior to the 1950s. Here, they emerged as contractual house savings cooperatives where members were obliged to save first in order to receive a mortgage loan thereafter. Finally, there are deposit-collecting institutions with a specialization in investments other than housing, such as friendly societies, widow and orphan funds, and modern insurances. Their reserve funds were often regulated by laws to the effect that they had to be invested in low-risk, long-term assets. That is why, through direct loans such as in the UK, the US (Saulnier 1950), and Australia (Hill 1959) – and indirectly through the purchase of mortgage bonds, such as in German-speaking countries – these institutions' reserve funds were a crucial capital supply matching the maturity necessary for housing loans.

Deposit-based institutions specializing in housing finance traditionally had a dominant role in the so-called Anglo-Saxon countries (Lea 2009, 31). These institutions go by different names in different jurisdictions (*Building Societies* in the UK and Ireland, *Building/Savings and Loan Associations* in the USA, and *Loan Associations* in Canada) but, in the interest of brevity, and as they largely performed similar functions, we refer to them henceforth as *specialized deposit-based institutions.* These emerged most robustly in the early industrializers and, up until the 1970s, the central feature of these institutions was that they originated and funded mortgages mainly via deposits (as our typology suggests). They did not issue bonds like the continental European mortgage banks, nor did they raise funds on money or capital markets in order to originate mortgages like commercial banks. More often than not, they were mutual organizations, but despite institutional similarities, there are still important differences in the development of these *specialized deposit-based institutions* in each of the countries where they emerged. Here, we focus on these differences (specifically with reference to Britain's Building Societies and the USA's Building & Loan Associations), but more importantly, we seek to explain their character and the reasons for their emergence.

The world's first known *specialized deposit-based institution* was formed in Birmingham in 1775 (*Building Society Association* 2015),[10] but their numbers increased steadily thereafter throughout Britain, and then later in the English-speaking Commonwealth countries. Until the 1840s in Britain, the sole purpose of these associations was to provide each member with a plot and a house paid for out of their collective funds, and after this objective had been achieved, they were dissolved (Boleat 1981, 1). However, from the 1840s onwards, permanent societies, which accepted deposits from savers without a contractual obligation to obtain a mortgage, began to proliferate; this is when the modern Building Society was born.

10 BSA (Building Societies Association) (2015) *The History of Building Societies.* Published October 2015. https://www.bsa.org.uk/information/consumer-factsheets/general/the-history-of-building-societies (August 15, 2016).

Initially, these institutions were geographically confined to the Midlands, Lancashire, and Yorkshire, but by the 1860s there were over 750 societies in existence in London alone, and 2,000 in the provinces (BSA 2015). By this stage, they were playing an ever-increasing role in suburban development (Sheppard 2013, 158). By the 1880s, they accounted for nearly 40 percent of mortgage lending on the institutional mortgage market (ibid., 184), and on the eve of the outbreak of the Second World War, their share of the institutional mortgage market was over 60 percent (ibid.). Prior to the 1930s, these institutions were small and highly localized, and their members were not generally high net-worth individuals, but nor were they drawn predominantly from the working classes by this stage (Daunton 1990a, 26).

In the USA, the first *specialized deposit-based institution* (Building & Loan Association) is said to have been founded in Pennsylvania in 1831 (Daunton 1988, 235). From this point onwards, they spread steadily to the Midwest and Eastern States, focusing initially on rural populations, but then increasingly on urban areas in response to dramatic urban growth. Unlike in Britain, where (contrary to the original ethos) members were increasingly being drawn from the middle classes, the Building & Loan Associations were more *integrated into the working-class economy* in the USA (Daunton 1988, 235). This can be observed in the differential levels of owner-occupation in Britain and the USA at around the turn of the century,[11] and can possibly be explained, in turn, by the differential levels of income and wealth inequality.[12]

In New Zealand, building societies were the main source of organized housing finance, starting in the 1860s and existing mostly in the form of terminating societies until the 1960s (Davidson 1994, 109).[13] In Canada, the loan companies or associations were special types of building societies in that they also relied to some extent on debentures, often sold in London, as an additional source of financing (Doucet and Weaver 1991, 254). In Australia, the first building societies date from the 1840s. These grew until a crisis of confidence in the 1890s, but then later again became the most important source of private organized housing finance as the twentieth century wore on (Hill 1959).

Despite differences in clientele (broadly reflecting social and class structure) and their respective mortgage market share in the countries where these *specialized deposit-based institutions* flourished, a key point to note here about their institutional structure is that, unlike the mortgage banks which developed on the European continent, or the commercial and non-specialist savings banks throughout Europe and the USA during

11 It is estimated that the homeownership rate in the USA in 1900 was around 47 percent (Jordà, Schularick, and Taylor 2016, 16). While (to our knowledge) there is no available figure for this year in Britain, homeownership rates would have certainly been below 20 percent, and maybe even as low as 10 percent (Hicks and Allen 1999; Ronald 2008).

12 In terms of wealth concentration, the USA in the late nineteenth century was a much more equal country than Great Britain (Piketty 2014, 349).

13 Terminating building societies are one of many subtypes of building societies. Their main comparative feature is that they dissolve after all members' houses have been financed.

this period, the net inflow of funds to the *specialist deposit-based institutions* were *little affected by external capital market conditions* (Rodger 2001; Samy 2008). Thus, these institutions constituted *special circuits of capital*, which, although not completely isolated from prevailing capital market trends, were, to some extent, *removed* from competition in the general capital markets. This, we suggest, had implications for housing and the built environment, as these institutions were more likely to lend to owner-occupiers in the UK (Rodger 2001, 272; Samy 2008), the USA (Daunton 1990b, 26), and Australia and New Zealand (Thomson and Abbott 1998) than the continental European mortgage banks, which instead were more inclined to lend to prospective landlords. Thus, as the market share of these *specialized deposit-based institutions* grew, so too did the homeownership franchise.

Kenneth Snowden argues that, to be complete, "explanations of institutional change should not only explain why a new mechanism worked, but also *the timing and location of its appearance*" (2000, 54, emphasis added). Thus, in terms of their development and institutional diffusion, we need to ask ourselves why these institutions came to increase their respective market shares sizably in *Anglo-Saxon* countries during the mid-to-late nineteenth century, yet featured little in continental European settings prior to the 1950s. *Specialized deposit-based institutions* may have been more likely to lend to prospective homeowners than the bond-based mortgage banks, but we should not think of their emergence in terms of some cultural predilection to homeownership that for some reason did not exist outside of northwestern Europe or in the English-speaking *New World*. More accurately, it had to do with the decentralized and localized nature of their lending and the overall domestic capital base within countries preceding their emergence, the latter being a function of the timing and extent of economic development and levels of democratization. Real per capita income was higher in Britain and the USA than on the European continent in the first half of the nineteenth century (with the exception of the Low Countries: see Maddison Project 2013), and this meant that, to the extent that existing capital resources could be tapped into, no particular need for a new type of specialized mortgage bank emerged (Schulte 1918a).

Specialized deposit-based institutions did not gain traction on the European continent until after the Second World War, after which their market shares steadily increased, as in Germany (Müller 1999), Austria (Deutsch and Tomann 1995), northern France (Bouveret 1977), and – to a limited extent – the Netherlands (Elsinga 1995, 64) and Switzerland (Morgenthaler 1962, 117). One reason for this belated rise lies in the broad network of non-specialized savings institutions already in place on the continent. The continental European country most characterized by a deposit regime based on these non-specialized deposit banks was Belgium. Belgium mainly relied on public and private savings banks and life insurances as the main capital-collecting institutions for its institutionalized housing finance (Schulte 1918a). Even though mortgage bonds existed by name, they were *de jure* only obligations or debentures issued by savings banks as a longer-term form of deposits. The bank, not the property, backed these obligations, and they were not traded on stock exchanges. As they were not favored by the tax sys-

tem when compared with savings accounts, they did not become a central part of the finance systems nor a specialized banking institution (van Put 1966). Instead, private savings banks continued to support the many individual housing construction projects, whereas the state pension savings bank was the driver behind the garden city movement and owner-occupation (Smets 1977). Belgian building societies dating from the 1850s, in turn, remained unimportant as the state preferred homeownership support through its own credit societies.

Finland, the most economically backward country in Northern Europe (and until 1917, a Grand Duchy within the Russian empire), was late to develop an organized credit market.[14] Finland's various attempts (mainly short-lived and ill-fated) to establish bond-issuing mortgage institutions with state support make it difficult to categorize it. With a weak money supply and limited domestic demand, the few bond-based mortgage institutions that did exist were forced to issue their bonds abroad (mainly in Germany), denominated in gold (Kuustera 1994, 137). This made them susceptible to exchange rate losses (Andersen and Kauko 1996, 35), and the weak position of the Finnish *markka* was a constant problem for the Finnish mortgage institutions. The 1920s can be seen as an interlude in the otherwise lackluster development of a bond-based mortgage system in Finland. In 1929, the mortgage institutions had a mortgage market share of 42 percent in urban areas (ibid.), but this was not to last. Following the Great Depression and the devaluation of the markka, these institutions suffered great losses and their market share collapsed (ibid.). Despite moderate state support, then, these institutions ultimately had a very limited impact. It was only after the Second World War that a semblance of financial stability was reached. Thenceforth, Finland would rely on a combination of direct finance and deposit-based lending from savings and commercial banks, with state support for owner-occupiers and municipalities in the form of subsidized loans from 1948 onwards (Esping-Andersen and Korpi 1986, 64).

Bond-based finance

The third mortgage finance type relies on the sale of mortgage bonds in order to originate mortgages, imitating government and railroad securities. These bonds are known under a variety of names: *Realkreditobligation, ktematekes omologies, cédula hipotecaria, cartella fondiaria, obbligazione fondiaria, obligation foncière, lettre de gage, pandbrief, obrigação hipotecária, bostadsobligation.* They compete on the capital markets directly with other types of security (mostly domestically, but also abroad depending on the degree of financial maturity within any given country at any given time) and proliferated in the urban centers of the *moderately backward countries* during their urban expansions in the mid- to late nineteenth century. These institutions are well integrated into the overall capital market, unlike building societies and credit cooperatives. While the *special-*

14 In 1850, there was only one bank (the *Bank of Finland*) in Finland (S. Andersen 2011, 108).

ized housing deposit institutions spread from Great Britain to the USA and parts of the Commonwealth over the course of the nineteenth century, the specialized mortgage-*bond* banks spread simultaneously from the East of Prussia and Poland throughout the continent. Thus, countries with cultural and/or geographical proximity to these centers were more likely to share the center's institutional setting. These *bond-based* housing finance institutions existed either mainly in the form of centralized state monopolies or in a pluralist form of multiple private banks or mutualist associations. In both cases, however, this capital market-based mode of finance was much more centralized than the deposit-based type.[15] On the demand side, insurance companies were important investors in mortgage bonds (Harold 2013). In general, countries' mortgage bond circulation per capita is a good indicator for the realization of this type of finance.[16]

Bond-based mortgage banks emerged in reaction to the dearth of credit following wars, economic modernization pressures in agriculture, or catastrophes. Though often set up to be geared towards lending for agricultural purposes (with the exception of Denmark), those banks themselves or newly established banks copying their design soon redirected their business towards the growing cities and urban rental real estate (Martens 1988; Treue 1976). They preferred this type of real estate because evaluations of agricultural and non-standardized single-family housing property were more expensive and investments in them were riskier. Their central location without branch networks meant fewer transaction and information costs in the case of urban mortgage lending. They were thus closer to other banks and securities markets through which their bonds were traded than the *specialized deposit-based institutions*. Furthermore, a permanent rental income flow matched well with the amortization flow of loans and the interest payment flow on bonds, mitigating *maturity mismatch*.[17] Mortgage banks can be considered one functional response to that problem – next to building societies' member obligations to save long-term and states' long-term pension funds or tax money. Mortgage bonds usually had long-term maturities offered to long-term investors.

From a legal point of view, mortgage banks were more likely to emerge when a public land registry made sure that the mortgagor or bank could be sure to rank first among the creditors in case of foreclosure. This is one of the legal reasons why common law countries – but also continental European countries such as Belgium – developed bond-based mortgage banking to a much lesser degree (Kreimer 1999). Their larger sources of capital allowed for larger mortgages, usually with higher interest rates, since

15 In some cases, such as Switzerland, mortgage banks also have a small share of mortgages based on centralized deposits, but legislators were usually inclined to separate these different finance mechanisms.

16 Alternatively, we also use mortgage bank assets as a share of all financial assets, whose 1900 level correlates at $r = .94$ with 1898 bond circulation. The latter also correlates at $r = .76$ with a third alternative measure: the pre-WWI bond-based mortgages as a share of all mortgages financed by banks.

17 This refers to the risk that banks carry on their balance sheets when they finance long-term debt with short-term deposits (Schwartz 2014).

mortgage bonds have to compete with government and other bonds on capital markets (Glasz 1935). This privileged larger mortgagees as clients, linking mortgage banks to the financing of a special type of housing stock – i.e., mostly buildings of rental flats.

The origins of modern mortgage banks (the oldest institution of the modern organized mortgage market) reach back to the aftermath of the Seven Years' War, when Prussian rural noblemen were in urgent need of capital (Clark [2006] 2007, 194ff.). Frederick the Great obliged local landholders to enter associations of debtors, the *Landschaften*, in which both the individual properties and all landholders mutually backed a mortgage bond that the individual debtor himself had to sell in order to receive capital.

According to Wandschneider, the assessors were even personally liable for losses in cases where assessments were deemed too generous:

> In exchange for the compulsory membership, all members of the *Landschaften* held a "right to credit," so the *Landschaft* could not discriminate against individual estates. Therefore, a key to prevent adverse selection was the determination of the credit limit and the correct assessment of the estate to guarantee collateral. (Wandschneider 2013, 11)

Both these conservative lending standards and the trust in the monitoring of the local landholders enabled the holders of larger estates to go into considerable mortgage debt, whereas small land owners were usually discriminated against in these *Landschaften*. It also meant the creation of an organized credit system in times when personal, informal credits were still the most common form, and it established a special circuit of finance for largely agricultural purposes. These institutions thrived where regional noblemen with large property holdings had sufficient peer solidarity to enter into mutual guarantees. Therefore, they hardly arose in areas where property holdings were fragmented among many smaller owners, such as in the German Rhineland, in Belgium, or in many settler colonies.

Landschaften tended to emerge in feudally backward areas as means for noblemen to cope with the credit burdens of modernization (the abolition of serf labor, international competition, capital-intensive agriculture). Their corresponding institution in more democratic agricultural regions such as the Prussian Rhineland were member-based credit cooperatives (Schlütz 2013; Zorn 1967). The Prussian *Landschaften* maintained roughly 20 percent of the mortgage market, dominated in rural areas, and served as an example for Scandinavian, Polish (Castellati von Dzianott 1904), Austrian-Hungarian and other Eastern European mortgage banks (Stöcker 1998).

In Denmark, the development of specialized, bond-issuing mortgage banks was – much like the developments in Prussia following the Seven Years' War – linked to crisis. Steffen Andersen (2011, 185) notes that by the early twentieth century, Denmark had one of the largest markets for mortgage bonds in the world, with outstanding mortgage bonds amounting to 71 percent of the GDP in 1915. Andersen claims, however, that

"no simple explanation seems to offer itself for the … size and growth of the … Danish mortgage system" (ibid.). There are, however, historical explanations which could help to account for the enduring scale of the Danish housing bond market. Following the Great Fire of Copenhagen in 1795, in which it is estimated that nearly one in four houses in the Danish capital were burned to the ground, credit demand for the rebuilding effort was insatiable. Denmark was thus confronted with a serious *capital mobilization* problem, not entirely due to its relative economic backwardness (since, in Scandinavian terms, Denmark was the most economically and financially advanced at this stage), but due to disaster. Still, the Danish capital market at this time was nascent, and in order to finance the reconstruction of Copenhagen, the *Kreditkassen for Husejere i Kjøbenhavn* was established – the first in the Nordic area. This bond-issuing institution was set up as a *non-profit association of creditors* (unlike the *Landschaften*) with upfront capital from the Crown (which also guaranteed these bonds) in a move that essentially created the long-term Danish credit market (ibid., 59).[18]

Across the Øresund Strait in Sweden, the first bond-issuing rural mortgage association *(Landshypotek Bank)* developed in the southernmost region of Scania in 1836. Sweden's credit market sophistication was lagging behind that of neighboring Denmark at this stage. Inspired by the Prussian mortgage bank model, and emerging out of the pressing need to extend credit to Sweden's burgeoning rural communities following the Enclosure Acts earlier that century (1807 and 1827), the *Skånska hypoteksföreningen* (established in Lund in 1836) provided the blueprint for similar associations which would proliferate throughout Sweden (mainly in the central and southern regions) during the following two decades. Unlike in Prussia, however, these institutions were not *top-down* (see above), but formed as *bottom-up* initiatives by farmers. Many of the bonds were initially issued outside of Sweden until, in 1861, the formation of the *Sveriges Allmänna Hypoteksbank* (the General Mortgage Bank) by the state centralized bond issuance and facilitated lending to the *landshypotek* unions (Landshypotek Bank).[19] As was the case with the bond-based mortgage institutions elsewhere on the continent, lending activities gradually shifted, in accordance to demand, towards Sweden's towns and cities as urbanization abounded from the 1860s onwards.

The nineteenth-century liberal adaptation of the *Landschaften* in the more "advanced" parts of Europe was the model of the joint-stock mortgage bank: not member solidarity, but stock capital reserves and individual properties serve as collateral and guarantee

18 This move proved to be fortuitous, as another series of disasters would befall Copenhagen within the following decade when the Admiralty of the Royal British Navy decided that the Port of Copenhagen's strategic significance to Napoleon was too great to be left intact. The bombardments of Copenhagen by the British in 1801 and 1807, as the city was still reeling from the Great Fire, would cement the importance of the bond-issuing mortgage banks thereafter. These events inspired the proliferation of the Danish Mortgage Associations, which, like in no other country, would dominate the Danish mortgage market for the next two centuries.

19 Landshypotek Bank (2016) *Landshypoteks historia:* https://www.landshypotek.se/omlandshypotek/Landshypoteks-historia/ (May 10, 2016).

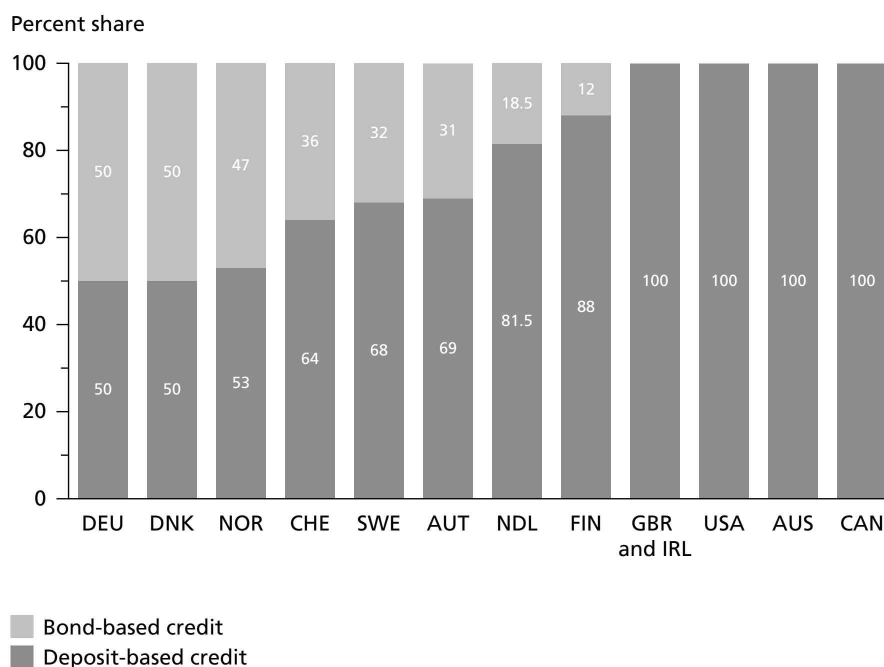
for the mortgage bond issued. After first attempts in France, Belgium, and Germany in the first half of the nineteenth century, the French *Crédit Foncier* was founded and soon turned into the *de facto* state monopoly on the sale of mortgage bonds in 1852. Designed as a private stock bank of about 40,000 stockholders, the *Crédit foncier* was supposed to give out mortgages to farmers seeking usury-free credit – meant as an imperial gesture to regime-supporting peasants – to be refinanced by the sale of mortgage bonds on the Paris capital market (Allinne 1984). However, in reality, it turned very quickly to the more profitable urban real estate and subsequently financed large parts of the Haussmannization of Paris and provincial towns (Vaz 2009).

This form of joint stock mortgage bank became the model for other European countries, either with state monopolies, such as in France (1852), Portugal (Companhia Geral do Crédito Predial Português, 1864), Spain (Banco Hipotecario, 1875), and Greece (1927), or in the form of a multitude of private banks such as in Germany, Austria, Switzerland, Sweden, Denmark, and the Netherlands. They filled the gap of long-term capital for purposes other than government or railroad financing, because commercial or private banks, financed by deposits, could only lend short-term capital. Many of these banks were still founded with the reform idea of supporting agricultural credit needs, but the growing city extensions and renovations in times of growing urbanization meant that banks very quickly turned to urban real estate, even in countries such as Spain or France, where urbanization was slower and the government had complete control over its monopoly mortgage bank (Lacomba and Ruiz 1990; Tortella and García Ruiz 2013). When the international competition in agriculture began to depress agricultural land prices in the 1870s, mortgage banks turned even more to cities. They lent capital interregionally and also crossed national boundaries, especially in smaller countries such as Norway and Finland,[20] while they attracted mostly national capital on stock exchanges. In Italy, the first mortgage banks developed after unification in the form of affiliations of existing public banks in northern Italian cities that were granted a specialized license for regional mortgage bond emission though the law of 1866 (EMF 2001). The creation of the national *Istituto Italiano di Credito Fondiario* did not have the expected unifying effect like that Spain or France. Thus, a variety of mortgage banks – often spin-offs from former public banking institutions – survived.

Figure 1 depicts the share of mortgage credit outstanding, broken down by type of lending institution (i.e., those who rely on the issuance of bonds to extend mortgage credit and those who rely on deposits). With the exception of Australia and Canada (see Figure note), these are aggregate country-wide data. Most of the deposit-based countries are clearly recognizable from this Figure, but all the countries hitherto described as *bond-based* have, to varying degrees, an institutional housing finance system based on a combination of *bond-based* and *deposit-based* lending geared towards mortgage origination. What, then, justifies the use of the term *bond-based* to describe countries

20 Though only about 5 percent of all mortgage bonds traded before WWI were held by foreigners (Schulte 1918b).

Figure 1 Aggregate share of mortgage loans outstanding, broken down by type of lender in a selection of countries, c. 1900–1910



Our Canadian data pertains to lending in Hamilton, Ontario in 1901, and our Australian data has been aggregated from state-level mortgage data (New South Wales and Victoria) taken from the year 1890. All other data are aggregate country-level data from various years between 1899 and 1913, due to limited data availability.
Sources: S. Andersen (2011); Christmann (1903, 81); Hoffman, Postel-Vinay, and Rosenthal (2015); Nygren (1985); Sheppard (2013); Snowden (2006); Thomson and Abbott (1998); von Oppenried (1911); Weber-Schurter (1914); Harris and Ragonetti (1998); Samy (2008); Central Bureau of Statistics of Norway (1948); Jaarcijfers voor Nederland (1906, 528); Jaarcijfers voor Nederland (1908, 534).

such as Germany, Austria, and Sweden around 1900? The first thing to note here, as we mentioned in our introduction, is that these typological categories are not absolute. Our decision to delineate a *bond-based* typology is based on the fact that, although most European bond-based mortgage banks were initially established to serve the needs of agrarian communities, by the late nineteenth century and into the early twentieth century, lending from these bond-based institutions was overwhelmingly focused on *urban* areas, where they became the dominant providers of mortgages.[21] Therefore, these data, at the national level, underplay the significance of bond-based lending at the *urban level*; and as our analysis focuses on the urban context, we feel that such a typological

21 While it is difficult to assess exactly how much urban mortgage lending was financed by mortgage banks, the mortgage bank lending share backed by *urban* property became dominant during the early stages of the twentieth century (even up to 100 percent in some town and cities), as reported for Spain (Lacomba and Ruiz 1990, 130), France (Allinne 1984, 144), the Netherlands (Eberstadt 1914, 326; Martens 1988; van der Woud 1937, 54), Germany (Schulte 1918b, 401–5), Austria (von Oppenried 1911, 111), Switzerland (Weber-Schurter 1914, 49), Sweden (Regeringen 1920), and Denmark (S. Andersen 2011).

distinction is appropriate, even though the aggregate country-level data may not indicate a majority of bond-based lending.

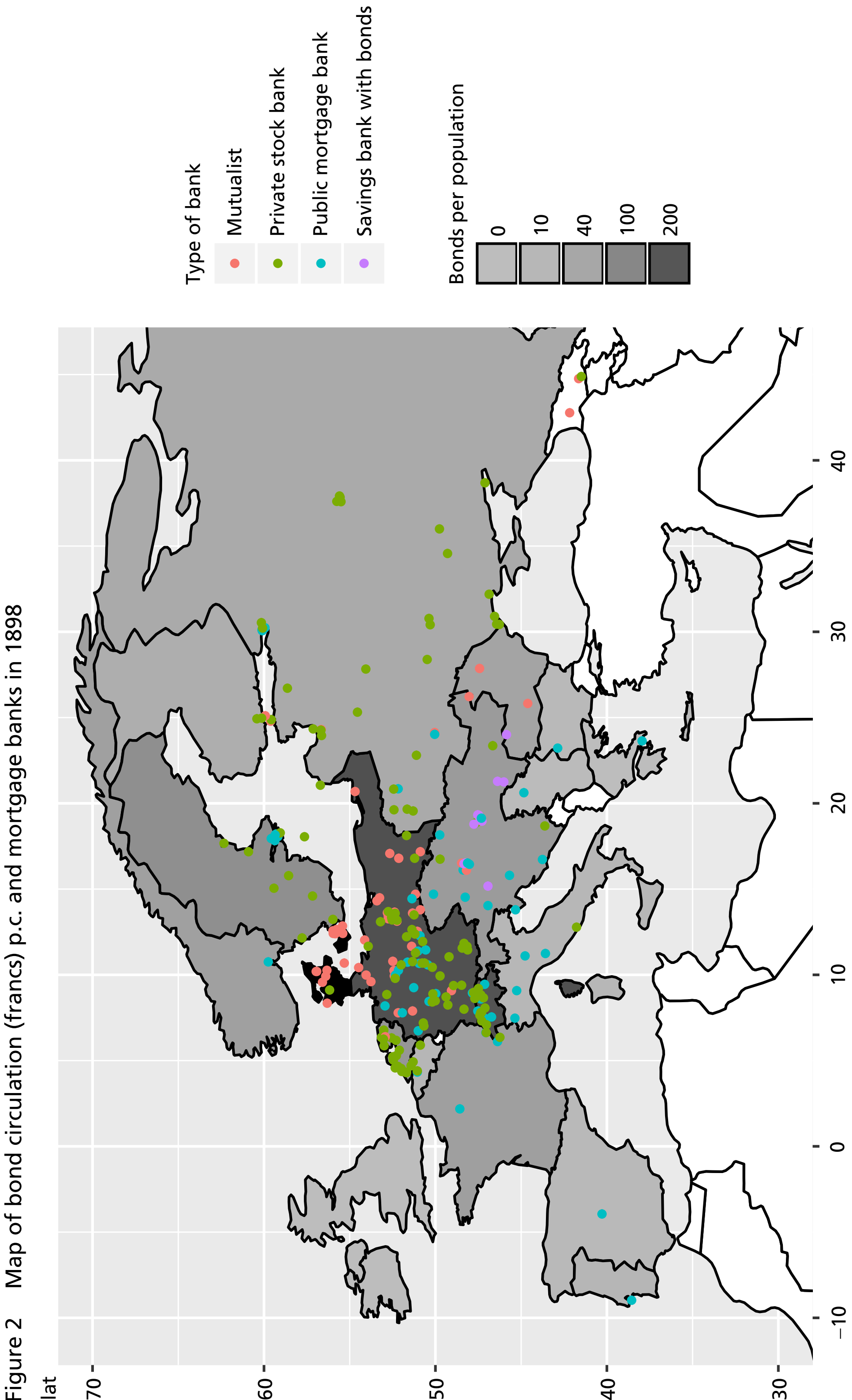
As Figure 1 attests, mortgage banks did not develop to any major extent in northwestern Europe and former Anglo-Saxon settler colonies. Although the common law-related absence of a land registry equivalent to the German *Grundbuch* is certainly a background condition, it does not explain all cases, since Belgium developed a low number of mortgage banks despite legal difficulties (Schulte 1918a). The Netherlands is a special case as well, because even though it developed many mortgage banks, their overall market share was relatively low (*Jaarcijfers voor Nederland,* 1908, 534). Mortgage banks in the Netherlands, then, were much more regional in nature, and their absolute size and average loan size were significantly lower than in Germany (Eberstadt 1914), which is why they did not have the same multi-unit building effect as elsewhere on the continent.

As noted above, one further basic explanatory factor draws on Gerschenkron: the more economically backward a country, the less capital it had accumulated in previous industrialization stages and the more states had to intervene, either directly or by providing a stable legal framework for larger banks to arise. The lack of state regulation and failing private mortgage banks prevented large-scale bond issuing in the US prior to the US-specific securitization, in spite of six unsuccessful attempts since 1870 (Snowden 1995, 262).

Thus, in the 1900-era world of organized mortgage finance, the center of bond-based finance lay in the eastern part of the German Empire and radiated into the northern, eastern, and western regions, while early mover countries generally had a higher level of mortgage bond circulation per capita. Figure 2 shows the 243 European mortgage banks of the original mutualist type, the private and public type, as well as those attached to savings banks that existed overall by WWI. The historical center for the mutualist and public type are the German states; the savings-bank type existed in the Alpine region; while the private-stock-bank type started in more liberal Western Europe. Mortgage banks, however, did not spread to the Anglo-Saxon countries (with small exceptions like the *Crédit foncier franco-canadien*). Thus, the ideal type deposit-collecting countries of the Anglo-Saxon world share the absence of any bond circulation, while countries with direct-finance dominance in southern Europe or Belgium display relatively low levels.

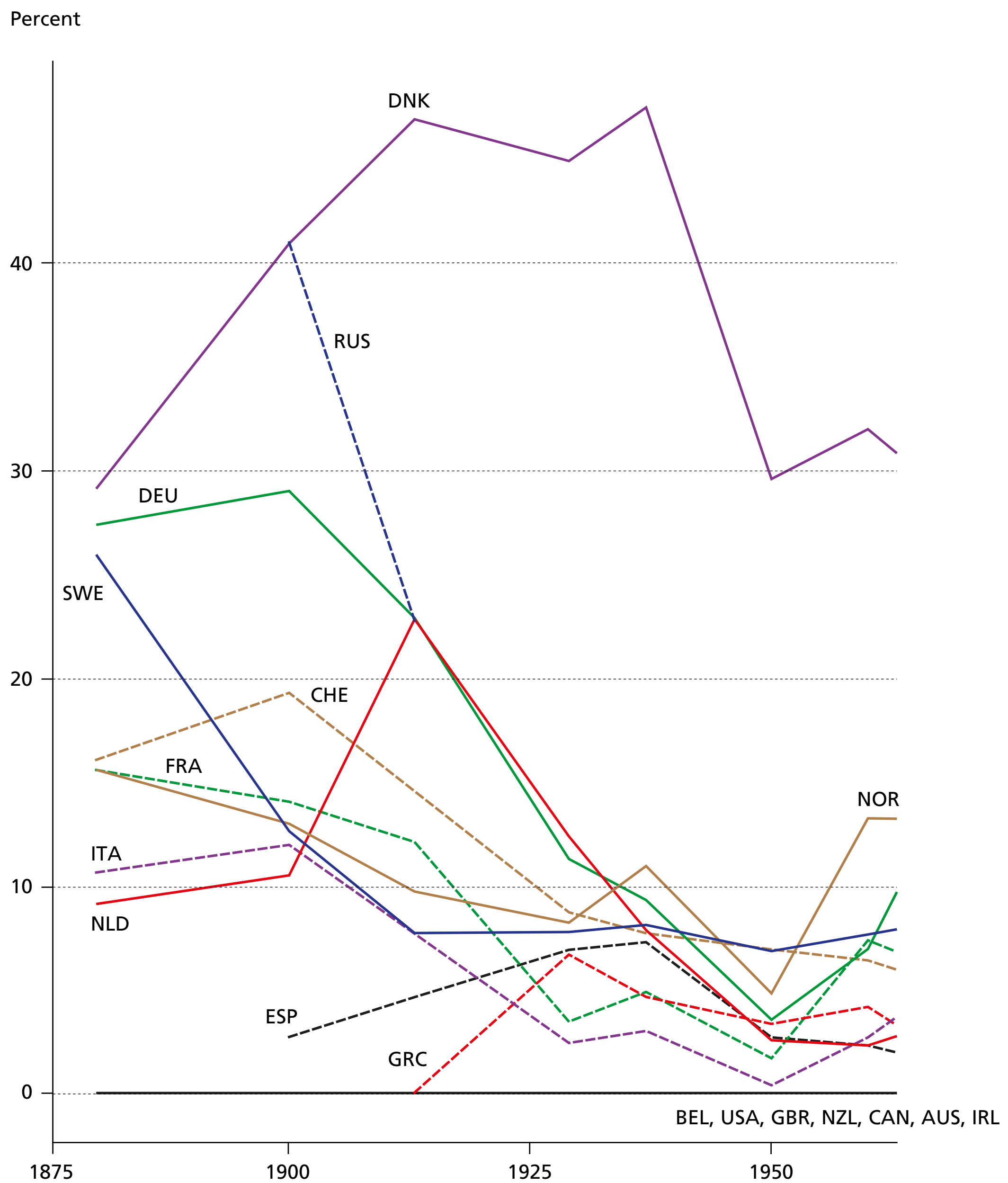
The heyday of bond-based finance was certainly before WWI, when the major urbanization waves created a demand shock in late-urbanizing European countries. Ever since this era of phenomenal industrial and urban growth, however, their relative importance in the financial system has been in decline. The post-WWI inflation in many countries, the rent controls for buildings financed by mortgage banks, and the breakdown of (international) capital markets more generally led to a decline of private and a rise of publicly collected money for housing construction (see next section). Figure 3 shows this decline, but simultaneously shows the persistence of the bond-based systems over time: once a country introduced such a system, it generally survived for about a century.

Figure 2 Map of bond circulation (francs) p.c. and mortgage banks in 1898



The data used here is based on bond circulation in 1898. However, the 1898 geographical boundaries are not entirely accurate or to scale.
Sources: Eberstadt (1914); Hecht (1900).

Figure 3 Time-series of mortgage-bank share of all financial assets



Source: Goldsmith (1969).

Next to bond finance, another finance type that also relies on capital markets is based on investment banking: much as in other capitalist enterprises, stock companies issue shares and debentures to finance large-scale investments – in this case, in construction projects. Often these investment companies also go by the name "mortgage company," "*Crédit foncier*," or "*Hypotheekbank*," even though they are not *de jure* specialized banks. Thus, commercial banks often founded specialized housing investment companies such as the *Compagnies immobilières* in nineteenth-century France (Lescure 1980); finance

companies issuing bonds emerged to develop the American West; and specialized mortgage companies were behind the 1920s' apartment boom in the US Northeast. These investment capital injections have been very cyclical (Lescure 1983), only concerned the uppermost market segments (Lescure 1982, 207–9) and more concerned with construction and developing profits than with long-term investment. Special colonial investment companies also issued so-called mortgage debentures, which were *de facto* only backed by banking capital and not by colonial real estate. Thus, particularly from the capital-rich countries, Dutch, Belgian, French, and British capital was channeled into these investment companies rather than into domestic mortgage bonds (Schulte 1917) – whereas in the old European countries, this source of finance was a boom-time exception.[22]

State finance

The state finance type is the most centralized of all but generally foregoes the sale of specialized housing bonds. Instead, it uses state resources from centralized state savings bank capital, mandatory state pension funds, or treasury funds. Sometimes the centralized mortgage banks are also simply used for this purpose – for example, when the French *Crédit foncier* was charged with lending state subsidies to mortgagees. Examples of this type are the Belgian *Caisse Générale d'épargne et de retraite,* which centralized savings banks and pension deposits to redirect them to small mortgages (Schulte 1918a), or the French equivalents *Caisse nationale des retraites et de la veillesse* and the *Caisse des dépôts et consignations* (Frouard 2012, 118ff.). Another example is the nationalization of life insurances in Italy in 1911 as the *Istituto Nazionale delle Assicurazioni* (INA), later used for state-led housing construction (Piluso 2012). In many countries, the early social security funds served as long-term capital for financing government-subsidized housing construction, often directed toward homeowners. While some states could rely on existing networks of non-profit housing associations, others had to use municipal institutions or build up central state institutions from scratch.

Two phases of state-driven housing finance can be observed. The first occurred in the nineteenth century, predominantly in the economically backward countries. Nineteenth-century Norway provides a good example of the state finance mode during the *establishment phase.* Gaining formal independence from Sweden in 1905, Norway's economic and financial fundamentals were closer to that of Russia's, if not worse. Its limited domestic capital base meant that the Norwegian State Mortgage Bank, established in 1852, played a central role in long-term lending for housing construction (Lange 1994, 791), but this story played out across the Norwegian capital market. As Even Lange notes, "One reason for the predominance of public sector banking institutions was their superior ability to mobilize foreign capital for domestic purposes." Lange further com-

22 The Dutch overseas mortgage banks, for instance, had outstanding bond volumes that amounted to 26 percent of the urban mortgage banks in 1912 (Eberstadt 1914, 333).

ments that, "This way of channelling foreign capital to Norway *was open only to the public sector, as private agents had no comparable credit standing abroad*" (ibid., 792). Thus, Norway's extreme economic backwardness was a barrier to private capital market formation *vis-à-vis* housing finance. In the absence of private actors, the state played the central role in mobilizing capital for the purpose of investment in housing in urban centers (particularly Oslo).

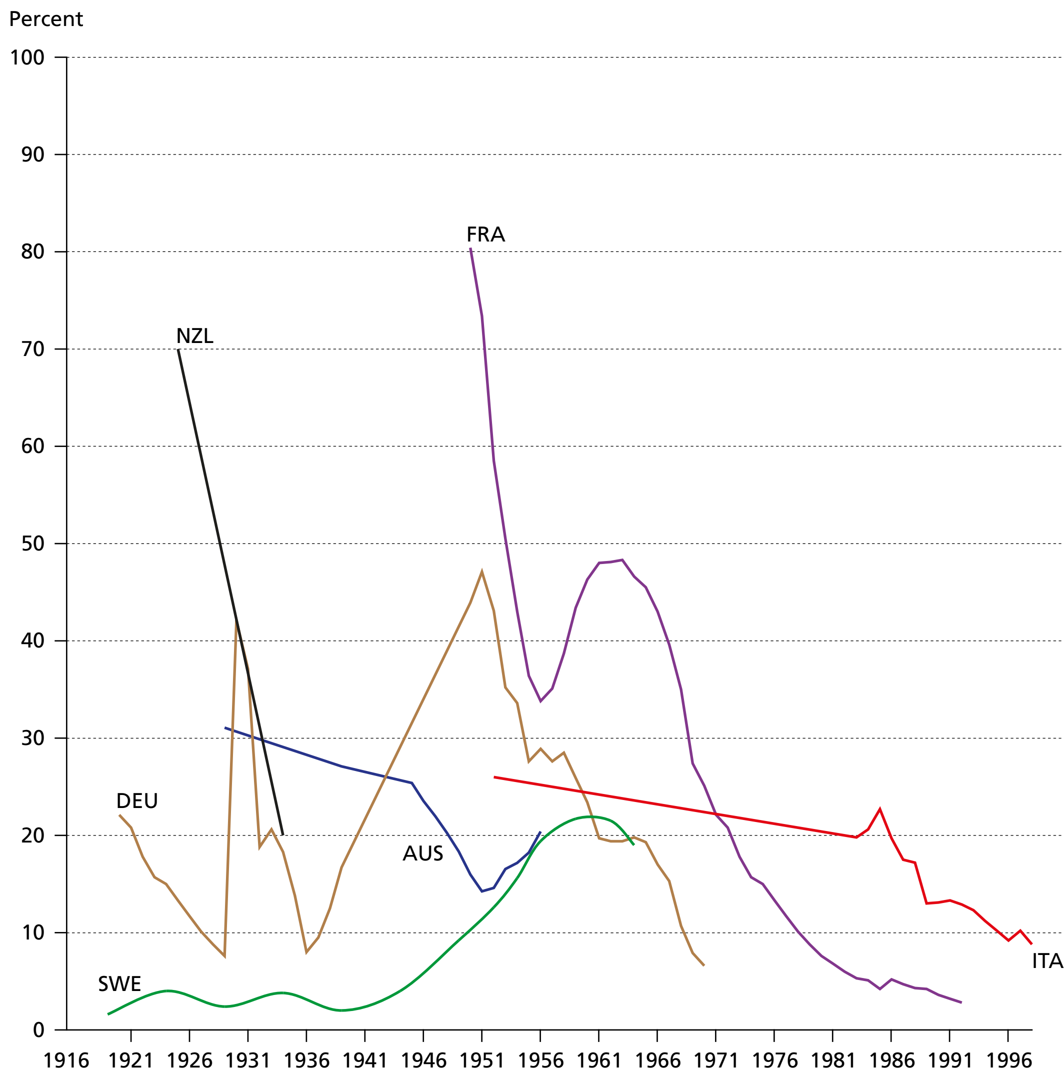
At a later point in time, this development repeated itself in countries such as Greece, and even later in the East Asian economies. Greece reacted to the massive inflow of new populations from Asia Minor in the 1920s with the creation of a national mortgage bank, later joined by a national housing bank (Leontidou 1990). In Asia, Japan had already created its "Hypothec Bank of Japan," at first as a debenture-issuing institution in 1896 – although, contrary to its name, its primary lending focus was still agriculture, manufacturing, and city corporations (Tamaki 2005, 98). It became the trendsetter for a state-led system of special banks that also led to the Housing Finance Corporation in 1950. As late as 1995, the public housing finance share amounted to 42.3 percent (Hayakawa 2002, 25).[23]

The second phase was most strongly realized cross-nationally in the period between 1920 and 1970, with even the most advanced countries providing state support to their housing finance systems in one way or another. In that respect, *housing* can be seen as just another example of the rise and fall of state banking institutions (Lescure 1985; Verdier 2000). Socialist countries mostly represent this ideal type: in the 1980s, China's private investments amounted to only 11.7 percent of all housing investment (Wang and Murie 1999, 103). But even there, private capital was used for housing construction and even then, the 1970s were a turning point. In Poland in 1960, 41.6 percent of newly constructed units were still financed by private persons (UN 1958–2001), mostly unaided by the state; and in the German Democratic Republic, private single-family house construction rose from under 3 percent before 1970 to more than 10 percent thereafter (Steiner 2006). But also many Western countries – especially the war-afflicted ones – came close to representing this type after the two world wars.

State housing finance statistics are difficult to come by, since often neither a separate budget item identified as "state housing expenditure" nor its share in the overall mort-

23 In other Asian economies, the state involvement through developmental banks was even more staggering; however, it was largely financed through the treasuries, centralized savings in state savings banks, or special contributions. Singapore established its Housing and Development Board in 1960, for housing and even the construction of complete towns, amounting to over 80 percent of all housing finance (Yuen 2002). In Hong Kong, the Hong Kong Housing Authority (1954) created a rental and owner-occupier stock amounting to 55 percent of all housing stock in 1999 (Yu Lau 2002), while only 7 percent of all units constructed in Taiwan between 1955–99 were funded with private money alone (Chen 2002). The Korean Housing Bank (1969), also a bond issuer, and the National Housing Fund had by 1996 accounted for 32.2 percent and 48.1 percent, respectively, of all housing finance (Lee 2002, 114).

Figure 4 State share in housing finance

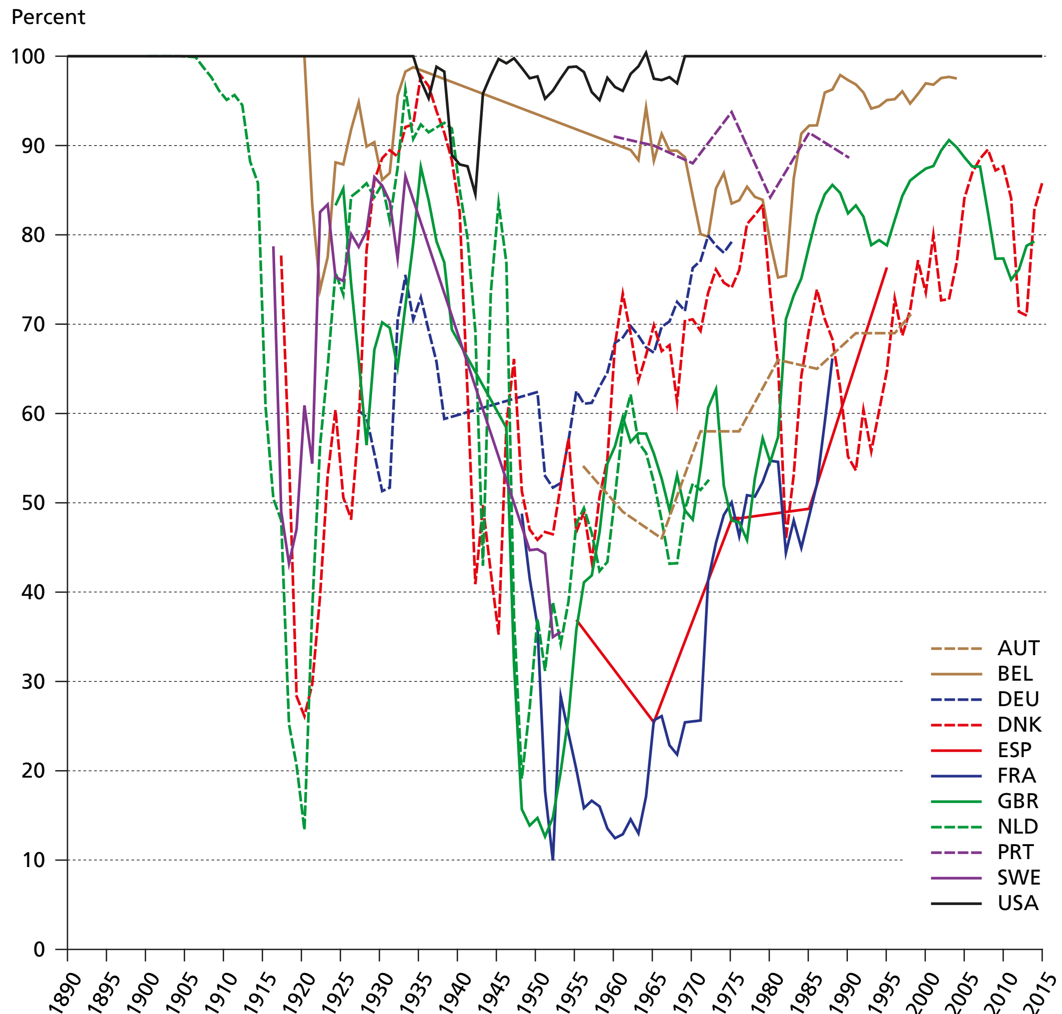


Sources: Australia: Hill (1959); France: Ministère de l'Équipement; Germany: Blumenroth (1975); Italy: Minelli (2004); New Zealand: Davidson (1994); Sweden: Statens offentliga utredningar (1968, 3).

gage market is available. For some countries, however, we have statistics for the share of state housing finance when compared to other sources of private housing finance. According to this measure, Figure 4 shows how states become an important source of overall housing finance, and sometimes even the dominant player.

Another metric for appreciating the development of state housing finance is the percentage of newly constructed units that is due to private construction alone. Even though these might be partially state-supported in some countries – through fiscal exemptions or even direct building subsidies – the main source of capital is private, when compared to direct state institutions or housing associations as the constructing bodies. Representing these construction share data, Figure 5 clearly reveals the twofold realization of the

Figure 5 Share of private construction

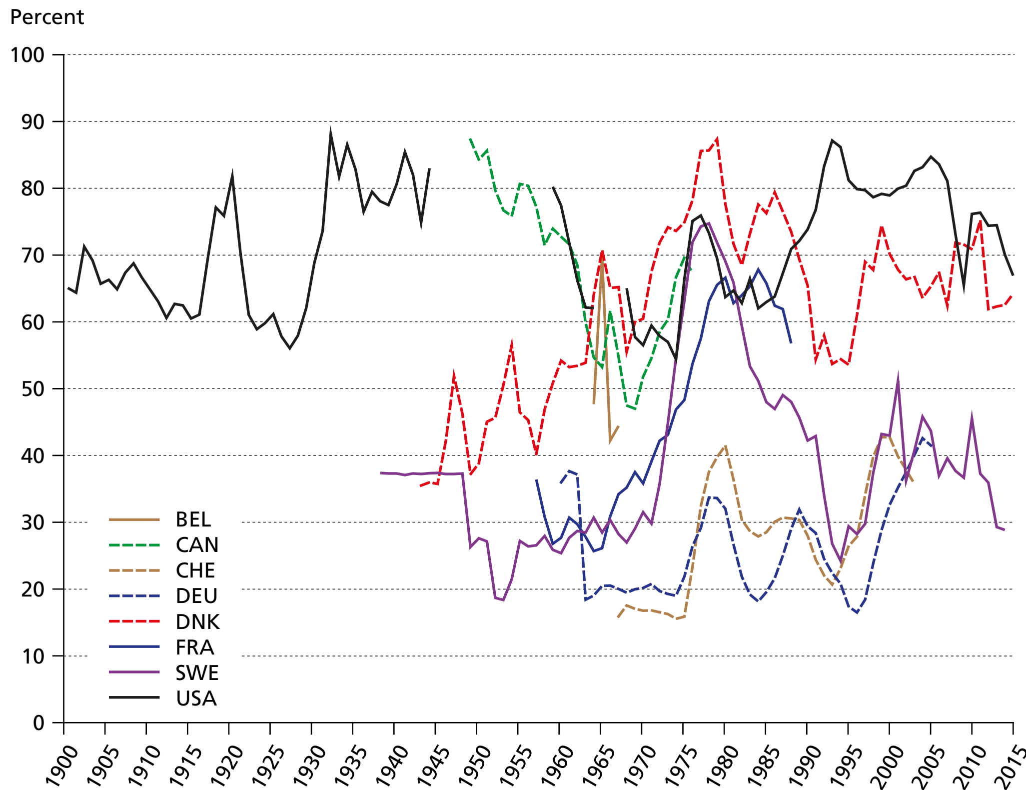


Sources: Austria: Donner (2000); Belgium: Statistiques de la construction et du logement; Denmark: Danmarks Statistik; France: Friggit (2002), Heugas-Darraspen (1994); Germany: Sensch (2015); Netherlands: Nycolaas (1974); Portugal: Donner (2000); Spain: Donner (2000); Sweden: Statistik centralbyrån; GBR: Department of Communities and Local Government, Table 241; USA: HUD (1969), USCB (1966).

state-finance type: most countries reached all-time bottom levels of private construction after the wars, (i.e., all-time peaks in new construction projects funded through state or non-profit associations), even in countries with limited housing welfare, such as the USA or Portugal. From the 1950s onwards, however, private construction has gradually begun to displace state construction throughout the countries considered in this paper.

In most countries, the state finance period was also associated with a concentration of new construction in the form of multi-unit dwellings, mostly rental. Figure 6 displays the share of single-family house construction in overall construction in various countries. While only the bond-based countries had considerable shares of multi-unit dwell-

Figure 6 Share of single-family houses in new construction



Sources: Belgium: Statistique de la construction et du logement; Canada: Statistics Canada, series S190–194; Denmark: Danmarks Statistik; France: Ministère de l'Équipment; Germany: Destatis, via Sensch (2010); Sweden: Statistik centralbyrån; Switzerland: Bundesamt für Statistik, Neubau; USA: USCB (1966).

ing construction prior to the 1920s, most countries tended towards the construction of more multi-unit dwellings in this state finance period. By the 1970s, however, most countries resumed their previous high levels of single-family housing construction.

3 Exploring some explanatory hypotheses

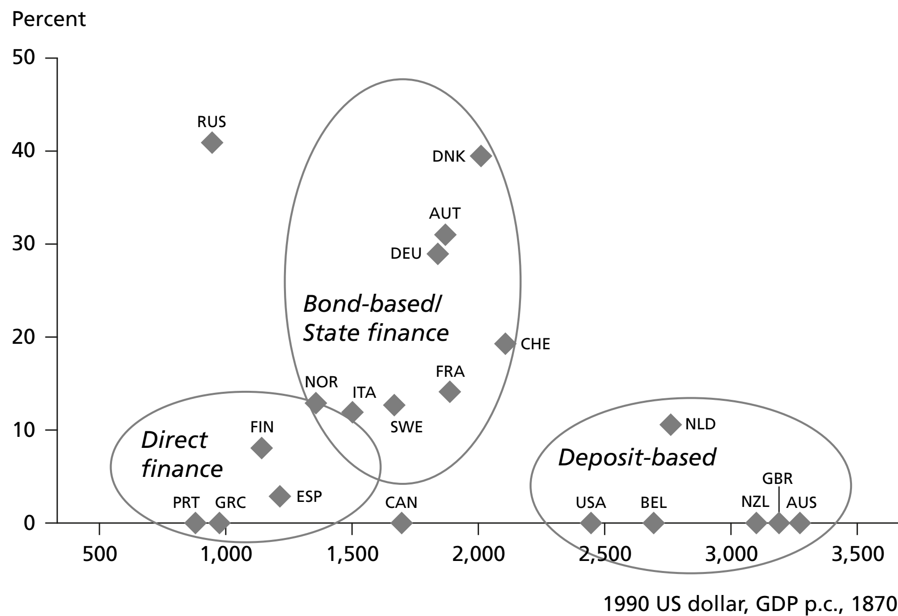
During the course of the *long nineteenth century*, industrializing countries developed their systems of urban mortgage finance, whose basic pillars can still be recognized today. However, as we explored above, despite undergoing similar historical processes (industrialization and urbanization), countries developed a variety of mortgage finance regimes. While most countries moved from a direct finance mode to some degree of institutionalized banking finance (whether *deposit-based* or *bond-based*), and while most countries shared a high degree of state financing in the 1920–1970 period, these similar

trends over time, we believe, hide systematic structural differences *between* countries. In this section, we explore to what extent we can quantify and generalize the single-country evidence presented in the previous section. In a first step, we try to account for the *emergence* of mortgage banking before WWI. We limit ourselves to correlational analyses, given data availability, a maximum of 15 country cases, and a non-normal dependent variable. In a second step, we try to account for the path dependence by regressing a pre-WWI mortgage-banking variable on a time series of mortgage-bank share development, controlling for factors influencing financial systems.

The emergence and growth of mortgage banks can be documented in most countries before WWI as the share of mortgage-bond finance among all financial assets (adapted from: Goldsmith 1969). We choose this measure for reasons of data availability and robust correlation with alternative measures (see the section "Bond-based finance" above), but also because it controls for the general growth of finance that occurred in virtually all countries over time. While the absolute mortgage bank volumes increased everywhere, their share of all financial assets displays a falling tendency (see Figure 3 above). This measure of outstanding mortgages also has the advantage of accounting for the accumulation of mortgages from many previous years and therefore goes beyond a single-year snapshot. To account for the pre-WWI mortgage-bank share, we use their 1900 level and correlate it with our most important explanatory variable, the GDP per capita from 1870. While the overall linear correlation is very weak, the following scatterplot reveals that this is due to its parabolic form. This inverted U-shape for economic development and financial-institution assets has already been found in the company finance literature (Fohlin 2000) and is replicated here for mortgage finance. The scatterplot allows us to distinguish the *moderately backward* countries with bond-based and/or state finance from the two other groups during the late nineteenth century and into the early twentieth century: we can see that the *deposit-based* countries are all economically advanced (as per their high per capita GDP), whereas the *direct finance* countries (and Russia) are the least developed. Between these two distinct modes, we can observe overlap between the *bond-based* and *state finance* countries – the areas we categorized as *moderately* and *extremely backward* in our Gerschenkron-inspired typology (Figure 7).

Besides economic development, the legal environment is a typical factor in the explanation of financial development, which is also reflected in the above clusters. Common law countries did not developed mortgage banks before WWI to any major degree, while countries influenced by the French Civil Code had done so, but to a lesser degree than the countries of German or Scandinavian legal origin, using La Porta's classification of legal systems (2008). Political factors, in turn, can be operationalized by the latent democracy index that factorizes seven existing democracy measures (Földvári 2014). The higher this numeric variable, the more developed a country's democratic institutions. Section 2 made clear that mortgage banks emerged first and foremost in countries with "backward" democratic development as a means to mobilize capital from above. The correlation between the democracy index of 1900 and the mortgage variable turns out to be significantly ($p = .04$) negative ($r = -0.56$) for 14 countries covered.

Figure 7 Mortgage bond share of financial assets (1900) and per capita GDP (1870)



Sources: Goldsmith (1969); Maddison-Project (2013); Andersen (2011).

While these associations use typical variables from debates in historical company finance, the role of urbanization is more specific to the mortgage finance case, as we claim that late-urbanizing countries were particularly in need of large amounts of capital, and mortgage banks were a way to accommodate this need. Correspondingly, a correlation of countries' level of urbanization measured by the per capita population in cities with 100,000 (alternative: 50,000) inhabitants (Banks and Wilson 2013) with the mortgage variable yields a negative –0.35 (–0.41) correlation, though with low significance levels ($p > .05$). Using the 1870–1900 urbanization growth difference as a "spurt variable" produces the expected positive correlation, but with low strength and significance. While these factors were important in the emergence of mortgage finance regimes, their continuity is a different matter.

In order to test whether history matters, we use the 1880 mortgage bank share levels as a proxy summarizing our Gerschenkronian story for the nineteenth century in order to explain twentieth-century developments of mortgage bank shares. Figure 3 above already suggests a continuity of the country rankings in mortgage bank shares over time, and the autocorrelation with the later data points in 1900, 1913, 1929, 1937, 1947, 1960, and 1963 is indeed on average 0.92 for up to 17 countries. We could circumvent the non-normality and strong skewness of this dependent variable (remember that many countries never came to develop these types of banks) through a logit regression on the binary variable "mortgage banks (yes/no)." However, there are hardly cases that moved from 0 to 1 (with the exception of Greece) and no case that moved from 1 to 0, which just confirms the correlational findings and is not sufficient variation.

Table 3 Between-model on log. mortgage bank shares within bond-based regimes, 69 country-years

	Model 1			Model 2		
	Estimate	*t*-value	*p*-value	Estimate	*t*-value	*p*-value
(Intercept)	2.543	2.166	0.073	1.086	0.744	0.204
GDP.p.c.	0.000	0.761	0.475	0.000	0.000	0.782
Democracy	–0.675	–1.012	0.351	0.206	0.430	0.651
Urban.population	–0.001	–0.262	0.802	0.002	0.003	0.498
State.debt.gdp	–0.016	–1.388	0.215	–0.005	0.007	0.515
Mortgage1880				0.062*	0.016	0.012
Adj. R^2		0.216			0.386	

Another alternative is a panel regression on the mortgage banking countries only, using their logarithmized mortgage bank share as the dependent variable to normalize it (Shapiro-test *p*-value of .09). This permits us to see whether the nineteenth-century mortgage bank share levels also determine their twentieth-century *levels* and not just the *existence* or not of mortgage banking. To do so, we control for various factors which are typically used to account for the development of financial systems, because they could confound the historical influence of mortgage regimes over the period of 83 years. Thus, the growth of finance in countries has been explained by GDP (Goldsmith 1969), by the rise of democratic institutions (Calomiris and Haber 2014), and by the need of states to organize their state debt. We therefore include the GDP p.c. (Maddison-Project 2013), the above democracy variable, and state debts (Reinhart and Rogoff 2010) as control variables. We also use the share of the big-city population (100,000 inhab.), as this might drive mortgage needs. As our main explanatory variable, we use countries' 1880 mortgage bank share levels as a time-invariant variable to explore the path dependence. The remaining unbalanced panel contains only 11 countries over time, so that this analysis can only be read as exploratory. As we are more interested in the cross-country differences than the overall declining trends over time, we estimate a between-model. In a first step, we provide estimates using the four typical control variables. The second step then introduces the time-invariant variable on the 1880 mortgage level (see Table 3).

The first model reveals that, at low levels of significance, democracy, urban growth, and state debt growth impact negatively on the mortgage bank share levels, while GDP has a positive influence. The explained variance is at 21.6 percent. More importantly, the inclusion of the path-dependency variable in the second model makes this variable the only one that is positively significant. The explained variance also increases to 38.6 percent. This supports the idea that our historical account mattered for the subsequent developments.[24] The more countries' financial systems relied on mortgage banks in 1880, the more they tended to rely on them during the course of the ensuing 83 years. Given the nature of the available data, however, these findings have to be considered exploratory.

24 The significance of this path-dependence variable also holds true when using a pooled panel or when nesting cases into countries and country-years in a multi-level analysis.

4 Discussion

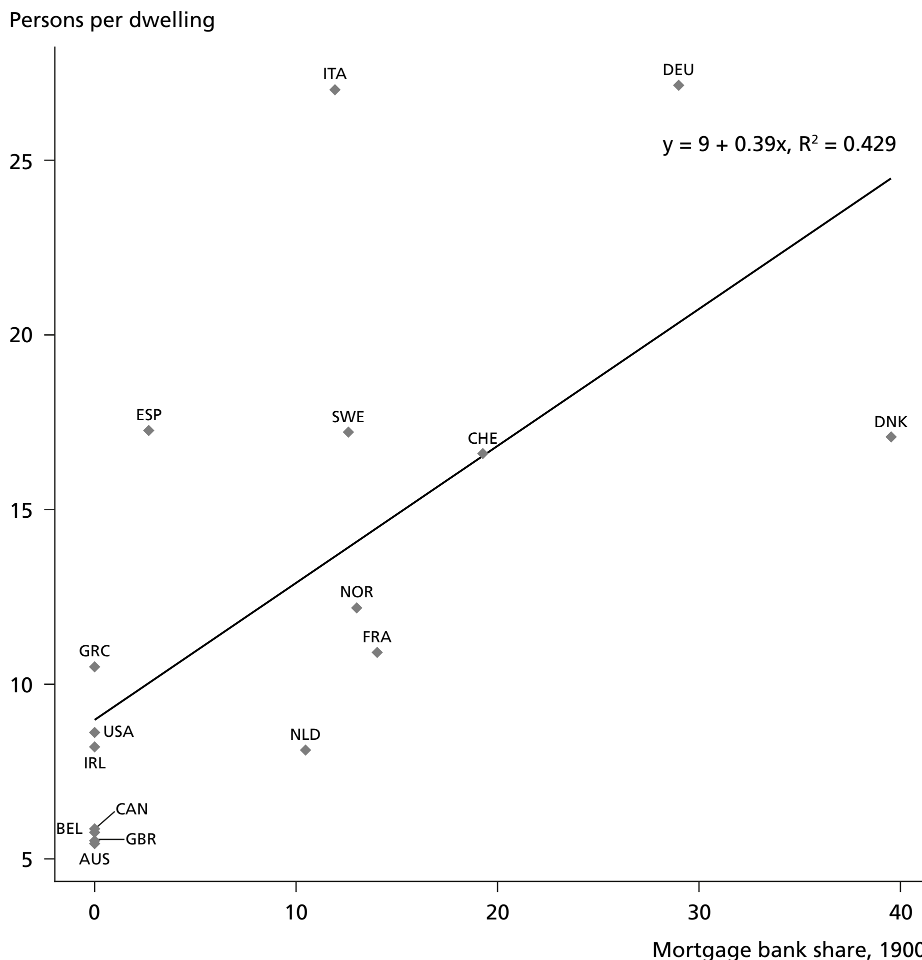
Having surveyed historical, cross-national differences in housing finance provision and possible explanations for them, we now need to make sense of the legacies which these differential systems of housing finance provision created *vis-á-vis* housing and the built environment in urban centers. Our underlying premise is simple: that the capacity of actors within a housing system to mobilize financial resources influences building type and building form over the long run of housing system development. That is to say, the manner in which mortgage finance is structured is of central importance to the constitution of housing systems, both historically and contemporarily. This paper has so far identified institutions of proto-industrial credit as important historical templates for the institutional urban mortgage finance systems that developed during the latter half of the nineteenth century and the early part of the twentieth century in Europe and other OECD countries – but what of the implications for urban form and concentration during this period and beyond?

Why building form differed so markedly across Europe and the USA (both regionally and internationally) was of concern to many housing scholars, economists, and government commissioners at the beginning of the twentieth century. The German economist and city planner Rudolf Eberstadt noted that the further east you go in Europe, the higher population (= building) densities you have (Eberstadt [1909] 1920, 6, 574), and a Swedish Housing Commission report from 1920 also noted the existence of what it termed a *West European single-family area*, which included Britain & Ireland, the Low Countries and the Rhineland (Bostadsräkning 1920, 83).[25] Indeed, the extensive British Board of Trade investigations into the housing conditions of over 100 cities in Germany, France, Belgium, Britain, and the USA around 1907 found a similar geographical cleavage line (Board-of-Trade 1908). Our Figure 9, below, is a reconstruction of this geographical division around 1900. While these differences in urban form were (and mostly still are) easily notable, causal explanations for these variations are generally not so forthcoming.

Already, contemporaries such as the German economist Andreas Heinrich Voigt (1905) asked: "Why are not five-storey buildings being constructed in … English towns?" (cited in Forsell 2006, 168). His answer was that, unlike in Berlin, it was simply *not profitable* (ibid.). As interesting as the question Voigt poses may be, his answer is somewhat unsatisfactory: akin to saying that London and Berlin differ in terms of housing and urban form *because they do*. Such explanations, then, tell us little about *why* building tenements in Berlin, Vienna, Copenhagen, and Stockholm was considered profitable, while in the major cities of England and Wales, Ireland, Belgium, and the Netherlands, tenements (while present) were much less common and therefore (presumably) also considered less profitable.

25 To this group we could also add the USA, excluding certain cities (notably: New York, Boston, and Chicago), Australia, Canada (without Montréal), and New Zealand.

Figure 8 Mortgage banks and housing stock in big cities (≥100,000), c. 1900



For some countries, it was necessary to use the earliest or only available statistics, which can be justified by the long-term stability of our measure of concern.
Sources: GBR, USA, Belgium, Germany, Austria, Switzerland, Netherlands: Eberstadt (1901); France: Recensement 1926; Italy: Censimento (1881), Atti della Giunta per la inchiesta agraria (1883), Annali di statistica (1884), Atti della Commissione per la statistica giudiziaria e notarile (1882/83); Australia: Census (1911); Greece: Leontidou (1990); Portugal: Censo (1940); Canada: Census (1911); Austria-Hungary: ÖS (1918); Sweden: Sveriges officiella statistik (1912); Norway: Norges offisielle statistikk (1923); Finland: Helsingfors stads faktacentral (2007); Denmark: Sveriges officiella statistik (1920).

Our analysis points in the direction of Voigt's fiercest reform contemporary, Eberstadt. Eberstadt claimed that a combination of profit-driven, bond-issuing mortgage banks and clientelistic city planning produced the unsavory and overcrowded *Mietskaserne* (or "rental barracks") in Berlin or Breslau. Although doubt has been cast on Eberstadt's planning-determinist reasoning and theory in general (Heisler 1994; Teuteberg 1987, 50–51), our use of his main variable (the extent of countries' mortgage bank development), seems to support his analysis. Figure 8 illustrates the strong positive relationship which exists between the level of bond-based mortgage banking and the degree to which countries erected multi-unit dwellings in their main cities. We measure the former variable as the country's share of mortgage bank assets in relation to total financial assets

(Goldsmith 1969) and the latter in terms of the average number of persons per building within each country's largest cities.[26] Note that our argument and system of measurement are *not* simply about urbanization or population density – after all, Belgium was the most urbanized country in Europe at this time and hardly developed specialized mortgage banks. Rather it refers to the *type* of urbanization *(building form)* that was influenced, not by the financial sector *per se*, but by the *types* of mortgage banking.

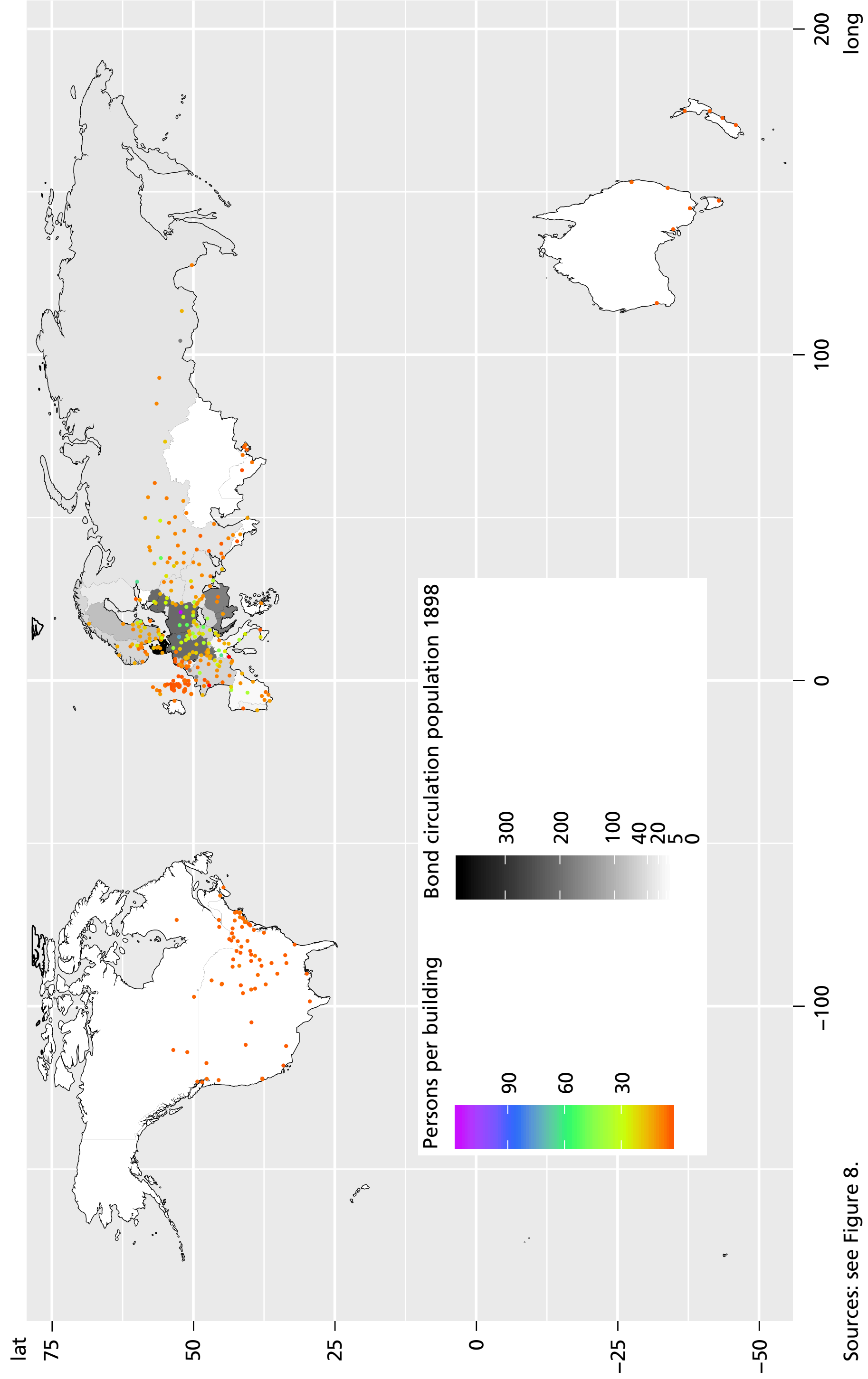
As we suggested in our introduction and review of the literature, building form also has a bearing on tenure composition. Bond-based mortgage banks mostly focused their lending activities on large developers and landlords (Martens 1988), who constructed tenements solely for the purpose of generating rental income. Person-to-person lending *(direct finance)* and deposit-based lending institutions (including the savings banks, cooperative banks, and building societies), on the other hand, generally focused their lending on an altogether smaller scale, catering to petty landlords (who tended to live within the rental building) and prospective homeowners.

The key to explaining the causality linking the *type of mortgage institution* and building form is, we believe, *the level of integration of housing finance within the capital market.* In bond-issuing countries prior to the Second World War (such as Sweden, Denmark, Switzerland, Germany, and Austria) urban mortgage banks were competing for funding on capital markets (both domestic and foreign) in a broad field. As a Swedish government report from 1920 (Regeringen 1920) noted, credit was *scanty,* and when investment in housing was high, other areas of the economy suffered, and *vice versa.* In competition for credit from all sectors (canals, railroads, government bonds, etc.), housing needed to be profitable, and building big, dense, and compact was the means to ensure this profitability. Furthermore, in the absence of local branch networks (unlike countries with *specialized deposit-based institutions* and informal credit networks), these instructions relied on economies of scale. The results, as we have shown, were densely populated tenement buildings.

Conversely, in countries where tenements were the exception rather than the rule, such as Great Britain, Ireland, Belgium, the Netherlands, and the USA (with the exception of Boston and New York), housing finance was generally a *self-contained, closed circuit sector*, with little integration in the general capital market. Daunton (1990a, 11) notes of England that "The building cycle determined the demand for capital rather than the supply of funds acting as a major influence upon the level of building." Thus, decisions (on both the supply and demand sides) concerning whether to erect and/or buy housing or not, were rarely dictated by capital shortages *per se.*

26 The inference "higher people/building means more multi-unit buildings" is distorted by unequal distributions of vacancies and overcrowding. An alternative density measure of population divided by built-up area, itself distorted by other-than-residential buildings, shows a robust correlation of 0.92 for 29 international cities from 1890 (USBC 1895). This robustness and the good data availability speak in favor of this measure, which historical reformers also relied upon.

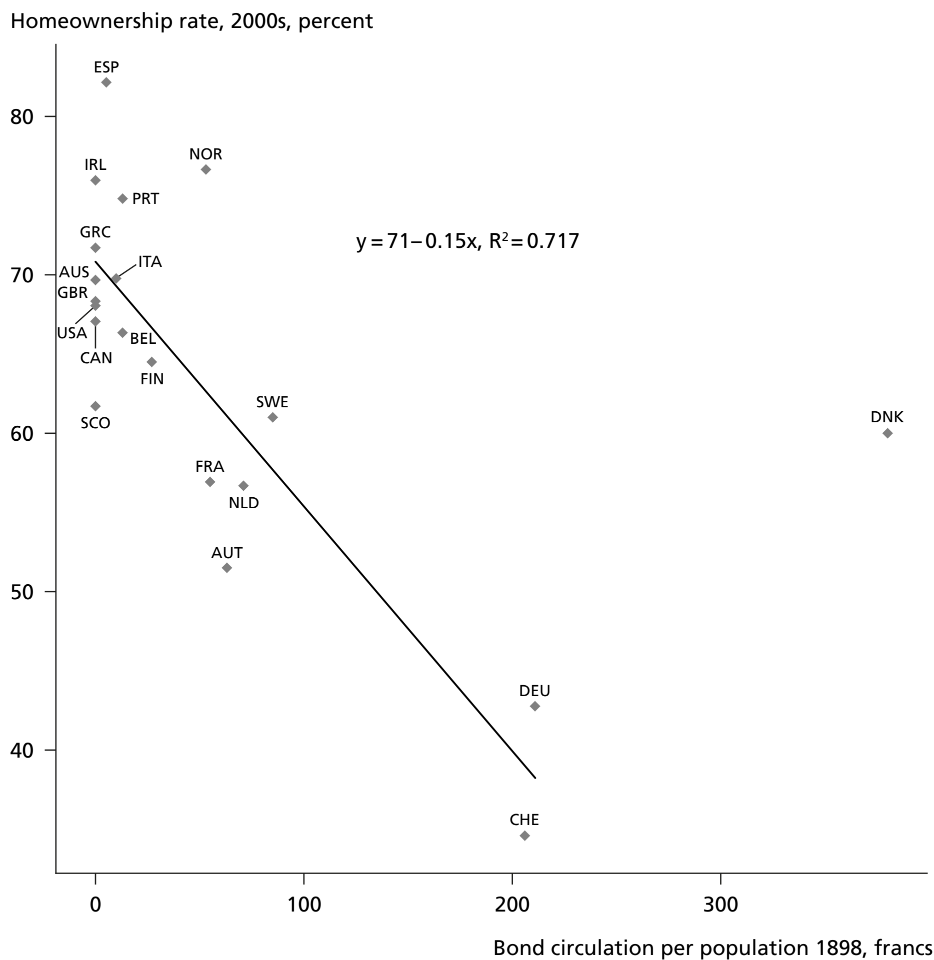
Figure 9 Person per dwelling per city (points) 1900 and country's bond circulation (area) 1898



Sources: see Figure 8.

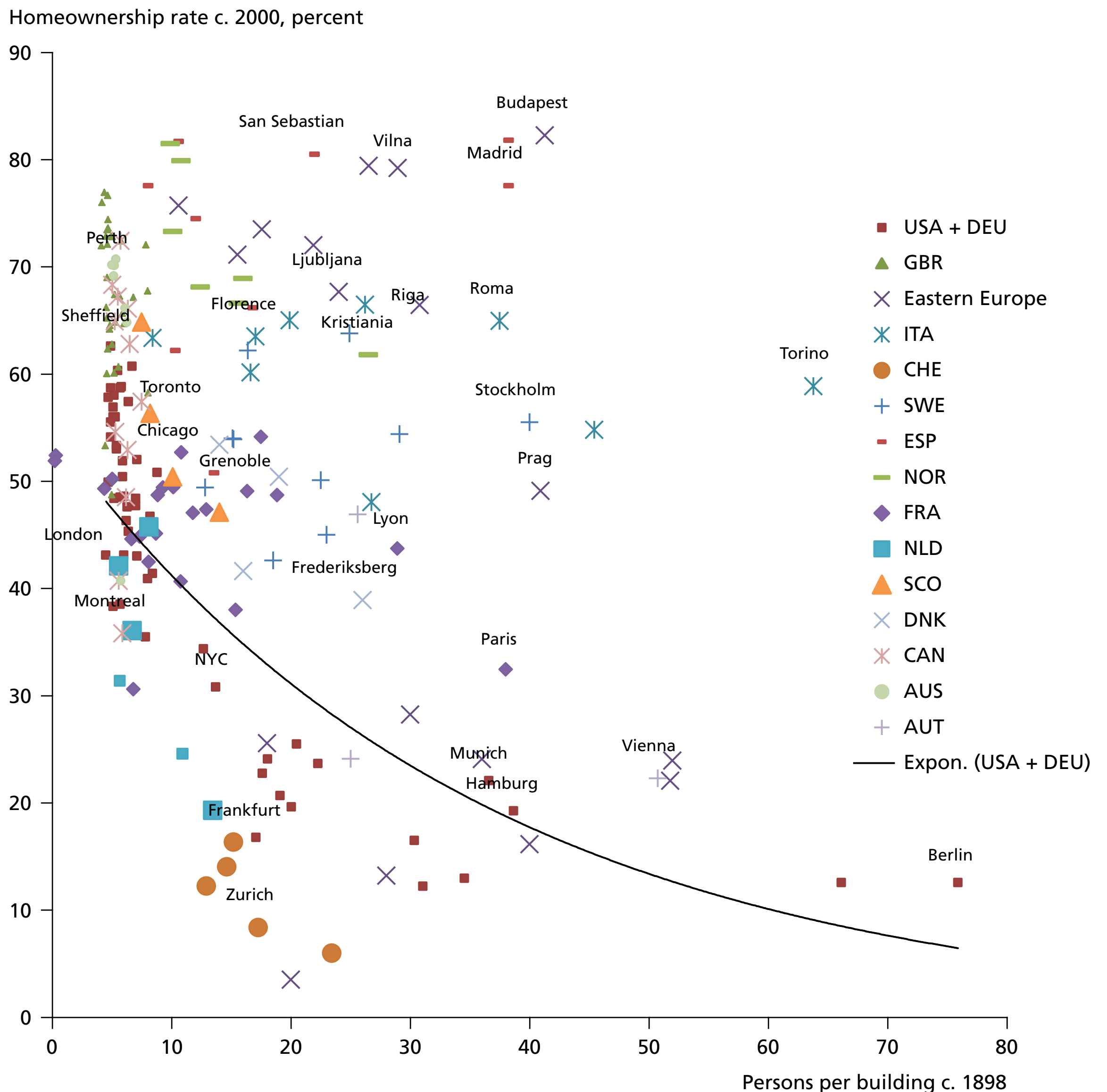
The tenement/single-family house line can thus be depicted with the world of mortgage banking varieties in the background, as illustrated in Figure 9 above. The brighter the historical city dots, the more persons per dwelling. Across the northwestern part of Europe reaching up to Scandinavia, one finds a clear dominance of single-family-house cities, while the area extending east from the Rhineland – and particularly around Berlin – reaches the other extreme of multi-unit building cities. Former Anglo-Saxon colonies (Frost 1991) and Balkan cities close to Ottoman influence in southeastern Europe (Yerolympos 1996) were also of the single-family-house type. The respective city areas match with our finding about the degree of mortgage-bond prevalence. The mostly cross-regional mortgage and bond activity of mortgage banks makes it methodologically impractical to show the desired, more fine-grained regional differentiation of mortgage regimes, which divide Scotland from England or the Rhineland from Prussia. But it is not only housing and city form which lie in the historical shadow of mortgage banking.

Figure 10 Mortgage banks and homeownership in the 2000s



"DNK" is considered an outlier.
Sources: Hecht (1900); Kohl (2017).

Figure 11 Influence of building density in 1900 on homeownership rates c. 2000



Sources: see Figure 6; European Urban Audit 1990–2015; Australian Census; US City Data Book.

The historical variegations in housing finance systems in mature industrial countries have also left another enduring legacy that is still visible today. Once countries' cities were put onto a tenant or a homeowner trajectory, they had a tendency to remain on it for decades to come (Kohl 2016). Figure 10 displays evidence to support this reasoning. Here we can observe a strong negative relationship between the extent to which countries had developed mortgage banks by the late nineteenth century and their rates of homeownership one century later.

One mechanism through which the historical bond-based system made its influence felt was through the very cities it helped to construct. The historical building density that we measured persons per dwelling around 1900 has a lasting negative impact on the homeownership rates: the more a city developed multi-unit buildings in the nineteenth century, the lower its homeownership rate today. While this negative relationship holds, the regression line fits the data only to a certain extent. In fact, rather than covering most city points, it instead divides them quite neatly between cities above the line, where apartment (southern Europe) or cooperative ownership (northern Europe) in multi-unit buildings became institutionalized quite early (1920s or earlier), and cities below, where single-family dwellings began to spread only from the 1970s onwards (central continental Europe). Controlled for these legal changes, however, the historical building density still predicts urban homeownership rankings today (Figure 11).

Finally, comparable again to company finance, there is a path dependency component in mortgage finance systems. Emerging in the *long nineteenth century*, they underwent a period of state intervention between the 1920s and 1970s and liberalization and renewed internationalization thereafter. Until the 1970s, however, when countries began to integrate their special circuits of housing capital, the nineteenth-century institutions largely survived. But even beyond the 1970s, these institutions can help us to understand why some countries embarked on the path of (off-balance sheet) securitization while others did not. It is interesting to note that countries which did not develop a system of bond-based mortgage banking extensively during the nineteenth century, and which instead relied on deposits, have tended to opt for securitization (MBS). However, countries that developed bond-based mortgage systems during the same period remain predominantly bond-based today. Their modern variants issue covered bonds, and their share of the overall mortgage market today is (broadly) consistent with historical averages.

5 By way of conclusion

We conclude by relating some of the relationships in our findings to the broader questions raised in the housing and finance literature surveyed above. Countries' financial systems have most often been characterized by their function at the level of company finance. Universal bank systems are opposed to the market-based systems that developed in the nineteenth century, which persisted for at least a century. The oldest, and still relevant, explanation comes from Gerschenkron: late industrialization set countries on the path of universal banking; and in relation to housing finance, these same *moderately backward* countries tended to opt for bond-based housing finance systems.

Our analysis of mortgage finance systems offers an interesting complement to this established view: countries differ in the extent to which they have developed bond-based or deposit-based mortgage finance, with direct or state finance as outer boundaries.

The two finance typologies (mortgage and company) are, moreover, not independent of each other: countries with universal banking tend to develop considerable mortgage banking sectors, while deposit-based mortgage countries relied more on deposits and capital markets. Thus, our mortgage-asset index shows a positive correlation with Fohlin's index of universal banking of $r = .32$ and a negative correlation of $r = -0.40$ with the stock market capitalization per GDP in 1913 (Rajan and Zingales 2003). This finding supports our theoretical intuition that there is a Gerschenkronian link between company and mortgage finance in countries. Indirectly, this confirms that our explanatory factors, which we drew from the company finance literature, might not be false.

A striking feature of our mortgage finance story – again similar to company finance but also to housing systems – is path dependence (Bengtsson and Ruonavaara 2010; Malpass 2011). Not only were housing finance institutions relatively inert (in most of our cases), but furthermore, they seem to have effects even over a century after their emergence. How can this path dependency be explained? One first mechanism operates through the housing stock: once smaller houses become predominant in the housing stock, future demand also focusses on smaller houses, for which smaller mortgage institutions are sufficient. There might even be a case of inverse causality in our story: small-house traditions such as those in Belgium predated the deposit-based mortgage tradition and might even have caused it. If smaller houses are the predominant form used as collateral, then smaller mortgages can be taken out for the construction of further small houses, and deposit-based institutions are the functional answer to that need. A lack of data makes it difficult, however, to assess the degree to which Belgium, Britain, or the Netherlands, for instance, really had a higher share of single-family housing than western Germany *before* nineteenth-century urbanization started. However, as a Swedish government report noted in 1945: "Our towns and other urban areas began with industrialization to expand rapidly in the 1870s and 1880s. *It was then that their present form was decided*" (SOU 1945, 638, *emphasis added*).[27] Even though the tradition of building multi-dwelling units in countries may have predated the *long nineteenth century*, then, massive city extensions in the nineteenth century were only possible due to innovations in finance. This paper has sought to investigate these variegated innovations cross-nationally, arguing that the legacy of this period in all the countries surveyed left an enduring imprint on housing finance and, in turn, housing and the built environment in urban centers.

A second mechanism operates through a zero-sum game: once deposit-based institutions had emerged, they defended their market share and opposed any entry by challengers, other private lenders, or the government (Mason 2004; Samy 2008, 8–9). In turn, once mortgage banks themselves were established, then two mechanisms kept countries on that trajectory: first, established banks fended off challengers and functionally alternative banks. Second, once property became mortgaged, and once people knew that mortgage credit was available for the prolongation of existing mortgages or

27 Cited in Kemeny (1992, 143).

new purchases, there was less incentive to amortize, property prices rose as a function of new credit demand, and a country tended to enter the stage of overall mortgage indebtedness.

Finally, our research has posed a challenge to established typological categories in the fields of housing research and comparative political economy. We find little evidence for the existence of housing systems that are structured along the lines of welfare ideologies *per se*, and here, the Nordic countries provide good illustrations. Housing scholars often refer to the Nordics as a homogenous housing system group (Turner, Jakobsson, and Whitehead 1996; Kemeny 1995).[28] Yet, as our analysis has shown, Denmark and Sweden, which occupy our *bond-based finance model*, differ markedly in terms of urban form and tenure composition from Norway and Finland, which feature in the state/deposit model and whose housing systems are more akin to *Anglo-Saxon* Britain in terms of the historical levels of homeownership and housing form. Similarly, the Dutch housing system, often grouped with Denmark, Sweden and Germany in accordance with welfare typologies (see Kemeny 1995), is far more reflective of the *deposit-based* group of Britain, Belgium, and the English-speaking former colonies. Thus, we have illustrated that these housing stock variables (housing form and tenure composition) are not necessarily reflective of postwar welfare ideologies, but of far more enduring factors, which are easily overlooked when scholars refuse to take the historical dynamics of housing finance seriously.

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28 Only recently has this established view been challenged (Bengtsson et al. 2006).

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