Wealth in Spain, 1900-2017: A Country of Two Lands*

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Abstract

This study reconstructs Spain's national wealth from 1900 to 2017. By combining new sources with existing accounts, we estimate the wealth of both private and government sectors and use a new asset-specific decomposition of the long-run accumulation of wealth. We find that during the 20th century, the national wealth-to-income ratio remained within a relatively narrow range—between 400 and 600%—until the housing boom of the early 2000s led to an unprecedented rise to 800% in 2007. Our results highlight the importance of land, housing capital gains and international capital flows as key elements of wealth accumulation.

Keywords: Wealth-income ratios, National accounts, Land, Housing, Net foreign assets.
JEL Classification: D3, E2, F3.

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1 Introduction

Wealth is gaining increasing attention from both the academic community and public opinion. Large swings in asset prices and the significance of cross-border positions within the Eurozone—to name just two recent significant economic trends—point to the importance of studying wealth aggregates. Thus, constructing and strengthening national wealth statistics based on sectoral balance sheets has been the object of increasing attention from various institutions ([Financial Stability Board and International Monetary Fund, 2009](#)). In this sense, Spain is a country that clearly deserves international scholars’ attention. Since entering the Eurozone in the late 1990s, the Spanish economy underwent a large housing boom followed by an equally exceptionally large bust. The country also experienced a sharp deterioration in its net foreign asset position and a more recent rise in public indebtedness. Although academics and the media have been quick to analyse this process, the truth is that many studies are limited by the lack of a complete set of national balance sheets. Additionally, the absence of long-run series makes it more difficult to determine the historical significance of recent developments.

This study tracks for the first time the historical evolution of Spanish national wealth since the beginning of the twentieth century. Our aim is to analyse and document the long-term dynamics of wealth, with a particular focus on the evolution and determinants of the recent housing boom and bust. We present two long-run series. The first, based on a market value approach, provides the net wealth of the personal and government sector using a census method. Following this approach, we construct a complete and detailed balance sheet including nonfinancial, financial and offshore assets. The second consists of a book value approach, in which national wealth is derived by calculating the value of domestically produced assets through the perpetual inventory method, valuing non-produced assets through a census-like method, and adding the net foreign position. One of the advantages of this last approach is that it allows us to decompose housing wealth into that of buildings

and underlying land, which is key to understanding the forces that have driven up the value of dwellings in recent decades. To our knowledge, this study is the first to compare the evolution of both measures of national wealth over a period covering more than a century. Furthermore, we not only decompose the accumulation of national wealth into a volume effect (through savings) and a price effect (capital gains/losses) but also go beyond previous studies and differentiate between wealth accumulation in housing and non-housing assets.

Our main finding is that Spain’s national wealth-to-income ratio has followed a J-shaped evolution during the twentieth century that differs from the U-shaped trends observed in other developed countries ([Piketty and Zucman, 2014](#); [Waldenström, 2017](#)). Both the market- and book value-based national wealth-to-income ratios for Spain remained for most of its history in a relatively narrow range—between 400 and 600%—until the housing boom of the early 2000s led to an unprecedented rise of almost 800% in 2007. In this manner, Spain’s national wealth-to-income ratio level was the highest among all countries with available records since the beginning of the twentieth century. The singular evolution of wealth in Spain is explained by different peculiarities.

First, we document that the shift from high agricultural land value to high urban land value, which occurred in other advanced countries, was particularly fast in Spain. Agricultural land constituted the most important wealth component in the early twentieth century, while urban land value became the most important component in the early twenty-first century. Second, we also present evidence that in Spain, contrary to other rich countries, capital gains based on a sustained increase in the relative price of assets were fundamental for wealth accumulation during the very long term, especially since the 1950s. Our results point to housing as the most important driver, accounting for 80% and 82% of total capital gains over the 1950-2017 and 1980-2017 periods, respectively. Third, Spain was heavily dependent on foreign finance since the late nineties; namely, its increase in net foreign liabilities was the largest among developed countries. We present new empirical evidence that illustrates how the private sector contributed to the large decrease in net foreign assets, most importantly

through the issuance of debt securities by Spanish monetary institutions. This process in turn fostered an increase in household indebtedness and an unprecedented housing boom. We perform an empirical analysis that supports the hypothesis that international capital flows were significantly related to housing prices in Spain during the 2000s, even after controlling for credit demand and financial conditions (in particular, declining interest rates and loosening credit standards). We observe that access to international credit by Spanish credit institutions seems to have played a significant role in the evolution of the real estate market in Spain.

The rest of the paper proceeds as follows. Section 2 discusses previous studies examining other countries and Spain. In Section 3, we briefly introduce the key concepts, methods, and sources being used. Section 4 presents the most important long-term trends in the evolution of wealth aggregates and considers the Spanish case from an international perspective. In Section 5, we perform a quantitative analysis that relates foreign capital flows with the growth in household credit and the evolution of the real estate market. Finally, Section VII concludes. This study is accompanied by a methodological appendix (*Spain Wealth Appendix*), and the complete set of results is provided in an Excel file (*Spain Wealth Database*).

2 Literature review

2.1 Long-run evolution of national wealth

The study of wealth based on the national accounts framework is a relatively new phenomenon. National statistical offices did not start to compute national wealth through sectoral balance sheets until 1993, and progress thus far remains uneven: some countries provide very complete and long sets of national balance sheets, while others offer only partial results.

This slow development occurred despite research on wealth drawing increasing interest

from scholars and the public. A major stimulus arose from the study of the evolution, composition, and distributional patterns of household wealth. [J. B. Davies et al. \(2011\)](#) estimated household wealth for 39 economies as of 2000 using sectoral balance sheets and survey data; the cited study was extended to 2000-2018 using the Global Wealth Report series edited by [Shorrocks, J. Davies, and Lluberas \(2018\)](#). The other major impetus in wealth research originated from the studies by [Piketty \(2014\)](#) and [Piketty and Zucman \(2014\)](#). [Piketty and Zucman \(2014\)](#) presented a new study of long-term dynamics of the wealth-to-income ratios for a set of advanced countries. The researchers' key finding was that the relationship between wealth and income was not stable over time. On the contrary, wealth-to-income ratios followed a strong U-shaped pattern over the twentieth century, most prominently in Europe. Together, these results have incentivized researchers to reconstruct the dynamics of national wealth in other countries while adopting a long-term perspective ([Waldenström, 2017](#); [Kumar, 2019](#)).

In Spain, the first reliable estimate of the wealth stock was obtained by a group of researchers at the [Universidad de Deusto \(1968\)](#), who performed an impressive wealth census for 1965 that covered all nonfinancial assets (agricultural land, housing, business assets, etc.) in great depth. In recent decades, the literature examining Spain grew impressively through new estimates of the capital stock (e.g., [Mas Ivars, Perez García, and Uriel Jiménez, 2000](#); [Prados de la Escosura and J. R. Rosés, 2010](#)). The other major development occurred after the Bank of Spain began to develop a modern system of financial accounts. This set of results later incentivised the development of some complementary sources of data on wealth aggregates, such as various estimates of the value of residential buildings and the creation of the Survey of Household Finances in 2002. Using these records, [Naredo, Carpintero, and Marcos \(2008\)](#) built the first comprehensive balance sheet for various institutional sectors in Spain from 1995 to 2007. These sources, however, are limited in terms of time coverage and wealth definition. Moreover, as we detail in the following section, some assets—most importantly, dwellings—are substantially overvalued. We go one step forward from previous

estimates and provide for the first time a comprehensive dataset on Spanish wealth consistent with national accounts since 1900.

2.2 Determinants of the increase in housing prices since the late 1990s

The recent rise in wealth to national income ratios has been mostly related to the increase in housing assets' prices (Piketty and Zucman, 2014; Rognlie, 2014; Bonnet et al., 2014). This literature corresponds to scholars' increasing interest in understanding the long-term evolution of housing markets (Davis and Heathcote, 2007; Knoll, Schularick, and Steger, 2017) and in particular, the recent rise in housing prices (Mankiw and Weil, 1989; Favara and Imbs, 2015; Saiz, 2010; Glaeser, Gyourko, and Saks, 2005; Gyourko, Mayer, and Sinai, 2013). Scholars have pointed to various underlying mechanisms, and many explanations seem to apply to the Spanish housing boom of the early 2000s. The first strand of the literature has focused on the positive impact of population increases on housing prices (Mankiw and Weil, 1989; Combes, Duranton, and Gobillon, 2019). In Spain, the increase in the foreign-born population—from 2% of the working-age population in 2000 to 14% in 2008—seems to be one of the principal causes of the increase in housing prices. González and Ortega (2013) and Sanchís-Guarner (2017) quantify this effect and show that between one-third and one-half of the increase in housing prices during the 2000s is explained by foreigners arriving in Spain.

A second set of studies have related changes in the credit market—through loose monetary conditions and soft lending standards—to the housing boom. For example, Jordà, Schularick, and Taylor (2015) show the causal relationship between loose monetary conditions and the rise in housing prices due to the expansion of mortgage credit. The authors argue that Spain during the 2000s is a fruitful subject for a case study to analyse, given the significant difference between the Taylor rule's policy rate and the actual interest rate set by the ECB. Jiménez et al. (2014) and Akin et al. (2014) also present evidence of too relaxed lending standards and excessive risk-taking by financial institutions during the recent

Spanish housing boom.

Other scholars have emphasized the importance of foreign capital flows and housing booms (Sá, Towbin, and Wieladek, 2014), especially with regard to the USA (Bernanke, 2005; Himmelberg, Mayer, and Sinai, 2005; Favilukis et al., 2012; Ferrero, 2015). However, research examining European countries has been more limited, with most analyses focusing on the Eurozone’s current account imbalances (Belke and Dreger, 2013), and the relationship between debt inflows and domestic credit growth (Hale and Obstfeld, 2016; Lane and McQuade, 2014). The literature on Europe has hardly considered the impact on housing prices. In Spain, Fernández-Villaverde, Garicano, and Santos (2013) and Jimeno and Santos (2014) have already highlighted the importance of foreign capital inflows to understanding the recent credit and real estate boom. Nonetheless, these studies only briefly document the importance of capital flows, and neither perform a detailed analysis of the channel nor quantify its importance. In Section V, we build upon the research of this last group of scholars and conduct a descriptive and quantitative analysis that relates foreign capital flows with the growth in household credit and the evolution of the real estate market.

3 Concepts, methodology, and empirical estimate

In this study, we use the concepts of national income and wealth from the international system of national accounts (SNA 2008, ESA 2010). Wealth is calculated by providing, for a particular point in time, a balance sheet that records the economic value of assets owned and liabilities owed by an institutional unit or group of units at prevailing market prices. At the country level, national wealth can be defined by two related but different measures. The first follows what Piketty and Zucman (2014) call the *market value of wealth*, which is the sum of personal and government net wealth. In this definition, corporate capital is captured mostly by the market value of equity holdings owned by households and the government. This approach differs from SNA standards, which are referred to by Piketty and Zucman as

the *book value of wealth*, i.e., the sum of nonfinancial assets of all resident sectors and the net foreign wealth.

We reconstruct national wealth comprehensively by adopting these different perspectives.¹ First, we compute national wealth at market value during 1900-2017 by calculating the household and government net worth positions. For both sectors, we estimate financial wealth—financial claims net of liabilities—to which we add nonfinancial assets. Households' nonfinancial assets are decomposed into three categories: housing (that includes the value of both the structure and the underlying land), agricultural land, and unincorporated business assets other than agricultural land. Similarly, for the government sector, we decompose nonfinancial assets into produced assets (buildings and constructions, machinery and equipment), land underlying public buildings, and forest land owned by local authorities.

In this procedure, we follow the SNA recommendation that uses the census-like method as the best valuation technique. Values of agricultural land and housing, which clearly constitute the two most important asset components in the long run, are estimated by multiplying the observed quantities (land areas or housing stock) by representative unit prices. For each period, we gathered the most refined data on prices to consider variations due to regional differences and diversity of uses (e.g., differentiating by crop types in agriculture, or between price-regulated and non-regulated houses). Both wealth aggregates include the value of the underlying land and produced assets (cultivated crops and dwellings, respectively). For housing, we combine and adjust various available sources (Bank of Spain, IVIE, and the Ministry of Public Works) of data on housing prices to produce a more accurate estimate. We perform thorough robustness checks for our housing wealth series, considering all other possible sources and methods. In particular, we compare our series to available estimates by [Naredo, Carpintero, and Marcos \(2008\)](#), [Pérez and Uriel \(2012\)](#), Bank of Spain

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¹In this section, we briefly summarize our approach. The appendix provides a thorough and more detailed discussion of the sources, concepts and methodology used to reconstruct our wealth series between 1900 and 2017. We also include therein several robustness checks we have performed to prove the reliability of our series.

and [Carmona, Lampe, and J. Rosés \(2014\)](#). We also consider Spain from an international perspective, using the house price series in [Jordà, Knoll, et al. \(2019\)](#) and the housing wealth series from household wealth surveys. Overall, regardless of which source or method we use, the trends and levels in housing wealth are broadly similar.

Values of nonfarm unincorporated business assets owned by the household sector are estimated by taking as a starting point the results of the Survey of Household Finances available for 2002-2014 and subsequently upgrading the declared values to account for undervaluation and top-coding. We extend the results until the early 1980s by assuming the evolution to be similar to that of assets of nonfinancial corporations. For the public sector, we use the series of [Mas Ivars, Pérez García, et al. \(2015\)](#) for government-produced assets and add the value of the underlying land and forests.

In the second step, we compute the net financial wealth for the public, personal, and foreign sectors since the early twentieth century. For all three sectors, reconstructing financial assets and liabilities from 1970 to the present is a straightforward exercise based on figures reported in Financial Accounts by the Bank of Spain. Our main addition, as we detail below, is to provide the first complete estimate of offshore wealth owned by Spanish households. Producing a consistent estimate for the rest of the twentieth century is a far more complex process, given the lack of official estimates. Our calculations for the personal sector are based on a two-stage approach. First, we calculate the aggregate market value of each asset type, which is simpler for claims (e.g., currency, deposits and loans) assessed at their nominal value than for assets (e.g., bonds and shares) that are valued at the prevailing market prices.² The second step involves computing the share of each asset owned by households, deducting the holdings of other institutional sectors—mostly corporations or the government—using a wide variety of auxiliary accounts (e.g., financial yearbooks, balance sheets of banking and insurance companies, and government accounts).

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²Corporate shares are the assets with the value that is most sensitive to changes in market prices. Listed shares have been valued according to stock market prices, while the values of unlisted shares have been derived by applying similar valuation ratios and subsequently applying a 20% discount for illiquidity.

Estimates for the government sector before 1970 are much easier to obtain. We proxy public net financial wealth by computing the value of the asset side of all state-owned equity holdings (e.g., the public railway company RENFE) and deducting as liabilities the market values of public debt. Computing Spain’s net foreign wealth prior to 1970 cannot be performed through the census-like method, given the scarcity of sources; therefore, we calculate the current account balance and add the variation in foreign exchange reserves. This procedure is relatively widespread since a surplus in the current account makes a country a net creditor to the rest of the world, and vice versa. We perform one final correction by accounting for households’ offshore wealth. We construct our series following the methodology of [Zucman \(2013\)](#) in combination with aggregate tax records on foreign holdings by Spanish residents. Nonetheless, due to the uncertainties related to these calculations, we do not include offshore assets in our benchmark series and present them only when decomposing total financial assets and the net foreign asset position.

Following a different approach, we compute the book value of national wealth for 1900-2017 by aggregating all types of nonfinancial assets in the Spanish economy, to which we add the net foreign wealth. The estimate is obtained regardless of the sector owning these assets. We decompose them into the following groups: agricultural land, housing, subsoil assets, non-residential constructions, machinery and equipment, transport equipment, and inventories. The values of the first two are calculated through the census approach, as noted previously, and produced assets are valued using the perpetual inventory method (PIM). We are not the first to use the PIM to reconstruct the stock of produced assets in Spain, and we benefited greatly from previous analyses (e.g., [Prados de la Escosura and J. R. Rosés, 2010](#); [Mas Ivars, Perez García, and Uriel Jiménez, 2000](#); [Mas Ivars, Pérez García, et al., 2015](#)). However, our estimates are slightly different, as we use geometric patterns of depreciation, and include the most recent data on Spain’s historical national accounts from [Prados de la Escosura \(2017\)](#). We also go one step further by decomposing the value of housing and non-residential buildings between structures and the underlying land. We

do so by following the residual approach, as detailed in [Eurostat and OECD \(2015\)](#) and used in [Davis and Heathcote \(2007\)](#) for the US housing stock during 1930-2000. Using this method, we calculate the value of land as a residual by deducting the PIM estimates of the values of residential structures from the market value of the housing stock. Estimates of produced assets' values are sensitive to assumptions on depreciation rates and, therefore, so is the land residual. We use the depreciation pattern that puts us closest to official national accounts. In the appendix, we show that using substantially higher or lower depreciation rates does not alter in a significant manner the results of this paper.³

Finally, from 1995 onwards, we also calculate the book value of national wealth using a second definition that computes the balance sheet of corporations—both financial and nonfinancial entities—and adding their net wealth to the market value definition of the national wealth. Data on corporate nonfinancial assets is derived from the Central Balance Sheet Data Office of the Bank of Spain.

In addition to building sectoral balance sheets and various measures of national wealth, we also present a decomposition of the accumulation of national wealth into a volume effect (through savings) and a price effect (through capital gains or losses) in both multiplicative and additive forms. We do this by following the methodology proposed by [Piketty and Zucman \(2014\)](#) in the appendix to the cited paper, which relates the accumulation of national savings to the evolution of national wealth and obtains the capital gains component as a residual.

However, we also go one step further and perform the same decomposition for housing and non-housing wealth separately, therefore disentangling the influence of various wealth subcomponents in the aggregate. To this end, we start from the definition of national wealth as the sum of the value of domestic nonfinancial assets and the net foreign wealth,

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³The only assets that cannot be valued by either the census-like estimate or the perpetual inventory method are mineral reserves. We estimate their values through the net price method, which is a second-best procedure. However, given the low levels of natural resources in Spain (e.g., the value-added share of extractive industries has been always below 2% of GDP), any inaccuracy should have a negligible effect on the top-line estimates of national wealth.

$W_N = A^{NF} + NFW$, which we further decompose into housing and non-housing wealth, $W_N = W^H + W^{NH}$. In this expression, housing wealth is the market value of dwellings, while non-housing wealth is the sum of values of other types of capital and the net foreign wealth. Similarly, we decompose national saving into domestic investment (net of depreciation) and foreign saving, $S_N = I + S_F$, which we then decompose into housing investment and non-housing national saving, $S_N = S^H + S^{NH}$. Consequently, each component of national saving is mapped to its corresponding component in the national wealth.

We consider the multiplicative and additive accumulation models (equations 1 and 2, respectively) separately for each of these two components of national wealth. Between two given years (t and $t + 1$), these decompositions can be specified as follows:

$$W_{t+1}^i = (W_t^i + S_t^i)(1 + q_t^i) \quad (1)$$

$$W_{t+1}^i = W_t^i + S_t^i + KG_t^i \quad (2)$$

where i stands for housing or non-housing components of national wealth (W) and national saving (S). In addition, $(1 + q_t)$ and KG_t are the residual components that capture increases in the relative price of wealth with respect to consumption goods.

While the results of this study use the market value definition of national wealth, in the appendix we present the same analysis under the book value definition and the results are quite similar.

4 Results

This section documents the evolution of wealth in Spain since 1900. Consistently with the existing literature, we report most results as a share of national income. In this manner, stocks are more easily interpretable in real terms and relative to the total income of Spanish residents. We start with the evolution of personal wealth (Section 4.1) and subsequently

proceed to present the key findings on the evolution of the national balance sheet by adopting an international perspective (Section 4.2). Very detailed estimates of public wealth have also been computed, but since they hardly affect the evolution of national wealth in the long term, we do not include the respective analysis in this paper. All information on public wealth is available in the appendix.

4.1 Personal wealth

Figure 1 presents the ratio of personal wealth to national income since 1900. The results indicate that the wealth of Spanish households started at relatively high levels (600% of national income), and subsequently hovered for most of the twentieth century between four and five times the national income until the recent economic boom led this ratio to record levels of almost 800%. To understand this long-run evolution, it is useful to first consider the composition of gross assets (Figure 2, upper panel).

One of the most surprising facts is that nonfinancial assets, particularly agricultural and housing land, have always represented the bulk of households' assets. In aggregate, real assets constituted 76% of gross assets in 1900 and 69% in 2017. Behind this seeming continuity, there has been a profound transformation. In the first decades of the century, the composition of Spanish personal wealth followed the conditions of an underdeveloped economy, as agricultural land and farm capital (i.e., livestock and machinery) were the main assets that individuals owned. In fact, until the 1950s, the most important changes in the ratio of wealth to national income occurred as a by-product of the change in the relative share of agriculture in the economy and the evolution of land prices. When land prices declined in real terms (e.g., during the inflationary years of the First World War, and the 1930s), the personal wealth-to-income ratio decreased. The importance of agricultural land also explains the paradoxical result of the Civil War. When Spanish national income fell precipitously (circa 16%), the aggregate wealth remained almost constant in real terms, as destruction and losses in capital assets were compensated by the increase in land prices.

Finally, the irreversible decline in agriculture that finally occurred in Spain starting from the mid-1950s contributed to the decline of the wealth-to-income ratio.

During the golden era of the Spanish economy (1950-1973), income and wealth grew at similar high paces, and housing rapidly became the most important component of private balance sheets. From the mid-1980s, and especially during the boom after the turn of the century, housing led the growth of personal wealth to an unprecedented level of 740% in 2007. In 2017, the most recent year with available data, the ratio of personal wealth to national income stood at 619%, a level similar to that in 2004 (635%). After the most severe economic crisis in more than seventy years, the wealth of Spanish households remains at relatively high levels due to the resilience of the housing market.

As Figure 2 (upper panel) shows, it is not the replacement cost of dwellings but the value of the land underlying them that mostly determined the evolution of housing in the post-war decades. From this perspective, the evolution of Spanish household wealth over the twentieth century can be described as the transition from agricultural to residential land. This rise in housing assets' values can be related both to the structural transformation of the Spanish economy and to changes in the institutional framework. In relation to the former, the housing stock grew rapidly in the wake of the rapid urbanization process that occurred during the 1950s and 60s. Later, as the economy specialized in tourism, the housing stock grew at a higher rate than implied by demographics.

Various institutional changes also help explain the upward trend of Spanish housing prices since the middle of the twentieth century. The most important change was the abolition in the 1940s of the legal requirement that caused each building to have one single owner ([Artola Blanco, 2012](#)). Consequently, homeownership became more widespread, rising in urban areas from levels of less than 30% in 1950 to more than 80% at present. The second relevant institutional change relates to the housing tax policies promoted by Franco's regime and democratic governments, which have always included an implicit subsidy for homeownership. Spain has low levels of property taxes, as cadastral values are far below market

ones, and owner-occupied dwellings are subject to important exemptions from income tax (on capital gains if proceeds are reinvested, and on imputed rents on the primary residence since 1999; additionally, mortgage interest payments could be deducted until 2012). Although no study has aimed to quantify the long-term contribution of these policies to the increase in home prices in the case of Spain, evidence for other countries points to a very significant role (Poterba, 1984; Gruber, Jensen, and Kleven, 2020).

Another important explanation of the growth of housing wealth is related to the change in credit markets (Figure 3). By any standard, private indebtedness stood at very low levels (namely, below 20% of national income) during the first half of the twentieth century, which seems to be at odds with the fact that household balance sheets were relatively strong, and therefore individuals could have increased their leverage for investment purposes. However, the main private asset at that time (namely, agricultural land) was scarcely used as collateral to obtain loans, given the associated high transaction costs (Carmona and Simpson, 2003). The housing mortgage market was actually more dynamic, although it was mostly driven by loans extended to large urban owners. After the 1950s, there was a radical shift in credit markets, as the development of the banking sector, most importantly of savings banks, enabled broader sections of the population to obtain loans. The development of household credit thus became closely connected with the real estate cycle, as each boom (the mid-1960s, 1986-1991, and 1999-2007) fostered the growth of household debt to increasingly higher levels.

The significant weight of real assets should not conceal the equally remarkable transformation in the composition of households' financial assets (Figure 2, lower panel). Until the Civil War, debt securities were the most important claim, with a share that fluctuated from 40 to 60% of gross financial assets. This fact attests not only to the prominence of public debt and railway debentures in relation to equity shares in capital markets but also implicitly to the investment preferences of wealthy families at the time. Considering that wealth (particularly financial assets) was heavily concentrated (Alvaredo and Artola Blanco,

2017), and given that the banking system was largely underdeveloped and lacked any form of deposit insurance, it seemed normal for rich households to lend directly to the government or corporations. Unsurprisingly, high inflation since 1936 constituted a major wealth shock, as the value of most fixed income securities was rapidly wiped out.

Beginning in the 1960s, the composition of personal financial assets in Spain started to resemble the conditions of a developed country. Banking deposits became the most widespread tool for channelling households' savings, and many unincorporated businesses turned into limited-liability companies (Tafunell, 2005). Thus, by the time the Franco's regime ended in 1978, Spain started to experience a process of financialization and deregulation with three noticeable effects. First, in recent decades increasing co-movement between financial and nonfinancial assets has been observed, which followed similar trends documented on the global scale (Jordà, Knoll, et al., 2019). The process of financialization also led to an exponential rise in offshore assets. In 2012, offshore assets amounted to 195 billion euros, i.e., 23% of both national income and net personal financial wealth. This estimate is higher than 8% obtained by Zucman (2013) for all countries worldwide. In fact, the bulk in offshore assets has increased on average the wealth share of the top 1% from 22.7% to 25.7% since the mid-eighties (Martínez-Toledano, 2020). Hence, offshore wealth constitutes a non-negligible part of the portfolio of households in Spain and must be considered when analysing the long-run evolution of wealth. Third, in Spain, pension assets have had an almost residual weight until the present. The rise of an unfunded social security system since late Francoism has undoubtedly influenced households' preferences to accumulate real estate assets.

4.2 National wealth

To the best of our knowledge, this is the first study that presents results on national wealth from both book value and market value perspectives, and covers a period of over a century. Altogether, all three series evolve very similarly over this long period (Figure 4,

upper panel).⁴ The national wealth-to-income ratio followed a trend similar to that of the personal wealth-to-income ratio we described in Section 4.1 and remained in a relatively narrow range during the twentieth century—between 400 and 600%—until the real estate boom of the early 2000s led to an unprecedented rise to almost 800% in 2007, the highest value among all countries with available records since 1900. Overall, the long-term dynamics of national wealth in Spain were dictated mostly by the evolution of two real assets—agricultural land and housing—that almost invariably represented 60 to 70% of total nonfinancial assets (Figure 4, lower panel).

From an international perspective, [Piketty and Zucman \(2014\)](#) show that European economies followed a marked U-shaped evolution in their wealth-to-income ratios over the twentieth century. In contrast, in *New world* countries (i.e., Canada and the US) the trend was much smoother (fluctuating around 3 to 5 times the national income), but still followed a similar U-shaped pattern. As Figure 5 shows, Spain followed a unique path. It started from lower values than did core European countries (namely, 6 times the national income as opposed to almost 7 times), and subsequently experienced a significant but smaller decrease during the World War I years. Thereafter, and contrary to other countries, Spain’s national wealth fluctuated for the remainder of the century at relatively high values of between 4 and 5 times the national income. Only in the late 1990s did wealth-to-income ratios begin to follow the trend of fast growth, which concluded in a striking increase during the 2000s. From this perspective, a J-shaped curve may better than a U-shaped figure represent the broad evolution of Spain since 1900.⁵ Three peculiarities mark the long-run accumulation of wealth in Spain.

First, the specific asset composition of the Spanish national wealth contributes to

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⁴Given the resemblances among the three series, we will focus only on the market value series and abstract from the book value series in the following sections.

⁵Note that with the book-value wealth estimate the J-shaped pattern is less visible and it is closer to a hockey-stick pattern, fluctuating at relatively constant values of 4-to-5 times national income until 1990s, after which it also increases dramatically. The reasons for the divergence between the market and the book value series during the first decades of the 20th century are mainly due to productive capital. For a detailed explanation see appendix (pages 66-67).

explaining this different evolution. Figure 6 depicts the evolution of the values of agricultural land (upper panel) and housing (lower panel) as a percentage of national income. The first figure shows that the value share of agricultural land in Spain ultimately followed a long-term decline similar to changes in other European economies, but did so with some delay that was exacerbated by the partial ruralization in the 1940s. This evolution is consistent with the latecomer dimension of Spain, with agriculture playing a large role well into the twentieth century. The second figure shows that housing wealth had a similar weight to that in other economies during the first half of the century, but rose much faster beginning in the 1960s, reaching at the peak of the housing boom the highest ratio among countries with available data. Indeed, the evolution of these two assets determined the high values for Spain in the middle decades of the twentieth century, a period in which these ratios reached their lowest levels in other advanced economies. Overall, these results indicate that land has played a much more significant role in the evolution of wealth in Spain compared to other advanced countries since both agricultural and housing wealth are largely driven by this non-produced element.

Second, Spain was heavily dependent on foreign finance since the late 1990s. In fact, its decline in net foreign assets was one of the largest among developed countries (Figure 7, upper panel). Whereas for most developed countries the net foreign asset position has not deteriorated by more than 50% of national income in the last three decades, in Spain it surpassed more than 100% of national income in the 2000s. As Figure 7 (upper panel) shows, Greece and Portugal experienced similar declines in net foreign assets relative to national income. However, as we document in Section VI, the factors driving this decline in Spain are very different from those in Greece and Portugal. Furthermore, as Figure 7 (bottom panel) shows, our calculations for households' assets in tax havens can have a significant impact on Spain's international position, reducing it by one quarter.

Third, Spain also exhibits some striking differences in the decomposition of the long-term accumulation of national wealth into new savings (the volume effect) and changes in

relative prices (the capital gains effect). Table 1 compares the decomposition of national wealth accumulation into volume and capital gains effects during three periods (1900-2016, 1900-1950, and 1950-2016) and for countries with available data (France, the UK, Germany, Sweden, and the US). In the longest period (1900-2016), volume effects were the dominant force in total wealth accumulation for all countries. In Spain, this force was relatively more important over this period, with capital gains explaining 46% of the total accumulation of wealth in real terms.

However, it seems preferable to use 1950 as a cut-off point, given that most wealth-to-income ratios approached their lowest levels in that year. From 1950 to 2016, Spain exhibits the most remarkable differences. Savings explain a large part of wealth accumulation in France, Germany, Sweden, and the US, while capital gains are only a key driver of the accumulation of national wealth in the UK. Spain stands out in this respect because capital gains account for 52% of the total accumulation of national wealth.

To provide a more in-depth analysis, Table 2 shows a detailed decomposition specific to the Spanish case.⁶ We divide the national wealth among housing, other types of capital and foreign wealth and subsequently calculate the saving and capital gains rates for the three subsectors. From 1950 to 2017, Spain experienced a period of rapid growth and industrialization, which occurred together with high rates of saving and consequently a new wave of investment. In this context, asset price variations in the housing market played a fundamental role in the growing value of national wealth, to the point that rising housing prices explain 70% of capital gains observed between 1950 and 1980 and 82% of those between 1980 and 2017. Regardless of which metric is chosen, housing has become the most important driver of Spain's balance sheet.

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⁶We present this analysis for the market value-based national wealth series, the results for which are practically identical to those for the book value-based series.

5 International capital flows, credit standards, and housing prices

In the previous section, we showed that in the 2000s wealth increased in Spain much faster than did income and that this increase was mainly driven by higher urban land values. This trend was unique relative to the country’s history and to the evolution of wealth-income ratios in other developed countries. As previously documented in the literature review, explaining this unique path is particularly challenging since there are many potential mechanisms that could have led to this rise. In this section, we build on the studies by [Bernanke \(2005\)](#), [Himmelberg, Mayer, and Sinai \(2005\)](#), [Favilukis et al. \(2012\)](#) and [Ferrero \(2015\)](#) examining the US and analyse the relationship between foreign capital flows, the growth in household credit and the evolution of the real estate market. We believe this channel to be of particular interest, given that the unprecedented growth of Spain’s wealth-to-income ratio in the 2000s due to rising urban land values occurred at the same time the country became heavily dependent on foreign finance. We first perform a descriptive analysis, and subsequently complement it with an empirical analysis, following [Favilukis et al. \(2012\)](#).

When it comes to analysing international capital flows, Spain is in a unique position if we compare it to other European countries. Within the EU, together with Greece and Portugal, Spain has experienced the largest deterioration in its net foreign asset position in the years preceding the crisis. However, the factors driving the growth of Spain’s foreign liabilities are clearly distinctive. According to the IMF’s data on international investment positions, in Greece and Portugal the growth of public debt explained the increase in the negative foreign asset position, while in Spain this rise was mainly driven by the increase in private debt.

Table 3 (upper panel) shows that from the late 1990s to 2007, Spanish financial institutions—mostly commercial banks—were the main actors increasing foreign funding.

The increase in foreign liabilities of Spanish monetary institutions occurred mainly through the issuance of banks' debt securities rather than through other sources of funding (e.g., deposits, loans or equity) (Table 3 (bottom panel)). Towards the end of the housing boom, private banks suffered a sharp reduction in their net foreign liabilities, as some of their traditional funding channels closed, and they had to resort to funding provided through the Bank of Spain and the ECB's TARGET system (Whelan, 2014). Since then, private deleveraging and the growth in public debt have made the government sector the main contributor to Spain's negative foreign position.

During the 2000s, two important and deeply interrelated changes took place in the Spanish mortgage market. The first change was that banks began to use new sources of funding to fuel credit issuance. Traditionally, banks relied solely upon deposits to fund mortgages, but from the start of the 2000s, they increasingly resorted to the issuance of bonds secured by their mortgage portfolios. This process was different from the rise in asset-backed securities that occurred at the same time in the US mortgage market, as Spanish banks mostly issued covered bonds, a type of debt that is guaranteed both by a special pool of mortgages and by the issuer. Figure 8 (upper panel) summarizes this fundamental change by relating the value of mortgage securities (i.e., covered bonds and other debt assets) to the outstanding volume of mortgages held by financial institutions. Securitization rose from almost negligible levels in 1996 (3%) to very high levels in 2012 (60%), given that overcollateralization requirements would imply a maximum of 80%.

The other major change occurred as Spanish monetary institutions became more integrated in international capital markets after the country entered the Eurozone. Foreign investors became the main buyers of this unprecedented volume of Spanish financial debt securities, as this channel seemed to perfectly suit the interests of all parties involved. Spanish banks obtained funding for longer time horizons, and foreigners could invest in a safe asset with no currency risk to earn an attractive yield. This last phenomenon is shown in Figure 8 (bottom panel), which compares the spreads of Spanish public debt and covered

bonds versus the equivalent German assets. Although both trends evolve very similarly in the long term, this should not conceal the fact that Spanish covered bonds offered an extra 0.5% return versus equivalent German bonds over the period of 2002-2007.

Figure 9 summarizes these changes by examining the balance sheet of Spanish monetary institutions. On the asset side, the share of households' loans (mainly mortgages) as a share of total financial assets rose steadily from 16% to 28%, while on the liabilities side, debt securities issued by Spanish banks and owned by foreign investors increased from 0% to almost 10% as a share of total liabilities. The striking resemblance in the magnitudes of these two trends serves as a starting point for analysing the influence of foreign capital flows on housing prices. In the US, Favilukis et al. (2012) investigate the importance of foreign credit in explaining the recent housing price cycle. Using time series data, the authors isolate the influence of international lending on housing prices while controlling for the three most important factors that could potentially affect both housing prices and foreign credit: local demand for mortgage credit, monetary conditions and lending standards. Once these alternative factors are taken into account, they observe that the supply of international credit plays a negligible role in explaining variations in the US real estate values. They rationalize this finding by showing that the rise in the US international indebtedness during the housing up-and-down moves was almost entirely driven by US Treasury and agency debt. This is in stark contrast with the Spanish experience that was led by mortgage securities, as we showed above.

We follow closely the two-step approach of Favilukis et al. (2012) and test if the international supply of credit influenced Spanish real estate values.⁷ First, we investigate the pure correlations between credit standards, international capital flows, and interest rates with housing prices over the recent housing price cycle. In the second set of regressions, we examine the role played by supply-side factors (i.e., real interest rates, lending standards and

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⁷Credit demand, monetary policy and lending standards have already been observed to be relevant factors driving the recent Spanish housing boom and bust (e.g., González and Ortega, 2013; Sanchís-Guarner, 2017; Jordà, Schularick, and Taylor, 2015; Akin et al., 2014).

international capital flows) in explaining housing prices, after having excluded the influence of credit demand on the growth in the supply of international credit. In these specifications, the main explanatory variable of interest is the residual of a regression of international capital flows on credit demand together with control variables for credit standards and real interest rates. The rationale behind this approach is to capture variation in the supply of foreign lending that is independent from the state of the economy (i.e., changes in credit demand) or from expectations about future economic conditions (i.e., changes in real interest rates). While this time series approach cannot fully exclude the presence of omitted variables, we indeed account for the factors that the literature identifies as the most relevant to explaining the supply of international credit. Contrary to the US case, we observe that in Spain foreign capital flows influence housing prices, as do credit demand, lending standards and interest rates.

We use as the main measure of international capital flows the growth in net foreign holdings of debt securities issued by Spanish monetary institutions, measured as a share of the GDP.⁸ To measure credit standards, we use a standardized version of the loan margin for households purchasing dwellings that is reported by Spanish banks in the Bank Lending Survey (BLS). A positive value of this variable indicates an easing of credit conditions. To measure credit demand, we use the net percentage of banks that report having experienced an increase in households' demand for mortgage credit in the previous quarter in the BLS. For real interest rates, we use the nominal ten-year rate of the Spanish public debt obtained from the Bank of Spain statistics, less the expected inflation rate reported by a panel of experts from FUNCAS. Finally, nominal housing prices are based on property appraisals, and the series is the same as that used to construct our housing wealth series. We convert the series into constant prices using the inflation rate from the Spanish National Institute of

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⁸Nonetheless, we also consider the correlations of housing prices with two other more common measures of capital flows: the current account balance and the net foreign asset position. These two metrics exhibit lower correlations (see Table 6 in appendix). This finding confirms observations of [Obstfeld \(2012\)](#) and [Lane and McQuade \(2014\)](#) that the current account is not the best indicator of capital flows.

Statistics. Observations are available on a quarterly basis and range from the last quarter of 2002 to the last quarter of 2017.⁹

Table 4 (columns 1-4) reports the results of regressions of real housing price growth on credit standards, real interest rates and the growth in net foreign holdings of debt securities. Columns 1-3 show that all three variables play a role in explaining housing price growth and that real interest rates are the most important driver. What is important for our analysis is that international capital flows are significant in all regressions, even after controlling for credit standards and/or real interest rates (column 4). These results contrast with those of Favilukis et al. (2012) for the US, where international capital flows do not seem to affect home prices.

In columns 5 and 6, our main explanatory variable of interest is the residual of the regression of international capital flows on credit demand. We continue to use as additional explanatory variables our measure of credit standards and the real ten-year public debt yield. Note that isolating credit demand from the foreign lending effect is quite relevant in the Spanish context during the 2000s, as a large part of the rise in housing prices was driven by the boom in foreign-born population (González and Ortega, 2013; Sanchís-Guarner, 2017). Column 5 shows that the residual capital flow measure remains significant and explains by itself almost the same amount of variation in the housing price growth, approximately 15% (column 5), as that explained by the raw series of the growth in net foreign holdings of debt securities (20%, column 3). The results also remain significant after all other variables are included as additional regressors (column 6).

Even though identification is a challenge in this type of macroeconomic time series approach, the evidence presented supports the hypothesis that international capital flows were significantly related to housing prices in Spain during the 2000s. Hence, together with changing demographics and monetary policy, the access to international credit by Spanish credit institutions seems to have played a significant role in the evolution of the real estate

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⁹See the companion appendix covering methodology for details on the series.

market in Spain.

6 Conclusion

This study reconstructs Spain’s national balance sheet from the beginning of the twentieth century to the present under both the market value and book value definitions. We also present a new asset-specific decomposition of long-run movements in the value of wealth, housing and other assets into a volume effect (through savings) and a price effect (through capital gains or losses).

Overall, the national wealth-to-income ratio followed a J-shaped curve during the twentieth century, and reached in 2007 the highest value among all countries with available records since 1900. Another peculiarity of Spain is that agricultural land and housing have always represented the most important components of national and personal sector balance sheets. Contrary to other developed economies, in Spain price variations in these two assets played a significant role in shaping wealth accumulation and can therefore explain why capital gains constituted a fundamental driver of wealth accumulation in the very long term. The increase in asset prices became more important during 1950-2017, especially due to housing wealth that accounted for 83% of total capital gains. We also present new descriptive and empirical evidence supporting the hypothesis that international capital flows were significantly related to the housing boom and bust of the early 2000s.

Our findings have broader implications for policymaking. First, the dramatic variation in Spain’s land prices has been at the core of the Spanish and the European economic crises over the preceding decade. Had policymakers gained access to the wealth series and the saving-price decomposition of this paper, they could have observed that Spain was experiencing capital gains of an unprecedented magnitude. Consequently, given that housing is a complex asset to measure, as it combines a produced element (dwellings) with a non-produced one (land), it seems highly recommendable that authorities collect more

specific information (statistics on prices, developable land, surveys of household portfolios, etc.) on a more regular basis.

Our results also point to a direct link between the international supply of capital flows and the make-up of the recent Spanish housing boom and bust. The economic crisis of 2007-2013 exposed serious flaws in the euro's original design, which had provided for rapid convergence in interest rates among country members and a rapid increase in cross-border positions, yet also led to important misallocations in capital investment and asset pricing. In the future, stronger monitoring of international capital markets and their interaction with local asset values is highly advisable.

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Figures and Tables

Figure 1: *Personal wealth. Spain, 1900-2017*

Notes: This figure depicts personal wealth as a fraction of national income during 1900-2017 in Spain. Personal wealth is the sum of values of nonfinancial and financial assets less that of financial liabilities for households and the NPISH sector. Computations were made using National Accounts and other sources. Due to the lack of data for the Civil War period, results for 1936-1941 are linearly interpolated. See Table 1 in the data appendix.

(a) *Composition of gross personal assets. Spain, 1900-2017*

(b) *Composition of personal financial assets. Spain, 1900-2017*

Figure 2: *Portfolio composition of the personal sector, 1900-2017*

Notes: The top figure (panel a) displays the composition of gross personal assets as shares of total gross personal assets during 1900-2017 in Spain. Gross personal assets are decomposed into residential buildings (valued as the replacement cost of the structure), land underlying residential buildings, agricultural land, unincorporated business assets, and financial assets. The bottom figure (panel b) displays the composition of personal financial assets as shares of total personal financial assets during 1900-2017 in Spain. Personal financial assets are composed of debt securities, cash and deposits, equity shares, insurance claims, loans, and offshore assets. Note that the asset category “other” is excluded from this graph since we have the data for this series only from the 1970s onwards. Due to the lack of data for the Civil War period, results for 1936-1941 are linearly interpolated. See Tables 3.f and 3.g in the data appendix.

Figure 3: *Personal liabilities. Spain, 1900-2017*

Notes: This figure depicts personal financial liabilities as a percentage of national income during 1900-2017 in Spain. Computations were made using National Accounts and other sources. Due to the lack of data for the Civil War period, results for 1936-1941 are linearly interpolated. See Table 3.a in the data appendix.

(a) *Book value and market value of national wealth, 1900-2017*

(b) *Composition of domestic nonfinancial assets, 1900-2017*

Figure 4: *National wealth and domestic nonfinancial assets, 1900-2017*

Notes: The top figure (panel a) compares national wealth at market and book values as a percentage of national income during 1900-2017 in Spain. National wealth at market value (blue line) is the sum of personal and government net worth. In contrast, national wealth at book value (green line) is the sum of values of nonfinancial assets of all domestic sectors and the net foreign wealth. The difference between both definitions can be traced to the corporate sector, particularly to the mismatch (or residual wealth) that exists between the corporate book value of equities and the market value. Specifically, adding corporate wealth to the market value of national wealth (orange line) equals the book value definition. The bottom figure (panel b) depicts the composition of domestic nonfinancial assets as a fraction of national income during 1900-2017 in Spain. Domestic nonfinancial assets are decomposed into buildings (valued as the replacement cost of the structure), land underlying buildings, natural resources (agricultural land and subsoil assets), and other produced assets (buildings and constructions, machinery and equipment, and transport equipment). Due to the lack of data for the Civil War period, results for 1936-1941 are linearly interpolated. See tables 3.a and 3.c in the data appendix.

Figure 5: *International comparison of national wealth, 1900-2017*

Notes: This figure depicts national wealth as a percentage of national income during 1900-2017 in Spain, France, Germany, Sweden, the UK, and the US. The series for France, Germany, Sweden, the UK and the US are taken from the World Inequality Database. See Table 5.b in the data appendix.

(a) *International comparison of agricultural land, 1850-2017*

(b) *International comparison of housing wealth, 1900-2017*

Figure 6: *International comparison of agricultural land and housing wealth, 1900-2017*

Notes: The top figure (panel a) depicts the value of agricultural land as a percentage of national income during 1850-2017 in Spain (data only available since 1986), France, Germany, Sweden, and the UK. The series for France, Germany, and the UK are taken from [Piketty and Zucman \(2014\)](#) and are linked to the latest updates of these data in the World Inequality Database. Data for Sweden originate from [Waldenström \(2017\)](#) and are linked to the latest updates made by the author at the World Inequality Database (see Table 5.e in the data appendix). The bottom figure (panel b) depicts housing wealth as a percentage of national income during 1900-2017 in Spain, Australia, Canada, France, Germany, Italy, Japan, Sweden, the UK, and the US. Data for all series are from the World Inequality Database except for Spain; data for the latter represents our own calculations. All series incorporate the value of the edification and the value of the land underlying the edification. See Table 5.f in the data appendix.

(a) *International comparison of the net foreign asset position, 1950-2017*

(b) *Net foreign asset position in Spain, 1850-2017*

Figure 7: *Long-term evolution of the net foreign asset position*

Notes: The top figure (panel a) depicts the net foreign asset position as a percentage of national income during 1950-2017 for Spain, Australia, Canada, France, Germany, Greece, Italy, Japan, Portugal, Sweden, the UK and the US. Data are from the World Inequality Database, except for Greece and Portugal, data for which were obtained from the Eurostat. See Table 5.d in the data appendix. The bottom figure (panel b) displays the net foreign asset position in Spain during 1850-2017 together with the net foreign asset position corrected for offshore assets for the subperiod of 1900-2017. The net foreign asset position was calculated from 1970 onwards using the Financial Accounts of the Bank of Spain and for the historical period by revising the data of [Prados de la Escosura and J. R. Rosés \(2010\)](#) on the current account balance. Offshore assets are derived using mainly the data of [Zucman \(2013\)](#); [Zucman \(2014\)](#); [Zucman \(2015\)](#) and statistics gathered since 2012 by tax authorities on the assets held abroad by Spanish residents. See Table 3.b in the data appendix.

(a) *Mortgage securities as a share of mortgage loans, Spain, 1996-2017*

(b) *Yield spread between German and Spanish debt securities, 1999-2018*

Figure 8: *Market for debt securities in Spain*

Notes: The top figure (panel a) depicts the value of mortgage securities (covered bonds and other assets) issued by Spanish banks as a percentage of the total volume of mortgages held by these financial institutions. The bottom figure (panel b) displays the yield spread between Spanish and German debt securities during 1999-2018. The black line traces the spread between 10-year bonds of both governments. The grey line shows the spread between covered bonds issued by monetary institutions of these two countries. Information on government bonds' yields has been taken from the respective central banks, while data on covered bond yields are derived from Markit iBoxx Indices.

Figure 9: *Selected assets and liabilities of Spanish monetary financial institutions*

Notes: This figure displays two key components of the balance sheet of Spanish Monetary Financial Institutions. First, the share of loans granted to households as a percentage of total financial assets (LHS). Second, the share of debt securities issued by Spanish Monetary Financial Institutions and owned by non-residents, as a percentage of liabilities plus shareholders' equity (RHS). All data is derived from the Bank of Spain's Financial Accounts.

*Accumulation of national wealth in
Spain, the US, the UK, Germany, France, and Sweden, 1900-2016*

	1900-2016			1900-1950			1950-2016		
	Real growth rate of na- tional wealth	Savings- induced wealth growth rate	Capital gains- induced wealth growth rate	Real growth rate of na- tional wealth	Savings- induced wealth growth rate	Capital gains- induced wealth growth rate	Real growth rate of na- tional wealth	Savings- induced wealth growth rate	Capital gains- induced wealth growth rate
	g_w	$g_{ws} =$ s/β	q	g_w	$g_{ws} =$ s/β	q	g_w	$g_{ws} =$ s/β	q
Spain	2.8%	1.4% 54	1.3% 46	0.9%	0.7% 87	0.1% 13	4.1%	1.9% 48	2.1% 52
United States	3.0%	2.2% 75	0.7% 25	2.9%	2.3% 81	0.5% 19	3.1%	2.2% 70	0.9% 30
United Kingdom	1.6%	1.2% 76	0.4% 24	-0.4%	0.6% -150	-1.1% 250	3.3%	1.7% 53	1.5% 47
Germany	1.9%	2.3% 116	-0.3% -16	-0.7%	0.5% -83	-1.2% 183	3.9%	3.6% 92	0.3% 8
France	2.1%	1.9% 88	0.3% 12	-0.6%	0.3% -52	-0.8% 152	4.2%	3.1% 74	1.1% 26
Sweden	3%	2.8% 93	0.2% 7	2.4%	1.2% 48	1.2% 52	3.5%	4.1% 115	-0.5% -15

Table 1: *Accumulation of national wealth in Spain, the US, the UK, Germany, France, and Sweden, 1900-2016 (multiplicative decomposition)*

Notes: This table illustrates the accumulation of national wealth in Spain, the US, the UK, Germany, France, and Sweden during 1900-2016. Savings-induced wealth growth includes war destructions. Computations were made using national accounts and other sources. The results for the US, the UK, Germany, and France originate from [Piketty and Zucman \(2014\)](#), and for Sweden, from [Waldenström \(2017\)](#). The small numbers below the savings and capital gains growth rates are the percentages of each in the total growth rate. Results for the US cover the period until 2015. Results for Spain cover the period until 2017, to make them comparable with all other calculations in both the paper and appendix that extend until 2017. Results obtained for periods extending until 2016 or 2017 are virtually identical.

<i>Accumulation of national wealth in Spain, 1900-2017</i> (Additive decomposition)						
	Savings (% total cumulative net savings)			Capital gains (% total capital gains)		
	Housing	Other types of capital	Foreign	Housing	Other types of capital	Foreign
1900-1950	34%	64%	2%	49%	8%	43%
1950-2017	57%	79%	-36%	80%	21%	-1%
1950-1980	42%	93%	-35%	70%	-1%	31%
1980-2017	63%	73%	-36%	82%	28%	-10%

Table 2: *Accumulation of national wealth in Spain, 1900-2017 (Additive decomposition)*

Notes: This table illustrates the accumulation of national wealth in Spain during 1900-2017 using an additive decomposition. Savings include war destructions. National wealth is decomposed into housing, other types of capital, and foreign wealth. The table shows that, e.g., housing accounts for 34% of total cumulative net savings over 1900-1950.

<i>Net foreign asset position of the Spanish economy by institutional sector</i>								
	National Economy	Nonfinancial corpora- tions	Financial institu- tions	<i>incl. the Central Bank</i>	<i>incl. Other monetary financial institu- tions (OMFIs)</i>	<i>incl. Other financial institu- tions</i>	General govern- ment	Households and NPISHs
1997	-28%	-24%	7%	13%	-11%	4%	-17%	6%
2002	-48%	-34%	4%	5%	-22%	20%	-26%	8%
2007	-99%	-52%	-38%	6%	-45%	1%	-17%	9%
2012	-111%	-43%	-41%	-27%	-16%	3%	-33%	6%
2017	-98%	-51%	-9%	-20%	-15%	26%	-51%	13%

(a) *Net foreign asset position of the Spanish economy by institutional sector*

<i>Net foreign asset position of the Spanish economy by asset type</i>							
	National Economy	Currency and deposits	Debt securities	Loans	Equity and in- vestment funds	Insurance, pension and stan- dardized guarantee schemes	Other accounts
1997	-28%	0%	-1%	-4%	-24%	0%	0%
2002	-48%	-18%	1%	-13%	-19%	0%	1%
2007	-99%	-18%	-45%	-19%	-15%	0%	-1%
2012	-111%	-48%	-41%	-24%	-1%	0%	4%
2017	-98%	-43%	-41%	-17%	0%	0%	2%

(b) *Net foreign asset position of the Spanish economy by asset type*

Table 3: *Net foreign asset position of the Spanish economy (as a percentage of national income), 1997-2017*

Notes: This table decomposes Spain's net foreign asset position in five benchmark years. Panel a presents the net foreign assets of the four main institutional sectors and further decomposes the financial sector into three subsectors. Panel b presents the net foreign position according to the net positions held by Spanish residents in six asset classes. Data are derived from the financial accounts compiled by the Bank of Spain.

	(1)	(2)	(3)	(4)	(5)	(6)
CS (Margin)	0.008** (2.623)			0.002 (0.735)		0.002 (0.919)
rr10yr		-0.010*** (-4.778)		-0.008*** (-3.837)		-0.009*** (-3.735)
Δ ND/GDP			0.182*** (2.931)	0.113** (2.298)		
Res. CD					0.159** (2.495)	0.103** (2.093)
Constant	0.000 (0.049)	0.019*** (2.695)	-0.001 (-0.329)	0.014** (2.073)	0.000 (0.023)	0.016** (2.185)
R-squared	0.124	0.398	0.200	0.472	0.145	0.460

Table 4: *Quarterly regressions of real housing price growth on international capital flows growth, credit standards and real interest rates, 2002-2017*

Notes: This table presents the results of quarterly regressions of real housing price growth on credit standards, real interest rates and the growth in net foreign holdings of debt securities. To measure international capital flows, we use the growth in net foreign holdings of debt securities issued by Spanish monetary institutions, excluding the Bank of Spain, measured as a share of GDP (Δ ND/GDP). For credit standards (CS), we use the loan margin reported by Spanish banks in the Bank Lending Survey (BLS) compiled by the Bank of Spain. This margin is specific to loans extended to households for the purchase of dwellings and should be understood as a spread over the relevant market reference rate (e.g., EURIBOR, LIBOR or the interest rate swap of the corresponding maturity for fixed-rate loans), depending on the characteristics of the loan. The survey reports the net percentage of banks that claim to have higher margins. A positive value of this variable therefore indicates a tightening of credit conditions, while a negative value indicates an easing. We standardize the credit standards variable by dividing by the standard deviation and subtracting its mean based on data for the full sample. For real interest rates (rr10yr), we use the nominal ten-year rate of the Spanish public debt, obtained from the Bank of Spain statistics, less the expected inflation rate reported by a panel of experts from FUNCAS. Nominal housing prices are based on property appraisals, and the series is included in the housing market indicators released by the Bank of Spain. We convert the series into constant prices using the inflation rate data from the Spanish National Institute of Statistics. The credit demand variable (CD) we use is that included in the BLS compiled by the Bank of Spain. This measure is specific to changes in demand for loans granted to households for the purchase of dwellings. The respective survey tracks the net percentage of banks that report having experienced an increase in the demand for loans in the previous quarter. A positive value of this variable therefore indicates an increase in demand, while a negative value indicates a decrease. We standardize the credit demand variable by dividing by the standard deviation and subtracting its mean based on data for the full sample. Res. CD is thus the residual variable of a regression of our measure of international capital flows (Δ ND/GDP) on our measure of credit demand (CD). Observations are available on a quarterly basis and range from the last quarter of 2002 to the last quarter of 2017. Hence, all regressions have 61 observations in total. Newey-West standard errors using four lags are used and t-statistics are reported in parentheses.